Korea Western Power Co., Ltd. and its subsidiaries

Consolidated financial statements for the year ended December 31, 2019 with the independent auditor's report

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Independent auditor's report

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Independent auditor's report

The Shareholder and Board of Directors Korea Western Power Co., Ltd.

Opinion

We have audited the consolidated financial statements of Korea Western Power Co., Ltd. (the "Company") and its subsidiaries (collectively referred to as 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 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.

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

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 accounts of which accounting treatment is 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.

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.



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 Joung 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 aciiing consolidated financial statements and may result in modifications to this report.

Korea Western Power Co., Ltd. and its subsidiaries

Consolidated financial statements for the years ended December 31, 2019 and 2018

"The accompanying consolidated financial statements, including all footnotes and disclosures, have been prepared by, and are the responsibility of, the Group."

Kim, Byeong Sook Chief Executive Officer Korea Western Power Co., Ltd.

KOREA WESTERN POWER CO., LTD. AND ITS SUBSIDIARIES Consolidated Statements of Financial Position

As of December 31, 2019 and 2018

In millions of won	Notes	2019	2018
Assets			
Cash and cash equivalents	6,7,38 ₩	61,301	67,026
Current financial assets	6,7,10,11,38,39	54,487	72,210
Trade and other receivables, net	6,8,38,39	559,154	593,436
Inventories	12	252,592	411,900
Current non-financial assets	13	55,433	81,548
Current tax assets	35	20,627	19,512
Assets held for sale	40	481	747
Total current assets	_	1,004,075	1,246,379
Non-current financial assets	6,9,10,11,38,39	273,523	258,461
Non-current trade and other receivables, net	6,8,38,39	6,949	2,404
Property, plant and equipment, net	16,18,40	8,831,685	8,012,878
Intangible assets, net	17	43,620	19,381
Investments in associates and joint ventures	15	299,197	321,995
Non-current non-financial assets	13	22,835	9,798
Deferred tax assets	35	604	386
Total non-current assets	_	9,478,413	8,625,303
Total assets	w _	10,482,488	9,871,682

(Continued)

Consolidated Statements of Financial Position, Continued

As of December 31, 2019 and 2018

In millions of won	Notes	2019	2018
Liabilities			
Trade and other payables	6,18,19,38,39 W	395,305	422,654
Current financial liabilities	6,10,20,21,38,39	830,499	767,965
Current tax liabilities		74	2,849
Current non-financial liabilities	24	16,389	13,135
Current provisions	23	56,920	32,759
Total current liabilities	_	1,299,187	1,239,362
Non-current trade and other payables	6,18,19	680,727	-
Non-current financial liabilities	6,10,20,21,38,39	4,303,887	4,337,323
Non-current non-financial liabilities	24	643	311
Employee benefits obligations, net	22,26	99,311	82,374
Deferred tax liabilities	35	254,395	312,436
Non-current provisions	23,42	6,216	84
Total non-current liabilities	_	5,345,179	4,732,528
Total liabilities		6,644,366	5,971,890
Equity			
Contributed capital	25	1,272,898	1,272,898
Retained earnings	26	2,528,042	2,572,149
Other components of equity	28	37,092	48,497
Equity attributable to owners			_
of the parent		3,838,032	3,893,544
Non-controlling interests	_	90	6,248
Total equity	_	3,838,122	3,899,792
Total liabilities and equity	₩ <u></u>	10,482,488	9,871,682

The accompanying notes are an interal part of the consolidated financial statements.

KOREA WESTERN POWER CO., LTD. AND ITS SUBSIDIARIES Consolidated Statements of Comprehensive Income (Loss) For the years ended December 31, 2019 and 2018

In millions of won, except earnings per share information	Notes		2019	2018
Sales	5,29,39	W	4,468,579	4,869,158
Cost of sales	36,39	•••	(4,297,985)	(4,632,109)
Gross profit	20,25	_	170,594	237,049
Selling and administrative expenses	30,36		(95,893)	(96,488)
Operating profit	,	_	74,701	140,561
Other non-operating income	31		5,062	4,725
Other non-operating expenses	31		(8,044)	(6,580)
Other income (loss), net	32		(3,514)	17,914
Finance income	6,10,33		96,549	91,571
Finance expenses	6,10,34		(249,742)	(215,155)
Loss on valuation of investments in associates and joint ventures,			, , ,	, , ,
net	15		(29,811)	(36,910)
Loss before income tax		_	(114,799)	(3,874)
Income tax benefit (expense)	35		68,182	(30,947)
Net loss for the year		_	(46,617)	(34,821)
Other comprehensive income (loss), net of tax: Items that are not subsequently reclassified to profit or loss	22,28	_		
Remeasurements of defined benefit plans, net of tax			2,920	(4,556)
Share of other comprehensive income (loss) of associates and joint ventures, net of tax			(297)	870
Net change in non-current financial assets at fair value through other comprehensive income, net of tax			(26,053)	69,643
Items that are subsequently reclassified to profit or loss Net gain on cash flow hedges	10,28		3,142	8,517
Exchange differences on translation of foreign operations, net of tax			1,570	(2,381)
Share of other comprehensive income of associates and joint ventures, net of tax			3,867	9,123
Total other comprehensive income (loss), net of tax		_	(14,851)	81,216
Total comprehensive income (loss) for the year		w -	(61,468)	46,395
Total comprehensive income (1888) for the year		'' -	(01,100)	10,575
Net loss for the year attributable to:				
Owners of the parent		₩	(46,730)	(34,811)
Non-controlling interests			113	(10)
		₩	(46,617)	(34,821)
Total comprehensive income (loss) attributable to:				
Owners of the parent		W	(55,512)	46,408
Non-controlling interests			(5,956)	(13)
		W	(61,468)	46,395
		_		
Loss per share Basic loss from continuing operations (Korean won)	37	₩	(1,402)	(1,044)
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The accompanying notes are an interal part of the consolidated financial statements.

KOREA WESTERN POWER CO., LTD. AND ITS SUBSIDIARIES Consolidated Statements of Changes in Equity For the years ended December 31, 2019 and 2018

In millions of won		Equity	attributable to	Equity attributable to owners of the parent	nt		
	\mathbf{C}	Contributed capital	Retained earnings	Other components of equity	Subtotal	Non- controlling interests	Total equity
D. L	111	1 272 808	0 572 140	78 407	3 803 544	8769	2 800 702
Datance as of sanuary 1, 2017 Total comprehensive loss for the year:	ŧ	1,2/2,6/0	7,717,7	10,55	110,000,0	0,77	2,1,7,0,0
Net loss for the year		ı	(46,730)	ı	(46,730)	113	(46,617)
Net change in non-current financial assets at fair value through other					,		
comprehensive income, net of tax		1	1	(20,355)	(20,355)	(5,698)	(26,053)
Net gain on cash flow hedges		1	•	3,142	3,142	ı	3,142
Remeasurements of defined benefit plans, net of tax		ı	2,920	1	2,920	ı	2,920
Share of other comprehensive income of associates and joint ventures,							
net of tax		ı	(297)	3,867	3,570	•	3,570
Exchange differences on translation of foreign operations, net of tax		ı		1,941	1,941	(371)	1,570
Transaction with owners of the parent recognized directly in							
equity:							
Changes in the scope of consolidation		ı	1	ı	1	(302)	(302)
Capital increase		1	1	1	1	100	100
Balance as of December 31, 2019	*	1,272,898	2,528,042	37,092	3,838,032	06	3,838,122

(Continued)

KOREA WESTERN POWER CO., LTD. AND ITS SUBSIDIARIES Consolidated Statements of Changes in Equity, Continued For the years ended December 31, 2019 and 2018

In millions of won		Equity	attributable te	Equity attributable to owners of parent			
				Other		Non-	
	Contributed		Retained	components of		controlling	
	capital		earnings	equity	Subtotal	interests	Total equity
Ralance as of January 1 2018	XX 1 272 898	868	<i>C9C</i> 689 <i>C</i>	(860.98)	3 876 132	6 261	3 882 393
policy	,	,	380	(380)	1 1	1	
Total comprehensive income for the year:				,			
Net loss for the year			(34,811)	•	(34,811)	(10)	(34,821)
Net change in non-current financial assets at fair value through other							
comprehensive income, net of tax		,	ı	69,643	69,643	1	69,643
Net gain on cash flow hedges			ı	8,517	8,517	ı	8,517
Remeasurements of defined benefit plans, net of tax			(4,556)	1	(4,556)	ı	(4,556)
Share of other comprehensive income of associates and joint ventures,							
net of tax		,	870	9,123	9,993	1	9,993
Exchange differences on translation of foreign operations, net of tax			ı	(2,378)	(2,378)	(3)	(2,381)
Transactions with owners of the parent recognized directly in							
equity:							
Dividends paid		1	(28,996)	1	(28,996)	1	(28,996)
Balance as of December 31, 2018	₩ 1,272,898	868,	2,572,149	48,497	3,893,544	6,248	3,899,792

The accompanying notes are an interal part of the consolidated financial statements.

Consolidated Statements of Cash Flows

For the years ended December 31, 2019 and 2018

In millions of won		2019	2018
Cash flows from operating activities			
Net loss for the year	₩	(46,617)	(34,821)
Adjustments to reconcile net loss for the year to net cash flows			
provided by operating activities:			
Income tax expense (benefit)		(68,182)	30,947
Depreciation		829,336	631,795
Amortization of intangible assets		5,621	4,224
Retirement benefits		33,529	20,245
Interest expenses		148,019	139,150
Interest income		(6,677)	(6,496)
Dividend income		(14,052)	(6,510)
Loss on disposal of property, plant and equipment		7,050	9,141
Gain on disposal of property, plant and equipment		(288)	(32)
Loss on disposal of intangible assets, net		-	5
Impairment loss on property, plant and equipment		6,345	7,031
Impairment loss on other receivables		87	=
Gain on derivative instruments, net		(52,386)	(69,476)
Loss on foreign currency translations, net		51,119	35,915
Loss on foreign currency transactions, net		20,761	30,163
Loss on valuation of investments in associates and joint ventures, net		20.011	26.010
D f		29,811	36,910
Reserve for provisions		86,353 (40,660)	36,462
Reversal of provisions Gain on exemption of debts		(345)	(113,253)
Gain on disposal of assets held for sale		(36)	_
Others		(37)	(18)
Others		1,035,368	786,203
Changes in operating assets and liabilities:		1,033,300	780,203
Trade receivables		(46,451)	(4,834)
Non-current trade receivables		(1,933)	-
Other receivables		81,852	62,805
Non-current other receivables		1	(84)
Inventories		153,853	(139,979)
Current non-financial assets		16,289	(27,376)
Non-current non-financial assets		(372)	1,317
Trade payables		(126,019)	152,908
Other current payables		(3,417)	6,980
Other non-current payables		444	- (4.5.0)
Current non-financial liabilities		11,268	(4,763)
Non-current non-financial liabilities		323	(2,071)
Current provisions		(25,267)	(7,651)
Non-current provisions		(21)	(31)
Retirement benefits paid Increase in plan assets		(9,491)	(10,434)
increase in plan assets		(3,812) 47,247	(2,681) 24,106
		47,247	24,100
Dividends received		16,601	7,785
Interest received		6,532	6,503
Interest paid		(149,299)	(141,846)
Income tax paid		10,588	(29,672)
Net cash flows provided by operating activities	W	920,420	618,258

(Continued)

Consolidated Statements of Cash Flows, Continued

For the years ended December 31, 2019 and 2018

Cash flows from investing activities Collection of loans ₩ 3,177 1,501 Increase in loans (26,026) (2,420) Increase in financial assets at fair value through profit and loss (360,000) (140,000) Decrease in financial assets at fair value through profit and loss 360,000 140,000 Decrease in guarantee deposits (2,298) (926) Net cash outflows from changes in the scope of consolidation (589) (781) Acquisition of investments in associates and joint ventures (5,992) (82,039) Proceeds from disposal of property, plant and equipment (2,298) (926) Acquisition of investments in associates and joint ventures (38,800) (538,584) Proceeds from disposal of property, plant and equipment (828,020) (538,584) Proceeds from disposal of intangible assets (22,227) (139) Requisition of intangible assets (22,227) (139) Net cash outflows from other investing activities (12,326) (3,847) Proceeds from disposal of assets held for sale 783 - Net cash flows from financing activities	In millions of won	_	2019	2018
Collection of loans				
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The accompanying notes are an interal part of the consolidated financial statements.

Notes to the Consolidated Financial Statements

December 31, 2019 and 2018

1. Reporting Entity

In accordance with a restructuring plan dated January 21, 1999 for the electricity industry in the Republic of Korea, announced by the Ministry of Commerce, Industry and Energy and the Act on Promotion of Restructuring the Electric Power Industry published on December 23, 2000, Korea Western Power Co., Ltd. ("KOWEPO" or the "Company") was incorporated on April 2, 2001 through a spin-off of the power generation division of Korea Electric Power Corporation ("KEPCO"). KOWEPO and its subsidiaries (collectively referred to as the "Group" hereinafter) engage in the generation of electricity and development of electric power resources.

As of December 31, 2019, KOWEPO owns and operates three power plants with a total capacity of 11,342MW.

KOWEPO's head office is located in Taean-gun, Chungcheongnam-do, Korea. Share capital of KOWEPO as of December 31, 2019 amounts to \text{\$\psi\$}166,646 million, and KOWEPO's sole shareholder is KEPCO (100%).

In accordance with Korea International Financial Reporting Standards ("KIFRS") 1110 *Consolidated Financial Statements*, the consolidated financial statements include the financial results of KOWEPO, which is the parent company, and 7 other subsidiaries (the "Group") and 15 other investees which are accounted for as equity method investments.

2. Basis of Preparation

(1) Statement of compliance

The consolidated financial statements of 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. The Rules for Accounting Affairs of Public Corporations and Quasi-governmental Institutions mandates application of Korean International Financial Reporting Standards ("KIFRS") as enacted by the *Act on External Audit of Stock Companies* 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 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.

The consolidated financial statements of the Group were approved at the Board of Directors' meeting held on on March 10, 2020 and will be finally approved at the shareholder's meeting to be held on March 26, 2020.

(2) Basis of measurement

The consolidated financial statements have been prepared on the historical cost basis, except for the following material items in the consolidated statement of financial position:

- ✓ Derivative financial instruments are measured at fair value
- ✓ Financial non-current 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

(3) Functional and presentation currency

These consolidated financial statements are presented in Korean won, which is the KOWEPO's functional currency and the currency of the primary economic environment in which the Group operates.

Notes to the Consolidated Financial Statements

December 31, 2019 and 2018

2. Basis of Preparation, Continued

(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.

1) The judgment of management

Information about critical judgments in applying accounting policies that have the most significant effect on the amounts recognized in the consolidated financial statements is included in the following note.

✓ Note 14 : Scope of consolidation - whether the Group has de facto control over an investee

2) The uncertainty of assumptions and estimates

Information about assumptions and estimation uncertainties that have a significant risk of resulting in a material adjustment within the next fiscal year are included in the following notes:

- ✓ Note 22 : Measurement of defined benefit obligations key actuarial assumptions
- ✓ Note 23 and 43 : Recognition and measurement of provisions and contingencies key assumptions about the likelihood and magnitude of an outflow of resources
- ✓ Note 38 : Financial non-current assets at fair value through other comprehensive income are measured at fair value significant unobersable input

3) Measurement of fair values

A number of the Group's accounting policies and disclosures require the measurement of fair values, for both financial and non-financial assets and liabilities. The Group has an established control framework with respect to the measurement of fair values. This includes a valuation team that has overall responsibility for overseeing all significant fair value measurements, including Level 3 fair values, and reports directly to the CFO.

The valuation team regularly reviews significant unobservable inputs and valuation adjustments. If third party information, such as broker quotes or pricing services, is used to measure fair values, then the valuation team assesses the evidence obtained from the third parties to support the conclusion that such valuations meet the requirements of KIFRS, including the level in the fair value hierarchy in which such valuations should be classified.

When measuring the fair value of an asset or a liability, the Group uses market observable data as far as possible. Fair values are categorized into different levels in a fair value hierarchy based on the inputs used in the valuation techniques as follows.

- ✓ Level 1: quoted prices (unadjusted) in active markets for identical assets or liabilities.
- ✓ Level 2: inputs other than quoted prices included within Level 1 that are observable for the asset or liability, either directly (i.e. as prices) or indirectly (i.e. derived from prices).
- ✓ Level 3: inputs for the asset or liability that are not based on observable market data (unobservable inputs).

Notes to the Consolidated Financial Statements

December 31, 2019 and 2018

2. Basis of Preparation, Continued

(4) Use of estimates and judgments, Continued

If the inputs used to measure the fair value of an asset or a liability are categorized in different levels of the fair value hierarchy, then the fair value measurement is categorized in its entirety in the same level of the fair value hierarchy as the lowest level input that is significant to the entire measurement. The Group recognizes transfers between levels of the fair value hierarchy at the end of the reporting period during which the change has occurred.

Further information about the assumptions made in measuring fair values is included in the following note:

✓ Note 38 : Risk management

3. Changes in Accounting Policies

(1) New and amended standards adopted by the Group

The Group has adopted the following new and amended standards and interpretations for annual periods beginning on or after January 1, 2019.

1) KIFRS 1116 Leases

KIFRS 1116 replaces 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. The standard sets out the principles for the recognition, measurement, presentation and disclosure of leases and requires lessees to account for most leases under a 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.

The Group adopted KIFRS 1116 using the modified retrospective method of adoption with the date of initial application of 1 January 2019. Under this method, the standard is applied retrospectively with the cumulative effect of initially applying the standard recognized at the date of initial application. 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 impact of the adoption of KIFRS 1116 on the consolidated financial statement as of January 1, 2019 is summarized as follows:

In millions of won		Prior to adoption of KIFRS 1116	Adjustments	After adjustment for adoption of KIFRS 1116
Current assets	W	1,246,379	-	1,246,379
Non-current assets		8,625,303	815,903	9,441,206
Total assets		9,871,682	815,903	10,687,585
Current liabilities		1,239,362	82,093	1,321,455
Non-current liabilities		4,732,528	733,810	5,466,338
Total liabilities		5,971,890	815,903	6,787,793
Retained earnings		2,572,149	-	2,572,149
Share capital and other components				
of equity		1,327,643	-	1,327,643
Total equity		3,899,792	-	3,899,792

Notes to the Consolidated Financial Statements

December 31, 2019 and 2018

3. Changes in Accounting Policies, Continued

(1) New and amended standards adopted by the Group, Continued

1) KIFRS 1116 Leases, Continued

① Nature of the effect of adoption of KIFRS 1116

The Group has lease contracts for various items such as consecutive voyage charter contracts, real estate lease contracts, including land for solar power plant, vehicles and other equipment.

Before the adoption of KIFRS 1116, the Group classified each of its leases (as lessee) at the inception date as either a finance lease or an operating lease. Upon adoption of KIFRS 1116, the Group applied a single recognition and measurement approach for all leases that it is the lessee, except for short-term leases and leases of low-value assets. The standard provides specific transition requirements and practical expedients, which has been applied by the Group.

- Leases previously classified as finance leases

The Group did not change the initial carrying amounts of recognized assets and liabilities at the date of initial application for leases previously classified as finance leases (i.e., the right-of-use assets and lease liabilities equal the lease assets and liabilities recognized under KIFRS 1017). The requirements of KIFRS 1116 was applied to these leases from January 1, 2019.

- Leases previously accounted for as operating leases

The Group recognized right-of-use assets and lease liabilities for those leases previously classified as operating leases, except for short-term leases and leases of low-value assets. 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. Lease liabilities were recognized based on the present value of the remaining lease payments, discounted using the incremental borrowing rate at the date of initial application.

As of January 1, 2019, the incremental borrowing interest rate of the lessee used to measure the lease liability was 1.99% to 2.10%.

The Group also applied the available practical expedients wherein it:

- 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 where the contract contains options to extend or terminate the lease

② Summary of new accounting policies

Set out below are the new accounting policies of the Group upon adoption of KIFRS 1116, which have been applied from the date of initial application:

- Right-of-use assets

The Group recognizes right-of-use assets at the commencement date of the lease. Right-of-use assets are measured at cost, less any accumulated depreciation and impairment losses, and adjusted for any remeasurement of lease liabilities. The cost of right-of-use assets includes the amount of lease liabilities recognized, initial direct costs incurred, and lease payments made at or before the commencement date less any lease incentives received. Unless the Group is reasonably certain to obtain ownership of the leased asset at the end of the lease term, the recognized right-of-use assets are depreciated on a straight-line basis over the shorter of its estimated useful life and the lease term. Right-of-use assets are subject to impairment.

Notes to the Consolidated Financial Statements

December 31, 2019 and 2018

3. Changes in Accounting Policies, Continued

(1) New and amended standards adopted by the Group, Continued

1) KIFRS 1116 Leases, Continued

Summary of new accounting policies, Continued

- Lease liabilities

At the commencement date of the lease, the Group recognizes lease liabilities measured at the present value of lease payments to be made over the lease term. The lease payments include fixed payments (including in-substance fixed payments) less any lease incentives receivable, variable lease payments that depend on an index or a rate, and amounts expected to be paid under residual value guarantees. The lease payments also include the exercise price of a purchase option reasonably certain to be exercised by the Group and payments of penalties for terminating a lease, if the lease term reflects the Group exercising the option to terminate. The variable lease payments that do not depend on an index or a rate are recognized as expense in the period on which the event or condition that triggers the payment occurs.

In calculating the present value of lease payments, the Group uses the incremental borrowing rate at the lease commencement date if the interest rate implicit in the lease is not readily determinable. After the commencement date, the amount of lease liabilities is increased to reflect the accretion of interest and reduced for the lease payments made. In addition, the carrying amount of lease liabilities is remeasured if there is a modification, a change in the lease term, a change in the in-substance fixed lease payments or a change in the assessment to purchase the underlying asset.

- Short-term leases and leases of low-value assets

The Group applies the short-term lease recognition exemption to its short-term leases of machinery and equipment. It also applies the lease of low-value assets recognition exemption to leases of office equipment that are considered of low value. Lease payments on short-term leases and leases of low-value assets are recognized as expense on a straight-line basis over the lease term.

Details of right-of-use assets and lease liabilities and their changes are described in note 18.

2) Amendment to KIFRS 1109 Financial Instruments – Prepayment Features with Negative Compensation

The narrow-scope amendments made to KIFRS 1109 Financial Instruments enable entities to measure certain prepayable financial assets with negative compensation at amortized cost. When a modification of a financial liability measured at amortized cost that does not result in the derecognition, a modification gain or loss shall be recognized in profit or loss. The amendment does not have a significant impact on the consolidated financial statements.

3) Amendments to KIFRS 1019 Employee Benefits -Amendment, Curtailment or Settlement of the Plan

The amendments require that an entity shall calculate current service cost and net interest for the remainder of the reporting period after a plan amendment, curtailment or settlement based on updated actuarial assumptions from the date of the change. The amendments also require that a reduction in a surplus must be recognized in profit or loss even if that surplus was not previously recognized due to the impact of the asset ceiling. The amendment does not have a significant impact on the consolidated financial statements.

Notes to the Consolidated Financial Statements

December 31, 2019 and 2018

3. Changes in Accounting Policies, Continued

(1) New and amended standards adopted by the Group, Continued

4) Amendments to KIFRS 1028 Investments in Associates and Joint Ventures – Long-term Interests in Associates and Joint Ventures

The amendments clarify that an entity shall apply KIFRS 1109 to financial instruments in an associate or joint venture to which the equity method is not applied. These include long-term interests that, in substance, form part of the entity's net investment in an associate or joint venture. The amendment does not have a significant impact on the consolidated financial statements.

5) Enactment to Interpretation of KIFRS 2123 Uncertainty over Income Tax Treatments

The Interpretation explains how to recognize and measure deferred and current income tax assets and liabilities where there is uncertainty over a tax treatment, and includes guidance on how to determine whether each uncertain tax treatment is considered consolidatedly or together. It also presents examples of circumstances where a judgement or estimate is required to be reassessed. The amendment does not have a significant impact on the consolidated financial statements.

6) Annual Improvements to KIFRS 2015 – 2017 Cycle:

(1) Amendments to KIFRS 1103 Business Combination

The amendments clarify that when a party to a joint arrangement obtains control of a business that is a joint operation, and had rights to the assets and obligations for the liabilities relating to that joint operation immediately before the acquisition date, the transaction is a business combination achieved in stages. In such cases, the acquirer shall remeasure its entire previously held interest in the joint operation. The amendment does not have a significant impact on the consolidated financial statements.

2 Amendments to KIFRS 1111 Joint Agreements

The amendments clarify that when 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. In such cases, previously held interests in the joint operation are not remeasured. The amendment does not have a significant impact on the consolidated financial statements.

3 Amendments to Paragraph 57A of KIFRS 1012 Income Tax

The amendments to Paragraph 57A of KIFRS 1012 is applied to all the income tax consequences of dividends and requires an entity to recognize the income tax consequences of dividends in profit or loss, other comprehensive income or equity according to where the entity originally recognized those past transactions or events. The amendment does not have a significant impact on the consolidated financial statements.

4 KIFRS 1023 Borrowing Costs

The amendments clarify that if a specific borrowing remains outstanding after the related qualifying asset is ready for its intended use (or sale), it becomes part of general borrowings. The amendment does not have a significant impact on the consolidated financial statements.

Notes to the Consolidated Financial Statements

December 31, 2019 and 2018

3. Changes in Accounting Policies, Continued

(2) New standards and interpretations not yet adopted by the Group

The following new accounting standards and interpretations are issued, but not yet effective, and have not been early adopted by the Group.

1) Amendments to KIFRS 1001 Presentation of Financial Statements and KIFRS 1008 Accounting policies, changes in accounting estimates and errors – Definition of Material

The amendments clarify the explanation of the definition of material and amended KIFRS 1001 and KIFRS 1008 in accordance with the clarified definitions. Materiality is assessed by reference to omission or misstatement of material information as well as effects of immaterial information, and to the nature of the users when determining the information to be disclosed by the Group. These amendments should be applied for annual periods beginning on or after January 1, 2020, and earlier application of permitted. The Group does not expect that these amendments have a significant impact on the consolidated financial statements.

2) Amendments to KIFRS 1103 Business Combination – Definition of a Business

To determine whether the integration of the acquired activities and assets as a business, the amended definition of a business requires an acquisition to include an input and a substantive process that together significantly contribute to the ability to create outputs and excludes economic benefits from the lower costs. An entity can apply a concentration test, an optional test, where substantially all of the fair value of gross assets acquired is concentrated in a single asset or a group of similar assets, the assets acquired would not represent a business. These amendments should be applied for annual periods beginning on or after January 1, 2020, and earlier application of permitted. The Group does not expect that these amendments have a significant impact on the consolidated financial statements.

4. Significant Accouting Policies

The significant accounting policies applied by the Group in preparation of its consolidated financial statements are included below. The accounting policies set out below have been applied consistently to all periods presented in these consolidated financial statements, except those as described in Note 3.

(1) Consolidation

1) Business combinations

Business combinations are accounted for by applying the acquisition method, except for combinations of business entities or businesses that are under the same 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 as incurred, except if related to the issue of debt or equity securities. The costs to issue debt or equity securities are recognized in accordance with KIFRS 1032, *Financial Instruments: Presentation* and KIFRS 1109, *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 payable is measured at fair value at the acquisition date. If the contingent consideration is classified as equity, then it is not remeasured and settlement is accounted for within equity.

Notes to the Consolidated Financial Statements

December 31, 2019 and 2018

4. Significant Accounting Policies, Continued

(1) Consolidation, Continued

1) Business combinations, continued

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.

2) Non-controlling interests

NCI are measured at their proportionate share of the acquiree's identifiable net assets at the date of acquisition.

Changes in the Group's interest in a subsidiary that do not result in a loss of control are accounted for as equity transactions.

3) Subsidiaries

Subsidiaries are entities controlled by the Group. The Group controls an entity when it is exposed to, or has rights to, variable returns from its involvement with the entity and has the ability to affect those returns through its power over the entity. The financial statements of subsidiaries are included in the consolidated financial statements from the date on which control commences until the date on which control ceases.

4) Loss of control

When the Group loses control over a subsidiary, it derecognizes the assets and liabilities of the subsidiary, and any related NCI 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.

5) 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 OCI of equity-accounted investees, until the date on which significant influence or joint control ceases.

Notes to the Consolidated Financial Statements

December 31, 2019 and 2018

4. Significant Accounting Policies, Continued

(1) Consolidation, Continued

6) 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.

7) Business combination under common control

For business combinations arising from transfers of interests in the entities that are under common control, the assets and liabilities acquired are recognized at the carrying amounts recognized previously in the Group controlling shareholder's consolidated financial statements. The components of equity of the acquired entities are presented in the same components within the Group's equity except that any share capital of the acquired entities is recognized as part of share premium.

(2) 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.

(3) Inventories

The cost of inventories is based on the moving average principle, and includes expenditures for acquiring the inventories, production or conversion costs and other costs incurred in bringing them to their existing location and condition. In the case of manufactured inventories and work in progress, cost includes an appropriate share of production overheads based on normal operating capacity.

Inventories are measured at the lower of cost and net realizable value. Net realizable value is the estimated selling price in the ordinary course of business, less the estimated costs of completion and selling expenses. The amount of any write-down of inventories to net realizable value and all losses of inventories are recognized as an expense in the period the write-down or loss occurs. The amount of any reversal of any write-down of inventories, arising from an increase in net realizable value, are recognized as a reduction in the amount of inventories recognized as an expense in the period in which the reversal occurs.

(4) Non-derivative financial assets

1) Recognition and Initial measurement

Trade receivable and issued debentures are initially recognized at the time of issue. Other financial assets or financial liabilities are recognized at the time of the Group became a contracting party.

Except for trade receivable that is not including significant financing components, financial assets or financial liabilities are measured at fair value at the time of first recognition. Financial assets in case of not financial asset or financial liability at fair value through profit or loss, the transaction costs directly related to the issue are add or subtract to fair value. Trade receivable that is not including significant financing components is measured at transaction price.

Notes to the Consolidated Financial Statements

December 31, 2019 and 2018

4. Significant Accounting Policies, Continued

(4) Non-derivative financial assets, Continued

2) Classification and subsequent measurement

Financial assets are measured at amortized cost, fair value through other comprehensive income (FVOCI) and fair value through profit or loss (FVTPL) when initially applied.

Financial assets are not reclassified unless change a business model. If the Group changes a business model, all financial assets are reclassified at the time of first reporting period.

Financial assets are measured at amortized cost when they aren't measured at fair value through profit or loss (FVTPL) and they meet both of the following conditions:

- It holds financial assets under a business model that is intended to receive contractual cash flows.
- Under the terms of the contract, there is a cash flow consisting solely payments of principal and interest on the principal amount outstanding on a particular day.

Financial liabilities are measured at fair value through other comprehensive income (FVOCI) when they aren't measured at fair value through profit or loss (FVTPL) and they meet both of the following conditions:

- It holds financial assets under a business model that is achieved through both receipt of contractual cash flows and sale of financial assets.
- Under the terms of the contract, there is a cash flow consisting solely payments of principal and interest on the principal amount outstanding on a particular day.

At the date of initial recognition of an equity instrument that is not a trading instrument, the Group may make an irrevocable choice to subsequent changes in the fair value of that investment in other comprehensive income. This choice is made by each financial instruments.

As described above, amortized cost and all of the financial instruments not measured at fair value through other comprehensive income (FVOCI) including all derivatives, are measured at fair value through profit or loss (FVTPL). The Group measure a financial asset meet the measurement requirements at amortized cost or fair value through other comprehensive income (FVOCI) initially at fair value through profit or loss (FVTPL), if the accounting mismatch is eliminated or significantly reduced. However, such choice could be irrevocable.

The Group evaluates purpose of business model at the portfolio level of financial assets. Also, the Group considers the following information.

- Stated accounting policies and objective about portfolio, management of policy. This includes acquisition of interest income, interest rate level, duration of debt, and management's strategis that focus on outflows or realization of expected cash flow through reconciling a duration of financial liabilities to finance financial assets with a duration of related financial assets and disposing of assets.
- Evaluation of performance of financial assets, how to report evaluation contents.
- Compensation to management (e.g. based on the fair value of the assets being managed or on the basis of the contractual cash flows being received)
- Expectation of frequency to selling financial assets in the past, amount, time, reason, future selling activities. For this purpose, transfers of financial assets to third parties in transactions that do not meet the derecognizing requirements are not considered for sale.

A portfolio of financial assets that meets the definition of trading or whose performance is valued at fair value through profit or loss is measured at fair value through profit or loss.

Notes to the Consolidated Financial Statements

December 31, 2019 and 2018

4. Significant Accounting Policies, Continued

(4) Non-derivative financial assets, Continued

2) Classification and subsequent measurement, Continued

Financial assets: An assessment of whether contractual cash flows are solely principal and interest

The principal is defined as the fair value at the initial recognition of the financial assets. Interest is comprised in time value of money, value for the credit risk associated with principal and another cost of basic rental risk and margin.

When assessing whether contractual cash flows consist solely of payments for principal and interest, the group take into account conditions of contract. If the financial assets includes 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.
- Terms that limit the Group's claim to cash flows arising from a particular asset

The amount of the interim repayment represents the interest on the principal and remnant money, and if it includes reasonable additional compensation for the early liquidation of the contract, early repayment characteristics are consistent with the conditions under which principal and interest that paid on a particular day.

Also about financial assets that acquired significantly discounted or additional premium, amount of interim repayments is substantially consisted of principal and interest, and this characteristics fair value at initial recognition is minor, the Group determined that these conditions are satisfied.

Notes to the Consolidated Financial Statements

December 31, 2019 and 2018

4. Significant Accounting Policies, Continued

(4) Non-derivative financial assets, Continued

2) Classification and subsequent measurement, Continued

Financial assets at fair value through profit or loss (FVTPL)	These assets are subsequently measured at fair value. Net gain or loss, including interest and dividend income, is recognized in profit or loss. Please refer to Note 4. (5) for derivatives designated as hedging instruments.
Financial assets at amortized cost	These assets are subsequently measured at amortized cost using the effective interest method. Amortization is reduced by Impairment loss. Interest income, foreign currency translation gains and losses and Impairment are recognized in profit or loss. The gain or loss on disposal is also recognized in profit or loss.
Financial liabilities at fair value through other comprehensive income (FVOCI)	These assets are subsequently measured at fair value. Interest income calculated using the effective interest method, foreign currency translation gains and losses are recognized in profit or loss. Other profit or loss is recognized in other comprehensive income. The gain or loss accumulated in other comprehensive income is reclassified to profit or loss as disposal.
Equity instruments at fair value through other comprehensive income (FVOCI)	These assets are subsequently measured at fair value. Dividends are recognized in profit or loss if the dividends do not clearly represent collection of investment costs. Other profit or loss is recognized in other comprehensive income and is never reclassified to profit or loss.

3) 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 consolidated 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.

4) 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.

Notes to the Consolidated Financial Statements

December 31, 2019 and 2018

4. Significant Accounting Policies, Continued

(5) Derivative financial instruments, including hedge accounting

The Group holds derivative financial instruments to hedge foreign exchange and interest rate exposures. An embedded derivative, if a host contract is not a financial asset and meets specified conditions, is accounted for consolidatedly from the host.

Derivatives are measured at fair value at initial recognition. It is measured at fair value after initial recognition and the change is generally recognised as a profit or loss.

The Group designates specific derivatives as hedging instruments to hedge the variability of cash flows associated with highly probable future forecast transactions arising from changes in exchange rates and interest rates.

At the inception of the hedge, the Group documents the purpose and strategy of risk management to perform the hedge. The Group documents the economic relationship between the hedged item and the hedging instrument, including whether changes in the cash flows of the hedged item and the hedging instrument are expected to be offset by each other.

Cash flow hedge

When derivatives are designated as cash flow hedging instruments, the effective portion of changes in the fair value of the derivative is recognized in other comprehensive income, net of tax, and presented in the hedging reserve in equity. The effective portion of changes in the fair value of the derivatives which recognized in other comprehensive income is limited to cumulated changes in fair value of hedged item from inception of the hedge determined based on the present value. Any ineffective portion of changes in the fair value of the derivative is recognized immediately in profit or loss.

The Group designates only changes in the fair value of the spot element of future exchange transactions as a hedging instrument in cash flow hedge relationship. The change in the fair value of the forward element ('forward point') of future exchange transaction is accounted for consolidatedly as cost of hedging and recognized in cost of hedging of equity.

If a hedged forecast transaction subsequently results in the recognition of a non-financial asset such as inventories, the Group removes that amount from the cash flow hedge reserve and includes it directly in the initial cost of the assets upon the recognition.

For other forecast transaction, the cumulated cash flow hedge reserves and costs of hedging are reclassified to profit or loss as a reclassification adjustment in the same period or periods during which the hedged expected future cash flows affect profit or loss.

If the hedging instrument no longer meets the criteria for hedge accounting, expires or is sold, terminated, exercised, or the designation is revoked, then hedge accounting is discontinued prospectively.

If the hedging transaction is a transaction which recognizes non-financial items, in case the hedging accounting is discontinued, cumulated hedging reserves and cost of hedging are left in equity items until that amount is included in the cost of non-financial items when they are initially recognized. For other cash flow hedging transaction not covered in this case, cash flow hedge reserves and cost of hedging are reclassified to profit or loss as a reclassification adjustment in the periods during which the hedged expected future cash flows affect profit or loss.

If the forecasted transaction is no longer expected to occur, then the balance in other comprehensive income is recognized immediately in profit or loss.

Notes to the Consolidated Financial Statements

December 31, 2019 and 2018

4. Significant Accounting Policies, Continued

(6) Impairment of financial assets

1) Financial assets and contract assets

The Group recognizes loss allowance for expected credit losses on the following assets.

- Amortized cost of a financial asset

The Group measures loss allowance for expected credit losses, except for the following financial assets measured at the expected credit loss of 12 months.

- Debentures whose credit is determined to be at low risk at the end of the reporting period
- Other debentures 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.

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

Overall period expected credit losses are expected credit losses resulting from all default events that may occur during the expected life of the financial instrument.

12-month expected credit losses are part of lifetime expected credit losses that represent expected credit losses from a default event on a financial instrument within 12 months of the reporting period's end (or for a shorter period of time 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.

2) 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.

Notes to the Consolidated Financial Statements

December 31, 2019 and 2018

4. Significant Accounting Policies, Continued

(6) Impairment of financial assets, Continued

3) 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 debentures 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
- 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

4) 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.

For debt measured at fair value through other comprehensive income, the allowance for losses is recognized in other comprehensive income instead of reducing the carrying amount of the asset.

5) Write-off

If an entity does not reasonably expect to recover all or part of the contractual cash flows of a financial asset, the asset is derecognised. For individual customers, on the basis of their past experience with the recovery of similar assets, the Group removes the carrying amount if the financial asset is determined to be impaired, evaluates whether there is a reasonable expectation for the recovery of the entity's customers, and evaluates the timing and amount consolidatedly. The Group has no expectation that the proceeds will be recovered significantly. However, any financial assets that are derecognised may be subject to recovery activities in accordance with the Group's procedures for recovering the amount due.

Notes to the Consolidated Financial Statements

December 31, 2019 and 2018

4. Significant Accounting Policies, Continued

(7) 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 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 the initial 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.

Subsequent costs are recognized in the carrying amount of property, plant and equipment at cost or, if appropriate, as consolidated items if it is probable that future economic benefits associated with the item will flow to the Group and the cost of the item can be measured reliably. The carrying amount of the replaced part is derecognized. The costs of the day-to-day servicing are recognized in profit or loss as incurred.

Property, plant and equipment, except for land, are depreciated on a straight-line basis over estimated useful lives that appropriately reflect the pattern in which the asset's future economic benefits are expected to be consumed. A component that is significant compared to the total cost of property, plant and equipment is depreciated over its consolidated 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 of the Group's assets are as follows:

	Useful lives (years)
Buildings	8 ~ 30
Structures	8 ~ 30
Machinery	6 <i>∼</i> 24
Vehicles	4
Right-of-use assets	2~ 30
Other property, plant and equipment ("the other PP&E")	4

Depreciation methods, useful lives and residual values are reviewed at the end of each reporting date and adjusted, if appropriate. The change is accounted for as a change in an accounting estimate.

Notes to the Consolidated Financial Statements

December 31, 2019 and 2018

4. Significant Accounting Policies, Continued

(8) 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 club memberships are expected to be available for use, this intangible asset is determined as having indefinite useful lives and not amortized.

	Useful lives (years)
Computer software	5
Development costs	5
Land use rights	8~10
Others	5~20

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.

1) Research and development

Expenditures on research activities, undertaken with the prospect of gaining new scientific or technical knowledge and understanding, is 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.

2) Subsequent expenditures

Subsequent expenditures are capitalized only when they increase the future economic benefits embodied in the specific asset to which it relates. All other expenditures, including expenditures on internally generated goodwill and brands, are recognized in profit or loss as incurred.

Notes to the Consolidated Financial Statements

December 31, 2019 and 2018

4. Significant Accounting Policies, Continued

(9) 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. The Group immediately recognizes other borrowing costs as an expense. 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.

(10) 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 shall be recognized as other income in profit or loss over the periods in which the Group recognizes the related costs as expenses.

(11) Impairment of non-financial assets

The carrying amounts of the Group's non-financial assets, other than assets arising from employee benefits, inventories, deferred tax assets and non-current assets held for sale, are reviewed at the end of the reporting period to determine whether there is any indication of impairment. If any such indication exists, then the asset's recoverable amount is estimated. 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.

Notes to the Consolidated Financial Statements

December 31, 2019 and 2018

4. Significant Accounting Policies, Continued

(11) Impairment of non-financial assets, Continued

The Group estimates the recoverable amount of an individual asset, if it is impossible to measure the individual recoverable amount of an asset, then the Group estimates the recoverable amount of cash-generating unit ("CGU"). A CGU is the smallest identifiable 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 value in use is estimated by applying a pre-tax discount rate that reflect current market assessments of the time value of money and the risks specific to the asset or CGU for which estimated future cash flows have not been adjusted, to the estimated future cash flows expected to be generated by the asset or CGU.

An impairment loss is recognized if the carrying amount of an asset or a CGU exceeds its recoverable amount. Impairment losses are recognized in profit or loss.

Goodwill acquired in a business combination is allocated to each CGU that is expected to benefit from the synergies arising from the goodwill acquired. Any impairment identified at the CGU level will first reduce the carrying value of goodwill and then be used to reduce the carrying amount of the other assets in the CGU on a pro rata basis. Except for impairment losses in respect of goodwill which are never reversed, an impairment loss is reversed if there has been a change in the estimates used to determine the recoverable amount. An impairment loss is reversed only to the extent that the asset's carrying amount does not exceed the carrying amount that would have been determined, net of depreciation or amortization, if no impairment loss had been recognized.

(12) Leases

As explained in Note 3 above, the Group has changed its accounting policy for leases. The impact of the new accounting policies is disclosed in Note 3.

Right-of-use assets

The Group recognizes right-of-use assets at the commencement date of the lease. Right-of-use assets are measured at cost, less any accumulated depreciation and impairment losses, and adjusted for any remeasurement of lease liabilities. The cost of right-of-use assets includes the amount of lease liabilities recognized, initial direct costs incurred, and lease payments made at or before the commencement date less any lease incentives received. Unless the Group is reasonably certain to obtain ownership of the leased asset at the end of the lease term, the recognized right-of-use assets are depreciated on a straight-line basis over the shorter of its estimated useful life and the lease term. Right-of-use assets are subject to impairment.

Lease liabilities

At the commencement date of the lease, the Group recognizes lease liabilities measured at the present value of lease payments to be made over the lease term. The lease payments include fixed payments (including in-substance fixed payments) less any lease incentives receivable, variable lease payments that depend on an index or a rate, and amounts expected to be paid under residual value guarantees. The lease payments also include the exercise price of a purchase option reasonably certain to be exercised by the Group and payments of penalties for terminating a lease, if the lease term reflects the Group exercising the option to terminate. The variable lease payments that do not depend on an index or a rate are recognized as expense in the period on which the event or condition that triggers the payment occurs.

In calculating the present value of lease payments, the Group uses the incremental borrowing rate at the lease commencement date if the interest rate implicit in the lease is not readily determinable. After the commencement date, the amount of lease liabilities is increased to reflect the accretion of interest and reduced for the lease payments made. In addition, the carrying amount of lease liabilities is remeasured if there is a modification, a change in the lease term, a change in the in-substance fixed lease payments or a change in the assessment to purchase the underlying asset.

Notes to the Consolidated Financial Statements

December 31, 2019 and 2018

4. Significant Accounting Policies, Continued

(12) Leases, Continued

Short-term leases and leases of low-value assets

The Group applies the short-term lease recognition exemption to its short-term leases of machinery and equipment. It also applies the lease of low-value assets recognition exemption to leases of office equipment that are considered of low value. Lease payments on short-term leases and leases of low-value assets are recognized as expense on a straight-line basis over the lease term.

(13) 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.

A non-current asset that is classified as held for sale or part of a disposal group classified as held for sale is not depreciated (or amortized).

(14) Non-derivative financial liabilities

The Group classifies non-derivative financial liabilities into financial liabilities at fair value through profit or loss or other financial liabilities in accordance with the substance of the contractual arrangement and the definitions of financial liabilities. The Group recognizes financial liabilities in the consolidated statement of financial position when the Group becomes a party to the contractual provisions of the financial liability.

1) Financial liabilities at fair value through profit or loss

Financial liabilities at fair value through profit or loss include financial liabilities held for trading or designated as such upon initial recognition. Subsequent to initial recognition, 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 that are directly attributable to the acquisition are recognized in profit or loss as incurred.

2) 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.

3) Elimination of financial liabilities

The Group derecognizes a financial liability from the consolidated statement of financial position when it is extinguished (i.e. when the obligation specified in the contract is discharged, cancelled or expires). If the contractual terms of the financial liability have changed and the cash flows have changed substantially, the Group will derecognise the existing liability and recognise the new financial liability at fair value on the basis of the new contract.

On derecognition of a financial liability, the difference between the carrying amount and the consideration paid (including transferred non-cash assets or liabilities assumed) is recognised in profit or loss.

Notes to the Consolidated Financial Statements

December 31, 2019 and 2018

4. Significant Accounting Policies, Continued

(15) Employee benefits

1) Short-term employee benefits

Short-term employee benefits are employee benefits that are due to be settled within 12 months after the end of the period in which the employees render the related service. When an employee has rendered service to the Group during an accounting period, the Group recognizes the undiscounted amount of short-term employee benefits expected to be paid in exchange for that service.

2) 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) Retirement benefits: defined benefit plans

A defined benefit plan is a post-employment benefit plan other than a defined contribution plan. The Group's net obligation in respect of defined benefit plans is calculated by estimating the amount of future benefit that employees have earned in return for their service in the current and prior periods; that benefit is discounted to determine its present value. The fair value of plan assets is deducted. The calculation is performed annually by an independent actuary using the projected unit credit method.

The discount rate is the yield at the reporting date on corporate bonds that have maturity dates approximating the terms of the Group's obligations and that are denominated in the same currency in which the benefits are expected to be paid. The Group recognizes all actuarial gains and losses arising from actuarial assumption changes and experiential adjustments in other comprehensive income when incurred.

When the fair value of plan assets exceeds the present value of the defined benefit obligation, the Group recognizes an asset, to the extent of the total of cumulative unrecognized past service cost and the present value of any economic benefits available in the form of refunds from the plan or reduction in the future contributions to the plan.

Past service costs which are the change in the present value of the defined benefits obligation for employee service in prior periods, resulting in the current period from the introduction of, or change to post-employment benefits, is recognized as an expense on a straight-line basis over the average period until the benefits become vested. To the extent that the benefits are already vested immediately following the introduction of, or changes to, a defined benefit plan, the Group recognizes the past service cost immediately.

Notes to the Consolidated Financial Statements

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4. Significant Accounting Policies, Continued

(16) 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 consolidated 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.

(17) Foreign currencies

1) Foreign currency transactions

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.

Foreign currency differences arising on retranslation are recognized in profit or loss, except for differences arising on the retranslation of available-for-sale equity instruments, a financial liability designated as a hedge of the net investment in a foreign operation, or qualifying cash flow hedges, which are recognized in other comprehensive income. Non-monetary items that are measured in terms of historical cost in a foreign currency are translated using the exchange rate at the date of the transaction.

2) Foreign operations

If the presentation currency of the Group is different from a foreign operation's functional currency, the financial statements of the foreign operation are translated into the presentation currency using the following methods:

The assets and liabilities of foreign operations, whose functional currency is not the currency of a hyperinflationary economy, are translated to presentation currency at exchange rates at the reporting date. The income and expenses of foreign operations are translated to functional currency at exchange rates at the dates of the transactions. Foreign currency differences are recognized in other comprehensive income.

Any goodwill arising on the acquisition of a foreign operation and any fair value adjustments to the carrying amounts of assets and liabilities arising on the acquisition of that foreign operation is treated as assets and liabilities of the foreign operation. Thus they are expressed in the functional currency of the foreign operation and translated at the closing rate.

When a foreign operation is disposed of, the relevant amount in the translation is transferred to profit or loss as part of the profit or loss on disposal. On the partial disposal of a subsidiary that includes a foreign operation, the relevant proportion of such cumulative amount is reattributed to non-controlling interest. In any other partial disposal of a foreign operation, the relevant proportion is reclassified to profit or loss.

Notes to the Consolidated Financial Statements

December 31, 2019 and 2018

4. Significant Accounting Policies, Continued

(17) Foreign currencies, Continued

3) Translation of net investments on foreign operations

Foreign exchange gains or losses arising from a monetary item receivable from or payable to a foreign operation, the settlement of which is neither planned nor likely to occur in the foreseeable future and which in substance is considered to form part of the net investment in the foreign operation, are recognized in other comprehensive income in the translation reserve.

(18) 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.

Preferred shares are classified as equity if they are not required to be redeemed or redeemed only at the Group's decision and the payment of dividends is determined on the discretion of the Group. Dividend is recognized when it is approved at the shareholders' meeting. Preferred shares that are eligible for collection of determined or determinable amount on or after a specified date or preferred shares to be mandatorily redeemed are classified as liabilities. Related dividends are recognized in profit or loss at the point in time of occurrence as interest expenses.

When the Group repurchases its share capital, the amount of the consideration paid is recognized as a deduction from equity and classified as treasury shares. The profits or losses from the purchase, disposal, reissue, or retirement of treasury shares are not recognized as current profit or loss. If the Group acquires and retains treasury shares, the consideration paid or received is directly recognized in equity.

(19) 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, and Step 5: Recognize revenue when the entity satisfied a performance obligation)

1 Identification of performance obligations in the contract

The Group aims to develop and operate electric power resources, power generation, transmission, conversion, distribution, and related operations.

On the other hand, the power supply is identified as a single performance obligation as a series of distinct goods or services. In addition to the power supply, the group also perform transmission and distribution revenue, power generation byproducts, EPC businesses, and O&M through contracts with customers, and identify performance obligations that are distinct from each contract. The separation of performance obligations has no significant impact on the Group's revenue.

(2) Variable consideration

The Group is conducting progressive pricing of electricity rates and discounting of electricity rates for policy purposes, which may change the price received from customers. The Group estimate the variable consideration using an expected value method that we expect to better predict the consideration to be entitled to, and recognise revenue by including variable consideration in the transaction price only to those amounts that are highly probable of not reversing a significant portion of the cumulative revenue recognised when the uncertainty associated with the variable consideration is resolved. The variable consideration policy has no significant impact on Group's revenue.

Notes to the Consolidated Financial Statements

December 31, 2019 and 2018

4. Significant Accounting Policies, Continued

(19) Revenue from contracts with customers, Continued

3 Performance obligations satisfied over time

The Group provides customers with services such as EPC business and O&M over time. The Group recognizes revenue based on the progress made on a reasonable basis.

The Group may recognize revenue on a percentage-of-completion basis when the Group meets one of following criteria:

- the customer simultaneously receives and consumes the benefits provided by the entity's performance as the entity performs
- the entity's performance creates or enhances an asset that the customer controls as the asset is created or enhanced; or
- the entity's performance does not create an asset with an alternative use to the entity and the entity has an enforceable right to payment for performance completed to date.

The impact of recognition of revenue over time on progress on a percentage-of-completion basis on the Group's profit or loss is not significant.

4 Transaction price is allocated to performance obligations

The Group allocates the transaction price to a number of performance obligations identified in a single contract on a relative stand-alone selling price basis, and this allocation has no significant impact on Group's revenue.

(5) Revenue recognition when performance obligations are satisfied

The Group recognizes revenue when the group satisfies the performance obligation by transferring the promised goods and services to the customer. This recognition timing has no significant impact on the Group's revenue.

(20) Finance income and finance costs

The Group's financial revenue and financial expenses consist of:

- Interest income
- Interest cost
- Dividend earnings
- Net gain or loss on financial assets measured at fair value through profit or loss
- Foreign exchange gains and losses on financial assets and financial liabilities
- Impairment losses (or reversals of impairment losses) arising from investments in debt instruments measured at amortised cost or fair value through other comprehensive income
- Hedge ineffectiveness recognised in profit or loss
- Reclassified net gain or loss previously recognized in other comprehensive income under cash-flow hedging accounting for interest risk and foreign exchange risk on borrowings

Interest income or interest expense was recognised using the effective interest method. Dividend incomes are recognised when the Group is entitled to the dividend.

Notes to the Consolidated Financial Statements

December 31, 2019 and 2018

4. Significant Accounting Policies, Continued

(20) Finance income and finance costs, Continued

The 'effective interest rate' is the rate that exactly discounts estimated future cash payments or receipts through the expected life of the financial instrument to the gross carrying amount of the financial asset or the amortized cost of the financial liability.

In calculating interest income and expense, the effective interest rate is applied to the gross carrying amount of the asset (when the asset is not credit-impaired) or to the amortized cost of the liability. However, for financial assets that have become credit-impaired subsequent to initial recognition, interest income is calculated by applying the effective interest rate to the amortized cost of the financial asset. If the asset is no longer credit-impaired, then the calculation of interest income reverts to the gross basis.

(21) 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.

1) Current tax

Current tax is the expected tax payable or receivable on the taxable profit or loss for the year, using tax rates enacted or substantively enacted at the end of the reporting period and any adjustment to tax payable in respect of previous years. The taxable profit is different from the accounting profit for the period since the taxable profit is calculated excluding the temporary differences, which will be taxable or deductible in determining taxable profit (tax loss) of future periods, and non-taxable or non-deductible items from the accounting profit.

Current tax asset and current tax liability are offset only when the following conditions are met:

- The Group legally holds an enforceable right to offset the recognized amount, and
- Has an intention to settle in a net amount or settle the liability while realizing the asset.

2) Deferred tax

Deferred tax is recognized, using the asset-liability method, in respect of temporary differences between the carrying amounts of assets and liabilities for financial reporting purposes and the amounts used for taxation purposes. A deferred tax liability is recognized for all taxable temporary differences. A deferred tax asset is recognized for all deductible temporary differences to the extent that it is probable that taxable profit will be available against which they can be utilized. However, deferred tax is not recognized for the following temporary differences: taxable temporary differences arising on the initial recognition of goodwill, or the initial recognition of assets or liabilities in a transaction that is not a business combination and that affects neither accounting profit or loss nor taxable income.

When future taxable income that tax deficit, tax deduction, and deductible temporary differences can be used is probable, within this scope, deferred tax assets are recognized for unused tax deficit and tax credit carry-forwards, and deductible temporary differences. The future taxable income is determined by the reversal of the temporary difference to be added. If the temporary difference to be added is not sufficient to fully recognize the deferred tax asset, the reversal of current temporary differences and the business plan of the subsidiaries of the Group are considered.

Notes to the Consolidated Financial Statements

December 31, 2019 and 2018

4. Significant Accounting Policies, Continued

(21) Income taxes, Continued

2) Deferred tax, Continued

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 or deferred tax liabilities on investment properties measured at fair value, unless any contrary evidence exists, are measured using the assumption that the carrying amount of the property will be recovered entirely through sale.

The carrying amount of a deferred tax asset is reviewed at the end of each reporting period and reduces the carrying amount to the extent that it is no longer probable that sufficient taxable profit will be available to allow the benefit of part or all of that deferred tax asset to be utilized.

Deferred tax assets and liabilities are measured at the tax rates that are expected to apply to the period when the asset is realized or the liability is settled, based on tax rates (and tax laws) that have been enacted or substantively enacted by the end of the reporting period. The measurement of deferred tax liabilities and 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.

(22) Earnings per share

KOWEPO presents basic and diluted earnings per share (EPS) data for its ordinary shares. Basic EPS is calculated by dividing the profit or loss attributable to ordinary shareholders of KOWEPO by the weighted average number of ordinary shares outstanding during the period, adjusted for own shares held. Diluted EPS is determined by adjusting the profit or loss attributable to ordinary shareholders and the weighted average number of ordinary shares outstanding, adjusted for own shares held, for the effects of all dilutive potential ordinary shares.

Notes to the Consolidated Financial Statements

December 31, 2019 and 2018

4. Significant Accounting Policies, Continued

(23) Greenhouse gas emission rights and obligations

With Enforcement of Allocation and Trading of Greenhouse Gas Emissions Allowances, the Group applies the following accounting policies for emissions rights and obligations.

1) Emissions rights

Greenhouse gas emissions rights consist of the allowances received free of charge from the government and the ones purchased. The cost of the emissions rights includes expenditures arising directly from the acquisition and any other costs incurred during normal course of the acquisition.

Emissions rights are held by the Group to fulfill the legal obligation and recorded as intangible assets. To the extent that the portion to be submitted to the government within one year from the end of reporting period, the emissions rights are classified as current assets. Emissions rights recorded as intangible assets are initially measured at cost and substantially remeasured at cost less accumulated impairment losses.

Greenhouse gas emission rights are derecognized on submission to the government or when no future economic benefits are expected from its use or disposal.

2) Emissions obligations

Emissions obligations are the Group's present legal obligation to submit the emissions allowances to the government and recognized when an outflow of resources is probable and a reliable estimate can be made of the amount of the obligation. Emissions obligations are measured as the sum of the carrying amount of the allocated rights that will be submitted to the government and the best estimate of expenditure required to settle the obligation at the end of the reporting period for any excess emission.

5. Operating segment

The Group did not disclose consolidated business segment information as the reporting segment in accordance with KIFRS 1108 'Operating Segments' corresponds to a single segment. Sales attributable to KEPCO, the major customer, are W4,350,187 million and W4,754,550 million for the years ended December 31, 2019 and 2018, respectively.

Notes to the Consolidated Financial Statements

December 31, 2019 and 2018

6. Classification of Financial Instruments

- (1) Classification of financial assets as of December 31, 2019 and 2018 are as follows:
- (i) As of 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	Derivative assets (applying hedge accounting)	Total
Current financial assets:						
Cash and cash equivalents	W	-	61,301	-	-	61,301
Current financial assets:						
Short-term loans		-	4,472	-	-	4,472
Short-term financial						
instruments		-	50,000	-	-	50,000
Derivative assets		15	-	-	-	15
Trade and other						
receivables, net			559,154			559,154
		15	674,927			674,942
Non-current financial assets:						
Non-current financial assets:						
Non-current financial						
assets at fair value						
through other						
comprehensive income		-	-	192,957	-	192,957
Long-term loans		-	34,728	-	-	34,728
Derivative assets		=	=	-	45,838	45,838
Non-current trade and						
other receivables, net			6,949			6,949
			41,677	192,957	45,838	280,472
	W	15	716,604	192,957	45,838	955,414

Notes to the Consolidated Financial Statements

December 31, 2019 and 2018

6. Classification of Financial Instruments, Continued

- (1) Classification of financial assets as of December 31, 2019 and 2018 are as follows, Continued:
- (ii) As of December 31, 2018

		Financial assets at fair value through profit or loss	Financial assets at amortized cost	Financial assets at fair value through other comprehensive income	Derivative assets (applying hedge accounting)	Total
Current financial assets:						
Cash and cash equivalents Current financial assets:	₩	-	67,026	-	-	67,026
Short-term loans Short-term financial		-	3,974	-	-	3,974
instruments		_	50,000	_	_	50,000
Derivative assets Trade and other		24	-	-	18,212	18,236
receivables, net		-	593,436	-	_	593,436
•		24	714,436		18,212	732,672
Non-current financial assets: Non-current financial assets: Non-current financial						
assets at fair value						
through other comprehensive income		-	<u>-</u>	225,332	-	225,332
Long-term loans		-	14,854	-	-	14,854
Derivative assets		-	-	-	18,275	18,275
Non-current trade and						
other receivables, net			2,404			2,404
			17,258	225,332	18,275	260,865
	W	24	731,694	225,332	36,487	993,537

Notes to the Consolidated Financial Statements

December 31, 2019 and 2018

6. Classification of Financial Instruments, Continued

(2) Classification of financial liabilities as of December 31, 2019 and 2018 are as follows:

(i) As of December 31, 2019

In millions of won		Financial liabilities at fair value through profit or loss	Financial liabilities at amortized cost	Derivative liabilities (applying hedge accounting)	Total
Current financial liabilities:					
Trade and other payables	₩	-	395,305	-	395,305
Current financial liabilities Borrowings		_	200,348	_	200,348
Debentures		-	629,839	-	629,839
Derivative liabilities		312		<u> </u>	312
		312	1,225,492		1,225,804
Non-current financial liabilities:					
Non-current trade and other payables		-	680,727	-	680,727
Non-current financial liabilities Borrowings			852		852
Debentures			4,302,678	- -	4,302,678
Derivative liabilities		-	-	357	357
		_	4,984,257	357	4,984,614
	W	312	6,209,749	357	6,210,418
(ii) As of December 31, 2018					
In millions of won		Financial liabilities at fair value through profit or loss	Financial liabilities at amortized cost	Derivative liabilities (applying hedge accounting)	Total
Current financial liabilities:					
Trade and other payables Current financial liabilities	₩	-	422,654	-	422,654
Borrowings		_	40,348	_	40,348
Debentures		-	722,120	-	722,120
Derivative liabilities		213	<u> </u>	5,284	5,497
		213	1,185,122	5,284	1,190,619
Non-current financial liabilities:					
Non-current financial liabilities			1.200		1,200
Borrowings Debentures		_			1.700
		_	1,200	-	· ·
Descritares			4,336,123 4,337,323		4,336,123 4,337,323

Notes to the Consolidated Financial Statements

December 31, 2019 and 2018

6. Classification of Financial Instruments, Continued

(3) Classification of gain or loss from financial instruments for the years ended December 31, 2019 and 2018 are as follows:

In millions of won

Туре	Description	2019	2018
Financial assets at	Interest income	₩ 6,677	6,496
amortized cost	Gain (loss) on changes in foreign exchange rates, net	(690)	56
	Amortization of present value discount	165	388
Financial assets at fair value through profit	Gain on valuation of derivative instruments, net	15	24
or loss	Gain on transactions of derivative instruments, net	2,432	8,300
Financial assets at fair			
value through other comprehensive	Gain (loss) on valuation of derivative instruments, net (equity, before tax)	(33,045)	91,877
income	Dividend income	14,052	6,512
Financial liabilities at fair value through	Loss on valuation of derivative instruments, net	(312)	(213)
profit or loss	Loss on transactions of derivative instruments, net	(2,829)	(2,169)
Fair value hedge			
derivative assets	Gain on valuation of derivative instruments, net	22,652	36,860
	Gain on valuation of derivative instruments, net		
	(equity, before tax)	4,144	11,236
	Gain on transaction of derivative instruments, net	30,428	26,673
Financial liabilities at	Loss on changes in foreign exchange rates, net	(50,400)	(67,023)
amortized cost	Interest expenses on borrowings and debentures	(130,480)	(138,488)
	Other interest expenses	(17,538)	(662)

7. Cash and Cash Equivalents and Short-term financial instruments

(1) Cash and cash equivalents as of December 31, 2019 and 2018 are as follows:

In millions of won

		2019	2018
Cash	W	1	1
Other demand deposits		57,493	31,716
Short-term investment assets classified as cash equivalents		3,807	35,309
	W	61,301	67,026

(2) Short-term financial instruments restricted in use as of December 31, 2019 and 2018 are as follows:

In millions of won

		2019	2018
Deposits (*)	w _	50,000	50,000

(*) A restriction on withdrawals related to 'win-win growth program' for small and medium size enterprises.

Notes to the Consolidated Financial Statements

December 31, 2019 and 2018

8. Trade and Other Receivables

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

(i) As of December 31, 2019

	Present value					
In millions of won	Gross amount		discount	Book value		
Current assets:						
Trade receivables	\mathbf{W}	439,904	-	439,904		
Other receivables		119,380	(130)	119,250		
	_	559,284	(130)	559,154		
Non-current assets:	_					
Trade receivables		1,933	-	1,933		
Other receivables	_	5,210	(194)	5,016		
		7,143	(194)	6,949		
	\mathbf{W}	566,427	(324)	566,103		

^(*) There are no trade and other receivables which are overdue or impaired at the end of the reporting period.

(ii) As of December 31, 2018

	Present value					
In millions of won	Gross amount		discount	Book value		
Current assets:						
Trade receivables	\mathbf{W}	393,030	-	393,030		
Other receivables		200,525	(119)	200,406		
		593,555	(119)	593,436		
Non-current assets:						
Other receivables		2,578	(174)	2,404		
	₩	596,133	(293)	595,840		

⁽²⁾ Details of other receivables as of December 31, 2019 and 2018 are as follows:

(i) As of December 31, 2019

	Present value					
In millions of won	_	Gross amount	discount	Book value		
Current assets:						
Non-trade receivables	W	22,878	-	22,878		
Accrued income		90,797	-	90,797		
Guarantee		5,705	(130)	5,575		
Others		-	· -	-		
		119,380	(130)	119,250		
Non-current assets:						
Non-trade receivables		-	-	-		
Guarantee		5,210	(194)	5,016		
	_	5,210	(194)	5,016		
	w_	124,590	(324)	124,266		

Notes to the Consolidated Financial Statements

December 31, 2019 and 2018

8. Trade and Other Receivables, Continued

- (2) Details of other receivables as of December 31, 2019 and 2018 are as follows, Continued:
- (ii) As of December 31, 2018

In millions of won		Present value			
·	_	Gross amount	discount	Book value	
Current assets:					
Non-trade receivables	₩	6,432	-	6,432	
Accrued income		189,370	-	189,370	
Guarantee		4,702	(119)	4,583	
Others		21	-	21	
		200,525	(119)	200,406	
Non-current assets:					
Non-trade receivables		85	-	85	
Guarantee		2,493	(174)	2,319	
		2,578	(174)	2,404	
	w	203,103	(293)	202,810	

9. Financial Assets at Fair Value through Other Comprehensive Income

(1) Financial assets at fair value through other comprehensive income as of December 31, 2019 and 2018 are as follows:

In millions of won				20	19	2018
	Number of shares	Ownership		Acquisition cost	Book value	Book value
Equity securities listed:						
PT Bayan Resources TBK (*1)	133,333,340	4.00%	W	80,533	176,172	203,520
Equity securities unlisted:						
Korea Power Exchange (*2)	1,826,275	7.14%		9,131	16,357	15,863
KEPCO UHDE	103,230	2.40%		516	14	14
HeeMang Sunlight Power Co., Ltd.	78,600	8.33%		393	393	393
3i Powergen Inc. (*3)	-	15.00%		1,482	-	-
KEPCO Bylong Australia Pty.,						
Ltd. (*4)	3,537,032	2.00%		6,135	-	5,542
Fire Guarantee (*5)	40	-		21	21	
• •			W	98,211	192,957	225,332

- (*1) The Group has measured the fair value by using the quoted market prices in active markets.
- (*2) The Group has measured 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 in other comprehensive loss during the year ended December 31, 2019.
- (*3) As a result of discontinued operations, the difference between the carrying amount and the recoverable amount was recognized as an impairment loss.
- (*4) Represents financial assets at fair value through other comprehensive income held by KOWEPO Bylong Pty., Ltd., a subsidiary of the Group.
- (*5) Represents financial assets at fair value through other comprehensive income held by KOWEPO Service Co., Ltd., a subsidiary of the Group.

Notes to the Consolidated Financial Statements

December 31, 2019 and 2018

9. Financial Assets at Fair Value through Other Comprehensive Income, Continued

(2) Changes in financial assets at fair value through other comprehensive income for the years ended December 31, 2019 and 2018 are as follows:

(i) For the year ended December 31, 2019

In millions of won	-	Beginning balance	Gain or loss on valuation	Acquisition	Others	Ending Balance
Equity securities listed	W	203,520	(27,348)	-	-	176,172
Equity securities unlisted		21,812	(5,697)	21	649	16,785
	₩	225,332	(33,045)	21	649	192,957

(ii) For the year ended December 31, 2018

In millions of won	_	Beginning Balance	Gain or loss on valuation	Others	Ending Balance
Equity securities listed	W	111,653	91,867	_	203,520
Equity securities unlisted		22,135	11	(334)	21,812
	w -	133,788	91,878	(334)	225,332

10. Derivatives

(1) Derivatives as of December 31, 2019 and 2018 are as follows:

In millions of won		20	19	2018	
	_	Current	Non-current	Current	Non-current
Derivative assets:	_				
Currency forward	\mathbf{W}	15	-	24	-
Currency swap		-	45,838	18,212	18,275
	\mathbf{w}^{-}	15	45,838	18,236	18,275
Derivative liabilities:	_				
Currency forward	W	312	-	213	-
Currency swap		-	357	5,284	-
	W	312	357	5,497	-

(2) Currency swap contracts as of December 31, 2019 are as follows:

In millions of won, and thousands of USD and CHF

			Contract amounts			ct interest ate	Contract exchange
Туре	Counterparty	Period	Sell (KRW)	Buy	Pay (%)	Receive (%)	rate (in won)
Cash flow	Korea Development						
hedges	Bank	2018~2023	320,880	USD 300,000	2.028	3.750	1,069.60
	BNP Paribas	2019~2024	111,841	CHF 100,000	1.778	0.125	1,118.41
	Kookmin Bank	2019~2024	111,841	CHF 100,000	1.778	0.125	1,118.41
	Korea Development						
	Bank	2019~2022	117,340	USD 100,000	1.060	2.375	1,173.40
	KEB Hana Bank	2019~2022	117,340	USD 100,000	1.060	2.375	1,173.40
	Kookmin Bank	2019~2022	117,340	USD 100,000	1.060	2.375	1,173.40

Notes to the Consolidated Financial Statements

December 31, 2019 and 2018

10. Derivatives, Continued

(3) Currency swap forward as of December 31, 2019 are as follows:

In millions of won and thousands of USD

In munion.	s of won and inousands of	CSD		Contract		
Туре	Counterparty	Contract Date	Maturity Date	Sell (KRW)	Buy	Contract exchange rate (in won)
Trading	BNP Paribas	2019.12.12	2020.01.16	4,739	USD 4,000	1,184.85
purpose	Mizuho Bank	2019.12.12	2020.01.16	3,558	USD 3,000	1,186.00
	MUFG Bank, Ltd.	2019.12.17	2020.01.21	5,823	USD 5,000	1,164.60
	Bank of Nova Scotia	2019.12.17	2020.01.21	5,824	USD 5,000	1,164.70
	BNP Paribas	2019.12.20	2020.01.22	2,290	USD 1,975	1,159.48
	NH Bank	2019.12.20	2020.01.22	11,605	USD 10,000	1,160.50
	Bank of Nova Scotia	2019.12.30	2020.02.03	5,778	USD 5,000	1,155.65
	Mizuho Bank	2019.12.30	2020.02.03	5,777	USD 5,000	1,155.30

⁽⁴⁾ Gain (loss) on valuation and transaction of derivative instruments for the years ended December 31, 2019 and 2018 are as follows:

(i) For the year ended December 31, 2019

In millions of won

Туре		et income effect valuation gain or loss	Net income effect of transaction gain or loss	Other comprehensive income
Currency forward Currency swap	₩	(297) 22,652	(397) 30,428	- 4.144
7 1	W	22,355	30,031	4,144

(ii) For the year ended December 31, 2018

Туре		Net income effect Evaluation gain or loss	Net income effect of transaction gain	Other comprehensive income
Currency forward	₩	(189) 36,860	6,132 26,673	- 11 226
Currency swap	<u>w</u>	36,671	32,805	11,236 11,236

^(*) The gain on valuation of derivative instruments using cash flow hedge accounting is recognized as accumulated other comprehensive income amounting to ± 0.000 million, net of tax as of December 31, 2019.

Notes to the Consolidated Financial Statements

December 31, 2019 and 2018

11. Other Financial Assets

(1) Other financial instruments as of December 31, 2019 and 2018 are as follows:

In millions of won		2019		2018	
	_	Current	Non-current	Current	Non-current
Short-term loans	W	4,472	34,728	3,974	14,854
Short-term financial instruments		50,000	-	50,000	-
Derivative assets		15	45,838	18,236	18,275
Non-current financial assets at fair value through other					
comprehensive income		-	192,957	-	225,332
-	W	54,487	273,523	72,210	258,461

(2) Details of loans as of December 31, 2019 and 2018 are as follows:

(i) As of December 31, 2019

In millions of won	-	Face value	Present value discount	Foreign exchange adjustment	Book value
Short-term loans		4.500	(100)		4.450
Loans for tuition	Ψ_{\perp}	4,580	(108)		4,472
	_	4,580	(108)	-	4,472
Long-term loans					
Loans for tuition		15,011	(1,574)	-	13,437
Others		21,897	-	(606)	21,291
	_	36,908	(1,574)	(606)	34,728
	W	41,488	(1,682)	(606)	39,200

(ii) As of December 31, 2018

In millions of won		Present value					
		Face value	discount	Book value			
Short-term loans							
Loans for tuition	W	4,055	(122)	3,933			
Others		41	- -	41			
		4,096	(122)	3,974			
Long-term loans							
Loans for tuition		14,751	(1,382)	13,369			
Others		1,485	<u> </u>	1,485			
		16,236	(1,382)	14,854			
	W	20,332	(1,504)	18,828			

Notes to the Consolidated Financial Statements

December 31, 2019 and 2018

12. Inventories

Inventories as of December 31, 2019 and 2018 are as follows:

In millions of won		2019	2018
Raw materials	₩-	110,406	170,822
Supplies		68,566	75,746
Inventories in transit		73,044	165,009
Others		576	323
	W	252,592	411,900

^(*) There was no loss on valuation of inventories incurred for the years ended December 31, 2019 and 2018.

13. Non-financial assets

Non-financial assets as of December 31, 2019 and 2018 are as follows:

In millions of won		201	9	2018		
	_	Current	Non-current	Current	Non-current	
Advanced payments	W	2,764	19	24,194	19	
Prepaid expenses		11,519	1,698	14,333	1,502	
Others		41,150	21,118	43,021	8,278	
	W	55,433	22,835	81,548	9,798	

Notes to the Consolidated Financial Statements

December 31, 2019 and 2018

14. Investments in Subsidiaries

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

	Key operating		Percen owners voting	ship or
Company	activities	Location	2019	2018
Garolim Tidal Power Co., Ltd. (*1)	Power generation	Republic of Korea	-	49.00%
KOWEPO Australia Pty., Ltd.	Overseas resources development	Australia	100.00%	100.00%
KOWEPO International Corporation	Managing power plant	Philippines	99.99%	99.99%
PT KOWEPO Sumsel Operation and Maintenance Services	Managing power plant	Indonesia	95.00%	95.00%
KOWEPO Bylong Pty., Ltd. (*2)	Overseas resources development	Australia	100.00%	100.00%
KOWEPO Lao International	Managing power plant	Laos	100.00%	100.00%
KOWEPO Service Co., Ltd. Haenaneum Energy Fund (*3)	Managing facility Sunlight generation, ESS	Republic of Korea Republic of Korea	100.00% 99.64%	100.00%

^(*1) Garolim Tidal Power Co., Ltd. was reclassified as a non-current asset held for sale due to a business liquidation decision, and the liquidation is in process for the year ended December 31, 2019.

^(*2) The ownership interest in KOWEPO Bylong Pty., Ltd. is the percentage of common share capital excluding preferred share capital which has no voting rights.

^(*3) Haenaneum Energy Fund was established on December 30, 2019.

Notes to the Consolidated Financial Statements

December 31, 2019 and 2018

14. Investments in Subsidiaries, Continued

(2) Summary of financial information of consolidated subsidiaries as of and for the years ended December 31, 2019 and 2018 are as follows:

(i) As of and for the year ended December 31, 2019

In millions of won

Company		Assets	Liabilities	Sales	or loss for the year
KOWEPO Australia Pty., Ltd.	W	44,182	5,772	15,514	2,761
KOWEPO International Corporation		-	10	-	(2)
PT KOWEPO Sumsel Operation and					
Maintenance Services		135	262	-	(1,104)
KOWEPO Bylong Pty., Ltd.		4	40	-	(12)
KOWEPO Lao International		5,430	575	4,308	1,584
KOWEPO Service Co., Ltd.		4,228	3,302	23,982	389
Haenaneum Energy Fund		28,101	1	-	1

(ii) As of and for year ended December 31, 2018

Company		Assets	Liabilities	Sales	Net profit or loss for the year
Garolim Tidal Power Co., Ltd.	W	608	345	_	(11)
KOWEPO Australia Pty., Ltd.		39,341	4,702	20,294	7,316
KOWEPO International Corporation		-	8	-	-
PT KOWEPO Sumsel Operation and					
Maintenance Services		1,313	394	4,343	(654)
KOWEPO Bylong Pty., Ltd.		5,544	26	-	-
KOWEPO Lao International		3,800	1,015	2,899	895
KOWEPO Service Co., Ltd.		750	227	-	(77)

Notes to the Consolidated Financial Statements

December 31, 2019 and 2018

14. Investments in Subsidiaries, Continued

(3) Details of non-controlling interests as of and for the year ended December 31, 2019 are as follows:

In millions of won		PT KOWEPO Sumsel Operation and Maintenance Services	KOWEPO Bylong Pty., Ltd.	Haenaneum Energy Fund
Current assets	₩	135	4	28,101
Non-current assets		-	-	-
Current liabilities		262	40	1
Net assets		(128)	(36)	28,101
Ownership percentage of non-controlling interests		5.00%	-	0.36%
Book value of non-controlling interests		(10)	-	100
Sales		-	-	-
Net profit (loss) for the year		(1,104)	-	1
Net loss for the year attributable to non-controlling interests		(55)	-	-
Cash flows from operating activities		(44)	=	-
Cash flows from investing activities		4	-	-
Cash flows from financing activities		_	-	101
Effect of exchange rate fluctuations		2	-	-
Net increase (decrease) of cash and cash equivalents		(38)	-	101

(4) Changes in the scope of the consolidated entities for the year ended December 31, 2019 are as follows:

Company	Scope change	Reasons for change
Garolim Tidal Power Co., Ltd.	Excluded from subsidiaries	Liquidation in process
Haenaneum Energy Fund	Included in subsidiaries	Newly established

Notes to the Consolidated Financial Statements

December 31, 2019 and 2018

15. Investments in Associates and Joint Ventures

- (1) Investments in associates and joint ventures as of December 31, 2019 and 2018 are as follows:
- (i) As of December 31, 2019

Associates Cheongna Energy Co., Ltd. Energy supply Republic of Korea 43.90% ₩ 48,353 1,411 Pioneer Gas Power., Ltd. Energy supply India 38.50% 49,831 - Eurasia Energy Holdings Energy supply Russia 40.00% 461 - Xe-Pian Xe-Namnoy Power Co., Ltd. Energy supply Laoos 25.00% 87,426 72,935 PT. Mutiara Jawa Energy supply Indonesia 29.00% 2,978 1,438 Korea Offshore Wind Power Co., Ltd. (*1) Energy supply Republic of Korea 12.50% 26,600 21,180 Daegu Solar Power Plant Co., Ltd. Energy supply Republic of Korea 12.50% 26,600 21,180 Daegu Solar Power Plant Co., Ltd. Energy supply Republic of Korea 34.01% 148,105 76,547 Solar Power Plants Happy City Co., Ltd. Energy supply Republic of Korea 34.01% 148,105 76,547 Solar School Plant Co., Ltd. (*1) Energy supply Republic of Korea 8.33% 16,650 17,105	Company	Major operation	Location	Percentage of ownership		Acquisition cost	Book value
Pioneer Gas Power., Ltd. Energy supply India 38.50% 49,831 - Eurasia Energy Holdings Energy supply Russia 40.00% 461 - Xe-Pian Xe-Namnoy Power Co., Ltd. Energy supply Laos 25.00% 87,426 72,935	Associates						
Eurasia Energy Holdings Energy supply Russia 40.00% 461 -	Cheongna Energy Co., Ltd.	Energy supply	Republic of Korea	43.90%	₩	48,353	1,411
Xe-Pian Xe-Namnoy Power Co., Ltd. Energy supply Laos 25.00% 87,426 72,935 PT. Mutiara Jawa Energy supply Indonesia 29,00% 2,978 1,438 Korea Offshore Wind Power Co., Ltd. (*1) Energy supply Republic of Korea 12.50% 26,600 21,180 Daegu Solar Power Plant Co., Ltd. Energy supply Republic of Korea 29.00% 1,230 2,059 Dongducheon Dream Power Co., Ltd. Energy supply Republic of Korea 34.01% 148,105 76,547 Solar Power Plants Happy City Co., Ltd. Energy supply Republic of Korea 28.00% 194 215 Shin Pyeongtack Power Co., Ltd. Energy supply Republic of Korea 40.00% 72,000 66,956 Solar School Plant Co., Ltd. (*1) Energy supply Republic of Korea 8.33% 16,650 17,105 KEPCO Energy Solution Co., Ltd. (*1) Energy supply Republic of Korea 8.33% 25,000 25,508 Joint ventures Rabigh O&M Co., Ltd. (*2) O&M Saudi Arabia 40.00% 70 <td>Pioneer Gas Power., Ltd.</td> <td>Energy supply</td> <td>India</td> <td>38.50%</td> <td></td> <td>49,831</td> <td>-</td>	Pioneer Gas Power., Ltd.	Energy supply	India	38.50%		49,831	-
PT. Mutiara Jawa Energy supply Indonesia 29.00% 2,978 1,438 Korea Offshore Wind Power Co., Ltd. (*1) Energy supply Republic of Korea 12.50% 26,600 21,180 Daegu Solar Power Plant Co., Ltd. Energy supply Republic of Korea 29.00% 1,230 2,059 Dongducheon Dream Power Co., Ltd. Energy supply Republic of Korea 34.01% 148,105 76,547 Solar Power Plants Happy City Co., Ltd. Energy supply Republic of Korea 28.00% 194 215 Shin Pyeongtaek Power Co., Ltd. Energy supply Republic of Korea 40.00% 72,000 66,956 Solar School Plant Co., Ltd. (*1) Energy supply Republic of Korea 8.33% 16,650 17,105 KEPCO Energy Solution Co., Ltd. (*1) Energy supply Republic of Korea 8.33% 25,000 25,508 VIAMCO KOWEPO Bannerton Hold Co., Pty., Ltd. (*2) Energy supply Australia 12.37% 4,095 4,024 Haemodum Solar Energy Co., Republic of Energy supply Energy supply </td <td>Eurasia Energy Holdings</td> <td>Energy supply</td> <td>Russia</td> <td>40.00%</td> <td></td> <td>461</td> <td>=</td>	Eurasia Energy Holdings	Energy supply	Russia	40.00%		461	=
Republic of Korea 12.50% 26,600 21,180	Xe-Pian Xe-Namnoy Power Co., Ltd.	Energy supply	Laos	25.00%		87,426	72,935
Daegu Solar Power Plant Co., Ltd. Energy supply Plant Republic of Korea 29.00% 1,230 2,059 Dongducheon Dream Power Co., Ltd. Energy supply Solar Power Plants Happy City Co., Ltd. Energy supply Republic of Korea 34.01% 148,105 76,547 Solar Power Plants Happy City Co., Ltd. Energy supply Republic of Korea 28.00% 194 215 Shin Pycongtack Power Co., Ltd. Energy supply Republic of Korea 40.00% 72,000 66,956 Solar School Plant Co., Ltd. (*1) Energy supply Republic of Korea 8.33% 16,650 17,105 KEPCO Energy Solution Co., Ltd. (*1) Energy supply Republic of Korea 8.33% 25,000 25,508 Joint ventures Rabigh O&M Co., Ltd. (*2) O&M Saudi Arabia 40.00% 70 6,879 KIAMCO KOWEPO Bannerton Hold Co., Pty., Ltd. (*2) Energy supply Australia 12.37% 4,095 4,024 Haemodum Solar Energy Co., Republic of 49,00% 2,940 2,940 Ltd. (*2)(*3) Energy supply Korea 49,00% 2,940 7,1	PT. Mutiara Jawa	Energy supply	Indonesia	29.00%		2,978	1,438
Dongducheon Dream Power Co., Ltd. Energy supply Republic of Korea 34.01% 148,105 76,547	Korea Offshore Wind Power Co., Ltd. (*1)	Energy supply	Republic of Korea	12.50%		26,600	21,180
Solar Power Plants Happy City Co., Ltd. Energy supply Republic of Korea 28.00% 194 215	Daegu Solar Power Plant Co., Ltd.	Energy supply	Republic of Korea	29.00%		1,230	2,059
Shin Pyeongtaek Power Co., Ltd. Energy supply Solurion Co., Ltd. (*1) Energy supply Energy supply Republic of Korea 40.00% 4	Dongducheon Dream Power Co., Ltd.	Energy supply	Republic of Korea	34.01%		148,105	76,547
Solar School Plant Co., Ltd. (*1) Energy supply Republic of Korea 8.33% 16,650 17,105 KEPCO Energy Solution Co., Ltd. (*1) Energy supply Republic of Korea 8.33% 25,000 25,508 478,828 285,354 Joint ventures Rabigh O&M Co., Ltd. (*2) O&M Saudi Arabia 40.00% 70 6,879 KIAMCO KOWEPO Bannerton Hold Co., Pty., Ltd. (*2) Energy supply Australia 12.37% 4,095 4,024 Haemodum Solar Energy Co., Republic of Ltd. (*2)(*3) Energy supply Korea 49,00% 2,940 2,940 7,105 13,843 25,000 25,508 478,828 285,354	Solar Power Plants Happy City Co., Ltd.	Energy supply	Republic of Korea	28.00%		194	215
Republic of Korea 8.33% 25,000 25,508	Shin Pyeongtaek Power Co., Ltd.	Energy supply	Republic of Korea	40.00%		72,000	66,956
Joint ventures Rabigh O&M Co., Ltd. (*2) O&M Saudi Arabia 40.00% 70 6,879	Solar School Plant Co., Ltd. (*1)	Energy supply	Republic of Korea	8.33%		16,650	17,105
Saudi Arabia Australia A	KEPCO Energy Solution Co., Ltd. (*1)	Energy supply	Republic of Korea	8.33%		25,000	25,508
Rabigh O&M Co., Ltd. (*2) O&M Saudi Arabia 40.00% 70 6,879 KIAMCO KOWEPO Bannerton Hold Co., Pty., Ltd. (*2) Energy supply Australia 12.37% 4,095 4,024 Haemodum Solar Energy Co., Republic of Energy supply Korea 49,00% 2,940 2,940 Ltd. (*2)(*3) Energy supply Korea 49,00% 2,940 7,105 13,843						478,828	285,354
KIAMCO KOWEPO Bannerton Hold Co., Pty., Ltd. (*2) Energy supply Australia 12.37% 4,095 4,024 Haemodum Solar Energy Co., Republic of Energy supply Korea 49,00% 2,940 2,940 Ltd. (*2)(*3) Energy supply Korea 49,00% 2,940 7,105 13,843	Joint ventures						
Co., Pty., Ltd. (*2) Energy supply Haemodum Solar Energy Co., Ltd. (*2)(*3) Energy supply Energy Supply Korea Australia 12.37% 4,095 4,024 Republic of Energy supply Ltd. (*2)(*3) Energy supply Korea 49,00% 2,940 2,940 7,105 13,843	Rabigh O&M Co., Ltd. (*2)	O&M	Saudi Arabia	40.00%		70	6,879
Haemodum Solar Energy Co., Republic of Ltd. (*2)(*3) Energy supply Korea 49,00% 2,940 2,940 7,105 13,843	KIAMCO KOWEPO Bannerton Hold						
Ltd. (*2)(*3) Energy supply Korea 49,00% 2,940 2,940 7,105 13,843	Co., Pty., Ltd. (*2)	Energy supply	Australia	12.37%		4,095	4,024
7,105 13,843	Haemodum Solar Energy Co.,		Republic of				
	Ltd. (*2)(*3)	Energy supply	Korea	49,00%		2,940	2,940
$\frac{485,933}{485,933}$ 299,197						7,105	13,843
					₩	485,933	299,197

- (*1) These investees were classified as associates of the Group as it can exercise significant influence over the investees in accordance with the shareholders agreement despite the Group's ownership interest is less than 20%.
- (*2) The Group accounts for its investments in these investees as investments in joint ventures as the strategic financial and operating policy decisions relating to the activities of the joint ventures require unanimous consent of the investors.
- (*3) Haemodum Solar Energy Co., Ltd. was newly established on December 23, 2019. The Group acquired an investment in the investee during the year ended December 31, 2019 and classified the investee as a joint venture.

Notes to the Consolidated Financial Statements

December 31, 2019 and 2018

15. Investments in Associates and Joint Ventures, Continued

- (1) Investments in associates and joint ventures as of December 31, 2019 and 2018 are as follows, Continued:
- (ii) As of December 31, 2018

Company	Major operation	Location	Percentage of ownership	_	Acquisition cost	Book value
Associates						
Cheongna Energy Co., Ltd.	Energy supply	Republic of Korea	43.90%	W	48,353	3,465
Pioneer Gas Power., Ltd.	Energy supply Energy supply	India	38.50%	**	49,831	20,395
Eurasia Energy Holdings	Energy supply Energy supply	Russia	40.00%		461	20,373
Xe-Pian Xe-Namnoy Power Co., Ltd.	Energy supply Energy supply	Laos	25.00%		84,374	77,165
PT. Mutiara Jawa		Indonesia	29.00%		2,978	365
	Energy supply		12.50%		26,600	22,476
Korea Offshore Wind Power Co., Ltd. (*1)		Republic of Korea			,	
Daegu Solar Power Plant Co., Ltd.	Energy supply	Republic of Korea	29.00%		1,230	2,002
Dongducheon Dream Power Co., Ltd.	Energy supply	Republic of Korea	34.01%		148,105	76,386
Solar Power Plants Happy City Co., Ltd.	Energy supply	Republic of Korea	28.00%		194	202
Shin Pyeongtaek Power Co., Ltd.	O&M	Republic of Korea	40.00%		72,000	67,600
Solar School Plant Co., Ltd. (*1)	Energy supply	Republic of Korea	8.33%		16,650	16,893
KEPCO Energy Solution Co., Ltd. (*1)	Energy supply	Republic of Korea	8.33%		25,000	25,271
					475,776	312,220
Joint ventures						
Rabigh O&M Co., Ltd. (*2)	O&M	Saudi Arabia	40.00%		70	5,834
KIAMCO KOWEPO Bannerton Hold						,
Co Pty., Ltd. (*2)	Energy supply	Australia	12.37%		4,095	3,941
Haemodum Solar Energy Co.,		Republic of			,	,
LTd. (*2)	Energy supply	Korea	_		_	_
	<i>67</i> 11-7				4,165	9,775
				W	479,941	321,995

^(*1) These investees were classified as associates of the Group as it can exercise significant influence over the investees in accordance with the shareholders agreement despite the Group's ownership interest is less than 20%.

^(*2) The Group accounts for its investments in these investees as investments in joint ventures as the strategic financial and operating policy decisions relating to the activities of the joint ventures require unanimous consent of the investors.

Notes to the Consolidated Financial Statements

December 31, 2019 and 2018

15. Investments in Associates and Joint Ventures, Continued

- (2) Changes in investments in associates and joint ventures for the years ended December 31, 2019 and 2018 are as follows:
- (i) For the year ended December 31, 2019

Company	Beginning balance	Acquisi- tions	Dividends received	Share of profit (loss)	Other comprehe-nsive income (loss)	Retained earnings	Ending balance
Associates							
Cheongna Energy Co., Ltd. \\	3,465	-	-	(2,054)	-	-	1,411
Pioneer Gas Power., Ltd. (*1)	20,395	-	-	(20,784)	389	-	-
Eurasia Energy Holdings (*2)	-	-	-	-	-	-	-
Xe-Pian Xe-Namnoy Power Co., Ltd. (*3)	77,165	3,052	-	(10,210)	2,928	-	72,935
PT. Mutiara Jawa	365	-	_	1,031	42	-	1,438
Korea Offshore Wind Power Co., Ltd.	22,476	-	_	(1,296)	-	-	21,180
Daegu Solar Power Plant Co., Ltd.	2,002	-	(327)	384	-	-	2,059
Dongducheon Dream Power Co., Ltd.	76,386	-	-	441	-	(280)	76,547
Solar Power Plants Happy City Co.,	202	-	-	13	-	-	215
Ltd.							
Shin Pyeongtaek Power Co., Ltd.	67,600	-	-	(827)	198	(15)	66,956
Solar School Plant Co., Ltd.	16,893	-	-	213	-	(1)	17,105
KEPCO Energy Solution Co., Ltd.	25,271			238		(1)	25,508
	312,220	3,052	(327)	(32,851)	3,557	(297)	285,354
Joint ventures							
Rabigh O&M Co., Ltd.	5,834	-	(2,222)	3,070	197	-	6,879
KIAMCO KOWEPO Bannerton Hold	3,941	-	-	(30)	113	-	4,024
Co Pty Ltd.							
Haemodum Solar Energy Co., Ltd. (*4)		2,940					2,940
	9,775	2,940	(2,222)	3,040	310		13,843
W	321,995	5,992	(2,549)	(29,811)	3,867	(297)	299,197

- (*1) The investment has been reduced to nil (-), which resulted in discontinuation of the equity method. The accumulated unrecognized loss amounted to \text{\text{\$\psi}}114 million as of December 31, 2019.
- (*2) The investment has been reduced to nil (-), which resulted in discontinuation of the equity method. The accumulated unrecognized loss amounted to \text{\text{\$\text{\$W}}186} million as of December 31, 2019.
- (*3) The investee issued additional shares to increase capitals during the year ended December 31, 2019.
- (*4) The Group participated in the capital increase of the investee during the year ended December 31, 2019.

Notes to the Consolidated Financial Statements

December 31, 2019 and 2018

15. Investments in Associates and Joint Ventures, Continued

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

(ii) For the year ended December 31, 2018

Company		Beginning balance	Acquisi- tions	Dividends received	Share of income (loss)	Other comprehensive income (loss)	Retained earnings	Ending balance
Associates								
Cheongna Energy Co., Ltd.	W	8,338	_	-	(4,873)	-	-	3,465
Pioneer Gas Power., Ltd.		38,658	-	-	(17,683)	(580)	-	20,395
Eurasia Energy Holdings (*1)		-	-	-	-	_	-	-
Xe-Pian Xe-Namnoy Power Co.,								
Ltd. (*2)		61,780	12,893	-	(480)	2,972	-	77,165
PT. Mutiara Jawa		-	-	-	349	16	-	365
Korea Offshore Wind Power Co., Ltd.		23,535	-	-	(1,059)	-	-	22,476
Daegu Solar Power Plant Co., Ltd.		1,718	-	(128)	412	-	-	2,002
Dongducheon Dream Power Co., Ltd.		53,233	36,971	-	(13,824)	-	6	76,386
Solar Power Plants Happy City Co.,								
Ltd.		187	-	-	15	-	-	202
Shin Pyeong Taek Power Co., Ltd. (*2)		34,904	28,080	-	(2,946)	6,673	889	67,600
Solar School Plant Co., Ltd.		16,723	-	-	170	-	-	16,893
KEPCO Energy Solution Co., Ltd.		25,085			211	<u> </u>	(25)	25,271
		264,161	77,944	(128)	(39,708)	9,081	870	312,220
Joint ventures	•							
Rabigh O&M Co., Ltd.		3,987	-	(1,147)	2,821	173	-	5,834
KIAMCO KOWEPO Bannerton Hold								
Co Pty., Ltd. (*3)		-	4,095	-	(23)	(131)	-	3,941
		3,987	4,095	(1,147)	2,798	42	_	9,775
	W	268,148	82,039	(1,275)	(36,910)	9,123	870	321,995

^(*1) The investment has been reduced to nil (-), which resulted in discontinuation of the equity method. The accumulated unrecognized loss is \times 172 million as of December 31, 2018.

^(*2) The investee issued additional shares to increase capital during the year ended December 31, 2018.

^(*3) The Group participated in the capital increase of the investee during the year ended December 31, 2018.

Notes to the Consolidated Financial Statements

December 31, 2019 and 2018

15. Investments in Associates and Joint Ventures, Continued

- (3) Summary of financial information of investments in associates and joint venture as of and for the years ended December 31, 2019 and 2018 are as follows:
- (i) As of and for year ended December 31, 2019

In millions of won

Company	Assets	Liabilities	Sales	Net profit or loss for the year
Associates				
Cheongna Energy Co., Ltd.	¥ 383,034	383,288	68,626	(2,567)
Pioneer Gas Power., Ltd. (*1)	309,059	367,399	-	(54,501)
Eurasia Energy Holdings	592	1,056	-	-
Xe-Pian Xe-Namnoy Power Co., Ltd.	1,194,125	898,023	6,731	(40,437)
PT. Mutiara Jawa	26,109	21,150	11,196	3,396
Korea Offshore Wind Power Co., Ltd.	284,495	115,127	-	(10,368)
Daegu Solar Power Plant Co., Ltd.	15,486	8,385	3,639	1,442
Dongducheon Dream Power Co., Ltd.	1,474,224	1,206,478	689,414	2,849
Solar Power Plants Happy City Co., Ltd.	2,483	1,722	454	47
Shin Pyeongtaek Power Co., Ltd.	981,387	807,107	119,162	11,847
Solar School Plant Co., Ltd.	208,730	3,269	1,962	2,553
KEPCO Energy Solution Co., Ltd.	308,237	2,142	2,843	2,855
Joint ventures				
Rabigh O&M Co., Ltd.	36,121	18,923	23,777	7,203
KIAMCO KOWEPO Bannerton Hold Co Pty., Ltd.	32,883	425	_	(232)
Haemodum Solar Energy Co., Ltd.	7,237	1,237	-	· -

^(*1) Since the financial statements of the investee for the year ended December 31, 2019 were not available, the above figures represent the interim financial information for the nine-month period ended September 30, 2019.

Net profit

(ii) As of and for the year ended December 31, 2018

Company		Assets	Liabilities	Sales	or loss for the year
Associates		_			
Cheongna Energy Co., Ltd.	W	431,234	428,921	64,594	(11,110)
Pioneer Gas Power, Ltd. (*1)		311,742	316,810	-	(45,934)
Eurasia Energy Holdings		572	1,020	-	-
Xe-Pian Xe-Namnoy Power Co., Ltd.		1,015,013	702,187	-	(1,214)
PT. Mutiara Jawa		24,022	22,763	14,393	3,917
Korea Offshore Wind Power Co., Ltd.		216,114	36,377	-	(8,473)
Daegu Solar Power Plant Co., Ltd.		16,828	9,923	3,695	1,645
Dongducheon Dream Power Co., Ltd.		1,512,510	1,244,178	828,430	(22,864)
Solar Power Plants Happy City Co., Ltd.		2,630	1,915	455	52
Shin Pyeongtaek Power Co.,Ltd.		674,100	511,582	-	682
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
Joint ventures					
Rabigh O&M Co., Ltd.		26,172	11,587	26,387	7,173
KIAMCO KOWEPO Bannerton Hold Co Pty., Ltd.		31,958	173	-	(222)

^(*1) Since the financial statements of the investee for the year ended December 31, 2018 were not available, the above figures represent the interim financial information for the nine-month period ended September 30, 2018.

Notes to the Consolidated Financial Statements

December 31, 2019 and 2018

16. Property, Plant and Equipment

(1) Property, plant and equipment as of December 31, 2019 and 2018 are as follows:

(i) As of December 31, 2019

In millions of won

		Acquisition	Government	Accumulated	Accumulated impairment	
	-	cost	grants	depreciation	loss	Book value
Land	W	699,302	-	-	-	699,302
Buildings		1,540,330	(9,764)	(531,246)	(443)	998,877
Structures		1,346,898	(4,898)	(538,622)	(59)	803,319
Machinery		8,684,008	(60,042)	(3,708,674)	(52,525)	4,862,767
Vehicles		10,619	(9)	(8,246)	-	2,364
Equipment		125,510	(46)	(94,988)	(5)	30,471
Tools		34,594	(47)	(28,606)	-	5,941
Construction-in-progress		492,412	(11,015)	-	-	481,397
Right-of-use assets		1,146,213	(25)	(198,941)	-	947,247
	W	14,079,886	(85,846)	(5,109,323)	(53,032)	8,831,685

(ii) As of December 31, 2018

		Acquisition cost	Government grants	Accumulated depreciation	Accumulated impairment loss	Book value
Land	₩	639,601	-	-	-	639,601
Buildings		1,523,699	(9,912)	(464,639)	(443)	1,048,705
Structures		1,342,969	(5,123)	(491,079)	(59)	846,708
Machinery		8,287,239	(63,675)	(3,120,772)	(46,180)	5,056,612
Vehicles		9,039	(16)	(7,513)	=	1,510
Equipment		111,792	(148)	(79,029)	(6)	32,609
Tools		33,029	(111)	(25,241)	=	7,677
Construction-in-progress		195,416	(11,015)	-	(35,094)	149,307
Finance lease assets		326,551	(26)	(96,376)	<u> </u>	230,149
	W	12,469,335	(90,026)	(4,284,649)	(81,782)	8,012,878

Notes to the Consolidated Financial Statements

December 31, 2019 and 2018

16. Property, Plant and Equipment, Continued

- (2) Changes in the book value of property, plant and equipment for the years ended December 31, 2019 and 2018 are as follows:
- (i) For the year ended December 31, 2019

			Effect of					
	Beginning balance	Acquisition/ Capital expenditure	change in accounting policy (*)	Disposal	Depreciation (*1)	Impairment loss(*2)	Others (*3)	Ending balance
Land W	639,601	-	-	_	-	-	59,701	699,302
Buildings	1,058,617	291	-	(93)	(66,880)	-	16,706	1,008,641
(Government grants)	(9,912)	(291)	-	-	439	-	-	(9,764)
Structures	851,831	2	-	(3)	(47,544)	-	3,931	808,217
(Government grants)	(5,123)	-	-	-	225	-	-	(4,898)
Machinery	5,120,287	107,670	-	(7,809)	(596,446)	(6,345)	305,452	4,922,809
(Government grants)	(63,675)	(1,050)	-	564	4,119	-	-	(60,042)
Vehicles	1,526	118	-	(1)	(776)	-	1,506	2,373
(Government grants)	(16)	-	-	-	7	-	-	(9)
Equipment	32,757	108	-	(35)	(16,876)	-	14,563	30,517
(Government grants)	(148)	-	-	-	102	-	-	(46)
Tools	7,788	48	-	-	(3,423)	-	1,575	5,988
(Government grants)	(111)	-	-	-	64	-	-	(47)
Construction-in-progress	160,322	727,252	-	-	-	-	(395,162)	492,412
(Government grants)	(11,015)	-	-	-	-	-	-	(11,015)
Finance lease assets	230,175	-	(230,175)	-	-	-	-	-
(Government grants)	(26)	-	26	-	-	-	-	-
Right-of-use assets	-	4,606	1,046,078	(1,946)	(102,566)	-	1,100	947,272
(Government grants)	-	-	(26)	-	1	-	-	(25)
₩	8,012,878	838,754	815,903	(9,323)	(829,554)	(6,345)	9,372	8,831,685

^(*) Refer to Note 3

- (*2) The Group recognized impairment lossess of \(\pi 2,809\) million and \(\pi 3,536\) for Pyeongtaek 1 Complex classified as a disused asset and non-current held for sale assets, respectively.
- (*3) The others of \(\pi\9,371\) million comprise of \(\pi\1,317\) million transferred from construction-in-progress to retirement benefits and depreciation (property, plant and equipment) and amortization (intangible assets) expenses, \(\pi\2,596\) million of capitalization of finance costs, \(\pi\5,268\) million transferred from inventories, \(\precept{\pi}\5,566\) million transferred to intangible assets, a loss of \(\pi\357\) million incurred from cancellation of investment in construction-in-progress, a translation effect of foreign financial statements of \(\pi\215\) million, and \(\pi\6,089\) million transferred to provision for litigations. The weighted average capitalization rates for the year ended December 31, 2019 and 2018 are 2.37% and 2.17%, respectively.

^(*1) A depreciation expense of \(\forall 217\) million was recognized as construction-in-progress.

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Notes to the Consolidated Financial Statements

December 31, 2019 and 2018

16. Property, Plant and Equipment, Continued

- (2) Changes in the book value of property, plant and equipment for the year ended December 31, 2019 and 2018 are as follows, Continued:
- (ii) For the year ended December 31, 2018

		Beginning	Acquisition/ Capital		Depreciation	Impairment		Ending
		balance	expenditure	Disposal	(*1)	loss (*2)	Others (*3)	balance
Land	W	627,949	_	_	_	_	11,652	639,601
Buildings	•••	1,088,513	3,394	(60)	(65,389)	_	32,159	1,058,617
(Government grants)		(7,126)	(3,180)	-	394	_	-	(9,912)
Structures		853,974	74	(2)	(44,846)	_	42,631	851,831
(Government grants)		(5,349)	-	-	226	-	-	(5,123)
Machinery		5,205,409	105,653	(11,315)	(493,234)	(7,031)	320,805	5,120,287
(Government grants)		(67,978)	-	139	4,164	-	-	(63,675)
Vehicles		1,432	61	=	(829)	-	862	1,526
(Government grants)		(13)	(10)	=	7	-	-	(16)
Equipment		32,121	55	(5)	(15,455)	-	16,041	32,757
(Government grants)		(258)	-	-	110	-	-	(148)
Tools		6,210	209	-	(3,566)	-	4,935	7,788
(Government grants)		(175)	-	-	64	-	-	(111)
Construction-in-progress		148,260	449,462	(3,443)	-	-	(433,957)	160,322
(Government grants)		(11,015)	-	-	-	-	-	(11,015)
Finance lease assets		243,221	-	-	(13,584)	-	538	230,175
(Government grants)		(26)	-	-	-	-	-	(26)
	W	8,115,149	555,718	(14,686)	(631,938)	(7,031)	(4,334)	8,012,878

- (*1) A depreciation expense of \(\prec{\psi}{143}\) million was recognized as construction-in-progress.
- (*2) An impairment loss of W7,031 million was recognized due to a fire accident at Taean Thermal Power Station #2.
- (*3) The others of \(\pi4,334\) million comprise of \(\pi766\) million transferred from retirement benefits and depreciation (property, plant and equipment) expenses to construction-in-progress, \(\pi1,129\) million of capitalization of finance costs, \(\pi5,515\) million transferred to intangible assets, a loss of \(\pi247\) million incurred from cancellation of investment in construction-in-progress, and a translation effect of foreign financial statements of \(\pi468\) million. The weighted average capitalization rates for the years ended December 31, 2018 and 2017 are 2.17% and 2.70%, respectively.

Notes to the Consolidated Financial Statements

December 31, 2019 and 2018

17. Intangible Assets

(1) Intangible assets as of December 31, 2019 and 2018 are as follows:

(i) As of December 31, 2019

In millions of won

	-	Acquisition cost	Government grants	Accumulated amortization	Accumulated impairment loss	Book value
Computer software	W	42,469	(30)	(32,841)	-	9,598
Mining rights		12,878	-	(6,142)	-	6,736
Development costs		3,791	-	(3,067)	-	724
Land use rights		4,365	-	(1,294)	-	3,071
Others	_	105,426		(81,704)	(231)	23,491
	W	168,929	(30)	(125,048)	(231)	43,620

(ii) As of December 31, 2018

	-	Acquisition cost	Government grants	Accumulated amortization	Accumulated impairment loss	Book value
Computer software	W	38,113	(56)	(30,500)	-	7,557
Mining rights		10,433	-	(4,068)	-	6,365
Development costs		3,271	-	(2,754)	-	517
Land use rights		3,857	-	(829)	-	3,028
Others		83,617	-	(81,472)	(231)	1,914
	W	139,291	(56)	(119,623)	(231)	19,381

Notes to the Consolidated Financial Statements

December 31, 2019 and 2018

17. Intangible Assets, Continued

- (2) Changes in the book value of intangible assets for the years ended December 31, 2019 and 2018 are as follows:
- (i) For the year ended December 31, 2019

In millions of won

		Beginning balance	Acquisition/ Capital expenditure	Disposals	Amortization	Others(*1)	Ending balance
Computer software	₩	7,613	447	-	(2,617)	4,185	9,628
(Government grants)		(55)	-	-	25	-	(30)
Mining rights		6,365	2,145	-	(2,023)	249	6,736
Development costs		517	-	-	(313)	520	724
Land use rights		3,028	-	-	(464)	507	3,071
Others		1,913	19,635	(344)	(230)	2,517	23,491
	W	19,381	22,227	(344)	(5,622)	7,978	43,620

^(*1) The others of \(\pi\)7,978 million comprise of \(\pi\)5,565 million transferred from construction-in-progress, a translation effect of foreign financial statements of \(\pi\)257 million and \(\pi\)2,155 million transferred from Greenhouse gas emission rights.

(ii) For the year ended December 31, 2018

		Beginning balance	Acquisition/ Capital expenditure	Disposals	Amortization	Others(*1)	Ending balance
Computer software	W	5,520	7	-	(2,171)	4,257	7,613
(Government grants)		(81)	-	-	26	-	(55)
Mining rights		7,845	121	-	(1,218)	(383)	6,365
Development costs		777	-	-	(322)	62	517
Land use rights		2,238	-	-	(386)	1,176	3,028
Others		2,058	11	(5)	(153)	2	1,913
	W	18,357	139	(5)	(4,224)	5,114	19,381

^(*1) The others of \(\pi_5,114\) million comprise of \(\pi_5,515\) million transferred from construction-in-progress and a translation effect of foreign financial statements of \(\pi_401\) million.

Notes to the Consolidated Financial Statements

December 31, 2019 and 2018

18. Leases

(1) Major lease contracts

In order to provide stable supply of bituminous coal, the Group has entered into a consecutive voyage contract mainly with Daebo International Shipping Co., Ltd. for the lease of vessels (see Note 43 (4)). In addition, the Group does not have the option to obtain ownership of the vessels or the bargain purchase option at the end of the contract.

(2) Right-of-use assets as of December 31, 2019 are as follows:

In millions of won

,	_	Acquisition cost	Government grants	Accumulated depreciation	Book value
Land		4,283	_	(324)	3,959
Buildings	\mathbf{W}	1,484	-	(390)	1,094
Structures		159,807	(25)	(63,581)	96,201
Machinery		185,489	- -	(47,807)	137,682
Vessels		794,813	-	(86,706)	708,107
Vehicles		338	-	(134)	204
	₩ <u></u>	1,146,214	(25)	(198,942)	947,247

(3) Changes in right-of-use assets for the year ended December 31, 2019 are as follows:

In millions of won

	Beginn balan	0	Effect of change in accounting principle(*)	Acquisition	Replacement	Depreciation	Disposals	Ending balance
Land	W	-	1,035	3,248	-	(324)	-	3,959
Buildings		-	337	919	-	(162)	-	1,094
Structures		-	102,896	295	-	(6,965)	-	96,226
(Government								
grants)		-	(26)	-	-	1	-	(25)
Machinery		-	146,803	-	1,100	(8,275)	(1,946)	137,682
Vessels		-	794,813	-	-	(86,706)	-	708,107
Vehicles			194	144		(134)		204
	₩	-	1,046,052	4,606	1,100	(102,565)	(1,946)	947,247

^(*) Refer to Note 3

(4) Details of lease liabilities of December 31, 2019 are as follows:

	(MLP)	Present value of MLP
Less than 1 year	101,755	100,860
1∼5 years	352,837	332,293
More than 5 years	419,743	347,991
₩	874,335	781,144

Notes to the Consolidated Financial Statements

December 31, 2019 and 2018

18. Leases, Continued

(5) Current portion and non-current portion of lease liabilities as of December 31, 2019 are as follows:

In millions of won

		2019
Current lease liabilities	W	100,860
Non-current lease liabilities		680,284
	W	781,144

(6) Changes in lease liabilities for the year ended December 31, 2019 are as follows:

In millions of won

		2019
Beginning balance	W	-
Effect of changes in accounting principle (*)		815,903
Acquisition		4,606
Interest expense		17,001
Payments		(84,994)
Other changes		28,628
Ending balance	W	781,144

(*) Refer to Note 3

(7) Details of lease liabilities, such as short-term lease, leases for which the underlying asset is of low value, were not recognized as expenses for the year ended December 31, 2019 are as follows.

In millions of won

		2019
Short-term leases	\mathbf{W}	7,753
Leases of low-value assets		153

19. Trade and Other Payables

Trade and other payables as of December 31, 2019 and 2018 are as follows:

		201	9	2018		
		Current	Non-current	Current	Non-current	
Trade payables	W	187,396	-	317,433	_	
Other payables		70,749	443	61,794	-	
Accrued expenses		36,245	-	42,491	-	
Other deposits		55	-	936	-	
Lease liabilities	_	100,860	680,284			
	₩	395,305	680,727	422,654		

Notes to the Consolidated Financial Statements

December 31, 2019 and 2018

20. Borrowings and Debentures

(1) Details of borrowings and debentures as of December 31, 2019 and 2018 are as follows:

In millions of won

		2019	2018
Current Liabilities:			
Short-term borrowings	₩	200,000	40,000
Current portion of long-term borrowings		348	348
Current portion of long-term debentures		630,000	722,674
Less: discount on debentures		(161)	(554)
		830,187	762,468
Non-current Liabilities:			
Long-term borrowings		852	1,200
Debentures		4,313,784	4,345,430
Less: discount on debentures		(11,106)	(9,307)
		4,303,530	4,337,323
	W	5,133,717	5,099,791

(2) Short-term borrowings as of December 31, 2019 and 2018 are as follows:

In millions of won

Type	Lender	Annual	interest rate	Maturity date	_	2019	2018
Short-term borrowings in	Woori Investment Bank Mirae Asset Daewoo	2.33%	Fixed rate	2019.01.23	W	-	40,000
domestic currency	Co,Ltd NH Nonghyup Bank	1.73% 2.17%	Fixed rate Fixed rate	2020.01.23 2020.01.02		150,000 50,000	-
					₩	200,000	40,000

(3) Long-term borrowings as of December 31, 2019 and 2018 are as follows:

1,272
50
41
120
7
58
1,548
(348)
1,200
3 9 3 9 6 0 0 3)

Notes to the Consolidated Financial Statements

December 31, 2019 and 2018

20. Borrowings and Debentures, Continued

(4) Local debentures as of December 31, 2019 and 2018 are as follows:

in millions of won							
Туре	Issue date	Maturity	Annual inte		_	2019	2018
Corporate bond #16-3	2011.11.18	2021.11.18	Fixed rate	4.15%	₩	80,000	80,000
Corporate bond #17-1	2012.10.22	2022.10.22	Fixed rate	3.22%		100,000	100,000
Corporate bond #17-2	2012.10.22	2027.10.22	Fixed rate	3.26%		100,000	100,000
Corporate bond #18-1	2013.05.07	2023.05.07	Fixed rate	2.93%		120,000	120,000
Corporate bond #18-2	2013.05.07	2028.05.07	Fixed rate	3.03%		80,000	80,000
Corporate bond #19-2	2013.06.14	2023.06.14	Fixed rate	3.38%		100,000	100,000
Corporate bond #20-2	2013.09.12	2020.09.12	Fixed rate	3.62%		100,000	100,000
Corporate bond #21	2013.10.22	2023.10.22	Fixed rate	3.67%		110,000	110,000
Corporate bond #22	2013.10.31	2023.10.31	Fixed rate	3.61%		90,000	90,000
Corporate bond #23-1	2014.10.23	2019.10.23	Fixed rate	2.47%		=	80,000
Corporate bond #23-2	2014.10.23	2024.10.23	Fixed rate	2.82%		120,000	120,000
Corporate bond #24-2	2014.11.20	2024.11.20	Fixed rate	2.81%		110,000	110,000
Corporate bond #25	2014.12.11	2019.12.11	Fixed rate	2.49%		=	80,000
Corporate bond #26-1	2015.03.05	2020.03.05	Fixed rate	2.14%		110,000	110,000
Corporate bond #26-2	2015.03.05	2025.03.05	Fixed rate	2.43%		90,000	90,000
Corporate bond #27-1	2015.05.08	2020.05.08	Fixed rate	2.33%		120,000	120,000
Corporate bond #27-2	2015.05.08	2025.05.08	Fixed rate	2.70%		80,000	80,000
Corporate bond #28	2015.07.17	2020.07.17	Fixed rate	2.27%		80,000	80,000
Corporate bond #29	2015.09.21	2020.09.21	Fixed rate	2.00%		120,000	120,000
Corporate bond #30-1	2016.01.28	2021.01.28	Fixed rate	1.88%		90,000	90,000
Corporate bond #30-2	2016.01.28	2026.01.28	Fixed rate	2.10%		110,000	110,000
Corporate bond #31	2016.07.05	2021.07.05	Fixed rate	1.36%		100,000	100,000
Corporate bond #32-1	2016.09.09	2021.09.09	Fixed rate	1.45%		90,000	90,000
Corporate bond #32-2	2016.09.09	2026.09.09	Fixed rate	1.61%		110,000	110,000
Corporate bond #33-1	2017.02.22	2022.02.22	Fixed rate	2.04%		70,000	70,000
Corporate bond #33-2	2017.02.22	2027.02.22	Fixed rate	2.34%		130,000	130,000
Corporate bond #34	2017.03.27	2020.03.27	Fixed rate	1.85%		100,000	100,000
Corporate bond #35-1	2017.05.22	2022.05.22	Fixed rate	2.07%		50,000	50,000
Corporate bond #35-2	2017.05.22	2027.05.22	Fixed rate	2.46%		40,000	40,000
Corporate bond #35-3	2017.05.22	2032.05.22	Fixed rate	2.59%		110,000	110,000
Corporate bond #36-1	2017.06.23	2022.06.23	Fixed rate	2.08%		40,000	40,000
Corporate bond #36-2	2017.06.23	2027.06.23	Fixed rate	2.35%		70,000	70,000
Corporate bond #36-3	2017.06.23	2037.06.23	Fixed rate	2.47%		90,000	90,000
Corporate bond #37-1	2017.07.21	2022.07.21	Fixed rate	2.09%		40,000	40,000
Corporate bond #37-2	2017.07.21	2027.07.21	Fixed rate	2.36%		50,000	50,000
Corporate bond #37-3	2017.07.21	2037.07.21	Fixed rate	2.47%		110,000	110,000
Corporate bond #38-1	2017.09.05	2027.09.05	Fixed rate	2.44%		50,000	50,000
Corporate bond #38-2	2017.09.05	2037.09.05	Fixed rate	2.51%		100,000	100,000
Corporate bond #39-1	2017.09.28	2022.09.28	Fixed rate	2.20%		30,000	30,000
Corporate bond #39-2	2017.09.28	2047.09.28	Fixed rate	2.46%		120,000	120,000
Corporate bond #40-1	2018.04.20	2021.04.20	Fixed rate	2.34%		70,000	70,000
Corporate bond #40-2	2018.04.20	2038.04.20	Fixed rate	2.81%		60,000	60,000
Corporate bond #40-3	2018.04.20	2048.04.20	Fixed rate	2.81%		70,000	70,000

Notes to the Consolidated Financial Statements

December 31, 2019 and 2018

20. Borrowings and Debentures, Continued

(4) Local debentures as of December 31, 2019 and 2018 are as follows, Continued

In millions of won

Туре	Issue date	Maturity date	Annual inte	rest rate		2019	2018
Corporate bond #41-1	2018.09.14	2021.09.14	Fixed rate	1.97%	W	80,000	80,000
Corporate bond #41-2	2018.09.14	2038.09.14	Fixed rate	2.27%		100,000	100,000
Corporate bond #41-3	2018.09.14	2048.09.14	Fixed rate	2.25%		90,000	90,000
Corporate bond #42-1	2018.11.01	2021.11.01	Fixed rate	1.95%		50,000	50,000
Corporate bond #42-2	2018.11.01	2038.11.01	Fixed rate	2.25%		60,000	60,000
Corporate bond #42-3	2018.11.01	2048.11.01	Fixed rate	2.20%		20,000	20,000
						4,010,000	4,170,000
Less: discount on debenture	es					(5,886)	(7,443)
Less: current portion						(629,839)	(159,922)
					W	3,374,275	4,002,635

(5) Foreign debentures as of December 31, 2019 and 2018 are as follows:

In millions of won, In thousands of USD, CHF

2018
227,244
335,430
335,430
-
898,104
(2,418)
(562,198)
333,488

(6) Repayment schedule of borrowings and debentures as December 31, 2019 are as follows:

In millions of won

	Less than			More than			
		1 year	1 - 2 years	2 - 5 years	5 years	Total	
Long-term borrowings	W	200,348	348	495	9	201,200	
Debentures		630,000	560,000	1,913,784	1,840,000	4,943,784	
	W	830,348	560,348	1,914,279	1,840,009	5,144,984	

(7) Changes in borrowings and debentures for the years ended December 31, 2019 and 2018 are as follows:

(i) For the year ended December 31, 2019

		Beginning		Foreign exchange		Ending
	_	balance	Cash flows	rates fluctation	Others	balance
Borrowings	W	41,548	162,340	(2,688)	-	201,200
Debentures		5,058,243	(174,920)	46,084	3,110	4,932,517
	W	5,099,791	(12,580)	43,396	3,110	5,133,717

Notes to the Consolidated Financial Statements

December 31, 2019 and 2018

20. Borrowings and Debentures, Continued

- (7) Changes in borrowings and debentures for the years ended December 31, 2019 and 2018 are as follows, Continued:
- (ii) For the year ended December 31, 2018

In millions of won

		Beginning		Foreign exchange		Ending
	_	balance	Cash flows	rates fluctation	Others	balance
Borrowings	W	1,896	39,652	-	-	41,548
Debentures	_	4,996,846	21,213	67,023	(26,839)	5,058,243
	W_	4,998,742	60,865	67,023	(26,839)	5,099,791

21. Other Financial Liabilities

Other financial liabilities as of December 31, 2019 and 2018 are as follows:

In millions of won

		201	.9	2018		
		Current	Non-current	Current	Non-current	
Derivative liabilities	W	312	357	5,497	-	

22. Employment Benefits

(1) The principal assumptions used on actuarial valuation as of December 31, 2019 and 2018 are as follows:

	2019	2018
Discount rate	2.04%	2.33%
Future salary increase rate	3.22~5.82%	3.47~7.33%

(2) Details of the expense relating to its defined benefit plans for the years ended December 31, 2019 and 2018 are as follows:

In millions of won

		2019	2018
Current service cost	W	16,424	12,512
Interest cost		2,861	2,933
Gain(loss) on settlement		-	(61)
Expected return on plan assets		(809)	(906)
Past Service Cost		9,915	· · · · · · · · · · · · · · · · · · ·
	W	28,391	14,478

The Group's expenses relating to its defined benefit plans are recognized in the following line items of the financial statements for the years ended December 31, 2019 and 2018:

In millions of won		2019	2018
Cost of sales	W	25,800	13,380
Selling and administrative expenses		1,705	665
Construction-in-progress		886	433
	W	28,391	14,478

Notes to the Consolidated Financial Statements

December 31, 2019 and 2018

22. Employment Benefits, Continued

(3) The Group's expenses relating to its defined contribution plans are recognized in the following line items of the financial statements for the years ended December 31, 2019 and 2018:

In millions of won		2019	2018
Cost of sales	₩	5,634	5,907
Selling and administrative expenses		391	293
Construction-in-progress		207	191
	W	6,232	6,391

(4) Employee benefit obligations as of December 31, 2019 and 2018 are as follows:

In millions of won	2019		2018
Present value of defined benefit obligation from funded plans	W	137,864	116,250
Fair value of plan assets		(38,821)	(34,380)
Net liabilities incurred from defined benefit plans	W	99,043	81,870

(5) Changes in the present value of defined benefit obligations for the years ended December 31, 2019 and 2018 are as follows:

In millions of won

·		2019	2018	
Beginning balance	₩	116,250	99,375	
Current service costs		16,424	12,512	
Gain on settlement		-	(61)	
Past service costs		9,915	=	
Interest costs		2,861	2,932	
Remeasurements		(4,031)	5,641	
Benefits paid		(3,555)	(4,149)	
Ending balance	₩	137,864	116,250	

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

In millions of won

	2019	2018
Beginning balance \\	34,380	31,270
Expected return on plan assets	808	906
Remeasurements	(179)	(370)
Contributions by the employers	3,812	2,681
Benefits paid		(107)
Ending balance \\	38,821	34,380

In addition, losses on accumulated remeasurement component amounting to \(\psi 27,001\) million and \(\psi 29,921\) million have been recognized in other comprehensive loss for the years ended December 31, 2019 and 2018, respectively.

Notes to the Consolidated Financial Statements

December 31, 2019 and 2018

22. Employment Benefits, Continued

(7) Details of fair value of plan assets as of December 31, 2019 and 2018 are as follows:

In millions of won

		2019	2018	
Equity instruments	₩	-	446	
Debt instruments		-	2,306	
Bank deposit		4,247	8,095	
Others		34,574	23,532	
	w	38,821	34,380	

For the years ended December 31, 2019 and 2018, the actual returns on plan assets amounted \text{\$\psi}629\$ million and \text{\$\psi}536\$ million, respectively.

(8) Details of other long-term employee benefit liabilities as of December 31, 2019 and 2018 are as follows:

In millions of won

		2019	2018	
Umpaid long-service leave	\mathbf{w}	268	504	

(9) Remeasurements recognized in other comprehensive income (loss) for the years ended December 31, 2019 and 2018 are as follows:

In millions of won		2019	2018
Actuarial gains and losses due to changes in demographic assumptions	W	10,864	-
Remesurements loss (gain) from changes in financial assumptions		2,565	(7,364)
Experience adjustments		(9,398)	1,723
Expected return		(179)	(370)
	W	3,852	(6,011)

Notes to the Consolidated Financial Statements

December 31, 2019 and 2018

23. Provisions

(1) Provisions as of December 31, 2019 and 2018 are as follows:

In millions of won

		20	19	2018	
	_	Current	Non-current	Current	Non-current
Provision for employment benefits	W	33,274	_	32,759	
Provision for financial guarantees (*1)		-	6,216	-	84
Provision for litigation		23,646	-	-	-
	W	56,920	6,216	32,759	84

- (*1) The Group guarantees the borrowings of KEPCO Bylong Australia Pty., Ltd. to the Export-Import Bank of Korea in order to acquire the equity instruments owned by KEPCO in accordance with government's adjustment plan for functions of public institutions and strengthen long-term and stable supply of power generation fuels.
- (2) Changes in provisions for the years ended December 31, 2019 and 2018 are as follows:
- (i) For the year ended December 31, 2019

In millions of won

J		Beginning balance	Increase	Utilization	Reversal	Other changes	Ending balance
Provision for employment							
benefits	₩	32,759	46,562	(25,267)	(20,780)	=	33,274
Provision for RPS		-	19,756	=	(19,756)	=	=
Provision for financial							
guarantees		84	6,154	(22)	-	=	6,216
Provision for green gas		-	5,348	(5,224)	(124)	-	-
Provision for litigation	-	-	8,533	<u> </u>	<u>-</u>	15,113	23,646
	W	32,843	86,353	(30,513)	(40,660)	15,113	63,136

(ii) For the year ended December 31, 2018

in minimum of mon		Beginning balance	Increase	Utilization	Reversal	Other changes	Ending balance
Provision for employment							
benefits	W	31,840	15,169	(7,651)	(6,599)	-	32,759
Provision for RPS		85,361	21,293	-	(106,654)	-	-
Provision for litigation		115	-	(115)	-	-	-
Provision for green gas		-	-	=	-	=	-
Provision for financial							
guarantees		40	58	<u>-</u> _	<u> </u>	(14)	84
	W	117,356	36,520	(7,766)	(113,253)	(14)	32,843

Notes to the Consolidated Financial Statements

December 31, 2019 and 2018

24. Non-financial Liabilities

Non-financial liabilities as of December 31, 2019 and 2018 are as follows:

In millions of won

	2019		2018	
	Current	Non-current	Current	Non-current
Unearned revenue \\ \psi	10,000	-	-	-
Deferred revenue	263	-	313	-
Withholdings	3,534	-	5,170	-
Others	2,592	643	7,652	311
W	16,389	643	13,135	311

25. Contributed capital

(1) Details of share capital as of December 31, 2019 and 2018 are as follows:

In millions of won, except par value and number of shares

	Number of	Number of			
Type	shares authorized	shares issued	Par value	2019	2018
Common Stock	100,000,000	33,329,119 W	5,000	166,646	166,646

(2) Changes in number of outstanding shares for the years ended December 31, 2019 and 2018 are as follows:

Number of shares

	2019	2018
Beginning balance	33,329,119	33,329,119
Changes in 2019	-	-
Ending balance	33,329,119	33,329,119

(3) Details of share premium as of December 31, 2019 and 2018 are as follows:

		2019	2018	
Share premium	₩	1,106,252	1,106,252	

Notes to the Consolidated Financial Statements

December 31, 2019 and 2018

26. Retained Earnings and Dividends Paid

(1) Details of retained earnings as of December 31, 2019 and 2018 are as follows:

In millions of won

		2019	2018
Legal reserves (*1)	₩	75,614	75,614
Voluntary reserves		1,817,200	1,849,533
Unappropriated retained earnings		635,228	647,002
	₩	2,528,042	2,572,149

- (*1) In accordance with the Commercial Law, an amount equal to at least 10% of cash dividend for each accounting period is required to be appropriated as a legal reserve until the reserve equals 50% of share capital. The legal reserve cannot be used as a source for cash dividends and may be used to offset an accumulated deficit.
- (2) Details of voluntary reserves as of December 31, 2019 and 2018 are as follows:

In millions of won

		2019	2018
Reserve for the rationalization of business (*1)	W	181	181
Reserve for investment on social overhead capital		13,000	13,000
Reserve for business expansion		1,804,019	1,836,352
	₩	1,817,200	1,849,533

2010

2010

- (*1) Prior to 2002, KOWEPO appropriated certain tax-deductible benefits as reserve for the rationalization of business, for offsetting future deficit in accordance with the *Restriction of Special Taxation Act*. However, when the Act was amended on December 11, 2002, the Group's reserves have been changed to voluntary reserves due to deletion of related provision.
- (3) Changes in unappropriated retained earnings for the year ended December 31, 2019 and 2018 are as follows:

		2019	2018
Beginning balance	Ψ	647,002	800,745
Net loss for the year attributable to owners			
of the parent		(46,730)	(34,811)
Dividends paid		-	(28,996)
Remeasurements of defined benefit plans,			
net of tax		2,920	(4,556)
Transfers to reserves		32,333	(86,630)
Effect of change in accounting policies		-	380
Changes in equity method retained earnings		(297)	870
Ending balance	₩	635,228	647,002

Notes to the Consolidated Financial Statements

December 31, 2019 and 2018

26. Retained Earnings and Dividends Paid, Continued

(4) Dividends paid for the years ended December 31, 2019 and 2018 are as follows:

(i) For the year ended December 31, 2019

Number of shares

Туре	Number of shares issued	Number of treasury stocks	Number of shares eligible for dividends	Dividends paid per share (in won)	Dividends paid (in millions of won)
Common shares	33,329,119	-	33,329,119	-	-
(II) E - d	1 15 1 21 2010				

(ii) For the year ended December 31, 2018

Number of shares

Туре	Number of shares issued	Number of treasury stocks	Number of shares eligible for dividends	Dividends paid per share (in won)	Dividends paid (in millions of won)
Common shares	33,329,119	-	33,329,119	870	28,996

(5) Changes in retained earnings in equity method for the years ended December 31, 2019 and 2018 are as follows:

In millions of won

		2019	2018
Beginning balance	$\overline{\mathbf{w}}$	6,439	5,569
Changes during the year		(297)	870
Ending balance	$\overline{\mathbf{w}}$	6,142	6,439

(6) Changes in remeasurements of defined benefit plansfor the years ended December 31, 2019 and 2018 are as follows:

		2019	2018
Beginning balance	W	(29,921)	(25,365)
Changes during the year		3,852	(6,011)
Income tax effect		(932)	1,455
Ending balance	₩_	(27,001)	(29,921)

Notes to the Consolidated Financial Statements

December 31, 2019 and 2018

27. Statement of appropriation of retained earnings

For the year ended December 31, 2018, KOWEPO's retained earnings were appropriated on March 29, 2019. For the year ended December 31, 2019, KOWEPO's retained earnings are expected to be appropriated on March 26, 2020. Statements of appropriation of retained earnings of KOWEPO, the controlling company, for the years ended December 31, 2019 and 2018, respectively, are as follows:

In millions of won		2019	2018
Unappropriated retained earnings			
Balance at beginning of year	W	711,596	711,596
Hybrid securities interest		-	-
Effects of changes in accounting policies		-	380
Net loss for the year		(46,061)	(28,157)
Remeasurements of defined benefit plans		2,920	(4,556)
		668,455	679,263
Transfer from voluntary reserves			
Reserves for business expansion	<u> </u>	43,141	32,333
Balance at end of year before appropriation	₩	711,596	711,596
Appropriation of retained earnings			
Cash dividends		-	-
Legal reserve		-	-
Reserve for business expansion			
Unappropriated retained earnings to be carried over	₩	711,596	711,596

Notes to the Consolidated Financial Statements

December 31, 2019 and 2018

28. Other Components of Equity

(1) Other components of equity as of December 31, 2019 and 2018 are as follows:

In millions of won

		2019	2018
Accumulated other comprehensive income	w	78,876	90,281
Other equity		(41,784)	(41,784)
	w_	37,092	48,497

- (2) Changes in accumulated other comprehensive income (loss) for the year ended December 31, 2019 and 2018 are as follows:
- (i) For the year ended December 31, 2019

		Financial assets at fair value through other comprehensiv e income valuation reserve	Reserve for gain (loss) on valuation of derivatives	Reserve for overseas operations translation credit	Shares in other comprehensive income (loss) of investments in associates and joint ventures	Total
Beginning balance	₩	97,946	3,134	(9,389)	(1,410)	90,281
Valuation loss on financial assets at fair value through						
other comprehensive income		(26,853)	-	-	-	(26,853)
Valuation loss on derivatives		-	4,144	-	-	4,144
Foreign currency translation of						
foreign operations		-	-	1,941	-	1,941
Valuation of investments in						
associates		-	-	-	3,867	3,867
Tax effect		6,498	(1,002)			5,496
Ending balance	W	77,591	6,276	(7,448)	2,457	78,876

Notes to the Consolidated Financial Statements

December 31, 2019 and 2018

28. Other Components of Equity, Continued

(ii) For the year ended December 31, 2018

In millions of won

		Financial assets at fair value through other comprehensive income valuation reserve	Available- for-sale financial assets valuation reserve	Reserve for gain (loss) on valuation of derivatives	Reserve for overseas operations translation credit	Shares in other comprehensive income (loss) of investments in associates and joint ventures	Total
Beginning balance	₩	-	28,683	(5,383)	(7,012)	(10,533)	5,755
Effect of change in accounting							
policy		28,303	(28,683)	-	-	-	(380)
Valuation gain on financial assets							
at fair value through other			-				
comprehensive income		91,877		-	-	-	91,877
Valuation gain on derivatives		-	-	11,236	-	-	11,236
Foreign currency translation of							
foreign operations		-	-	-	(2,377)	-	(2,377)
Valuation of investments in							
associates		-	-	-	-	12,036	12,036
Tax effect		(22,234)		(2,719)		(2,913)	(27,866)
Ending balance	W	97,946		3,134	(9,389)	(1,410)	90,281

⁽³⁾ Other equity represents loss on capital and no changes occurred for the years ended December 31, 2019 and 2018.

29. Sales

Details of sales for the years ended December 31, 2019 and 2018 are as follows:

(i) For the year ended December 31, 2019 and 2018

In millions of won		2019	2018
Sales of electricity Others	₩	4,445,783 22,796	4,837,394 31,764
	₩	4,468,579	4,869,158

Notes to the Consolidated Financial Statements

December 31, 2019 and 2018

30. Selling and Administrative Expenses

Details of selling and administrative expenses for the years ended December 31, 2019 and 2018 are as follows:

In millions of won		2019	2018
Employee health and welfare benefit funds	W	-	2,978
Salaries		19,131	23,368
Retirement beenfits		2,095	958
Employee welfare		2,101	2,551
Insurance expenses		470	72
Depreciation		16,644	15,300
Amortization		1,690	2,253
Commission		17,375	22,830
Advertising expenses		1,778	1,069
Training expenses		55	132
Vehicle maintenance expenses		70	84
Publishing expenses		124	126
Business promotion expenses		96	98
Rent expenses		734	1,017
Telecommunication expenses		414	947
Transportation expenses		14	14
Taxes and dues		3,820	1,688
Expendable supplies expenses		168	639
Water, light and heating expenses		735	759
Repairs and maintenance expenses		956	301
Ordinary development expenses		18,415	16,643
Travel expenses		374	326
Survey and analysis expenses		4	=
Others		8,630	2,335
	\mathbf{W}	95,893	96,488

31. Other Non-operating Income and Expense

(1) Other non-operating income for the years ended December 31, 2019 and 2018 are as follows:

In millions of won		2019	2018	
Rental income	₩	5,039	4,725	
Gains from assets contributed		23	-	
	W	5,062	4,725	

(2) Other non-operating expenses for years ended December 31, 2019 and 2018 are as follows:

In millions of won		2019	2018	
Donations	W	7,957	6,580	
Other bad debt expenses		87	-	
	W	8,044	6,580	

Notes to the Consolidated Financial Statements

December 31, 2019 and 2018

32. Other Income (Loss)

Details of other income and loss for the years ended December 31, 2019 and 2018 are as follows:

In millions of won		2019	2018
Gain on disposal of property, plant, and			
equipment	W	288	32
Gain on foreign currency translation		1,034	1,010
•			,
Gain on foreign currency transaction		7,676	6,620
Gain on exemption of debts		345	-
Other gains		13,257	44,313
Loss on disposal of property, plant, and			
equipment		(7,050)	(9,141)
Loss on disposal of intangible assets		-	(5)
Loss on impairment of property, plant and			
equipment, net		(6,345)	(7,031)
Loss on foreign currency translation		(779)	(173)
Loss on foreign currency transaction		(8,861)	(9,938)
Other losses		(3,079)	(7,775)
	₩	(3,514)	17,914

33. Finance Income

(1) Finance income for the years ended December 31, 2019 and 2018 are as follows:

In millions of won		2019	2018
Interest income	W	6,677	6,496
Dividend income		14,052	6,510
Gain on valuation of derivatives		27,347	36,884
Gain on transaction of derivatives		41,105	41,574
Gain on foreign currency translation		4,680	108
Gain on foreign currency transaction		2,688	-
	W	96,549	91,571

(2) Interest income included in finance income for years ended December 31, 2019 and 2018 are as follows:

In millions of won		2019	2018
Cash and cash equivalents	W	5,760	6,075
Loans		849	421
Other financial instruments		13	-
Trade and other receivables		55	-
	₩	6,677	6,496

Notes to the Consolidated Financial Statements

December 31, 2019 and 2018

34. Finance Expenses

(1) Finance expenses for years ended December 31, 2019 and 2018 are as follows:

In millions of won		2019	2018
Interest expense	W	148,019	139,150
Loss on valuation of derivatives		4,992	213
Loss on transaction of derivatives		11,075	8,769
Loss on foreign currency translation		56,053	36,860
Loss on foreign currency transaction		23,449	30,163
Reversal of provision for financial guarantees		6,154	-
	W	249,742	215,155

(2) Interest expenses included in finance expenses for the years ended December 31, 2019 and 2018 are as follows:

In millions of won	2019	2018
Short term borrowings \\ \Psi	1,094	54
Long term borrowings	11	13
Debentures	131,972	139,550
Trade and other payables	538	662
Lease liabilities	17,000	-
	150,615	140,279
Less: capitalized borrowing costs	(2,596)	(1,129)
₩	148,019	139,150

35. Income Taxes

(1) Components of income tax expense (benefit) for the years ended December 31, 2019 and 2018 are as follows:

In millions of won	2019	2018
Current income tax expense		
Current income tax \tag{\psi}	7,627	-
Adjustment for prior period	(22,113)	(3,285)
Income tax charged directly to equity	4,564	(22,346)
	(9,922)	(25,631)
Deferred income tax expense		
Generation and realization of temporary differences	(44,207)	54,308
Reclassification of equity to profit or loss	-	(1,153)
Amount due to tax deficits, tax credits and temporary		
differences that were not recognized in the past	(14,053)	3,423
	(58,260)	56,578
Income tax expense (benefit)	(68,182)	30,947

Notes to the Consolidated Financial Statements

December 31, 2019 and 2018

35. Income Taxes, Continued

(2) Reconciliation between accounting income and corporate tax expenses (benefit) for the years ended December 31, 2019 and 2018 is as follows:

In millions of won	_	2019	2018
Loss before income tax expenses	₩	(114,799)	(3,874)
Income tax expenses in accordance with statutory tax rate		(29,419)	3,289
Adjustments		_	
Effects of the application of accumulative tax rate		(462)	(462)
Effects of non-deductible expenses		6,368	31,076
Effects of tax credits or exemptions		(8,503)	(3,094)
Amount due to tax deficits, tax credits and temporary differences that were			
not recognized in the past		(14,053)	3,423
		(16,650)	30,943
Adjustment for prior period		(22,113)	(3,285)
Income tax expense (benefit) (*1)	₩	(68,182)	30,947

- (*1) The average effective tax rate for the year ended December 31, 2019 and 2018 is not presented as a result of negative average effective tax rate due to net loss before income tax expenses.
- (3) Income tax recognized in other comprehensive income (loss) for the years ended December 31, 2019 and 2018 are as follows:

In millions of won	_	2019	2018
Net change in the non-current financial assets at fair value through	W		
other comprehensive income, net of tax		6,498	(22,234)
Gain (loss) on valuation of derivatives using cash flow hedge			
accounting, net		(1,002)	(1,566)
Remeasurements of defined benefit plans		(932)	1,454
	W	4,564	(22,346)

Notes to the Consolidated Financial Statements

December 31, 2019 and 2018

35. Income Taxes, Continued

(4) Details of deferred tax assets (liabilities) recognized in the consolidated statements of financial position as of December 31, 2019 and 2018 are as follows:

(i) As of December 31, 2019

In millions of won

		Balance as of January 1, 2019	Amounts recognized in profit or loss	Amounts recognized in other comprehensive income	Balance as of December 31, 2019
Deferred tax on					
temporary differences					
Long-term employee benefits	W	19,812	5,028	(932)	23,908
Cash flow hedges		(7,505)	(2,426)	(1,002)	(10,933)
Inventory		-	1,768	-	1,768
Property, plant and equipment		(347,294)	47,579	-	(299,715)
Intangible assets		56	-	-	56
Financial instruments at fair					
value through other					
comprehensive income		(32,303)	-	6,498	(25,805)
Foreign currency translation		7,822	2,621	-	10,443
Other provision		(4,239)	-	-	(4,239)
Others		51,601	(26,761)		24,840
	W	(312,050)	27,809	4,564	(279,677)
Unused tax deficit and tax credit					
carry forward			25,886	<u>-</u>	25,886
Total	-	(312,050)	53,695	4,564	(253,791)

(ii) As of December 31, 2018

		Balance as of January 1, 2018	Amounts recognized in profit or loss	Amounts recognized in other comprehensive loss	Reclassification of equity to profit or loss	Balance as of December 31, 2018
Deferred tax on temporary differences				•		
Long-term employee benefits	₩	16,815	1,543	1,454	-	19,812
Cash flow hedges		4,564	(9,350)	(1,566)	(1,153)	(7,505)
Property, plant and equipment		(327,896)	(19,398)	-	-	(347,294)
Intangible assets Financial instuments at fair		56	-	-	-	56
value through other		(10.060)		(22.22.4)		(22.202)
comprehensive income		(10,069)	- 0.150	(22,234)	-	(32,303)
Foreign currency translation		(1,348)	9,170	-	-	7,822
Other provision		(4,239)	-	=	-	(4,239)
Others		64,197	(12,596)			51,601
Total	W	(257,920)	(30,631)	(22,346)	(1,153)	(312,050)

Notes to the Consolidated Financial Statements

December 31, 2019 and 2018

35. Income Taxes, Continued

(5) Details of deductible temporary differences not recognized as deferred tax assets as of December 31, 2019 and 2018 are as follows:

In millions of won		2019	2018
Investments in associates and etc.,	₩	174,542	-

(6) Details of deferred tax assets and liabilities presented in the statements of financial position as of December 31, 2019 and 2018 are as follows:

In millions of won		2019	2018
Deferred tax assets	₩	604	386
Deferred tax liabilities		(254,395)	(312,436)
	W	(253,791)	(312,050)

36. Expenses Classified by Nature

Expenses classified by nature for years ended December 31, 2019 and 2018 are as follows:

(i) For the year ended December 31, 2019

In millions of won		Selling and administrative expenses	Cost of sales	Total
	_	сарензез	Cost of sales	10141
Raw materials used	W	-	3,002,929	3,002,929
Salaries		19,131	206,999	226,130
Retirement benefits		2,095	31,434	33,529
Employee welfare		2,101	18,707	20,808
Insurance expenses		470	11,914	12,384
Depreciation		16,644	812,692	829,336
Amortization		1,690	3,931	5,621
Commission		17,375	15,577	32,952
Advertising expenses		1,778	551	2,329
Training expenses		55	378	433
Vehicle maintenance expenses		70	85	155
Publishing expenses		124	191	315
Business promotion expenses		96	302	398
Rent expenses		734	18,191	18,925
Telecommunication expenses		414	174	588
Transportation expenses		14	30	44
Taxes and dues		3,820	26,983	30,803
Expendable supplies expenses		168	1,386	1,554
Water, light and heating expenses		735	398	1,133
Repairs and maintenance expenses		956	157,120	158,076
Ordinary development expenses		18,415	12,431	30,846
Travel expenses		374	757	1,131
Clothing expenses		-	300	300
Survey and analysis expenses		4	76	80
Others	_	8,630	(25,551)	(16,921)
	W	95,893	4,297,985	4,393,878

Notes to the Consolidated Financial Statements

December 31, 2019 and 2018

36. Expenses Classified by Nature, Continued

Expenses classified by nature for years ended December 31, 2019 and 2018 are as follows:

(ii) For the year ended December 31, 2018

In millions of won		Selling and administrative		m l
	_	expenses	Cost of sales	Total
Raw materials used	₩	-	3,551,927	3,551,927
Employee health and welfare				
benefit funds		2,978	=	2,978
Salaries		23,368	177,009	200,377
Retirement benefits		958	19,287	20,245
Employee welfare		2,551	17,396	19,947
Insurance expenses		72	10,050	10,122
Depreciation		15,300	616,237	631,537
Amortization		2,253	1,239	3,492
Commission		22,830	24,254	47,084
Advertising expenses		1,068	338	1,406
Training expenses		132	236	368
Vehicle maintenance expenses		84	61	145
Publishing expenses		126	185	311
Business promotion expenses		98	309	407
Rent expenses		1,017	15,104	16,121
Telecommunication expenses		947	139	1,086
Transportation expenses		14	26	40
Taxes and dues		1,687	23,762	25,449
Expendable supplies expenses		639	732	1,371
Water, light and heating expenses		759	387	1,146
Repairs and maintenance				
expenses		302	153,166	153,468
Ordinary development expenses		16,643	15,987	32,630
Travel expenses		327	1,237	1,564
Clothing expenses		-	289	289
Survey and analysis expenses		-	103	103
Others	_	2,335	2,649	4,984
	₩	96,488	4,632,109	4,728,597

Notes to the Consolidated Financial Statements

December 31, 2019 and 2018

37. Loss per Share

(1) Basic loss per share for the years ended December 31, 2019 and 2018 are as follows:

In won		2019	2018	
Basic loss per share	₩.	(1,402)	(1,044)	

- (*) Since the Group does not own dilutive shares, basic loss per share are identical to dilutive loss per share.
- (2) Loss attributable to owner of the parent and the weighted average number of common shares outstanding for the years ended December 31, 2019 and 2018 are as follows:

In millions of won, except for number of share		2019	2018	
Net loss attributable to owner of the parent	W	(46,730)	(34,811)	
Weighted average number of common shares		33,329,119	33,329,119	

38. Risk Management

(1) Capital risk management

The Group manages its capital to ensure that it will be able to continue as a going concern while maximizing the return to shareholder through the optimization of the debt and equity balance. 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 unchanged from that of the prior period.

Details of the Group's capital management accounts as of December 31, 2019 and 2018 are as follows:

In millions of won			2018	
Total borrowings and debentures	₩	5,133,716	5,099,791	
Cash and cash equivalents		61,301	67,026	
Net borrowings and debentures		5,072,415	5,032,765	
Total equity	Ψ	3,838,122	3,899,792	
Debt to equity percentage		132.16%	129.05%	

(2) Financial risk management

The Group is exposed to various risks related to its financial instruments, such as market risk (foreign currency risk, interest rate risk and 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 analyses exposures by the degree and magnitude of risks. The Group uses derivative financial instruments for certain hedge risk exposures. The Group's overall financial risk management strategy remained unchanged from the prior period.

Notes to the Consolidated Financial Statements

December 31, 2019 and 2018

38. Risk Management, Continued

(2) Financial risk management, Continued

1) Credit risk

Credit risk is the risk of a financial loss to the Group when a customer or counterparty to a financial instrument fails to meet its contractual obligations, and arises primarily from the Group's sales activities, loans and receivables, derivative instruments. In addition, credit risk exposure may exist within financial guarantees and unused line of credits. The Group transacts with banks and financial institutions with excellent credit rating, so the credit risk from financial institutions is limited. In case of ordinary customers, the Group evaluates the customers' credit worthiness considering their financial statements, past experience and other factors.

a) Credit risk management

Electricity sales, the main operations of the Group are the necessity for daily life and industrial activities of Korean nationals, and have importance as one of the national key industries. 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. For the incurred but not recognized loss, it is measured considering overdue period.

b) Impairment and allowance account

In accordance with the Group 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. Value of the acquired collateral (including the confirmation of feasibility) and estimated collectable amounts are included in this assessment. Allowance for bad debts assessed on a collective basis are recognized for (i) the group of assets which individually are not material and (ii) incurred but not recognized losses that are assessed using statistical methods, judgment and past experience.

Book values of the financial assets represent the maximum exposure of the credit risk. Details of the Group's level of maximum exposure of the credit risk as of December 31, 2019 and 2018 are as follows:

In millions of won		2019	2018
	***	(1.201	67.026
Cash and cash equivalents	₩	61,301	67,026
Loans		39,200	18,828
Short-term financial instruments		50,000	50,000
Derivative assets (trading)		15	24
Derivative assets (hedge accounting)		45,838	36,488
Trade and other receivables		566,103	593,319
Financial guarantee contract (*1)		27,015	6,485

(*1) This amount is the maximum amount the Group will pay if requested by the warrantee.

Details of financial guarantee contracts as of December 31, 2019 are as follows:

In thousands of USD, In millions of won

	<u> </u>	Amount of Guarantee
Other associate	KEPCO Bylong Australia Pty., Ltd.	USD 5,800
Associate	Dongducheon Dream Power Co.,Ltd	KRW 20,300

As of the reporting date, there are no financial assets and non-financial assets that were acquired through the exercise of the right of collateralized assets and reinforcement of credit arrangement.

Notes to the Consolidated Financial Statements

December 31, 2019 and 2018

38. Risk Management, Continued

(2) Financial risk management, Continued

2) Market risk

Market risk is the risk that the Group's fair values of the financial instruments or future cash flows are affected by the changes in the market. Market risk consists of interest rate risk, currency risk and other price risk.

3) Sensitivity analysis

a) Major assets and liabilities with uncertainties in underlying assumptions

① Defined benefit obligations

A sensitivity analysis of defined benefit obligations assuming a 1% increase or decrease in the actuarial assumptions as of December 31, 2019 and 2018 are as follows:

In millions of won

J			2019		2018	
Type	Accounts		1% Increase	1% Decrease	1% Increase	1% Decrease
Future salary increase rate	Increase (decrease) in defined benefit obligation	₩	17,705	(15,098)	14,774	(27,295)
Discount rate	Increase (decrease) in defined benefit obligation		(15,717)	18,909	(13,076)	28,904

b) Management judgment affected by uncertainties in underlying assumptions

Foreign currency risk

The Group undertakes transactions denominated in foreign currencies; consequently, exposures to currency exchange rate fluctuations arise. The carrying amounts of the Group's foreign currency denominated monetary assets and monetary liabilities as of December 31, 2019 and 2018 are as follows:

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(i) As of December 31, 2019

In thousands of foreign currencies

	ОЗД	СНЕ
Assets		
Cash and cash equivalents	9,047	-
Trade and other receivables	1,536	-
Non-current financial instruments	18,590	-
	29,173	-
Liabilities		
Trade and other payables	(713,600)	-
Debentures	(600,000)	(200,000)
	(1,313,600)	(200,000)
Net exposure in foreign currency	(1,284,427)	(200,000)

Notes to the Consolidated Financial Statements

December 31, 2019 and 2018

38. Risk Management, Continued

- (2) Financial risk management, Continued
- 3) Sensitivity analysis, Continued
- b) Management judgment affected by uncertainties in underlying assumptions, Continued
- 1) Foreign currency risk, Continued
- (ii) As of December 31, 2018

In thousands of foreign currencies

	USD	EUR	SEK	CHF
Assets				
Cash and cash equivalents	12,798	-	-	-
Liabilities				
Trade and other payables	(125,055)	(10)	(480)	-
Debentures	(600,000)	- -	- -	(200,000)
	(725,055)	(10)	(480)	(200,000)
	(712,257)	(10)	(480)	(200,000)

A sensitivity analysis on the Group's profit for the period assuming a 10% increase or decrease in currency exchange rates as of December 31, 2019 and 2018 are as follows:

In millions of won

	_	2019		2018	
		10%	10%	10%	10%
	_	Increase	Decrease	Increase	Decrease
Increase (decrease) of profit before income tax	₩	(170,049)	170,049	(103,751)	103,751
Increase (decrease) of equity		(170,049)	170,049	(103,751)	103,751

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The sensitivity analysis above is conducted for monetary assets and liabilities denominated in foreign currencies other than functional currency, without consideration of hedge effect of related derivatives, as of December 31, 2019 and 2018.

To manage its foreign currency risk related to foreign currency denominated receivables and payables, the Group has a policy to enter into currency swap agreements. In addition, to manage its foreign currency risk related to foreign currency denominated expected sales transactions and purchase transactions, the Group enters into cross-currency forward agreements.

Notes to the Consolidated Financial Statements

December 31, 2019 and 2018

38. Risk Management, Continued

- (2) Financial risk management, Continued
- 3) Sensitivity analysis, Continued
- b) Management judgment affected by uncertainties in underlying assumptions, Continued
- (2) Interest rate risk

The Group is exposed to interest rate risk due to its borrowing with floating interest rates. A 1% increase or decrease is used when reporting interest rate risk internally to key management personnel which represents management's assessment of the reasonably possible change in interest rates.

The Group's borrowings and debentures with floating interest rates as of December 31, 2019 and 2018 are as follows:

In millions of won

	_	2019	2018
Short-term borrowings	₩	-	40,000
Long-term borrowings	_	1,200	1,548
		1,200	41,548

A Sensitivity analysis on the Group's borrowings and debentures assuming a 1% increase or decrease in interest rates for the years ended December 31, 2019 and 2018 are as follows:

In millions of won

·		2019		2018	
	_	1%	1%	1%	1%
	_	Increase	Decrease	Increase	Decrease
Increase(decrease) of profit before income tax	₩	(12)	12	(415)	415
Increase(decrease) of equity		(12)	12	(415)	415

4) 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 financing and bank overdrafts, and through payment guarantees it has received, it maintains an adequate credit (borrowing) line. In addition, in case of major construction investment, the Group has the ability to use reserve cash or utilize long-term borrowings.

Notes to the Consolidated Financial Statements

December 31, 2019 and 2018

38. Risk Management, Continued

(2) Financial risk management, Continued

4) Liquidity risk, Continued

The following table shows the details of maturities of non-derivative financial liabilities as of December 31, 2019 and 2018. This table, based on the undiscounted cash flows of the non-derivative financial liabilities including estimated interests, has been prepared based on the respective liabilities' earliest maturity date.

(i) As of December 31, 2019

In millions of won

		Less than 1 year	1-2 vears	2-5 vears	More than 5 years	Total
Borrowings and debentures	W	946,122	664,445	2,128,390	2,247,284	5,986,242
Trade and other payables		396,199	103,462	249,819	419,743	1,169,223
Financial guarantee contract		<u>-</u>	<u> </u>	27,015		27,015
	w_	1,342,321	767,907	2,405,224	2,667,027	7,182,480

(ii) As of December 31, 2018

In millions of won

		Less than	1-2	2-5	More than	
		1 year	years	years	5 years	Total
Borrowings and debentures	W	892,577	736,930	1,894,022	2,528,204	6,051,733
Trade and other payables		420,421	-	-	-	420,421
	W	1,312,998	736,930	1,894,022	2,528,204	6,472,154

As the Group manages liquidity on a net asset and net liability basis, it is necessary to include information about non-derivative financial assets in order to understand liquidity risk management.

The expected maturities for non-derivative financial assets as of December 31, 2019 and 2018 in detail are as follows:

(i) As of December 31, 2019

		Less than 1 year	1-5 vears	Over 5 vears	Uncertain	Total
Cash and cash equivalents	₩	61,301		-	-	61,301
Financial instruments at fair value						
through other comprehensive income		-	=	-	192,957	192,957
Loans		4,580	36,907	-	-	41,487
Short-term financial instruments		50,000	-	-	-	50,000
Trade and other receivables		559,284	7,143	-	-	566,427
	W	675,165	44,050		192,957	912,172

Notes to the Consolidated Financial Statements

December 31, 2019 and 2018

38. Risk Management, Continued

- (2) Financial risk management, Continued
- 4) Liquidity risk, Continued
- (ii) As of December 31, 2018

In millions of won

	Less than	1-5	Over		
_	1 year	years	5 years	Uncertain	Total
W	67,026	-	-	-	67,026
	-	-	-	225,332	225,332
	4,096	16,236	-	-	20,332
	50,000	-	-	-	50,000
	593,555	2,577	-	-	596,132
W	714,677	18,813		225,332	958,822
		1 year ₩ 67,026 4,096 50,000 593,555	1 year years ₩ 67,026 - - - 4,096 16,236 50,000 - 593,555 2,577	1 year years 5 years - - - 4,096 16,236 - 50,000 - - 593,555 2,577 -	1 year years 5 years Uncertain ₩ 67,026 - - - - - - 225,332 4,096 16,236 - - 50,000 - - - 593,555 2,577 - -

Derivative liabilities classified by maturity periods which from reporting date to maturity date of contract as of December 31, 2019 and 2018 are as follows:

(i) As of December 31, 2019

In millions of won

		Less than 1 year	1-2 years	2-5 years	More than 5 years	Total
Net settlement	· <u> </u>					_
-Trading purpose	W	-	-	-	-	-
Gross settlement						
-Trading purpose		312	-	-	-	312
-Hedge accounting purpose	_	<u> </u>		357		357
	w_	312		357		669

(ii) As of December 31, 2018

		Less than 1 year	1-2 years	2-5 years	More than 5 years	Total
Net settlement	=					
-Trading purpose	W	-	-	-	-	-
Gross settlement						
-Trading purpose		213	-	-	-	213
-Hedge accounting purpose	_	5,284		-	<u> </u>	5,284
	W	5,497				5,497

Notes to the Consolidated Financial Statements

December 31, 2019 and 2018

38. Risk Management, Continued

(3) Fair value risk

The fair value of the Group's actively-traded financial instruments (i.e. FVTPL,FVOCI, etc.) is 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 receivables and payables, the Group considers the carrying value, net of impairment, as fair value. While for disclosure purposes, the fair value of financial liabilities is estimated by discounting a financial instrument with similar contractual cash flows using the effective interest method.

1) Fair value and book value of financial assets and liabilities as of December 31, 2019 and 2018 are as follows:

		201	19	2018		
		Book value	Fair value	Book value	Fair value	
Assets recognized at fair value						
Financial assetss at fair value through other	***	102.057	102.057	225 222	225 222	
comprehensive income	₩	192,957	192,957	225,332	225,332	
Derivatives assets (trading)		15	15	24	24	
Derivatives assets (hedge accounting)	***	45,838	45,838	36,488	36,488	
	₩	238,810	238,810	261,844	261,844	
Assets carried at amortized cost						
Cash and cash equivalents	W	61,301	61,301	67,026	67,026	
Trade and other receivables		566,103	566,103	50,000	50,000	
Loans		39,200	39,200	595,840	595,840	
Short-term financial instruments		50,000	50,000	18,828	18,828	
	₩	716,604	716,604	731,694	731,694	
		<u> </u>				
Liabilities recognized at fair value						
Derivatives liabilities (trading)	W	312	312	213	213	
Derivatives liabilities (hedge accounting)		357	357	5,284	5,284	
	₩	669	669	5,497	5,497	
Liabilities carried at amortized cost						
Borrowings	W	201,200	201,200	41,548	41,548	
Debentures	• • •	4,932,516	5,132,151	5,058,243	5,121,374	
Trade and other payables		1,076,032	1,076,032	422,654	422,654	
Smor Payacres	W	6,209,748	6,409,383	5,522,445	5,585,576	

Notes to the Consolidated Financial Statements

December 31, 2019 and 2018

38. Risk Management, Continued

(3) Fair value risk, Continued

2) The interest rates used to discount estimated cash flows, when applicable, are based on the government yield curve at the reporting date plus an adequate credit spread.

The discount rates used for calculating fair value as of December 31, 2019 and 2018 are as follows:

Type	2019 (%)	2018 (%)
Derivatives	0.80~0.83	1.09~1.21
Debentures	-0.17~2.34	-0.70~3.58

3) Fair value hierarchy

The Group uses the following hierarchy for determining and disclosing the fair value of financial instruments by valuation technique. The level of hierarchy of fair value is as follows:

1	•
	The significance of input variables
Level 1	Quoted (unadjusted) prices in active markets for identical assets or liabilities

Level 2 Other techniques for which all inputs which have a significant effect on the recorded fair value are observable, either directly or indirectly

Level 3 Techniques which use inputs which have a significant effect on the recorded fair value that are not based on observable market data

Fair values of financial instruments by hierarchy level as of December 31, 2019 and 2018, respectively, are as follows:

(i) As of December 31, 2019

In millions of won

	_	Level 1	Level 2	Level 3	Total
Financial assets at fair value:					
Financial assets at fair value through other					
comprehensive income	₩	176,172	-	16,785	192,957
Derivative assets (trading)		-	15	-	15
Derivative assets (hedge accounting)		-	45,838	-	45,838
	₩	176,172	45,853	16,785	238,810
Financial liabilities at fair value:					
Derivative liabilities (trading)	₩	-	312	-	312
Derivative liabilities (hedge accounting)		-	357	-	357
	W	_	669		669

The fair value of financial instruments not traded in an active market is determined using valuation techniques. The group determined the fair value of its financial assets measured at fair value through other comprehensive income through the discounted cash flow, and used assumptions such as weighted average capital cost of 4.95% and permanent growth rate of 0% to determine for value.

Notes to the Consolidated Financial Statements

December 31, 2019 and 2018

38. Risk Management, Continued

- 3) Fair value hierarchy, Continued
- (ii) As of December 31, 2018

_	Level 1	Level 2	Level 3	Total
Financial assets at fair value:				
Financial assets at fair value through other				
comprehensive income \text{\text{\text{\W}}}	203,520	-	21,812	225,332
Derivative assets (trading)	-	24	-	24
Derivative assets (hedge accounting)		36,488	<u>-</u>	36,488
W _	203,520	36,512	21,812	261,844
Financial liabilities at fair value:				
Derivative liabilities (trading)	-	213	-	213
Derivative liabilities (hedge accounting)		5,284		5,284
₩_		5,497	_	5,497

Notes to the Consolidated Financial Statements

December 31, 2019 and 2018

39. Related Party Transactions

(1) The nature of the Group's relationship with related parties as of December 31, 2019 is as follows:

Control relationship	Related party
Parent company	Korea Electric Power Corporation
Associates	Cheongna Energy Co., Ltd.
	Pioneer Gas Power, Ltd.
	Eurasia Energy Holdings
	Xe-Pian Xe-Namnoy Power Co., Ltd.
	PT. Mutiara Jawa
	Korea Offshore Wind Power Co., Ltd.
	Daegu Solar Power Plant Co., Ltd.
	Dongducheon Dream Power Co., Ltd.
	Solar Power Plants Happy City Co., Ltd.
	Shin Pyeongtaek Power Co., Ltd.
	KEPCO Energy Solution Co., Ltd.
	Solar School Plant Co., Ltd.
Joint ventures	Rabigh O&M Co., Ltd.
	KIAMCO KOWEPO Bannerton Hold Co Pty., Ltd.
	Haemodum Solar Energy Co., Ltd.
Other related party	Korea Hydro & Nuclear Power Co., Ltd.
	Korea South-East Power Co., Ltd.
	Korea Midland Power Co., Ltd.
	Korea Southern Power Co., Ltd.
	Korea East-West Power Co., Ltd.
	KEPCO Engineering & Construction Company Inc.
	KEPCO KPS Co., Ltd.
	KEPCO KDN Co., Ltd.
	KEPCO Nuclear Fuel Co., Ltd.
	Korea Gas Corporation
	Korea Electronic Power Industrial Development Co., Ltd.
	Korea Power Exchange
	Korea Development Bank
	KEPCO Bylong Australia Pty., Ltd.
	Etc

Notes to the Consolidated Financial Statements

December 31, 2019 and 2018

39. Related Party Transactions, Continued

(2) Significant transactions with associates for the years ended December 31, 2019 and 2018 are as follows:

·		Sales and	others	Purchase and others			
Related parties		2019	2018	2019	2018		
Korea Electric Power Corporation	W	4,401,293	4,792,853	70,086	63,327		
Korea Hydro & Nuclear Power Co., Ltd.	•••	-	-	35	88		
Korea Southern Power Co., Ltd.		2,632	1,766	415	196		
Korea East-West Power Co., Ltd.		1	1,700	61	182		
Korea South-East Power Co., Ltd.		1	1	15	87		
Korea Midland Power Co., Ltd.		1	1	484	382		
KEPCO Engineering & Construction		•	1	101	302		
Company Inc.		_	_	5,114	3,021		
KEPCO KPS Co., Ltd.		1,954	1,949	64,684	76,473		
KEPCO KDN Co., Ltd.		-	-	15,567	13,461		
Cheongna Energy Co., Ltd.		8,287	9,868	58,747	58		
Korea Offshore Wind Power Co., Ltd.		143	221	-	-		
Daegu Solar Power Plant Co., Ltd.		327	128	2,613	2,680		
Dongducheon Dream Power Co., Ltd.		208	184	2,013	2,000		
Solar Power Plants Happy City Co., Ltd.		-	-	286	288		
Rabigh Operation & Maintenance Company				200	200		
Limited		2,835	1,707	_	_		
Korea Gas Corporation		3,438	7,792	953,388	1,067,199		
Korea Electronic Power Industrial		3,130	7,722	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	1,007,133		
Development Co., Ltd.		4,429	4,001	40,263	40,060		
Korea Power Exchange		-, 129	- 1,001	4,690	5,372		
Pioneer Gas Power, Ltd		_	26	-			
Shin Pyeongtaek Power Co., Ltd.		15,655	8,057	76			
Xe-Pian Xe-Namnoy Power Co., Ltd.		1,162	671	70	-		
KEPCO Energy Solution Co., Ltd.		120	95	_	_		
Solar School Plant Co., Ltd		120	54	<u>-</u>	_		
KEPCO Bylong Australia Pty., Ltd.		21	27	<u>-</u>	_		
PT. Mutiara Jawa		42	40	<u>-</u>	_		
Korea Development Bank		72	40	_			
Interest expense				71			
Gain on valuation of derivative instruments,		_	_	/ 1	_		
net (equity, before tax)		7,148	3,725				
Gain on valuation of derivative instruments,		7,140	3,723	_	_		
net (profit or loss)		11,910	14,550				
Loss on valuation of derivative instruments,		11,910	14,550	_	_		
net (profit or loss)				1,298			
Gain on transaction of derivative instruments,		_	-	1,290	_		
net (profit or loss)		6,822	_	_	_		
not (profit of food)	w –	4,468,429	4,847,717	1,217,893	1,272,874		
	-T-	T,TUU,T49	7,07/,/1/	1,417,093	1,4/4,0/4		

Notes to the Consolidated Financial Statements

December 31, 2019 and 2018

39. Related Party Transactions, Continued

(3) Receivables and payables arising from associates transactions as of December 31, 2019 and 2018 are as follows:

	oj won		Receivables		Paya	ıbles	
Company name	Туре		2019	2018	2019	2018	
Korea Electric Power Corporation	Trade receivables	\mathbf{W}	433,496	384,108	-	-	
	Non-trade receivables and others		106,919	189,621	-	-	
	Trade payables		-	-	3,341	4,623	
	Non-trade payables and others		-	-	2,286	1,294	
Korea Hydro & Nuclear Power Co., Ltd.	Non-trade payables and others		-	-	-	22	
Korea Southern Power Co., Ltd.	Non-trade receivables and others		516	438	-	-	
	Non-trade payables and others		-	-	-	543	
Korea East-West Power Co., Ltd.	Non-trade payables and others		_	_	_	137	
Korea Midland Power Co., Ltd.	Non-trade payables and others		_	_	_	160	
KEPCO Engineering & Construction	• •						
Company Inc.	Non-trade payables and others		-	-	-	786	
KEPCO KPS Co., Ltd.	Non-trade receivables and others		-	16	-	-	
	Non-trade payables and others		-	-	7,478	8,144	
KEPCO KDN Co., Ltd.	Non-trade payables and others		-	-	1,858	1,049	
Cheongna Energy Co., Ltd.	Trade receivables		909	-	-	-	
	Non-trade payables and others		-	-	-	-	
Korea Offshore Wind Power Co., Ltd.	Trade receivables		76	136	-	_	
Dongducheon Dream Power Co., Ltd.	Non-trade receivables and others		70	145	-	-	
Rabigh Operation & Maintenance							
Company Limited	Non-trade receivables		-	449	-	-	
Shin Pyeongtaek Power Co., Ltd.	Non-trade receivables and others		2,281	242	-	-	
	Non-trade payables and others		-	-	61	82	
Korea Gas Corporation	Non-trade receivables and others		26	426	-	-	
	Trade payables		-	-	101,167	116,200	
	Non-trade payables and others		-	-	560	314	
Korea Electronic Power Industrial	Trade receivables		205	241	-	-	
Development Co., Ltd.	Non-trade receivables and others		34	37	_	_	
	Non-trade payables and others		_	_	287	1,750	
Xe-Pian Xe-Namnoy Power Co., Ltd.	Non-trade receivables and others		740	61	_	-	
•	Loans		20,955	1,413	_	_	
KEPCO Energy Solution Co., Ltd.	Trade receivables		25	32	_	_	
KEPCO Bylong Australia Pty., Ltd. (*)	Non-trade receivables and others		87	85	_	_	
PT. Mutiara Jawa	Non-trade receivables and others		3	10	_	_	
Korea Development Bank	Derivative assets		36,135	18,275	_	_	
	Derivative liabilities			-,	99	_	
		W	602,477	595,735	117,137	135,104	

^(*) The Group has recognized an allowance for doubtful account of \(\frac{\text{W}}{87}\) million for non-trade receivables and others from KEPCO Bylong Australia Pty., Ltd. as of December 31, 2019.

Notes to the Consolidated Financial Statements

December 31, 2019 and 2018

39. Related Party Transactions, Continued

(4) Details of borrowings from related parties as of December 31, 2019 and 2018 are as follows:

In millions of won

•				Foreign		
				exchange rate		
Company name	2018	Borrowing	Repayment	fluctation	2019	
Korea Development Bank	-	12,242	(11,792)	(450)	-	-

(5) Details of loans to related parties as of December 31, 2019 and 2018 are as follows:

In million of won

V					Foreign exchange	
Type	Company name	2018	Loans	Collection	adjustment	2019
Associate	Xe-Pian Xe-Namnoy		_			
	Power Co., Ltd.	1,413	20,148	-	(606)	20,955

(6) Details of derivative transactions with related parties for the year ended December 31, 2019 are as follows:

In millions of won, In thousands of USD

		Contract	Amount		Interest	rate	Exchange
Type	Counterparty	period	Sell	Buy	Sell	Buy	rate
Hedging	Korea	2018.06.07					
	Development	~2023.06.07					
	Bank		KRW 320,880	USD 300,000	2.03%	3.75%	1,069.60
Hedging	Korea	2019.07.22					
	Development	~2022.07.22					
	Bank		KRW 117,340	USD 100,000	1.06%	2.38%	1173.40

(7) Details of salaries and other compensations to the key members of management for the years ended December 31, 2019 and 2018 are as follows:

Туре		2019	2018
Short-term employee benefits	₩	661	502
Retirement benefits		39	118

Notes to the Consolidated Financial Statements

December 31, 2019 and 2018

39. Related Party Transactions, Continued

(8) Guarantees provided to related party as of December 31, 2019 are as follows:

In millions of won, In thousands of USD, SAR

Provider	Related Parties	Type of guarantee	Amount	Guarantee
Korea Western Power Co., Ltd.	Cheongna Energy Co., Ltd.	Investments in associates pledged as collateral	KRW 1,411	KEB Hana Bank, etc.
Korea Western	Dongducheon Dream Power Co.,	Investments in associates	***************************************	Kookmin Bank,
Power Co., Ltd.	Ltd.	pledged as collateral(*2)	KRW 41,531	etc.
Korea Western	Dongducheon Dream Power Co.,	Borrowing payment		BNK
Power Co., Ltd.	Ltd.	guarantees	KRW 20,300	Securities, etc.
Korea Western	Daegu Solar Power Plant Co., Ltd.	Investments in associates		Korea
Power Co., Ltd.		pledged as collateral	KRW 2,060	Development Bank
Korea Western	PT Mutiara Jawa	Investments in associates		Woori Bank
Power Co., Ltd.		pledged as collateral	KRW 1,438	
Korea Western	KEPCO Bylong Australia Pty., Ltd.	Borrowing payment		Export-Import
Power Co., Ltd.		guarantees	USD 5,800	Bank of Korea
Korea Western	Rabigh Operation & Maintenance	Contract performance		Saudi Arabia British
Power Co., Ltd.	Company Limited	guarantees, etc.	SAR 5,600	Bank
Korea Western	Xe-Pian Xe-Namnoy Power Co.,	Investments in associates		Krung Thai Bank
Power Co., Ltd.	Ltd.	pledged as collateral	KRW 72,935	Ü
Korea Western	Xe-Pian Xe-Namnoy Power Co.,	Business reserve payment	,	Krung Thai Bank
Power Co., Ltd.	Ltd.	guarantee	USD 2,500	8
Korea Western	Xe-Pian Xe-Namnoy Power Co., Ltd	Guarantees of Impounding	,	SK E&C
Power Co., Ltd.	,	bonus (*1)	USD 5,000	
Korea Western	Solar Power Plants Happy City Co.,	Investments in associates	-,	NH Bank
Power Co., Ltd.	Ltd.	pledged as collateral	KRW 215	
Korea Western	Shin Pyeongtaek Power Co., Ltd.	Investments in associates		Kookmin Bank
Power Co., Ltd.	, ,	pledged as collateral	KRW 66,956	
Korea Western	Korea Offshore Wind Power Co.,	Investments in associates	-22: 00,700	Woori Bank, etc.
Power Co., Ltd.	Ltd.	pledged as collateral	KRW 21,180	com bank, occ.
101. 00., Etc.	2	proagra as sonatorar	1211 21,100	

- (*1) Xe-Pian Xe-Namnoy Power Co., Ltd. entered into the agreement to pay incentives to SK E&C when the impoundment occured upon the completion of the hydropower project. In case that Xe-Pian Xe-Namnoy Power Co., Ltd. becomes unable to pay the incentives to SK E&C, the Group provides guarantees for payment up to USD 5,000,000.
- (*2) Dongducheon Dream Power Co., Ltd.'s common stock and convertible preferred stocks held by the consolidated group were provided as collateral to financial institutions.
- (9) Cheongna Energy Co., Ltd., an associate, operates integrated energy transportation and distributions and has outstanding borrowings from the financial institutions. In relation to the borrowings, the Group entered into the supplemental funding agreement for Cheongna Energy Co., Ltd.. According to the agreement, the Group is required to fund through subordinated borrowing or all shareholders of Cheongna Energy Co., Ltd. are required to raise the additional funds based on the shareholders' equity ratios when Cheongna Energy Co., Ltd. is unable to repay the principal and interest amounts.

Furthermore, Cheongna Energy Co., Ltd., has provided land as collateral for the borrowings from the financial institutions. As of December 31, 2019, Cheongna Energy Co., Ltd. has entered into supplemental funding agreement relating to borrowing secured by Hakwoon land in Kimpo and in case Cheongna Energy Co., Ltd. is unable to repay the principal and interest amounts, it is required to raise fund through additional capital injection or subordinated borrowings.

Notes to the Consolidated Financial Statements

December 31, 2019 and 2018

39. Related Party Transactions, Continued

(10) Shin Pyeongtaek Power Co., Ltd, which is a related party of the Group, is engaged in sales of electric power and has a loan from financial institutions. As of December 31, 2019, the Group has entered into a supplementary funding agreement with Shin Pyeongtaek Power Co., Ltd. Accordingly, in the event that Shin Pyeongtaek Power Co., Ltd. has insufficient funds, or if there is any investor who cannot make a supplemental funding, the strategic investors of Shin Pyeongtaek Power Co., Ltd. including the Group must make an additional funding through equity investment or providing a subordinated loans in proportion to their ownership percentage. In addition, if there is such an investor who cannot make a supplemental funding among strategic investors, the alternative investor must acquire all the shares of those investors in accordance with the agreement. If an alternative investor fails to take over all the shares, a strategic investor, including the Group, is required to acquire the shares.

(11) As of December 31, 2019, Korea Offshore Wind Power Co., Ltd., an associate, operates marine wind power generating facility and its construction. It has entered into project financing agreement amounting to \(\foware \text{244.5}\) billion with Woori Bank and etc.. The Group has provided stocks of Korea Offshore Wind Power Co., Ltd. to creditors for collateral. The Group also has entered into funding agreement through subordinated borrowings for any excessive operating expense.

40. Assets Held for Sale

Assets held-for-sale as of December 31, 2019 and 2018 are as follows:

In millions of won

		2019	2018
Investments in subsidiaries (*1)	₩	288	747
Property, plant and equipment		193	=
	₩	481	747

2010

2010

(*1) As of December 31, 2019, the liquidation process of Garolim Tidal Power Co., Ltd. is in progress and has been reclassified as assets held for sale.

41. Non-cash Transactions

(1) Significant non-cash investing and financing transactions for the years ended December 31, 2019 and 2018 are as follows:

		2019	2018
Reclassification of long-term borrowings and debentures to current portion	W	629,860	699,417
Reclassification of construction-in-progress		404,808	435,523
Reclassification of assets held for sale of property, plant and equipment's			
acquisition		193	-
Reclassification of non-cash purchases of property, plant and equipment's			
acquisition		7,514	20,324
Reclassification of long-term loans to current portion		1,875	2,398
Reclassification of long-term prepaid expenses to current portion		(19)	714
Reclassification of long-term deposit to current portion		1,005	1,547

Notes to the Consolidated Financial Statements

December 31, 2019 and 2018

41. Non-cash Transactions, Continued

(2) Changes in liabilities arising from financing activities for the year ended December 31, 2019 are as follows:

				Non-cash change				
					Fluctation of			
		Beginning	Cash		foreign	Amoti-		2019
Туре		balance	flow	Acquisition	exchange rate	zation	Others	
Short-term	₩							
borrowings		40,000	162,688	-	(2,688)	-	-	200,000
Current portion of								
long-term								
borrowings		348	(348)	-	-	-	348	348
Current portion of								
debentures		722,120	(746,106)	-	23,432	882	629,512	629,840
Long-term								
borrowings		1,200	-	-	-	-	(348)	852
Debentures		4,336,123	571,186	-	22,652	2,228	(629,512)	4,302,677
Lease liabilities		-	(67,993)	820,509	28,671	-	(42)	781,145

42. Commitments for Expenditure

The commitments for acquisition of property, plant and equipment as of December 31, 2019 and 2018 are as follows:

	8
ounts	Balance
46,001	3,161
112,344	13,338
556,504	18,502
214,462	10,422
205,765	283
96,068	1,552
_	-
-	-
,231,144	47,258
	112,344 556,504 214,462 205,765

Notes to the Consolidated Financial Statements

December 31, 2019 and 2018

43. Commitments and Contingencies

(1) Ongoing litigations and claims related with contingent liabilities as of December 31, 2019 and 2018 are as follows:

In millions of won

	2019	2019			2018		
	Number of cases	Claim amount	Number of cases		Claim amount		
As the defendant	19 W	53,100	18	₩	42,300		
As the plaintiff	12	120,600	7		116,900		

43. Commitments and Contingencies Continued

(2) Credit lines provided by financial institutions as of December 31, 2019 are as follows:

In millions of won, In thousands of USD

Description	Financial Institutions	Currency	Limited amount	Exercised amount
Foreign currency payment guarantee	NH Bank	USD	4,680	3,892
Commitments on Bank-overdraft	NH Bank	KRW	200,000	50,000
Derivatives trading credit	NH Bank	USD	8,000	242
C	KEB Hana Bank	USD	50,000	25,340
	Woori Bank	USD	45,000	-
Loan limit	Societe Generale	USD	50,000	-
	BNP PARIBAS	USD	40,000	-
	Standard Chartered	USD	50,000	-
	Mizuho Corporate Bank Ltd.	USD	150,000	_
	Bank of Nova Scotia	USD	20,000	-
	Korea Development Bank	USD	80,000	-
	Credit Agricole	USD	50,000	_
	China Construction Bank	USD	20,000	_
	DBS Bank	USD	100,000	_
	Shinhan Bank	USD	50,000	
	IBK Bank	KRW	5,000	-
	KB Bank	KRW	10,000	-
	NH Bank	KRW	5,000	-
	Shinhan Bank	KRW	5,000	-
	Woori Bank	KRW	5,000	-
	KEB Hana Bank	KRW	5,000	-
	SC Bank	KRW	20,000	-
Certification of payment on L/C	KEB Hana Bank	USD	10,000	-
	Shinhan Bank	USD	80,000	919
	NH Bank	USD	50,000	1,896
	IBK Bank Seosan branch	USD	25,000	-

(3) Main raw material purchase agreements as of December 31, 2019 are as follows:

Raw materials	Supplier	Contract period	Annual contract amount (thousand tons)
Bituminous coal	Australia	2020.01~2024.04	1,474
	Indonesia	2020.01~2024.04	906
	Russia	2020.01~2024.09	536
	Colombia	2020.01~2023.09	584
	USA	2020.01~2022.03	152
			3,652
LNG	Korea Gas Corporation	2007~2033	Determined annually
	Korea Gas Corporation	2015~2025	Determined annually

Notes to the Consolidated Financial Statements

December 31, 2019 and 2018

43. Commitments and Contingencies, Continued

(4) Details of long-term marine transportation commitment for the safe transport of bituminous coal as of December 31, 2019 are as follows:

Shipping company	Ship name	Contract period
NYK	Frontier Expedition	2013.02~2028.10
K-Line	CSK Brilliance	2011.11~2022.01
MOL	Pacific Power	2008.11~2020 during the year
H-Line	HL Balikpapan	2011.07~2026.06
H-Line	Hyundai Leader	2016.04~2031.03
H-Line	HL Taean	2018.05~2036.04
SK Shipping Co., Ltd.	K. Western Dream	2016.03~2028.02
SK Shipping Co., Ltd.	K.Taean	2018.10~2036.09
Hansung Line Co., Ltd.	Western Marine	2012.01~2026.12
Daebo International Shipping Co., Ltd.	Glovis Daylight	2015.12~2030.11
Wooyang Shipping Co., Ltd	Wooyang Queen	2016.07~2026.06
Five Ocean Corporation	Nozomi	2016.12~2026.11

(5) As described in Note 39, the Group provides financial supports including the debt repayment guarantees to related parties.

44. Events After the Reporting Period

The Group has entered into short-term foreign currency borrowing agreements for the purpose of using bituminous coal payment funds, and details of the borrowings are as follows:

In thousands of USD

Type	Borrowing Date	Maturity Date	Annual interest rate	Amount
Foreign short-term			- ·	
borrowings	2020-02-06	2020-05-06	1.972%	USD 24,658
Foreign short-term				
borrowings	2020-02-26	2020-05-26	1.858%	USD 7,329