

SK E&S Co., Ltd.
and Subsidiaries
Consolidated Financial Statements
December 31, 2018 and 2017

SK E&S Co., Ltd. and Subsidiaries
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December 31, 2018 and 2017

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Independent Auditor's Report

(English Translation of a Report Originally Issued in Korean)

To the Board of Directors and Shareholders of
SK E&S Co., Ltd.

Opinion

We have audited the accompanying consolidated financial statements of SK E&S Co., Ltd. and its subsidiaries (collectively referred to as the "Group"), which comprise the consolidated statements of financial position as at December 31, 2018 and 2017, and the consolidated statements of profit of loss, consolidated statements of comprehensive income, consolidated statements of changes in equity and consolidated statements of cash flows for the years then ended, and notes to the consolidated 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 SK E&S Co., Ltd. and its subsidiaries as at December 31, 2018 and 2017, and its consolidated financial performance and its consolidated cash flows for the years then ended in accordance with International Financial Reporting Standards as adopted by the Republic of Korea (Korean IFRS).

Basis for Opinion

We conducted our audits in accordance with Korean Standards on Auditing. 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.

Other Matter

Auditing standards and their application in practice vary among countries. The procedures and practices used in the Republic of Korea to audit such financial statements may differ from those generally accepted and applied in other countries.

Responsibilities of Management and Those Charged with Governance for the Financial Statements

Management is responsible for the preparation and fair presentation of the consolidated financial statements in accordance with International Financial Reporting Standards as adopted by the Republic of Korea (Korean IFRS) and for such internal control as management determines is

necessary to enable the preparation of consolidated financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the consolidated financial statements, management is responsible for assessing the Group's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless management either intends to liquidate the Group or to cease operations.

Those charged with governance are responsible for overseeing the Group's financial reporting process.

Auditor's Responsibilities for the Audit of the 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 Korean Standards on Auditing 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 financial statements.

As part of an audit in accordance with Korean Standards on Auditing, 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 entity'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.

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.

Samuel PricewaterhouseCoopers

Seoul, Korea
March 11, 2019

This report is effective as of March 11, 2019, the audit report date. Certain subsequent events or circumstances, which may occur between the audit report date and the time of reading this report, could have a material impact on the accompanying consolidated financial statements and notes thereto. Accordingly, the readers of the audit report should understand that there is a possibility that the above audit report may have to be revised to reflect the impact of such subsequent events or circumstances, if any.

SK E&S Co., Ltd. and Subsidiaries
Consolidated Statements of Financial Position
December 31, 2018 and 2017

(in thousands of Korean won)

	Notes	2018	2017
Assets			
Non-current assets			
Property, plant and equipment	8,32	₩ 5,126,893,435	₩ 4,934,621,925
Investment properties	9,32	96,291,034	96,371,334
Intangible assets	10	912,485,689	768,417,071
Investments in joint ventures and associates	11,32	1,127,111,584	874,635,300
Deferred tax assets	28	30,793,345	29,028,623
Available-for-sale financial assets	4,5,6,12	-	110,771,878
Financial assets at fair value through profit or loss	4,5,6,7	119,820,494	-
Financial assets at fair value through other comprehensive income	4,5,6,7	3,912,373	-
Derivative assets	5,6	31,995,733	-
Net defined benefit assets	17	-	879,261
Other financial assets	4,5,6,7	22,678,407	21,933,037
Other assets	13	27,885,740	11,355,790
		<u>7,499,867,834</u>	<u>6,848,014,219</u>
Current assets			
Inventories	14	138,294,615	110,459,028
Trade receivables	4,5,6,7,34	883,244,100	834,178,541
Derivative assets	5,6	7,608,758	393,164
Other financial assets	4,5,6,7,34	123,329,749	159,634,686
Other assets	13,32	284,051,209	252,463,826
Cash and cash equivalents	4,5,15	633,117,770	1,137,775,579
		<u>2,069,646,201</u>	<u>2,494,904,824</u>
Total assets		<u>₩ 9,569,514,035</u>	<u>₩ 9,342,919,043</u>
Liabilities			
Non-current liabilities			
Borrowings	4,5,6,16,31,32	₩ 2,913,571,556	₩ 2,842,488,919
Derivative liabilities	4,5,6	17,302,048	17,532,536
Other financial liabilities	4,5,6,18	6,333,493	5,380,628
Deferred tax liabilities	28	151,892,669	129,114,996
Net defined benefit liabilities	17	4,776,547	-
Contract liabilities	19,20	481,262,463	397,687,934
Other liabilities	19	6,768,249	3,361,465
		<u>3,581,907,025</u>	<u>3,395,566,478</u>
Current liabilities			
Trade payables	4,5,6,34	864,788,756	943,780,832
Derivative liabilities	4,5,6	5,187,684	5,653,779
Other financial liabilities	4,5,6,18,34	263,126,850	440,112,962
Other liabilities	19,20	215,652,829	63,974,004
Current tax liabilities	28	58,009,886	69,975,466
Borrowings	4,5,6,16,31,32	904,992,299	663,735,907
		<u>2,311,758,304</u>	<u>2,187,232,950</u>
Total liabilities		<u>5,893,665,329</u>	<u>5,582,799,428</u>
Equity			
Share capital	1,21	244,259,955	244,259,955
Share premium	21	624,562,299	1,074,562,299
Retained earnings	22	1,851,913,914	1,048,316,558
Other components of equity	23	781,748,042	984,497,102
Equity attributable to owners of the Controlling Company		<u>3,502,484,210</u>	<u>3,351,635,914</u>
Non-controlling interest	33	<u>173,364,496</u>	<u>408,483,701</u>
Total equity		<u>3,675,848,706</u>	<u>3,760,119,615</u>
Total liabilities and equity		<u>₩ 9,569,514,035</u>	<u>₩ 9,342,919,043</u>

The above consolidated statements of financial position should be read in conjunction with the accompanying notes.

SK E&S Co., Ltd. and Subsidiaries
Consolidated Statements of Profit or Loss
Years Ended December 31, 2018 and 2017

<i>(in thousands of Korean won, except per share amounts)</i>	Notes	2018	2017
Continuing operations			
Revenue	32,34,35	₩ 6,467,574,771	₩ 5,535,226,115
Cost of sales	14,26,32,34	5,473,449,095	4,693,951,136
Gross profit		994,125,676	841,274,979
Selling and administrative expenses	24,26,34	546,302,637	485,556,881
Operating profit		447,823,039	355,718,098
Other income	25	101,186,987	99,521,308
Other expenses	6,25	49,173,035	57,967,507
Share of profit of associates	11	179,216,160	155,942,364
Finance income	6,27	48,181,346	50,098,365
Finance costs	6,27	169,450,855	139,082,842
Profit before income tax		557,783,642	464,229,786
Income tax expense	28	118,750,137	89,904,629
Profit for the year		439,033,505	374,325,157
Profit attributable to:			
Owners of the Controlling Company		412,432,122	350,437,948
Non-controlling interests		26,601,383	23,887,209
Earnings per share attributable to the equity holders of the Controlling Company during the year			
Basic and diluted earnings per share	29	₩ 8,888	₩ 8,278

The above consolidated statements of profit or loss should be read in conjunction with the accompanying notes.

SK E&S Co., Ltd. and Subsidiaries
Consolidated Statements of Comprehensive Income
Years Ended December 31, 2018 and 2017

(in thousands of Korean won)

	Notes	2018	2017
Profit for the year		₩ 439,033,505	₩ 374,325,157
Other comprehensive income			
Items that will not be reclassified subsequently to profit or loss:			
Remeasurements of net defined benefit liabilities	17	(5,412,945)	2,524,946
Change in value of financial assets			
at fair value through other comprehensive income	6	80,609	-
Items that will be reclassified subsequently to profit or loss:			
Change in value of available-for-sale financial assets	12	-	1,431,527
Share of other comprehensive income of associates	11	1,071,384	(23,278,299)
Exchange differences on translation of foreign operations		39,024,532	(94,489,492)
Cash flow hedges	6	21,912,632	9,512,656
Total comprehensive income for the year		<u>₩ 495,709,717</u>	<u>₩ 270,026,495</u>
Attributable to:			
Owners of the Controlling Company		₩ 469,121,735	₩ 247,483,079
Non-controlling interest		<u>26,587,982</u>	<u>22,543,416</u>
Total comprehensive income for the year		<u>₩ 495,709,717</u>	<u>₩ 270,026,495</u>

The above consolidated statements of comprehensive income should be read in conjunction with the accompanying notes.

SK E&S Co., Ltd. and Subsidiaries
Consolidated Statements of Changes in Equity
Years Ended December 31, 2018 and 2017

(in thousands of Korean won)

(in thousands of Korean won)

Attributable to owners of the Controlling Company									
	Notes	Share Capital	Share Premium	Retained Earnings	Other Components of Equity	Total	Non-controlling Interest	Total Equity	
Balance at January 1, 2017		₩ 221,058,960	₩ 420,107,123	₩ 878,188,234	₩ 1,052,991,841	₩ 2,572,346,158	₩ 436,588,538	₩ 3,008,934,696	
Comprehensive income									
Profit for the year		-	-	350,437,948	-	350,437,948	23,887,209	374,325,157	
Remeasurements of the net defined benefit liability		-	-	2,311,320	-	2,311,320	213,626	2,524,946	
Change in value of available-for-sale financial assets		-	-	-	1,502,121	1,502,121	(70,594)	1,431,527	
Share of other comprehensive income of associates		-	-	-	(22,750,769)	(22,750,769)	(527,530)	(23,278,299)	
Exchange differences on translation of foreign operations		-	-	-	(93,557,467)	(93,557,467)	(932,025)	(94,489,492)	
Cash flow hedges		-	-	-	9,539,926	9,539,926	(27,270)	9,512,656	
Total comprehensive income for the year		-	-	352,749,268	(105,266,189)	247,483,079	22,543,416	270,026,495	
Transactions with owners of the Controlling Company									
Issuance of shares		23,200,995	654,455,176	-	-	677,656,171	-	677,656,171	
Cash dividends	30	-	-	(150,843,589)	-	(150,843,589)	(1,297,799)	(152,141,388)	
Interest paid on hybrid bond		-	-	(31,777,094)	-	(31,777,094)	(12,097,912)	(43,875,006)	
Others		-	-	(261)	36,771,450	36,771,189	(37,252,542)	(481,353)	
Total transactions with owners of the Controlling Company		23,200,995	654,455,176	(182,620,944)	36,771,450	531,806,677	(50,648,253)	481,158,424	
Balance at December 31, 2017		₩ 244,259,955	₩ 1,074,562,299	₩ 1,048,316,558	₩ 984,497,102	₩ 3,351,635,914	₩ 408,483,701	₩ 3,760,119,615	
Balance at January 1, 2018		₩ 244,259,955	₩ 1,074,562,299	₩ 1,048,316,558	₩ 984,497,102	₩ 3,351,635,914	₩ 408,483,701	₩ 3,760,119,615	
Changes in accounting policy	22,36	-	-	(15,189,470)	(4,605,144)	(19,794,614)	(783,787)	(20,578,401)	
Comprehensive income									
Profit for the year		-	-	412,432,122	-	412,432,122	26,601,383	439,033,505	
Remeasurements of the net defined benefit liability		-	-	(5,330,189)	-	(5,330,189)	(82,756)	(5,412,945)	
Change in value of financial assets		-	-	-	80,609	80,609	-	80,609	
at fair value through other comprehensive income		-	-	-	1,132,031	1,132,031	(60,647)	1,071,384	
Share of other comprehensive income of associates		-	-	-	38,885,214	38,885,214	139,318	39,024,532	
Exchange differences on translation of foreign operations		-	-	-	21,921,948	21,921,948	(9,316)	21,912,632	
Cash flow hedges		-	-	-	-	-	-	-	
Total comprehensive income for the year		-	-	407,101,933	62,019,802	469,121,735	26,587,982	495,709,717	
Transactions with owners of the Controlling Company									
Cash dividends		-	-	(264,212,931)	-	(264,212,931)	(1,297,799)	(265,510,730)	
Repayments of hybrid bond	33	-	-	-	(2,637,099)	(2,637,099)	(247,362,901)	(250,000,000)	
Interest paid on hybrid bond		-	-	(31,703,969)	-	(31,703,969)	(12,263,699)	(43,967,668)	
Transfer of retained earning		-	(450,000,000)	707,586,894	(257,586,894)	-	-	-	
Others		-	-	14,899	60,275	75,174	999	76,173	
Total transactions with owners of the Controlling Company		-	(450,000,000)	411,684,893	(260,163,718)	(298,478,825)	(260,923,400)	(559,402,225)	
Balance at December 31, 2018		₩ 244,259,955	₩ 624,562,299	₩ 1,851,913,914	₩ 781,748,042	₩ 3,502,484,210	₩ 173,364,496	₩ 3,675,848,706	

The above consolidated statements of changes in equity should be read in conjunction with the accompanying notes.

SK E&S Co., Ltd. and Subsidiaries
Consolidated Statements of Cash Flows
Years Ended December 31, 2018 and 2017

(in thousands of Korean won)

	Notes	2018	2017
Cash flows from operating activities			
Cash generated from operating activities			
Profit for the year		₩ 439,033,505	₩ 374,325,157
Adjustments to reconcile profit for the year			
to net cash provided by operating activities	31	443,727,009	365,699,419
Changes in operating assets and liabilities	31	(297,657,484)	(93,300,791)
		585,103,030	646,723,785
Interest received		10,496,611	7,696,006
Interest paid		(111,101,686)	(109,809,253)
Dividends received		39,990,823	28,929,224
Income tax paid		(102,774,402)	(31,391,285)
Net cash inflow from operating activities		421,714,376	542,148,477
Cash flows from investing activities			
Disposal of short-term financial instruments		109,351,296	110,621
Disposal of property, plant and equipment	8	8,831,755	5,543,492
Disposal of intangible assets	10	779,875	777,950
Disposal of available-for-sale financial assets	12	-	176,415
Decrease in other financial assets		1,619,838	133,945
Purchases of property, plant and equipment	8	(589,809,044)	(458,566,257)
Purchases of intangible assets	10	(124,785,689)	(157,834,593)
Purchases of available-for-sale financial assets	12	-	(19,694,254)
Purchases of investments in joint ventures and associates	11	(110,890,000)	-
Increase in other financial assets		(34,681,857)	(112,050,913)
Others		-	78,330,822
Net cash outflow from investing activities		(739,583,826)	(663,072,772)
Cash flows from financing activities			
Proceeds from borrowings		1,247,730,551	1,577,909,609
Repayments of borrowings		(964,537,790)	(1,343,890,300)
Issuance of shares		-	677,656,171
Proceeds from advances received		84,768,513	-
Cash dividends		(265,510,730)	(152,141,388)
Interest paid on hybrid bonds	23	(43,967,667)	(43,875,005)
Repayments of hybrid bond	33	(250,000,000)	-
Others		(135,750)	(254,073)
Net cash inflow (outflow) from financing activities		(191,652,873)	715,405,014
Changes in cash and cash equivalents from currency translation		4,864,514	(15,188,180)
Net changes in cash and cash equivalents		(504,657,809)	579,292,539
Cash and cash equivalents at the beginning of year		1,137,775,579	558,483,040
Cash and cash equivalents at the end of the year		₩ 633,117,770	₩ 1,137,775,579

The above consolidated statements of cash flows should be read in conjunction with the accompanying notes.

SK E&S Co., Ltd. and Subsidiaries

Notes to the Consolidated Financial Statements

December 31, 2018 and 2017

1. General Information

SK E&S Co., Ltd. (the "Company" or the "Parent Company") and its subsidiaries (collectively referred to as the "Group") were established on January 13, 1999, as a holding company of city gas companies and engages in city gas, power generation, mass energy, renewable energy and foreign resource development. As at December 31, 2018, the Company's share capital amounts to ₩244,259,955 thousand are owned by SK Holdings Co., Ltd., MD Prime 1st Co., Ltd. and MD Prime 2nd Co., Ltd., and their shareholding rates are 90%, 5.9% and 4.1%, respectively.

1.1 Subsidiaries

The consolidated subsidiaries as at December 31, 2018, are as follows:

	Industry	Location	Closing month	Percentage of ownership
Kangwon City Gas Co., Ltd.	City gas	Korea	December	100.0%
Yeongnam Energy Service	City gas	Korea	December	100.0%
Ko-one Energy Service Co., Ltd.	City gas	Korea	December	100.0%
Busan City Gas Co., Ltd. ⁵	City gas	Korea	December	67.3%
Jeonbuk Energy Service Co., Ltd.	City gas	Korea	December	100.0%
Chonnam City Gas Co., Ltd.	City gas	Korea	December	100.0%
Chungcheong Energy Service Co., Ltd.	City gas	Korea	December	100.0%
Paju Energy Service Co., Ltd.	Power generation	Korea	December	100.0%
Wirye Energy Service Co.	Mass energy	Korea	December	95.2%
Narae Energy Service Co., Ltd.	Mass energy	Korea	December	100.0%
Yeoju Energy Service Co., Ltd.	Mass energy	Korea	December	100.0%
SK E&S Hong Kong Co., Ltd. ¹	City gas	Hong Kong	December	87.0%
Prism Energy International Pte., Ltd.	Wholesale LNG	Singapore	December	100.0%
PT SK E&S Nusantara ²	Management consulting	Indonesia	December	100.0%
SK E&S Australia Pty Ltd.	Resource development	Australia	December	100.0%
SK E&S Americas, Inc.	Holding Company	USA	December	100.0%
SK E&S LNG, LLC ³	Sale LNG	USA	December	100.0%
DewBlaine Energy, LLC ³	Resource development	USA	December	100.0%
CAILIP Gas Marketing, LLC ³	Sale and purchase LNG	USA	December	100.0%
Fajar Energy International Pte., Ltd. ⁴	Sale LNG	Singapore	December	100.0%
Prism Energy International Hong Kong Ltd. ⁴	Trade LNG	Hong Kong	December	100.0%
SK E&S Dominicana, S.R.L. ⁶	Import LNG	Dominican Republic	December	100.0%

¹ Includes 50% ownership of Busan City Gas Co., Ltd.

² Includes 40.08% ownership of Prism Energy International Pte., Ltd.

³ SK E&S Americas, Inc., a subsidiary, has 100% ownership.

⁴ Prism Energy International Pte., Ltd., a subsidiary, has 100% ownership.

⁵ Treasury stocks held by Busan City Gas Co., Ltd. are excluded from percentage of ownership.

⁶ Includes 50% ownership of Prism Energy International Pte., Ltd.

SK E&S Co., Ltd. and Subsidiaries
Notes to the Consolidated Financial Statements
December 31, 2018 and 2017

1.2 Summarized Financial Information of Subsidiaries

Summarized financial information of the subsidiaries as at and for the years ended December 31, 2018 and 2017, is as follows:

(in thousands of Korean won)

		2018					
		Assets	Liabilities	Equity	Revenue	Profit(loss) for the year	Total comprehensive income (loss)
Kangwon City Gas Co., Ltd.	₩	96,453,571	₩ 48,290,297	₩ 48,163,274	₩ 114,520,834	₩ 7,102,455	₩ 6,815,585
Yeongnam Energy Service		430,701,965	215,338,959	215,363,006	650,848,500	31,411,528	31,114,058
Ko-one Energy Service Co., Ltd.		799,399,433	429,238,334	370,161,099	1,090,110,670	14,588,631	13,280,488
Busan City Gas Co., Ltd.		978,310,722	354,755,385	623,555,337	951,807,947	49,231,739	50,658,457
Jeonbuk Energy Service Co., Ltd.		80,908,531	48,423,316	32,485,215	107,681,911	5,373,232	5,154,505
Chonnam City Gas Co., Ltd.		127,955,975	78,007,507	49,948,468	178,260,893	8,248,918	8,033,841
Chungcheong Energy Service Co., Ltd.		321,004,500	192,328,902	128,675,598	479,358,667	23,686,757	21,274,676
Paju Energy Service Co., Ltd.		1,753,053,082	1,064,889,405	688,163,677	1,304,144,333	116,447,340	113,033,016
Wirye Energy Service Co.		786,190,050	531,484,170	254,705,880	366,146,744	31,335,921	30,982,964
Narae Energy Service Co., Ltd.		670,975,596	511,800,480	159,175,116	305,234,361	(14,720,290)	(18,609,093)
Yeoju Energy Service Co., Ltd.		27,354,587	464,280	26,890,307	-	16,058	16,058
SK E&S Hong Kong Co., Ltd.		78,196,846	-	78,196,846	-	377,051	377,051
Prism Energy International Pte., Ltd.		135,241,777	35,737,218	99,504,559	1,338,210,055	(2,776,870)	(2,776,870)
PT SK E&S Nusantara		937,990	12,516	925,474	-	(1,009,912)	(1,009,912)
Prism Energy International Hong Kong Ltd.		26,012,926	79,921	25,933,005	-	(2,123,575)	(2,123,575)
SK E&S Australia Pty Ltd.		480,199,993	163,713,259	316,486,734	-	(5,517,368)	(5,517,368)
SK E&S Americas, Inc.		865,761,013	180,157,809	685,603,204	-	(13,597,470)	(13,597,470)
SK E&S LNG, LLC		16,823,043	414,455	16,408,588	-	(436,555)	(436,555)
DewBlaine Energy, LLC		892,142,942	46,246,024	845,896,918	119,661,038	15,834,496	15,834,496
CAILIP Gas Marketing, LLC		6,746,976	5,412,865	1,334,111	-	(1,393,272)	(1,393,272)
Fajar Energy International Pte., Ltd.	1	1	-	1	-	-	-
SK E&S Dominicana, S.R.L		1,151,303	1,502	1,149,801	-	(1,386,375)	(1,386,375)

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(in thousands of Korean won)

		2017					
	Assets	Liabilities	Equity	Revenue	Profit(loss) for the year	Total comprehensive income (loss)	
Kangwon City Gas Co., Ltd.	₩ 95,977,935	₩ 50,238,890	₩ 45,739,045	₩ 106,968,556	₩ 4,695,135	₩ 5,014,633	
Yeongnam Energy Service	408,415,815	208,317,142	200,098,673	641,872,061	28,556,527	29,171,648	
Ko-one Energy Service Co., Ltd.	797,081,431	419,788,257	377,293,174	1,063,058,324	16,313,711	17,574,341	
Busan City Gas Co., Ltd.	907,165,309	326,247,343	580,917,966	935,235,002	45,014,306	41,498,033	
Jeonbuk Energy Service Co., Ltd.	75,406,379	44,248,759	31,157,620	99,495,465	4,967,068	5,110,211	
Chonnam City Gas Co., Ltd.	113,604,682	71,371,175	42,233,507	158,881,100	7,601,986	7,730,400	
Chungcheong Energy Service Co., Ltd.	309,464,727	185,604,005	123,860,722	451,767,531	22,053,807	22,115,588	
Paju Energy Service Co., Ltd.	1,823,077,905	951,683,546	871,394,359	907,049,941	106,754,217	106,748,581	
Wirye Energy Service Co.	815,150,073	591,427,157	223,722,916	229,934,803	1,263,087	804,892	
Narae Energy Service Co., Ltd.	753,342,656	575,558,447	177,784,209	283,128,077	(5,371,844)	2,901,520	
SK E&S Hong Kong Co., Ltd.	76,719,863	-	76,719,863	-	(276,063)	(7,459,810)	
Prism Energy International Pte., Ltd.	165,220,845	122,202,589	43,018,256	874,543,552	20,261,549	16,560,730	
PT SK E&S Nusantara	1,182,581	4,885	1,177,696	-	(1,035,839)	(1,242,090)	
SK E&S Australia Pty Ltd.	410,842,377	152,136,509	258,705,868	-	(4,017,307)	(32,024,845)	
SK E&S Americas, Inc.	703,909,523	172,316,705	531,592,818	-	(10,737,626)	6,537,481	
SK E&S LNG, LLC	16,148,335	-	16,148,335	-	(28,377)	(2,096,722)	
DewBlaine Energy, LLC	647,507,082	9,650,167	637,856,915	84,254,449	5,043,102	(65,334,805)	
CAILIP Gas Marketing, LLC	3,756,446	903,083	2,853,363	-	1,706,577	3,562,939	
Fajar Energy International Pte., Ltd.	1	-	1	-	-	-	

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1. 3 Changes in Scope for Consolidation

Subsidiaries newly included in the consolidation for the year ended December 31, 2018:

Subsidiary	Reason
Prism Energy International Hong Kong Ltd.	
SK E&S Dominicana, S.R.L	Newly established
Yeoju Energy Service Co., Ltd.	

2. Significant Accounting Policies

2.1 Basis of Preparation

The Group maintains its accounting records in Korean won and prepares statutory financial statements in the Korean language (Hangul) in accordance with International Financial Reporting Standards as adopted by the Republic of Korea (Korean IFRS). The accompanying consolidated financial statements have been condensed, restructured and translated into English from the Korean language financial statements.

Certain information attached to the Korean language financial statements, but not required for a fair presentation of the Group's financial position, financial performance or cash flows, is not presented in the accompanying consolidated financial statements.

The consolidated financial statements of the Group have been prepared in accordance with Korean IFRS. These are the standards, subsequent amendments and related interpretations issued by the International Accounting Standards Board (IASB) that have been adopted by the Republic of Korea.

The preparation of financial statements requires the use of critical accounting estimates. Management also needs to exercise judgement in applying the Group's accounting policies. The areas involving a higher degree of judgment or complexity, or areas where assumptions and estimates are significant to the consolidated financial statements are disclosed in Note 3.

2.2 Changes in Accounting Policy and Disclosures

(a) New and amended standards adopted by the Group

The Group has applied the following standards and amendments for the first time for their annual reporting period commencing January 1, 2018.

- Amendment to Korean IFRS 1028 Investments in Associates and Joint Ventures

When an investment in an associate or a joint venture is held by, or is held indirectly through, an entity that is a venture capital organization, or a mutual fund, unit trust and similar entities including investment-linked insurance funds, the entity may elect to measure each investment separately at fair value through profit or loss in accordance with Korean IFRS 1109. The amendment does not have a significant impact on the financial statements because the Group is not a venture capital organization.

- Amendment to Korean IFRS 1040 Transfers of Investment Property

The amendment to Korean IFRS 1040 clarifies that a transfer to, or from, investment property, including property under construction, can only be made if there has been a change in use that is

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supported by evidence, and the list of evidence for a change of use in the standard was re-characterized as a non-exclusive list of example. The amendment does not have a significant impact on the financial statements.

- Amendment to Korean IFRS 1102 *Share-based Payment*

Amendments to Korean IFRS 1102 clarify accounting for a modification to the terms and conditions of a share-based payment that changes the classification of the transaction from cash-settled to equity-settled. Amendments also clarify that the measurement approach should treat the terms and conditions of a cash-settled award in the same way as for an equity-settled award. The amendment does not have a significant impact on the financial statements.

- Enactment of Interpretation 2122 *Foreign Currency Transaction and Advance Consideration*

According to the enactment, the date of the transaction for the purpose of determining the exchange rate to use on initial recognition of the related asset, expense or income (or part of it) is the date on which an entity initially recognizes the non-monetary asset or non-monetary liability arising from the payment or receipt of advance consideration. The enactment does not have a significant impact on the financial statements.

- Korean IFRS 1109 *Financial Instruments*

The Group has applied Korean IFRS 1109 *Financial Instruments* on January 1, 2018, the date of initial application. In accordance with the transitional provisions in Korean IFRS 1109, comparative figures have not been restated, and the differences between previous book amounts and book amounts at the date of initial application are recognized to retained earnings (or equity). See Note 36 for further details on the impact of the application of the standard.

- Korean IFRS 1115 *Revenue from Contracts with Customers*

The Group has applied to apply Korean IFRS 1115 *Revenue from Contracts with Customers*. In accordance with the transition provisions in Korean IFRS 1115, comparative figures have not been restated. The Group elected the modified retrospective approach, and recognized the cumulative impact of initially applying the revenue standard as an adjustment to retained earnings (or equity) as at January 1, 2018, the period of initial application. See Note 36 for further details on the impact of the application of the standard.

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

Certain new accounting standards and interpretations that have been published that are not mandatory for annual reporting period commencing January 1, 2018 and have not been early adopted by the Group are set out below.

- Korean IFRS 1116 *Leases*

Korean IFRS 1116 *Leases* issued on May 22, 2017 is effective for annual periods beginning on or after January 1, 2019, with early adoption permitted. This standard will replace Korean IFRS 1017 *Leases*. The Group will apply the standards for annual periods beginning on or after January 1, 2019.

Under the new standard, with implementation of a single lease model, lessee is required to recognize assets and liabilities for all lease which lease term is over 12 months and underlying assets are not low value assets. A lessee is required to recognize a right-of-use asset and a lease liability representing its obligation to make lease payments.

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The Group performed an impact assessment to identify potential financial effects of applying Korean IFRS 1116. The Group is analyzing the effects on the financial statements based on available information as at December 31, 2018 to identify effects on 2019 financial statements.

- Annual Improvements to Korean IFRS 2015 – 2017 Cycle:

- Korean IFRS 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. These amendments will be applied to business combinations for which the acquisition date is on or after the beginning of the first annual reporting period beginning on or after 1 January 2019, with early adoption permitted.

- Korean IFRS 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. These amendments will be applied to transactions in which an entity obtains joint control on or after the beginning of the first annual reporting period beginning on or after 1 January 2019, with early adoption permitted.

- Paragraph 57A of Korean IFRS 1012 *Income Tax*

The amendment 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. These amendments will be applied for annual reporting periods beginning on or after January 1, 2019, with early adoption permitted.

- Korean IFRS 1023 *Borrowing Costs*

The amendments clarify that if a specific borrowing remains outstanding after the related qualifying asset is ready for its intended use (or sale), it becomes part of general borrowings. These amendments will be applied to borrowing costs incurred on or after the beginning of the first annual reporting period beginning on or after January 1, 2019, with early adoption permitted.

2.3 Consolidation

The Group has prepared the consolidated financial statements in accordance with Korean IFRS 1110 *Consolidated Financial Statements*.

(a) Subsidiaries

Subsidiaries are all entities over which the Group has control. The Group controls an entity when the Group 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 to direct the activities of the entity. Subsidiaries are fully consolidated from the date on which control is transferred to the Group. They are deconsolidated from the date that control ceases.

The acquisition method of accounting is used to account for business combinations by the Group.

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The consideration transferred is measured at the fair values of the assets transferred, and identifiable assets acquired and liabilities and contingent liabilities assumed in a business combination are measured initially at their fair values at the acquisition date. The Group recognizes any non-controlling interest in the acquired entity on an acquisition-by-acquisition basis either at fair value or at the non-controlling interest's proportionate share of the acquired entity's net identifiable assets. All other non-controlling interests are measured at fair values, unless otherwise required by other standards. Acquisition-related costs are expensed as incurred.

The excess of consideration transferred, amount of any non-controlling interest in the acquired entity and acquisition-date fair value of any previous equity interest in the acquired entity over the fair value of the net identifiable assets acquired is recorded as goodwill. If those amounts are less than the fair value of the net identifiable assets of the business acquired, the difference is recognized directly in the profit or loss as a bargain purchase.

Intercompany transactions, balances and unrealized gains on transactions between group companies are eliminated. Unrealized losses are also eliminated unless the transaction provides evidence of an impairment of the transferred asset. Accounting policies of subsidiaries have been changed where necessary to ensure consistency with the policies adopted by the Group.

The Group treats transactions with non-controlling interests that do not result in a loss of control as transactions with equity owners of the Group. A change in ownership interest results in an adjustment between the carrying amounts of the controlling and non-controlling interest to reflect their relative interest in the subsidiary. Any difference between the amount of the adjustment to non-controlling interest and any consideration paid or received is recognized in a separate reserve within equity attributable to owners of the Parent Company.

When the Group ceases to consolidate for a subsidiary because of a loss of control, any retained interest in the subsidiary is remeasured to its fair value with the change in carrying amount recognized in profit or loss.

(b) Associates

Associates are entities over which the Group has significant influence but not control or joint control. Investments in associates are accounted for using the equity method of accounting, after initially being recognized at cost. Unrealized gains on transactions between the Group and its associates are eliminated to the extent of the Group's interest in the associates. If there is an objective evidence of impairment for the investment in the associate, the Group recognizes the difference between the recoverable amount of the associate and its book amount as impairment loss.

(c) Joint arrangement

A joint arrangement, wherein two or more parties have joint control, is classified as either a joint operation or a joint venture. A joint operator recognizes its direct right to the assets, liabilities, revenues and expenses of joint operations and its share of any jointly held or incurred assets, liabilities, revenues and expenses. Interests in joint ventures are accounted for using the equity method, after initially being recognized at cost in the consolidated statement of financial position.

2.4 Foreign Currency Translation

(a) Functional and presentation currency

Items included in the financial statements of each of the Group's entities are measured using the currency of the primary economic environment in which the each entity operates (the "functional currency"). The consolidated financial statements are presented in Korean won, which is the

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Controlling Company's functional and presentation currency.

(b) Transactions and balances

Foreign currency transactions are translated into the functional currency using the exchange rates at the dates of the transactions. Foreign exchange gains and losses resulting from the settlement of such transactions and from the translation of monetary assets and liabilities denominated in foreign currencies at year end exchange rates are generally recognized in profit or loss. They are deferred in other comprehensive income if they relate to qualifying cash flow hedges and qualifying effective portion of net investment hedges, or are attributable to monetary part of the net investment in a foreign operation.

Non-monetary items that are measured at fair value in a foreign currency are translated using the exchange rates at the date when the fair value was determined. Translation differences on assets and liabilities carried at fair value are reported as part of the fair value gain or loss. For example, translation differences on non-monetary assets and liabilities such as equities held at fair value through profit or loss are recognized in profit or loss as part of the fair value gain or loss and translation differences on non-monetary assets such as equities held at fair value through other comprehensive income are recognized in other comprehensive income.

2.5 Financial Assets

(a) Classification

From January 1, 2018, the Group classifies its financial assets in the following measurement categories:

- those to be measured at fair value through profit or loss
- those to be measured at fair value through other comprehensive income, and
- those to be measured at amortized cost.

The classification depends on the Group's business model for managing the financial assets and the contractual terms of the cash flows.

For financial assets measured at fair value, gains and losses will either be recorded in profit or loss or other comprehensive income. For investments in debt instruments, this will depend on the business model in which the investment is held. The Group reclassifies debt investments when, and only when its business model for managing those assets changes.

For investments in equity instruments that are not held for trading, this will depend on whether the Group has made an irrevocable election at the time of initial recognition to account for the equity investment at fair value through other comprehensive income.

(b) Measurement

At initial recognition, the Group measures a financial asset at its fair value plus, in the case of a financial asset not at fair value through profit or loss, transaction costs that are directly attributable to the acquisition of the financial asset. Transaction costs of financial assets carried at fair value through profit or loss are expensed in profit or loss.

Financial assets with embedded derivatives are considered in their entirety when determining whether their cash flows are solely payment of principal and interest.

A. Debt instruments

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Subsequent measurement of debt instruments depends on the Group's business model for managing the asset and the cash flow characteristics of the asset. The Group classifies its debt instruments into one of the following three measurement categories:

- **Amortized cost:** Assets that are held for collection of contractual cash flows where those cash flows represent solely payments of principal and interest are measured at amortized cost. A gain or loss on a debt investment that is subsequently measured at amortized cost and is not part of a hedging relationship is recognized in profit or loss when the asset is derecognized or impaired. Interest income from these financial assets is included in 'finance income' using the effective interest rate method.
- **Fair value through other comprehensive income:** Assets that are held for collection of contractual cash flows and for selling the financial assets, where the assets' cash flows represent solely payments of principal and interest, are measured at fair value through other comprehensive income. Movements in the carrying amount are taken through other comprehensive income, except for the recognition of impairment loss (reversal of impairment loss), interest income and foreign exchange gains and losses which are recognized in profit or loss. When the financial asset is derecognized, the cumulative gain or loss previously recognized in other comprehensive income is reclassified from equity to profit or loss. Interest income from these financial assets is included in 'finance income' using the effective interest rate method. Foreign exchange gains and losses are presented in 'finance income or finance costs' and impairment losses are presented in 'other expenses'.
- **Fair value through profit or loss:** Assets that do not meet the criteria for amortized cost or fair value through other comprehensive income are measured at fair value through profit or loss. A gain or loss on a debt investment that is subsequently measured at fair value through profit or loss and is not part of a hedging relationship is recognized in profit or loss and presented net in the statement of profit or loss within 'finance income or finance costs' in the year in which it arises.

B. Equity instruments

The Group subsequently measures all equity investments at fair value. Where the Group's management has elected to present fair value gains and losses on equity investments, which held for long-term investment or strategic purpose, in other comprehensive income, there is no subsequent reclassification of fair value gains and losses to profit or loss following the derecognition of the investment. Dividend income from such investments continue to be recognized in profit or loss as 'finance income' when the right to receive payments is established.

Changes in the fair value of financial assets at fair value through profit or loss are recognized in 'finance income and finance costs' in the statement of profit or loss as applicable. Impairment loss (reversal of impairment loss) on equity investments measured at fair value through other comprehensive income are not reported separately from other changes in fair value.

(c) Impairment

The Group assesses on a forward looking basis the expected credit losses associated with its debt instruments carried at amortized cost and fair value through other comprehensive income. The impairment methodology applied depends on whether there has been a significant increase in credit risk. For trade receivables and lease receivables, the Group applies the simplified approach, which requires expected lifetime credit losses to be recognized from initial recognition of the receivables.

(Note 4 provides more detail of how the Group determines there has been a significant increase in

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credit risk.)

(d) Recognition and Derecognition

Regular way purchases and sales of financial assets are recognized or derecognized on trade-date, the date on which the Group commits to purchase or sell the asset. Financial assets are derecognized when the rights to receive cash flows from the financial assets have expired or have been transferred and the Group has transferred substantially all the risks and rewards of ownership.

If a transfer does not result in derecognition because the Group has retained substantially all the risks and rewards of ownership of the transferred asset, the Group continues to recognize the transferred asset in its entirety and recognizes a financial liability for the consideration received. The Group classified the financial liability as "borrowings" in the statement of financial position (Note 4).

(e) Offsetting of financial instruments

Financial assets and liabilities are offset and the net amount reported in the statements of financial position where there is a legally enforceable right to offset the recognized amounts and there is an intention to settle on a net basis or realize the assets and settle the liability simultaneously. The legally enforceable right must not be contingent on future events and must be enforceable in the normal course of business and in the event of default, insolvency or bankruptcy of the Group or the counterparty.

2.6 Derivative Instruments

Derivatives are initially recognized at fair value on the date when a derivative contract is entered into and are subsequently remeasured at their fair value at the end of each reporting period. Changes in the fair value of any derivative instrument that does not qualify for hedge accounting are recognized immediately in profit or loss within 'other non-operating income (expenses)' or 'finance income (costs)' based on the nature of transactions.

The Group applies cash flow hedge accounting to hedge the price risk associated with forecast inventory purchase. The effective portion of changes in fair value of derivatives that are designated and qualify as cash flow hedges is recognized in other comprehensive income, and the ineffective portion is recognized in profit or loss within 'finance income (expenses)'.

If the hedge no longer meets the criteria for hedge accounting, the adjustment to the carrying amount of a hedged item for which the effective interest method is used is amortized to profit or loss over the period to maturity.

2.7 Trade Receivables

Trade receivables are recognized initially at fair value and subsequently measured at amortized cost using the effective interest method, less loss allowance. See Note 4 for further information about the Group's accounting for trade receivables and for a description of the Group's impairment policies.

2.8 Inventories

Inventories are stated at the lower of cost and net realizable value. Cost is determined using the moving average method.

2.9 Non-current Assets (or Disposal Group) Held for sale

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Non-current assets (or disposal group) are classified as held for sale when their carrying amount will be recovered principally through a sale transaction rather than through continuing use and a sale is considered highly probable. The assets are measured at the lower amount between their carrying amount and the fair value less costs to sell.

2.10 Property, Plant and Equipment

Property, plant and equipment are stated at its cost less accumulated depreciation and accumulated impairment losses. Historical cost includes expenditures that is directly attributable to the acquisition of the items.

The Group measured certain land at fair value on the transition date January 1, 2010, and used the fair values as deemed cost.

Depreciation of all property, plant and equipment, except for land, is calculated using the straight-line method to allocate their cost or revalued amounts, net of their residual values, over their estimated useful lives as follows:

	Estimated Useful Lives
Buildings	10 – 60 years
Structures	4 – 47 years
Pipelines	20 years
Machinery	3 – 20 years
Vehicles	2 – 10 years
Other	3 – 10 years

The assets' depreciation method, residual values and useful lives are reviewed, and adjusted if appropriate, at the end of each reporting period.

2.11 Borrowing Costs

General and specific borrowing costs that are directly attributable to the acquisition, construction or production of a qualifying asset are capitalized during the period of time that is required to complete and prepare the asset for its intended use or sale. Investment income earned on the temporary investment of specific borrowings pending their expenditure on qualifying assets is deducted from the borrowing costs eligible for capitalization. Other borrowing costs are expensed in the period in which they are incurred.

2.12 Customers' Contribution to Construction Costs

According to the city gas supply agreement, applicants for city gas supply are charged part of the installation costs of gas supply if they use the gas supply facilities. Customers' contributions to construction costs received before January 1, 2010 (the transition date), are accounted for as contra- accounts to supply facilities and are offset against depreciation expense based on the remaining useful lives of the supply facilities, and those received after January 1, 2010 (the transition date), are accounted for as unearned revenue and recognized as revenue based on a systematic and reasonable method.

2.13 Government Grants

Grants from the government are recognized at their fair value where there is a reasonable

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assurance that the grant will be received and the Group will comply with all attached conditions. Government grants related to assets are presented in the statement of financial position either by deducting the grant in arriving at the carrying amount of the asset, and government grants related to costs are deferred and recognized in the profit or loss over the period necessary to match them with the costs that they are intended to compensate.

2.14 Intangible Assets

Goodwill is measured as explained in Note 2.3.(a) and carried at its cost less accumulated impairment losses.

Software development costs that are directly attributable to internally generated by the Group are recognized when the criteria; such as, technically feasible, generate probable future economic benefits and other, are met. Membership rights that have an indefinite useful life are not subject to amortization because there is no foreseeable limit to the period over which the assets are expected to be utilized

The Group amortizes intangible assets with a limited useful life using the straight-line method over the following periods:

	Useful Lives
Industrial property rights	5 – 10 years
Other	3 – 15 years

In relation to investment to the overseas gas development, the Group recognizes development costs that are directly attributable to acquisition, exploration, evaluation and development projects as intangible assets. They are accounted as follows:

(a) Expenditure for exploration, evaluation and development

Expenditures for acquisition of rights to explore, topographical, geological, geochemical and geophysical studies, exploratory drilling and activities in relation to evaluating the technical feasibility and commercial viability of extracting a mineral resource and expenditure in development stage such as construction of facilities for production are capitalized. Exploration and evaluation assets shall be assessed for impairment when facts and circumstances suggest that the carrying amount of an exploration and evaluation asset may exceed its recoverable amount.

(b) Production wells

Production wells are the wells that discovered the economic reserves and received permission to develop. Its cost includes purchase price, construction cost, expenditure on commencement of other production and the estimated amount of provision for restoration. The Group recognizes amortization on production wells using the unit of production method based on the verified reserves.

2.15 Investment Property

Investment property is property held to earn rentals or for capital appreciation or both. An investment property is measured initially at its cost. An investment property is measured after initial measurement at depreciated cost (less any accumulated impairment losses). After recognition as an asset, investment property is carried at cost less accumulated depreciation and impairment losses. The Group depreciates investment properties, except for land, using the straight-line

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method over their useful lives of 40 years.

The Group revalued certain land and buildings held as investment property at fair value on the transition date January 1, 2010, and used the fair values as deemed cost.

2.16 Impairment of Non-financial Assets

Goodwill and intangible assets that have an indefinite useful life are not subject to amortization and are tested annually for impairment, or more frequently if events or changes in circumstances indicate that they might be impaired. An impairment loss is recognized for the amount by which the asset's carrying amount exceeds its recoverable amount. The recoverable amount is the higher of an asset's fair value less costs to sell and value in use. Non-financial assets, other than goodwill, that suffered impairment are reviewed for possible reversal of the impairment at each reporting date.

2.17 Financial Liabilities

(a) Classification and measurement

The Group's financial liabilities at fair value through profit or loss are financial instruments held for trading. A financial liability is held for trading if it is incurred principally for the purpose of repurchasing in the near term. A derivative that is not designated as hedging instruments and an embedded derivative that is separated are also classified as held for trading.

The Group classifies non-derivative financial liabilities, except for financial liabilities at fair value through profit or loss and financial guarantee contracts, as financial liabilities carried at amortized cost and presented as 'trade payables', 'borrowings', and 'other financial liabilities' in the statement of financial position.

Preferred shares that provide for a mandatory redemption at a particular date are classified as liabilities. Interest expenses on these preferred shares calculated using the effective interest method are recognized in the statement of profit or loss as 'finance expenses', together with interest expenses recognized on other financial liabilities.

(b) Derecognition

Financial liabilities are removed from the statement of financial position when it is extinguished; for example, when the obligation specified in the contract is discharged or cancelled or expired or when the terms of an existing financial liability are substantially modified. The difference between the carrying amount of a financial liability extinguished or transferred to another party and the consideration paid (including any non-cash assets transferred or liabilities assumed) is recognized in profit or loss.

2.18 Financial Guarantee Contract

Financial guarantee contracts are recognized as a financial liability at the time the guarantee is issued. The liability is initially measured at fair value, subsequently at the higher of following and recognized in the statement of financial position within 'other financial liabilities'.

- the amount determined in accordance with the expected credit loss model under Korean IFRS 1109 Financial Instruments and
- the amount initially recognized less, where appropriate, the cumulative amount of income recognized in accordance with Korean IFRS 1115 Revenue from Contracts with Customers

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2.19 Provisions

Provisions for service warranties, make good obligation, and legal claims are recognized when the Group has a present legal or constructive obligation as a result of past events, it is probable that an outflow of resources will be required to settle the obligation and the amount can be reliably estimated. Provisions are measured at the present value of management's best estimate of the expenditure required to settle the present obligation at the end of the reporting period, and the increase in the provision due to the passage of time is recognized as interest expense.

2.20 Current and Deferred Tax

The tax expense for the period consists of current and deferred tax. Current and deferred tax is recognized in profit or loss, except to the extent that it relates to items recognized in other comprehensive income or directly in equity. In this case, the tax is also recognized in other comprehensive income or directly in equity, respectively.

The tax expense is measured using the tax rates (and tax laws) that have been enacted or substantively enacted by the end of the reporting period.

Management periodically evaluates tax policies that are applied in tax returns in which applicable tax regulation is subject to interpretation. The Group recognizes current income tax on the basis of the amount expected to be paid to the tax authorities.

Deferred income tax is provided in full, using the liability method, on temporary differences arising between the tax bases of assets and liabilities and their carrying amounts in the consolidated financial statements. However, deferred income tax is not accounted for if it arises from initial recognition of an asset or liability in a transaction other than a business combination that at the time of the transaction affects neither accounting nor taxable profit or loss.

Deferred tax assets are recognized only if it is probable that future taxable amounts will be available to utilize those temporary differences and losses.

The Group recognizes a deferred tax liability all taxable temporary differences associated with investments in subsidiaries, associates, and interests in joint arrangements, except to the extent that the Group is able to control the timing of the reversal of the temporary difference and it is probable that the temporary difference will not reverse in the foreseeable future. In addition, The Group recognizes a deferred tax asset for all deductible temporary differences arising from such investments to the extent that it is probable the temporary difference will reverse in the foreseeable future and taxable profit will be available against which the temporary difference can be utilized.

Deferred tax assets and liabilities are offset when there is a legally enforceable right to offset current tax assets and liabilities and when the deferred tax balances relate to the same taxation authority. Current tax assets and tax liabilities are offset where the entity has a legally enforceable right to offset and intends either to settle on a net basis.

2.21 Employee Benefits

(a) Post-employment benefits

The Group has defined benefit plans. A defined benefit plan is a pension plan that is not a defined contribution plan. Generally, post-employment benefits are payable after the completion of employment, and the benefit amount depended on the employee's age, periods of service or salary levels. The liability recognized in the statement of financial position in respect of defined benefit pension plans is the present value of the defined benefit obligation at the end of the reporting period less the fair value of plan assets. The defined benefit obligation is calculated annually by

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independent actuaries using the projected unit credit method. The present value of the defined benefit obligation is determined by discounting the estimated future cash outflows using interest rates of high-quality corporate bonds that are denominated in the currency in which the benefits will be paid, and that have terms approximating to the terms of the related obligation. Remeasurement gains and losses arising from experience adjustments and changes in actuarial assumptions are recognized in the period in which they occur, directly in other comprehensive income.

Changes in the present value of the defined benefit obligation resulting from plan amendments or curtailments are recognized immediately in profit or loss as past service costs.

(b) Long-term employee benefits

Certain entities within the Group provide long-term employee benefits that are entitled to employees with service period for ten years and above. The expected costs of these benefits are accrued over the period of employment using the same accounting methodology as used for defined benefit pension plans. The Group recognizes service cost, net interest on other long-term employee benefits and remeasurements as profit or loss for the year. These liabilities are valued annually by an independent qualified actuary.

2.22 Revenue Recognition

From January 1, 2018, the Group has applied Korean IFRS 1115 *Revenue from Contracts with Customers*.

(a) Sales of goods – a supply of power

The Group generates and distributes the electricity. In accordance with Korean IFRS 1115, the Group identifies a supply of power as a single performance obligations that is distinct goods or services.

A supply of power is performance obligation satisfied over the service period. As a practical expedient, the Group recognizes revenue in the amount to which the entity has a right to invoice.

In accordance with Korean IFRS 1115 *Revenue from Contracts with Customers*, the revenue is recognized over time by measuring progress only if the customer simultaneously receives and consumes the benefits provided by the Group's performance as the entity performs, or the Group's performance creates or enhances an assets that the customer controls as the asset is created or enhanced; or the Group's performance does not create an asset with an alternative use to the Group and the Group has an enforceable right to pay for performance completed to date.

In addition to a supply of power, the Group provides ESS (Energy Storage System) operating services from contracts with customers, and identifies performance obligations separately for each contract.

(b) Sales of goods – sales of natural city gas and others

The Group engages in a supply of natural city gas and plumbing, sales of gas meter and others, and satisfies a separate performance obligation for each contract.

(i) Revenue derived from a supply of natural city gas and plumbing is recognized as performance obligation that is satisfied over time. In accordance with Korean IFRS 1115 *Revenue from Contracts with Customers*, the revenue is recognized over time by measuring progress only if the customer simultaneously receives and consumes the benefits provided by the Group's performance as the entity performs, or the Group's performance creates or enhances an assets that the customer controls as the asset is created or enhanced; or the Group's performance does not create an asset with an alternative use to the Group and the Group has an enforceable right to pay for performance completed to date.

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The amendment does not have an impact on the Group's revenues in relation to the supply of natural city gas and plumbing.

(ii) In relation to a sale of non-residual gas meters, the Group determines that the performance obligation is satisfied when goods are delivered to the final customer. In accordance with Korean IFRS 1115, the Group recognizes the advances received for gas meters as contract liabilities (Note 20).

(c) Interest income

Interest income is recognized using the effective interest method according to the time passed. When a loan and receivable is impaired, the Group reduces the carrying amount to its recoverable amount and continues unwinding the discount as interest income. Interest income on impaired loans and receivables is recognized using the original effective interest rate.

(d) Dividend income

Dividend income is recognized when the right to receive payment is established.

(e) Presentation of contract liabilities

The Group has changed the presentation of certain amounts in the statements of financial position to reflect the terminology of Korean IFRS 1115. Allotment to gas and heat pipelines previously recognized as unearned revenues were reclassified to contract liabilities.

2.23 Lease

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

Leases where the Group, as lessee, has substantially all the risks and rewards of ownership are classified as finance leases. Finance leases are capitalized at the lease's inception at the fair value of the leased property or, if lower, the present value of the minimum lease payments. The corresponding rental obligations, net of finance charges, are included in other short-term and long-term payables. Each lease payment is allocated between the liability and finance cost.

If the Group is a lessor, a lease is classified as a finance lease if it transfers substantially all the risks and rewards incidental to ownership at the inception of the lease. A lease other than a finance lease is classified as an operating lease. Lease income from operating leases is recognized in income on a straight-line basis over the lease term. Initial direct costs incurred by the lessor in negotiating and arranging an operating lease is added to the carrying amount of the leased asset and recognized as an expense over the lease term on the same basis as the lease income.

2.24 Segment Reporting

Information of each operating segment is reported in a manner consistent with the business segment reporting provided to the chief operating decision-maker (Note 35). The chief operating decision-maker is responsible for allocating resources and assessing performance of the operating segments.

2.25 Approval of Issuance of the Financial Statements

The consolidated financial statements were approved for issue by the Board of Directors on

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February 14, 2019, which is subject to change with the approval of the shareholders at their annual shareholders' meeting.

3. Critical Accounting Estimates and Assumptions

The preparation of financial statements requires the Group to make estimates and assumptions concerning the future. Management also needs to exercise judgement in applying the Group's accounting policies. Estimates and assumptions are continually evaluated and are based on historical experience and other factors, including expectations of future events that are believed to be reasonable under the circumstances. As the resulting accounting estimates will, by definition, seldom equal the related actual results, it can contain a significant risk of causing a material adjustment.

The estimates and assumptions that have a significant risk of causing a material adjustment to the carrying amounts of assets and liabilities within the next financial year are discussed below. Additional information of significant judgement and assumptions of certain items are included in relevant notes.

(a) Impairment of goodwill

The Group tests whether goodwill has suffered any impairment on an annual basis. The recoverable amount of a cash generating unit (CGU) is determined based on value-in-use calculations (Note 10).

(b) Income taxes

The Group's taxable income generated from these operations are subject to income taxes based on tax laws and interpretations of tax authorities in numerous jurisdictions. There are many transactions and calculations for which the ultimate tax determination is uncertain (Note 28).

If certain portion of the taxable income is not used for investments or increase in wages or dividends in accordance with the *Tax System For Recirculation of Corporate Income*, the Group is liable to pay additional income tax calculated based on the tax laws. The new tax system is effective for three years from 2015. Accordingly, the measurement of current and deferred income tax is affected by the tax effects from the new tax system. As the Group's income tax is dependent on the investments, increase in wages and dividends, there is an uncertainty measuring the final tax effects.

(c) Fair value of financial instruments

The fair value of financial instruments that are not traded in an active market is determined by using valuation techniques. The Group uses its judgment to select a variety of methods and make assumptions that are mainly based on market conditions existing at the end of each reporting period (Note 5).

(d) Impairment of financial assets

The provision for impairment for financial assets are based on assumptions about risk of default and expected loss rates. The Group uses judgement in making these assumptions and selecting the inputs to the impairment calculation based on the Group's past history, existing market conditions as well as forward looking estimates at the end of each reporting period (Note 4.1).

(e) Net defined benefit liability

The present value of net defined benefit liability depends on a number of factors that are determined on an actuarial basis using a number of assumptions including the discount rate (Note 17).

4. Financial Risk Management

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4.1 Financial Risk Factors

The Group's activities expose it to a variety of financial risks: market risk (including foreign exchange risk, interest rate risk, cash flow interest rate risk and price risk), credit risk and liquidity risk. In order to manage these risk factors, the Group operates corresponding risk management policies and programs to monitor and respond to each risk factor carefully.

Financial assets subject to financial risk management include cash and cash equivalents, short-term investments, available-for-sale financial assets, trade receivables, other financial assets and others and financial liabilities include trade payables, borrowings, other financial liabilities and others.

4.1.1 Market risk

(a) Foreign exchange risk

The Group procures LNG for generators from overseas and is exposed to foreign exchange risk from various currency exposures, primarily with respect to the US dollar. The purpose of the Group's foreign exchange risk management is to maximize the value of the company by minimizing uncertainty due to fluctuations in the exchange rate and profit and loss.

As at December 31, 2018, based on the assumption that Korean won has strengthened/weakened by 15% against the US dollar with all other variables held constant, post-tax profit for the year would increase/decrease by ₩ 77,835,690 thousand (2017: ₩ 34,635,719 thousand) due to the effect of gain or loss on currency translation of assets and liabilities in the foreign currency.

Details of the Group's assets and liabilities denominated in foreign currencies as at December 31, 2018 and 2017, are as follows:

<i>(in thousands of foreign currency, in thousands of Korean won)</i>	2018				2017			
		Foreign Currency		Korean won		Foreign Currency		Korean won
Assets								
Cash and cash equivalents	CNY	113,987	₩	18,552,518	CNY	115,056	₩	18,828,937
	USD	268		299,578	USD	1,102		1,180,589
	COP	657,228		223,458	COP	348,115		125,321
	HKD	33		4,770	SGD	146		115,173
	PHP	596		12,695	HKD	33		4,575
	MYR	113		30,314	PHP	168		3,590
	VND	2,057,131		99,154		-		-
Liabilities								
Long-term borrowings	USD	277,425	₩	310,188,980	USD	241,561	₩	258,808,784
Short-term borrowings	USD	307,722		344,064,461	USD	57,284		61,374,393
Trade payables	USD	28,920		32,335,102		-		-
	JPY	36,235		363,183		-		-
Accrued expenses	EUR	1,938		2,479,660	EUR	5,162		6,603,364
	USD	2,963		3,312,687	USD	7,889		8,452,802
Other payables	CNY	80		13,007	CNY	75		12,354
	USD	7,625		8,544,451	USD	3,491		3,739,936
	EUR	1,939		2,479,660	HKD	433		59,370
	GBP	8		12,012	CHF	27		29,557

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Gain and loss on foreign currency translation are ₩ 2,467,722 thousand (2017: ₩ 23,510,230 thousand) and ₩ 14,441,009 thousand (2017: ₩ 59,189 thousand), respectively, for the year ended December 31, 2018 (Note 27).

(b) Price risk

The Group is exposed to equity securities price risk arises from financial assets at fair value (through other comprehensive income or through profit or loss) held by the Group for managing liquidity and operations. To manage its price risk arising from investments in equity securities, the Group diversifies its portfolio.

As at December 31, 2018, if the price of the financial assets at fair value (through other comprehensive income or through profit or loss) had increased or decreased by 10%, the Group's equity would have increased or decreased by ₩9,378,951 thousand (2017: ₩1,778,456 thousand).

(c) Interest rate risk

The Group's interest rate risk arises from borrowings. Borrowings issued at variable rates expose the Group to cash flow interest rate risk which is partially offset by cash held at variable rates. Fixed rate borrowings expose the Group to fair value interest rate risk.

As at December 31, 2018, if interest rates on Korean won-denominated borrowings had been 10 basis points higher or lower with all other variables held constant, post-tax profit for the year would have been decreased or increased by ₩ 805,679 thousand (2017: ₩ 603,357 thousand).

4.1.2 Credit Risk

The Group is exposed to credit risk if counterparties fail to make payments as they fall due in respect of:

- Payment of trade receivables as invoices fall due 30 days after being raised
- Contractual cash flows of debt investments carried at amortized cost, and
- Contractual cash flows of debt investments carried at fair value through other comprehensive income

(a) Trade receivables

The Group applies the simplified approach to measuring expected credit losses which uses a lifetime expected loss allowance for all trade receivables. To measure the expected credit losses, trade receivables have been grouped based on shared credit risk characteristics and the days past due. The loss allowance provision as at December 31, 2018 is determined as follows; the expected credit losses below also include forward looking information.

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<i>(in thousands of Korean won)</i>	Less than 3 months past due and within due	More than 3 months past due	More than 6 months past due	More than 9 months past due	More than 12 months past due	Total
December 31, 2018						
Expected loss rate	0.06%	17.04%	42.93%	65.53%	92.39%	0.68%
						889,322,93
Gross carrying amount	₩ 881,617,346	₩ 974,028	₩ 1,065,563	₩ 1,189,503	₩ 4,476,490	₩ 0
Loss allowance provision	540,149	166,010	457,397	779,432	4,135,842	6,078,830

Movements in the loss allowance provision for trade receivables for the years ended December 31, 2018 and 2017, are as follows:

(in thousands of Korean won)

	Trade receivables	
	2018	2017 ¹
Beginning balance - Korean IFRS 1039	₩ 7,079,447	₩ 8,572,929
Amounts restated through beginning balance of retained earnings ¹	-	-
Loss allowance as at January 1, 2018 - calculated under Korean IFRS 1109	7,079,447	8,572,929
Increase in loss allowance recognized in profit or loss during the year	1,081,966	1,084,137
Receivables written off during the year as uncollectible	(1,102,516)	(2,813,750)
Unused amounts reversed	(980,067)	236,131
Ending balance²	₩ 6,078,830	₩ 7,079,447

¹ The restatement on transition to Korean IFRS 1109 as a result of applying the expected credit risk model was immaterial.

² The amounts as at December 31, 2017, were calculated under Korean IFRS 1039.

As at December 31, 2018, the gross carrying amount of trade receivables, reflecting the maximum exposure to credit risk, is ₩ 889,322,930 thousand (2017: ₩ 841,257,987 thousand).

In the prior period, the impairment of trade receivables was assessed based on the incurred loss model. Individual receivables which were known to be uncollectible were written off by reducing the carrying amount directly. The other receivables were assessed collectively, to determine whether there was an objective evidence that an impairment had been incurred but not yet been identified. For these receivables, the estimated impairment losses were recognized in a separate provision for impairment. The Group considered that there was evidence of impairment if any of the following indicators were present:

- significant financial difficulties for of the debtor
- probability that the debtor will enter bankruptcy or financial reorganization, and
- default or delinquency in payments (more than 30 days overdue).

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(b) Other financial assets amortized cost

Other financial assets at amortized cost include government bond.

Movements in loss allowance provision for other financial assets at amortized cost for the year ended December 31, 2018, are as follows:

(in thousands of Korean won)

	Other receivables	
Beginning balance - Korean IFRS 1039	₩	3,738,819
Amounts restated through beginning balance of retained earnings		-
Loss allowance as at initial application date - calculated under Korean IFRS 1109		3,738,819
Increase in loss allowance recognized in profit or loss during the year		7,437
Receivables written off during the year as uncollectible		(3,729,095)
Ending balance	₩	17,161

All of the financial assets at amortized costs are considered to have low credit risk, and the loss allowance recognized during the period was, therefore, limited to 12 months expected losses.

4.1.3 Liquidity Risk

The Group monitors rolling forecasts of the Group's liquidity requirements to ensure it has sufficient cash to meet operational needs.

The Group has sufficient assets including cash and cash equivalents and maintains sufficient headroom on its undrawn committed borrowing facilities elastically. Financial liabilities derived from operating activities are mostly due within 3 months. The Group maintains liquidity by holding sufficient cash and cash equivalent exceeds estimated monthly payments.

The table below analyzes the Group's non-derivative financial liabilities into relevant maturity groupings based on the remaining period at the statement of financial position date to the contractual maturity date. The amounts disclosed in the table are the contractual undiscounted cash flows, and include interest payable.

Details of the Group's maturity analysis as at December 31, 2018 and 2017, are as follows:

(in thousands of Korean won)

		2018					
	Book amount	Contractual undiscounted cash flows	Less than 3 months	Between 3 months and 1 year	Between 1 and 5 years	More than 5 years	
Trade payables	₩ 864,788,756	₩ 864,788,756	₩ 864,788,756	₩ -	₩ -	₩ -	-
Other financial liabilities	269,460,343	269,460,343	256,111,182	7,015,668	5,842,716	490,777	
Borrowings	3,818,563,855	4,178,788,880	394,800,165	604,057,099	2,159,740,033	1,020,191,583	
Financial guarantee contract ¹	-	410,000,000	-	-	360,000,000	50,000,000	
Derivative liabilities	22,489,732	23,101,098	1,635,235	3,578,635	16,789,950	1,097,278	

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		2017					
	Book amount	Contractual undiscounted cash flows	Less than 3 months	Between 3 months and 1 year	Between 1 and 5 years	More than 5 years	
Trade payables	₩ 943,780,832	₩ 943,780,832	₩ 943,780,832	₩ -	₩ -	₩ -	
Other financial liabilities	445,493,590	445,497,086	436,026,917	4,749,591	2,154,367	2,566,210	
Borrowings	3,506,224,826	3,962,764,172	473,522,936	274,068,737	1,847,842,883	1,367,329,618	
Financial guarantee contract ¹	-	360,000,000	-	-	300,000,000	60,000,000	
Derivative liabilities	23,186,316	23,879,792	4,458,143	1,199,243	18,251,435	(29,029)	

¹ Other than the amounts above, the Group has an obligation to replenish the funds of Boryeong LNG Terminal Co., Ltd., in case of shortage

4.2 Capital Risk Management

The purpose of capital management of the Group is to maintain a sound capital structure. The Group uses the debt ratio as a capital management index. This ratio is calculated by dividing total liabilities by total equity. Total liabilities and total equity are based on the amounts disclosed in the consolidated financial statements.

The debt-to-equity ratios as at December 31, 2018 and 2017, are as follows:

(in thousands of Korean won)	2018	2017
Total liabilities	₩ 5,893,665,329	₩ 5,582,799,428
Total equity	3,675,848,706	3,760,119,615
Debt-to-equity ratio	160.33%	148.47%

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5. Fair Value

There is no significant change in business and economic environments which influence the fair value of financial assets and liabilities of the Group for the year ended December 31, 2018.

5.1 Fair Value of Financial Instruments by Category

Carrying amount and fair value of financial instruments by category as at December 31, 2018 and 2017, are as follows:

(in thousands of Korean won)

	2018		2017	
	Carrying amount	Fair value	Carrying amount	Fair value
Financial assets				
Cash and cash equivalents	₩ 633,117,770	₩ 633,117,770	₩ 1,137,775,579	₩ 1,137,775,579
Financial assets at fair value through profit or loss	119,820,494	119,820,494	-	-
Available-for-sale financial assets ¹	-	-	23,462,475	23,462,475
Financial assets at fair value through other comprehensive income	3,912,373	3,912,372	-	-
Derivative assets	39,604,491	39,604,491	393,164	393,164
Trade receivables	883,244,100	883,244,100	834,178,541	834,178,541
Other financial assets	146,008,156	146,008,146	181,567,723	181,567,723
	<u>₩ 1,825,707,384</u>	<u>₩ 1,825,707,373</u>	<u>₩ 2,177,377,482</u>	<u>₩ 2,177,377,482</u>
Financial liabilities				
Trade payables	₩ 864,788,756	₩ 864,788,756	₩ 943,780,832	₩ 943,780,832
Borrowings	3,818,563,855	3,875,756,148	3,506,224,826	3,517,548,161
Derivative financial liabilities	22,489,732	22,489,732	23,186,316	23,186,316
Other financial liabilities	269,460,343	269,460,343	445,493,590	445,493,590
	<u>₩ 4,975,302,686</u>	<u>₩ 5,032,494,979</u>	<u>₩ 4,918,685,564</u>	<u>₩ 4,930,008,899</u>

¹ Share and other investments that do not have a quoted price in an active market are measured at cost because their fair value cannot be measured reliably, and excluded from the fair value disclosures.

5.2 Fair Value Hierarchy

The table below analyzes financial instruments carried at fair value, by valuation method. The different levels have been defined as follows:

- Quoted prices (unadjusted) in active markets for identical assets or liabilities that an entity can access at the measurement date (Level 1).
- All inputs other than quoted prices included in level 1 that are observable (either directly that is, prices, or indirectly that is, derived from prices) for the asset or liability (Level 2).
- Unobservable inputs for the asset or liability (Level 3).

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The following table presents the Group's financial assets that are measured at fair value as at December 31, 2018 and 2017:

(in thousands of Korean won)

	2018			
	Level 1	Level 2	Level 3	Total
Recurring fair value measurements				
Financial assets at fair value through profit or loss				
Financial instruments at fair value through profit or loss	₩ -	₩ 23,842,628	₩ 95,977,866	₩ 119,820,494
Cash and cash equivalents		367,084,152	-	367,084,152
Debt instruments at fair value through other comprehensive income	-	-	40,217	40,217
Equity instruments at fair value through other comprehensive income	1,014,130	-	2,858,025	3,872,155
Derivative assets	-	39,604,491	-	39,604,491
Derivative liabilities	-	(22,489,732)	-	(22,489,732)

(in thousands of Korean won)

	2017			
	Level 1	Level 2	Level 3	Total
Available-for-sale financial assets	₩ -	₩ -	₩ 23,462,475	₩ 23,462,475
Derivative assets	-	393,164	-	393,164
Derivative liabilities	-	(23,186,316)	-	(23,186,316)

5.3 Details of derivative instruments as at December 31, 2018 and 2017, are as follows:

(in thousands of Korean won)

	2018		2017	
	Assets	Liabilities	Assets	Liabilities
Currency forward ¹	₩ 5,678,033	₩ 9,333,068	₩ -	₩ 20,779,905
Interest rate swap ²	-	10,227,234	-	2,134,747
Commodity swap ³	14,396,310	2,929,430	174,866	261,860
Others ⁴	19,530,148	-	218,298	9,804
	₩ 39,604,491	₩ 22,489,732	₩ 393,164	₩ 23,186,316

(in thousands of Korean won)

	2018		2017	
	Gain on valuation	Other comprehensive income	Gain on valuation	Other comprehensive income
Currency forward ¹	₩ 17,124,869	₩ -	₩ (24,875,871)	₩ -
Interest rate swap ²	-	(6,796,233)	-	7,436,301
Commodity swap ³	(357,417)	11,866,703	(276,389)	-
Others ⁴	2,394,330	16,842,163	78,762	2,076,356
	₩ 19,161,782	₩ 21,912,633	₩ (25,073,498)	₩ 9,512,657

¹ Foreign currency forwards to hedge the risk of foreign currency fluctuations of long term borrowings in foreign currency of USD 255,000 thousand (2017: USD 217,600 thousand) and short-term borrowing in foreign currency of USD 307,722 thousand (2017: USD 57,284 thousand).

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² The interest rate swap exchanges a fixed interest for a floating interest to hedge an interest rate risk of a borrowing of ₩ 640,500 million of Narae Energy Service Co., Ltd. and others.

³ The commodity swaps are to hedge cash flow risks derived from the LNG purchase agreements of CAILIP Gas Marketing and Prism Energy International Pte., Ltd.

⁴ Derivatives of CAILIP Gas Marketing and Prism Energy International Pte., Ltd. to fix the sales price of gas in advance.

5.4 Transfers between Fair Value Hierarchy Levels of Recurring Fair Value Measurements

The Group's policy is to recognize transfers between levels of the fair value at the date of the event or change in circumstances that caused the transfer.

Details of transfers between levels of each fair value hierarchy of financial instruments are as follows:

There were no transfers between levels 1 and 2 for recurring fair value measurements during the year.

Changes in level 3 for recurring fair value measurements for the years ended December 31, 2018 and 2017, are as follows:

(in thousands of Korean won)

	2018					
	Financial assets					
	Debt instruments at fair value through other comprehensive income		Equity instruments at fair value through other comprehensive income		Financial assets at fair value through profit or loss	
Beginning balance	₩	40,217	₩	2,858,105	₩	104,253,476
Total profit or loss						
Amount recognized in profit or loss		-		-		(8,995,649)
Purchases		-		-		970,710
Sales		-		(80)		(250,671)
Ending balance	₩	40,217	₩	2,858,025	₩	95,977,866

(in thousands of Korean won)

	2017	
	Financial assets	
	Available-for-sale financial assets	
Beginning balance	₩	21,215,000
Total profit or loss		
Amount recognized in other comprehensive income		1,975,416
Reclassified to profit or loss		272,059
Ending balance	₩	23,462,475

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5.5 Classification and changes of financial assets at fair value for the year ended December 31, 2018, are as follows:

(in thousands of Korean won)	Fair value hierarchy		Classification of financial instruments	December 31, 2017	Changes in accounting policies	January 1, 2018	Acquisition	Disposal	Exchange differences	Valuation	December 31, 2018
	2018	2017									
Financial assets at fair value through profit or loss											
Hana Land Chip Private Real Estate No.33	Level 3	Level 3	Debt instruments	₩ 11,448,400	₩ -	₩ 11,448,400	₩ -	₩ -	₩ -	₩ 2,217,300	₩ 13,665,700
Plus Future Plan Private Securities Investment Trust No.5	Level 3	Level 3	Debt instruments	11,014,075	-	11,014,075	-	-	-	541,434	11,555,509
SK Mutual Funds	Level 3	Level 3	Debt instruments	1,000,000	-	1,000,000	-	-	-	-	1,000,000
Contemporary Painting Art Trust No.1	Level 3	Cost method	Debt instruments	495,041	-	495,041	-	-	-	-	495,041
Construction Guarantee Cooperative	Level 3	Cost method	Debt instruments	82,597	19,085	101,682	-	-	-	-	101,682
Hana Power generation infrastructure Investment Private Equity Fund	Level 3	Cost method	Debt instruments	59,000,000	-	59,000,000	-	-	-	(13,148,695)	45,851,305
Plant & Mechanical contractors financial cooperative of Korea	Level 3	Cost method	Debt instruments	40,862	-	40,862	-	-	-	2,305	43,167
Prostar Energy Infra Fund	Level 3	Cost method	Debt instruments	24,792,580	(3,639,164)	21,153,416	970,710	(250,671)	-	1,392,007	23,265,462
Beijing Gas Blue Sky	Level 2	-	Debt instruments	-	-	-	26,262,732	-	(40,513)	(2,379,591)	23,842,628
				₩107,873,555	₩ (3,620,079)	₩104,253,476	₩27,233,442	₩ (250,671)	₩ (40,513)	₩ (11,375,240)	₩119,820,494
Financial assets at fair value through other comprehensive income											
SK Technology Innovation Company	Level 3	Cost method	Equity instruments	₩ 2,808,024	₩ -	₩ 2,808,024	₩ -	₩ -	₩ -	₩ -	₩ 2,808,024
KNOC Ferghana Ltd.	Level 3	Cost method	Equity instruments	80	-	80	-	(80)	-	-	-
Jeonnam Dragons Football Club	Level 3	Cost method	Equity instruments	50,000	-	50,000	-	-	-	-	50,000
Powertel TRS Co., Ltd.	Level 3	Cost method	Equity instruments	1	-	1	-	-	-	-	1
Government bond	Level 3	Cost method	Debt instruments	40,217	-	40,217	-	-	-	-	40,217
Petrovietnam Gas City Investment and Development Joint Stock Company	Level 1	-	Equity instruments	-	-	-	932,149	-	1,372	80,609	1,014,130
				₩ 2,898,322	₩ -	₩ 2,898,322	₩ 932,149	₩ (80)	₩ 1,372	₩ 80,609	₩ 3,912,372

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6. Financial Instruments by Category

6.1 Carrying Amounts of Financial Instruments by Category

Carrying amounts of financial assets and liabilities by category as at December 31, 2018 and 2017, are as follows:

(in thousands of Korean won)

	2018	2017
Financial assets		
Financial assets at fair value through profit or loss		
Financial instruments at fair value through profit or loss	₩ 119,820,494	₩ -
Cash and cash equivalents	367,084,152	-
Financial assets at fair value through other comprehensive income	3,912,373	-
Available-for-sale financial assets	-	110,771,878
Financial assets at amortized cost		
Trade receivables	883,244,100	834,178,541
Other financial assets	146,008,156	181,567,723
Cash and cash equivalents	266,033,618	1,137,775,579
Derivative instruments		
Trading derivatives	8,111,097	174,866
Hedging instruments	31,493,394	218,298
	<u>₩ 1,825,707,384</u>	<u>₩ 2,264,686,885</u>

(in thousands of Korean won)

	2018	2017
Financial liabilities		
Financial liabilities at amortized cost		
Trade payables	₩ 864,788,756	₩ 943,780,832
Other financial liabilities	269,460,343	445,493,590
Borrowings	3,818,563,855	3,506,224,826
Derivative instruments		
Trading derivatives	9,781,538	21,051,569
Hedging instruments	12,708,194	2,134,747
	<u>₩ 4,975,302,686</u>	<u>₩ 4,918,685,564</u>

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6.2 Net Gains or Losses by Category of Financial Instruments

Net gains or losses on each category of financial instruments for the years ended December 31, 2018 and 2017, are as follows:

(in thousands of Korean won)

	2018	2017
Available-for-sale financial assets		
Gain on valuation (other comprehensive income)	₩ -	₩ 1,431,527
Dividend income	-	817,508
Impairment loss	-	(86,858)
Financial assets at fair value through profit or loss		
Dividend income	830,399	-
Loss on valuation	(11,375,239)	-
Financial assets at fair value through other comprehensive income		
Gain on valuation (other comprehensive income)	80,609	-
Loss on disposal	(80)	-
Financial assets at amortized cost		
Interest income	11,047,199	7,844,561
Impairment loss	(1,025,996)	(1,161,181)
Foreign exchange gain (loss)	12,936	(27,223)
Derivative instruments		
Gain (loss) on valuation of trading derivatives	16,767,452	(25,152,260)
Gain (loss) on transaction of trading derivatives	768,456	(1,899,199)
Gain (loss) on valuation of hedging instruments (other comprehensive income)	(21,912,633)	9,512,657
Gain on valuation of hedging instruments (profit or loss)	2,394,330	78,762
Gain (loss) on transaction of hedging instruments	(3,722,946)	1,629,026
Financial liabilities at amortized cost		
Interest expenses	(117,588,768)	(102,727,768)
Foreign exchange gain (loss)	(19,572,927)	31,269,624
	<u>₩ (143,297,208)</u>	<u>₩ (78,470,824)</u>

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7. Financial Assets

7.1 Financial Assets at Fair Value through Profit or Loss

As explained in Note 2, the Group has applied Korean IFRS 1109 Financial Instruments from January 1, 2018. See Note 36 for the impact of the changes in accounting policies on the classification of financial assets and financial statements.

(a) Financial assets at fair value through profit or loss

Financial assets mandatorily measured at fair value through profit or loss include the following classes of financial assets:

<i>(in thousands of Korean won)</i>	December 31, 2018	December 31, 2017¹
Hana Land Chip Private Real Estate No.33	₩ 13,665,700	₩ -
Plus Future Plan Private Securities Investment Trust No.5	11,555,510	-
SK Mutual Funds	1,000,000	-
Prostar Energy Infra Fund	23,265,462	-
Contemporary Painting Art Trust No.1	495,041	-
Construction Guarantee Cooperative	101,682	-
Hana Power generation infrastructure Investment Private Equity Fund	45,851,305	-
Plant & Mechanical contractors financial cooperative of Korea	43,166	-
Beijing Gas Blue Sky	23,842,628	-
	<u>₩ 119,820,494</u>	<u>₩ -</u>

¹ These investments were classified as available-for-sale financial assets as at December 31, 2017.

(b) Amounts recognized in profit or loss

<i>(in thousands of Korean won)</i>	2018	2017
Gain (loss) from debt instruments at fair value through profit or loss	₩ (11,375,239)	₩ -
	<u>₩ (11,375,239)</u>	<u>₩ -</u>

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7.2 Financial Assets at Fair Value through Other Comprehensive Income

(a) Equity investments at fair value through other comprehensive income

Equity investments at fair value through other comprehensive income comprise the following individual investments:

<i>(in thousands of Korean won)</i>	December 31, 2018	December 31, 2017¹
SK Technology Innovation Company	₩ 2,808,024	₩ -
Jeonnam Dragons Football Club	50,000	-
Powertel TRS Co., Ltd.	1	-
Petrovietnam Gas City Investment and Development Joint Stock Company	1,014,130	-
	₩ 3,872,155	₩ -

¹ As at December 31, 2017, the Group had designated the equity investments as available-for-sale financial assets where management intended to hold them for the medium to long-term.

Upon disposal of these equity investments, any balance within the accumulated other comprehensive income for these equity investments is reclassified to retained earnings and is not reclassified to profit or loss.

(b) Debt investments at fair value through other comprehensive income

Debt investments at fair value through other comprehensive income comprise the following investments in bonds having solely payments of principal and interest:

<i>(in thousands of Korean won)</i>	2018	2017¹
Government bonds	₩ 40,217	₩ -
	₩ 40,217	₩ -

¹ These investments were classified as available-for-sale financial assets as at December 31, 2017.

Upon disposal of these debt investments, any balance within the accumulated other comprehensive income for these debt investments is reclassified to profit or loss.

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7.3 Trade Receivables and Other Financial Assets at Amortized Cost

(a) Trade receivables and provision for impairment

Trade receivables and its provisions for impairment as at December 31, 2018 and 2017, are as follows:

<i>(in thousands of Korean won)</i>	2018		2017	
Trade receivables	₩	889,322,930	₩	841,257,987
Less: provision for impairment		(6,078,830)		(7,079,446)
Trade receivables - net	₩	883,244,100	₩	834,178,541

(b) Other financial assets at amortized cost

Other financial assets at amortized cost include the following debt investments:

(in thousands of Korean won)

	December 31, 2018			December 31, 2017		
	Current	Non-current	Total	Current	Non-current	Total
Long and short-term financial instruments	₩ 6,897,003	₩ 519,638	₩ 7,416,641	₩ 111,248,299	₩ 227,433	₩ 111,475,732
Loans	-	33,873	33,873	26,760	3,685,550	3,712,310
Non-trade receivables	25,484,315	-	25,484,315	20,233,823	160,000	20,393,823
Accrued income	90,586,327	-	90,586,327	27,835,463	-	27,835,463
Guarantee deposits provided	379,265	22,124,896	22,504,161	310,767	21,578,447	21,889,214
	123,346,910	22,678,407	146,025,317	159,655,112	25,651,430	185,306,542
Less: provision for impairment	(17,161)	-	(17,161)	(20,426)	(3,718,393)	(3,738,819)
	₩ 123,329,749	₩ 22,678,407	₩ 146,008,156	₩ 159,634,686	₩ 21,933,037	₩ 181,567,723

(c) Impairment

See Note 4 for the impairment of trade receivables, other financial assets at amortized cost and the Group's exposure to credit risk.

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8. Property, Plant and Equipment

Details of property, plant and equipment as at December 31, 2018 and 2017, are as follows:

(in thousands of Korean won)

	2018					
	Acquisition cost	Accumulated depreciation	Accumulated impairment losses	Customers' contribution to construction costs	Government Grants	Book value
Land	₩ 666,085,326	₩ -	₩ -	₩ -	₩ -	₩ 666,085,326
Buildings	376,584,921	(61,261,620)	(629,025)	-	-	314,694,276
Structures	439,858,562	(99,345,643)	(84,432)	-	-	340,428,487
Machinery	2,760,930,884	(591,311,375)	(2,428,382)	-	(6,687)	2,167,184,440
Vehicles	15,980,428	(7,146,211)	-	-	(110,277)	8,723,940
Tools and equipment	82,353,140	(62,378,608)	-	-	-	19,974,532
Pipelines	2,669,725,944	(1,516,728,236)	-	(75,251,466)	-	1,077,746,242
Others	657,602,626	(173,083,199)	(10,733,103)	-	-	473,786,324
Construction-in-progress	58,269,868	-	-	-	-	58,269,868
	<u>₩7,727,391,699</u>	<u>₩ (2,511,254,892)</u>	<u>₩ (13,874,942)</u>	<u>₩ (75,251,466)</u>	<u>₩ (116,964)</u>	<u>₩5,126,893,435</u>

(in thousands of Korean won)

	2017				
	Acquisition cost	Accumulated depreciation	Customers' contribution to construction costs	Government Grants	Book value
Land	₩ 660,613,636	₩ -	₩ -	₩ -	₩660,613,636
Buildings	372,116,481	(48,600,269)	-	-	323,516,212
Structures	437,504,031	(78,522,882)	-	-	358,981,149
Machinery	2,604,628,805	(448,223,658)	-	(7,063)	2,156,398,084
Vehicles	13,706,560	(6,584,497)	-	(36,667)	7,085,396
Tools and equipment	75,482,278	(58,763,906)	-	-	16,718,372
Pipelines	2,548,002,296	(1,412,920,965)	(86,791,636)	-	1,048,289,695
Others	391,519,866	(103,296,721)	-	-	288,223,145
Construction-in-progress	74,796,236	-	-	-	74,796,236
	<u>₩7,178,370,189</u>	<u>₩(2,156,912,898)</u>	<u>₩(86,791,636)</u>	<u>₩ (43,730)</u>	<u>₩ 4,934,621,925</u>

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Changes in property, plant and equipment for the years ended December 31, 2018 and 2017, are as follows:

(in thousands of Korean won)	2018									
	Beginning balance	Acquisitions	Disposals	Reclassification	Depreciation	Impairment	Net exchange differences	Others ¹	Ending Balance	
Land	₩ 660,613,636	₩ 3,493,410	₩ -	₩ 1,978,280	₩ -	₩ -	₩ -	₩ -	₩ 666,085,326	
Buildings	323,516,212	5,307,449	(601,231)	1,231,007	(12,872,476)	(629,025)	-	(1,257,660)	314,694,276	
Structures	358,981,149	9,660,985	(7,043,043)	116,200	(21,202,372)	(84,432)	-	-	340,428,487	
Machinery	2,156,398,084	30,460,774	(164,788)	125,685,469	(142,766,717)	(2,428,382)	-	-	2,167,184,440	
Vehicles	7,085,396	3,337,332	(218,953)	-	(1,482,095)	-	2,260	-	8,723,940	
Tools and equipment	16,718,372	9,124,545	(95,905)	1,568,937	(7,347,663)	-	6,246	-	19,974,532	
Pipelines	1,048,289,695	40,895,091	(442,996)	82,614,265	(93,609,813)	-	-	-	1,077,746,242	
Others	288,223,145	206,036,410	(21,191)	51,933,949	(79,387,467)	(10,733,103)	17,734,581	-	473,786,324	
Construction- in- progress	74,796,236	241,052,497	(514,000)	(258,208,969)	-	-	1,144,104	-	58,269,868	
	₩ 4,934,621,925	₩ 549,368,493	₩ (9,102,107)	₩ 6,919,138	₩ (358,668,603)	₩ (13,874,942)	₩ 18,887,191	₩ (1,257,660)	₩ 5,126,893,435	

¹ Represents the amount of settlement for water supply in relation to the acquisition of group energy facilities.

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(in thousands of Korean won)	2017							
	Beginning balance	Acquisitions	Disposals	Reclassification	Depreciation	Impairment	Net exchange differences	Ending Balance
Land	₩ 658,215,051	₩ 1,505,340	₩ (1,805,788)	₩ 2,699,033	₩ -	₩ -	₩ -	₩ 660,613,636
Buildings	150,695,598	5,242,505	(683,210)	180,105,221	(11,843,902)	-	-	323,516,212
Structures	119,295,364	3,276,089	(1,988,252)	257,804,215	(19,406,267)	-	-	358,981,149
Machinery	659,575,478	5,845,141	(2,130,834)	1,613,297,517	(120,189,218)	-	-	2,156,398,084
Vehicles	6,446,412	2,174,557	(240,843)	-	(1,288,093)	-	(6,637)	7,085,396
Tools and equipment	13,139,282	7,206,347	(102,907)	2,796,910	(6,290,236)	-	(31,024)	16,718,372
Pipelines	1,011,641,623	34,527,592	(1,457,303)	94,565,009	(90,987,226)	-	-	1,048,289,695
Others	237,624,206	197,328	(7,192)	148,973,656	(60,569,501)	(6,851,390)	(31,143,962)	288,223,145
Construction- in- progress	1,871,406,884	466,702,105	-	(2,253,378,068)	-	(6,127,770)	(3,806,915)	74,796,236
	<u>₩4,728,039,898</u>	<u>₩ 526,677,004</u>	<u>₩ (8,416,329)</u>	<u>₩ 46,863,493</u>	<u>₩ (310,574,443)</u>	<u>₩(12,979,160)</u>	<u>₩ (34,988,538)</u>	<u>₩ 4,934,621,925</u>

For the year ended December 31, 2018, the total depreciation expense of ₩ 358,668,603 thousand (2017: ₩ 310,574,443 thousand) was charged to 'cost of sales' of ₩ 256,476,669 thousand (2017: ₩ 212,956,189 thousand), 'selling and administrative expenses' of ₩ 102,191,934 thousand (2017: ₩97,618,254 thousand).

For the year ended December 31, 2018, the Group has capitalized borrowing costs amounting to ₩ 107,141 thousand (2017: ₩ 13,187,674 thousand) on qualifying assets. Borrowing costs were capitalized at the weighted average rate of its general borrowings of 3.16% (2017: 3.47%).

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9. Investment Properties

Changes in investment properties for the years ended December 31, 2018 and 2017, are as follows:

(in thousands of Korean won)

		2018		
		Land	Buildings	Total
Beginning net book amount	₩	94,782,128	₩ 1,589,206	₩ 96,371,334
Depreciation		-	(80,301)	(80,301)
Ending net book amount	₩	94,782,128	₩ 1,508,906	₩ 96,291,034
Acquisition cost		94,782,128	3,209,701	97,991,829
Accumulated depreciation		-	(1,700,795)	(1,700,795)

(in thousands of Korean won)

		2017		
		Land	Buildings	Total
Beginning net book amount	₩	94,782,128	₩ 1,669,507	₩ 96,451,635
Depreciation		-	(80,301)	(80,301)
Ending net book amount	₩	94,782,128	₩ 1,589,206	₩ 96,371,334
Acquisition cost		94,782,128	3,209,701	97,991,829
Accumulated depreciation		-	(1,620,495)	(1,620,495)

Fair value of investment properties as at December 31, 2018, is ₩ 147,527,986 thousand (2017: ₩ 130,296,467 thousand).

Rental income from investment properties for the year ended December 31, 2018, is ₩ 6,259,469 thousand (2017: ₩ 6,027,015 thousand).

Details of investment property provided as collateral as at December 31, 2018, are as follows:

(in thousands of Korean won)

		Assets provided as collateral		Related Borrowings		
		Carrying amount	Secured amount	Secured parties	Related line item	Related amount
		Item				
Busan City Gas Co., Ltd	Investment property	₩ 70,653,191	₩ 3,990,000	Megamart Co., Ltd. and others	Leasehold deposits	₩ 3,990,000

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10. Intangible Assets

Details of intangible assets as at December 31, 2018 and 2017, are as follows:

(in thousands of Korean won)

		2018			
		Acquisition cost	Accumulated amortization	Accumulated impairment loss	Book amount
Software development costs	₩	2,483,304	₩ (1,878,865)	₩ -	₩ 604,439
Goodwill		42,801,147	-	-	42,801,147
Exploration and evaluation assets		841,552,182	-	-	841,552,182
Industrial property rights		121,666	(91,583)	-	30,083
Memberships		17,110,786	-	(953,561)	16,157,225
Other		49,442,269	(38,101,656)	-	11,340,613
	₩	<u>953,511,354</u>	₩ <u>(40,072,104)</u>	₩ <u>(953,561)</u>	₩ <u>912,485,689</u>

(in thousands of Korean won)

		2017			
		Acquisition cost	Accumulated amortization	Accumulated impairment loss	Book amount
Software development costs	₩	2,249,696	₩ (1,693,083)	₩ -	₩ 556,613
Goodwill		42,801,147	-	-	42,801,147
Exploration and evaluation assets		694,785,252	-	-	694,785,252
Industrial property rights		176,293	(134,368)	-	41,925
Memberships		20,605,205	-	(3,653,869)	16,951,336
Other		47,158,619	(33,877,821)	-	13,280,798
	₩	<u>807,776,212</u>	₩ <u>(35,705,272)</u>	₩ <u>(3,653,869)</u>	₩ <u>768,417,071</u>

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Changes in intangible assets for the years ended December 31, 2018 and 2017, are as follows:

(in thousands of Korean won)	2018																	
	Beginning balance		Acquisitions		Disposals		Transfer		Net exchange differences		Amortization		Impairment loss		Others		Ending Balance	
Software development costs	₩	556,613	₩	2,407	₩	-	₩	231,200	₩	-	₩	(185,782)	₩	-	₩	-	₩	604,438
Goodwill		42,801,147		-		-		-		-		-		-		-		42,801,147
Exploration and evaluation assets		694,785,252		123,080,531		-		(8,452,171)		32,138,570		-		-		-		841,552,182
Industrial property rights		41,925		-		(4,513)		-		-		(7,329)		-		-		30,083
Memberships		16,951,336		285,573		(946,673)		-		-		-		(133,010)		-		16,157,226
Others		13,280,798		1,442,773		(1)		895,013		296		(4,223,835)		-		(54,431)		11,340,613
	₩	768,417,071	₩	124,811,284	₩	(951,187)	₩	(7,325,958)	₩	32,138,866	₩	(4,416,946)	₩	(133,010)	₩	(54,431)	₩	912,485,689

(in thousands of Korean won)	2017															
	Beginning balance		Acquisition		Disposal		Transfer		Net exchange differences		Amortization		Impairment loss		Ending balance	
Software development costs	₩	380,991	₩	644	₩	-	₩	324,032	₩	-	₩	(149,054)	₩	-	₩	556,613
Goodwill		42,801,147		-		-		-		-		-		-		42,801,147
Exploration and evaluation assets		628,581,459		154,130,623		-		(8,987,393)		(78,939,437)		-		-		694,785,252
Industrial property rights		75,385		-		(23,015)		-		-		(10,445)		-		41,925
Memberships		15,265,185		2,771,153		(718,450)		-		-		-		(366,552)		16,951,336
Others		14,382,252		930,118		-		3,939,548		-		(5,971,120)		-		13,280,798
	₩	701,486,419	₩	157,832,538	₩	(741,465)	₩	(4,723,813)	₩	(78,939,437)	₩	(6,130,619)	₩	(366,552)	₩	768,417,071

For the year ended December 31, 2018, total 2018 amortization expense of ₩ 4,416,946 thousand (2017: ₩ 6,130,619 thousand) was charged to 'cost of sales' of ₩ 333,139 thousand (2017: ₩ 297,406 thousand) and 'selling and administrative expenses' of ₩ 4,083,807 thousand (2017: ₩ 5,733,213 thousand).

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Assets, liabilities, income, expenses, operating cash flows and investing cash flows derived from exploration and evaluation activities as at and for the years ended December 31, 2018 and 2017, are as follows:

<i>(in thousands of Korean won)</i>		2018		2017
Assets	₩	1,372,327,842	₩	1,058,338,321
Liabilities		209,944,190		161,775,538
Income		119,661,038		84,254,449
Expenses		(93,996,299)		(66,609,730)
Operating cash flows		121,433,264		64,962,399
Investing cash flows		(328,841,150)		(269,700,072)

The Group used the same goodwill allocation method for the years ended December 31, 2018 and 2017. The following is a summary of goodwill allocation for each operating segment (cash generating units):

<i>(in thousands of Korean won)</i>		2018		2017
Busan City Gas Co., Ltd.	₩	19,682,158	₩	19,682,158
Yeongnam Energy Service		933,032		933,032
Chonnam City Gas Co., Ltd.		14,490,960		14,490,960
Kangwon City Gas Co., Ltd.		1,647,489		1,647,488
Jeonbuk Energy Service Co., Ltd.		6,044,248		6,044,247
Others		3,262		3,262
	₩	42,801,147	₩	42,801,147

Goodwill impairment reviews are undertaken annually. Impairment test suggests that the carrying value of cash generating units does not exceed the recoverable amount. The recoverable amounts of cash-generating units have been determined based on value-in-use calculations. These calculations use pre-tax cash flow projections based on financial budgets approved by management covering a five-year period.

The key assumptions used for value-in-use calculations in 2018 and 2017 are as follows:

2018	Sales growth rate	Gross margin rate	Pre-tax discount rate
Busan City Gas Co., Ltd	1.59%	3.55%	5.40%
Yeongnam Energy Service	2.02%	5.10%	5.40%
Chonnam City Gas Co., Ltd	3.23%	3.90%	5.40%
Kangwon City Gas Co., Ltd.	2.79%	4.02%	5.40%
Jeonbuk Energy Service Co., Ltd.	3.58%	5.07%	5.40%
2017	Sales growth rate	Gross margin rate	Pre-tax discount rate
Busan City Gas Co., Ltd	6.0%	4.7%	6.9%
Yeongnam Energy Service	5.6%	5.0%	6.9%
Chonnam City Gas Co., Ltd	5.4%	5.0%	6.9%
Kangwon City Gas Co., Ltd.	6.7%	4.9%	6.9%
Jeonbuk Energy Service Co., Ltd.	7.1%	5.5%	6.9%

The Group determined the budgeted growth rate based on past performance and its expectations of market development. The discount rates used are industrial average weighted average cost of capital.

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11. Investments in Joint Ventures and Associates

Details in investments in joint ventures and associates as at December 31, 2018 and 2017, are as follows:

(in thousands of Korean won)

(in thousands of Korean won)

				2018			2017		
	Location	percent age of owners hip	Closing month	Acquisition cost	Net asset value	Book amount	Acquisition cost	Net asset value	Book amount
Joint ventures									
Boryeong LNG Terminal Co.,Ltd	Korea	50.0%	Dec.	₩ 110,000,000	₩ 98,531,179	₩ 127,267,595	₩ 110,000,000	₩ 84,947,287	₩ 113,683,703
China Gas-SK E&S LNG Trading Ltd.	Hong Kong	50.0%	Mar.	1,189,110	1,092,599	1,092,599	1,189,110	1,055,735	1,055,735
				111,189,110	99,623,778	128,360,194	111,189,110	86,003,022	114,739,438
Associates									
China Gas Holdings Ltd. ^{1,2}	Hong Kong	15.4%	Mar	471,451,662	634,250,110	864,865,601	471,451,662	514,753,782	737,849,693
Global Opportunities Fund	Cayman Islands	20.7%	Dec.	6,534,151	1,048,817	1,048,817	6,534,151	1,134,633	1,134,633
Shinan Green Energy	Korea	22.2%	Dec.	8,559,000	6,318,845	7,086,946	8,559,000	7,234,614	8,002,714
Busan Green Energy	Korea	28.5%	Dec	5,152,800	12,321,183	12,321,183	5,152,800	7,239,715	7,239,715
Gemini Partners Pte., Ltd.	Singapore	20.0%	Dec	7,889,084	2,538,843	2,538,843	7,889,084	2,433,534	5,669,107
SK South East Asia Investment Pte. Ltd	Singapore	20.0%	Dec	110,890,000	110,890,000	110,890,000	-	-	-
				610,476,697	767,367,798	998,751,390	499,586,697	532,796,278	759,895,862
				₩ 721,665,807	₩ 866,991,576	₩ 1,127,111,584	₩ 610,775,807	₩ 618,799,300	₩ 874,635,300

¹ Although the Group holds less than 20% ownership, the Group exercises significant influence as the Group's director can exercise its voting right at the Board of Directors of these entities, and thus, the Group classifies these entities as associates.

² The fiscal year end of China Gas Holdings Ltd. is March 31 and its financial statements as at December 31 were not available. The semi-annual September 30 report was therefore used and the effects of significant transactions or events which occurred from October to December were reviewed.

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Changes in investments in joint ventures and associates for the years ended December 31, 2018 and 2017, are as follows:

(in thousands of Korean won)

	2018					
	Beginning balance	Acquisition	Disposal and dividends received ¹	Share of profit (loss)	Impairment	Ending balance
Joint ventures						
Boryeong LNG Terminal Co.,Ltd	113,683,703	₩ -	₩ -	₩ 13,583,892	₩ -	₩ 127,267,595
China Gas-SK E&S LNG Trading Ltd.	1,055,735	-	-	(6,920)	-	1,092,599
Associates						
China Gas Holdings Ltd.	737,849,694	-	(24,030,303)	149,704,624	-	864,865,601
Global Opportunities Fund	1,134,633	-	-	(85,816)	-	1,048,817
Shinan Green Energy	8,002,714	-	-	(915,768)	-	7,086,946
Busan Green Energy	7,239,715	-	-	4,950,374	-	12,321,183
Gemini Partners Pte., Ltd.	5,669,106	-	-	91,224	(3,235,572)	2,538,843
SK South East Asia Investment Pte. Ltd	-	110,890,000	-	-	-	110,890,000
	₩ 874,635,300	₩ 110,890,000	₩ (24,030,303)	₩ 167,321,610	₩ (3,235,572)	₩ 1,127,111,584

¹The amount of disposal and dividends received of China Gas Holdings Ltd. is comprised of decrease in investments due to dividend of ₩ 39,160,425 thousand and increase in investment due to gain recognized for change in shareholding ratio in the amount of ₩ 15,130,122 thousand.

(in thousands of Korean won)

	2017					
	Beginning balance	Acquisition	Disposal and dividends received ¹	Share of profit (loss)	Other changes in equity	Ending balance
Joint ventures						
Boryeong LNG Terminal Co.,Ltd	₩ 105,006,373	₩ -	₩ -	₩ 8,677,330	₩ -	₩ 113,683,703
China Gas-SK E&S LNG Trading Ltd.	1,231,358	-	-	(28,993)	(146,630)	1,055,735
Associates						
China Gas Holdings Ltd.	649,234,675	-	(14,345,327)	133,466,285	(30,505,940)	737,849,693
Global Opportunities Fund	2,909,324	-	-	(1,774,691)	-	1,134,633
Shinan Green Energy	8,249,294	-	-	(332,200)	85,620	8,002,714
Busan Green Energy	13,564,868	-	(9,159,900)	2,834,747	-	7,239,715
Gemini Partners Pte., Ltd.	6,458,571	-	-	(665,735)	(123,729)	5,669,107
	₩ 786,654,463	₩ -	₩ (23,505,227)	₩ 142,176,743	₩ (30,690,679)	₩ 874,635,300

¹The amount of disposal and dividends received of China Gas Holdings Ltd. is comprised of decrease in investments due to dividend of ₩ 28,110,949 thousand and increase in investment due to gain recognized for change in shareholding ratio in the amount of ₩ 13,765,622 thousand.

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Details of valuation of investments in joint venture and associates under the equity method for the years ended December 31, 2018 and 2017, are as follows:

	2018			2017		
	Share of profit (loss)	Gain(loss) on disposal	Reversal of impairment loss	Share of profit (loss)	Gain(loss) on disposal	
<i>(in thousands of Korean won)</i>						
Joint venture						
Boryeong LNG Terminal Co.,Ltd	₩ 13,583,893	₩ -	₩ -	₩ 8,677,330	₩ -	
China Gas-SK E&S LNG Trading Ltd.	(6,921)	-	-	(28,993)	-	
Associates						
China Gas Holdings Ltd.	149,704,625	15,130,122	-	133,466,285	13,765,621	
Global Opportunities Fund	(85,815)	-	-	(1,774,691)	-	
Shinan Green Energy	(915,769)	-	-	(332,200)	-	
Busan Green Energy	4,950,373	-	-	2,834,747	-	
Gemini Partners Pte., Ltd.	91,224	-	(3,235,572)	(665,735)	-	
	<u>₩ 167,321,610</u>	<u>₩ 15,130,122</u>	<u>₩ (3,235,572)</u>	<u>₩ 142,176,743</u>	<u>₩ 13,765,621</u>	

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Summarized financial information of the Group's joint venture as at and for the years ended December 31, 2018 and 2017, are as follows:

(in thousands of Korean won)

		2018							
	<u>Current assets</u>	<u>Non-current assets</u>	<u>Current liabilities</u>	<u>Non-current liabilities</u>	<u>Revenue</u>	<u>Profit (loss)</u>	<u>Total comprehensive income (loss)</u>	<u>Dividends received</u>	
Boryeong LNG Terminal Co.,Ltd	₩ 198,789,973	₩ 1,191,017,940	₩ 109,028,870	₩ 1,083,716,684	₩ 125,315,443	₩ 27,223,022	₩ 27,167,785	₩	-
	<u>Cash and cash equivalents</u>	<u>Current financial liabilities</u>	<u>Non-current financial liabilities</u>	<u>Depreciation</u>	<u>Other depreciation</u>	<u>Interest income</u>	<u>Interest expenses</u>		<u>Tax expenses (income)</u>
	₩ 48,314,404	₩ 108,905,941	₩ 1,083,042,378	₩ 47,873,947	₩ -	₩ 2,367,783	₩ 31,148,336	₩	(2,489,523)

(in thousands of Korean won)

		2017							
	<u>Current assets</u>	<u>Non-current assets</u>	<u>Current liabilities</u>	<u>Non-current liabilities</u>	<u>Revenue</u>	<u>Profit (loss)</u>	<u>Total comprehensive income (loss)</u>	<u>Dividends received</u>	
Boryeong LNG Terminal Co.,Ltd	₩ 197,560,196	₩ 1,137,989,954	₩ 50,510,931	₩ 1,115,144,646	₩ 142,617,212	₩ 17,410,381	₩ 17,410,381	₩	-
	<u>Cash and cash equivalents</u>	<u>Current financial liabilities</u>	<u>Non-current financial liabilities</u>	<u>Depreciation</u>	<u>Other depreciation</u>	<u>Interest income</u>	<u>Interest expenses</u>		<u>Tax expenses (income)</u>
	₩ 63,505,390	₩ 49,318,540	₩ 1,114,719,851	₩ 45,857,407	₩ -	₩ 1,258,140	₩ 31,072,853	₩	(4,668,894)

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Summarized financial information of the Group's associates as at and for the years ended December 31, 2018 and 2017, are as follows:

(in thousands of Korean won)

	2018							
	Current assets	Non-current assets	Current liabilities	Non-current liabilities	Revenue	Profit (loss)	Total comprehensive income (loss)	Dividends received
China Gas Holdings Ltd.	₩ 4,845,597,239	₩ 8,505,689,648	₩ 4,782,522,309	₩ 3,612,837,681	₩ 7,382,209,491	₩ 931,866,915	₩ 1,340,233,709	₩ 39,160,425
Global Opportunities Fund	227,332	5,438,823	599,040	-	76	(414,597)	(414,597)	-
Shinan Green Energy	7,612,991	168,658,165	6,629,625	141,207,834	15,506,758	(1,481,787)	(1,481,787)	-
Busan Green Energy	35,440,859	159,785,886	17,652,990	134,341,536	55,756,093	15,933,936	15,933,936	-
Gemini Partners Pte., Ltd.	5,577,981	7,182,440	66,205	-	-	(1,254,959)	(1,254,959)	-
SK South East Asia Investment Pte. Ltd	554,450,000	-	-	-	-	-	-	-

(in thousands of Korean won)

	2017							
	Current assets	Non-current assets	Current liabilities	Non-current liabilities	Revenue	Profit (loss)	Total comprehensive income (loss)	Dividends received
China Gas Holdings Ltd.	₩ 2,746,437,597	₩ 6,805,019,986	₩ 3,647,119,769	₩ 2,114,270,345	₩ 5,740,840,125	₩ 934,061,608	₩ 958,953,452	₩ 28,110,949
Global Opportunities Fund	250,307	5,438,823	207,418	-	1,457,860	788,123	788,123	-
Shinan Green Energy	5,428,966	163,813,990	3,462,906	133,225,555	5,391,124	(1,836,986)	(1,836,986)	-
Busan Green Energy	24,232,375	169,020,472	20,356,728	147,507,590	34,279,686	9,946,481	9,946,481	-
Gemini Partners Pte., Ltd.	6,767,315	5,918,764	518,406	-	-	(4,079,064)	(4,079,064)	-

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Details of adjustments from financial information of joint ventures and associates to the book amount of investments in joint ventures and associates for the years ended December 31, 2018 and 2017, are as follows:

(in thousands of Korean won)

		2018				
		Net asset value (A)	Percentage of ownership (B)	Owned net asset value (AxB)	Goodwill	Book amount
Joint ventures						
Boryeong LNG Terminal Co.,Ltd.	₩	197,062,359	50.00%	₩ 98,531,179	₩ 28,736,416	₩ 127,267,595
China Gas-SK E&S LNG Trading Ltd.		2,185,198	50.00%	1,092,599	-	1,092,599
Associates						
China Gas Holdings Ltd.		4,119,022,104	15.40%	634,250,110	230,615,491	864,865,601
Global Opportunities Fund		5,067,115	20.70%	1,048,817	-	1,048,817
Shinan Green Energy		28,433,697	22.22%	6,318,846	768,100	7,086,946
Busan Green Energy		43,232,219	28.50%	12,321,183	-	12,321,183
Gemini Partners Pte., Ltd.		12,694,216	20.00%	2,538,843	-	2,538,843
SK South East Asia Investment Pte. Ltd		554,450,000	20.00%	110,890,000	-	110,890,000

(in thousands of Korean won)

		2017				
		Net asset value (A)	Percentage of ownership (B)	Owned net asset value (AxB)	Goodwill	Book amount
Joint ventures						
Boryeong LNG Terminal Co.,Ltd.	₩	169,894,573	50.00%	₩ 84,947,287	₩ 28,736,416	₩ 113,683,703
China Gas-SK E&S LNG Trading Ltd.		2,111,470	50.00%	1,055,735	-	1,055,735
Associates						
China Gas Holdings Ltd.		3,275,113,845	15.72%	514,753,781	223,095,911	737,849,693
Global Opportunities Fund		5,481,712	20.70%	1,134,633	-	1,134,633
Shinan Green Energy		32,554,495	22.22%	7,234,614	768,100	8,002,714
Busan Green Energy		25,402,510	28.50%	7,239,715	-	7,239,715
Gemini Partners Pte., Ltd.		12,167,673	20.00%	2,433,535	3,235,571	5,669,106

Fair value of associate's marketable shares as at December 31, 2018 and 2017, is as follows:

(in thousands of Korean won)

		2018			
		Number of shares owned	Market price per share (Korean Won)	Fair value	Book amount
China Gas Holdings Ltd.	₩	780,908,500	3,983	₩ 3,110,358,556	₩ 864,865,601

(in thousands of Korean won)

		2017			
		Number of shares owned	Market price per share (Korean Won)	Fair value	Book amount
China Gas Holdings Ltd.	₩	780,908,500	2,961	₩ 2,312,270,069	₩ 737,849,693

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12. Available-for-Sale Financial Assets

Available-for-sale financial assets as at December 31, 2017, are as follows:

(in thousands of Korean won)

	2017		
	Acquisition cost	Fair value ¹	Book amount
Fair value			
Hana Land Chip Private Real Estate No.33	₩ 10,000,000	₩ 11,448,400	₩ 11,448,400
Plus Future Plan Private Securities Investment Trust No.5	15,384,450	11,014,075	11,014,075
SK Mutual Funds	1,000,000	1,000,000	1,000,000
Acquisition cost			
SK Technology Innovation Company	5,257,473	2,808,023	2,808,023
KNOC Ferghana Ltd.	80	80	80
Contemporary Painting Art Trust No.1	495,041	495,041	495,041
Sejung21 Co., Ltd.	669,000	-	-
Construction Guarantee Cooperative	82,597	82,597	82,597
Hana Power generation infrastructure Investment Private Equity Fund	59,000,000	59,000,000	59,000,000
Plant & Mechanical contractors financial cooperative of Korea	40,862	40,862	40,862
Jeonnam Dragons Football Club	50,000	50,000	50,000
Powertel TRS Co., Ltd.	289,140	1	1
Prostar Energy Infra Fund ²	24,792,580	24,792,580	24,792,580
Government bond	40,218	40,219	40,219
HOWON Co., Ltd.	-	-	-
	₩ 117,101,441	₩ 110,771,878	₩ 110,771,878

¹ The acquisition cost after deducting impairment was presented for available-for-sale financial assets measured at cost.

² Although the Group holds more than 20% ownership of Prostar Energy Infra Fund, the Group classified it as available-for-sale financial assets as the Group does not have significant influence. Hence, the equity method is not applied as the Group has no voting rights in the investment committee, which is the decision-making body of Prostar Energy Infra Fund.

The changes in available-for-sale financial assets for the years ended December 31, 2017, are as follows:

(In thousands of Korean won)

	2017
Beginning balance	₩ 89,351,789
Acquisitions	19,694,254
Disposals	(162,723)
Impairment loss	(86,858)
Changes in fair value recognized in equity	1,975,416
Ending balance	₩ 110,771,878

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13. Other Assets

Other assets as at December 31, 2018 and 2017, are as follows:

(in thousands of Korean won)

	2018		2017	
	Non-current	Current	Non-current	Current
Advance payments	₩ -	₩ 211,010,884	₩ -	₩ 181,166,743
Prepaid expenses	2,460,330	40,584,837	126,095	48,927,505
Prepaid value added tax	-	32,455,488	-	22,369,578
Employee benefit fund	25,419,410	-	11,229,695	-
Other assets	6,000	-	-	-
	<u>₩ 27,885,740</u>	<u>₩ 284,051,209</u>	<u>₩ 11,355,790</u>	<u>₩ 252,463,826</u>

14. Inventories

Inventories as at December 31, 2018 and 2017, are as follows:

(In thousands of Korean won)

	2018	2017
Raw materials	₩ 116,218,585	₩ 90,587,820
Supplies	21,104,927	18,957,019
Merchandise	916,560	859,648
Others	54,543	54,541
	<u>₩ 138,294,615</u>	<u>₩ 110,459,028</u>

The cost of inventories recognized as expense and included in 'cost of sales' amounted to ₩ 4,866,387,964 thousand in 2018 (2017: ₩ 4,217,499,155 thousand).

15. Cash and Cash Equivalents

Cash and cash equivalents as at December 31, 2018 and 2017, consists of:

(In thousands of Korean won)

	2018	2017
Cash and cash equivalents		
Cash on hand	₩ 34,875	₩ 28,420
Short-term bank deposits	217,417,412	787,496,592
Time deposits	48,581,331	52,574,044
Short-term investments ¹	367,084,152	297,676,524
	<u>₩ 633,117,770</u>	<u>₩ 1,137,775,579</u>

¹ Short-term financial instruments with very high liquidity whose encashment is immediately possible, and the amounts with small risk of changes in fair values are classified as cash equivalents.

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16. Borrowings

Details of borrowings as at December 31, 2018 and 2017, are as follows:

<i>(In thousands of Korean won)</i>		2018		2017
Non-current				
Bank borrowings	₩	1,203,095,280	₩	1,222,558,254
Debentures		1,710,476,276		1,619,930,665
		<u>2,913,571,556</u>		<u>2,842,488,919</u>
Current				
Bank borrowings		805,093,218		283,842,203
Debentures		99,899,081		379,893,704
		<u>904,992,299</u>		<u>663,735,907</u>
	₩	<u>3,818,563,855</u>	₩	<u>3,506,224,826</u>

Details of bank borrowings as at December 31, 2018 and 2017, are as follows:

<i>(In thousands of Korean won)</i>	Creditors	Interest rate	2018	2017
Loans for exploration of petroleum	Korea Energy Agency	0.75%	₩ 25,073,480	₩ 25,672,144
Loans for construction of pipelines	Kookmin Bank and others	1.75%	8,544,360	12,512,000
Loans for a safety management business	NH Bank	1.75%	680,000	1,121,150
Loans for energy rationalization	Hana Bank	1.75%	3,660,000	3,660,000
CP borrowings	Shinhan Bank and others	2.34 - 2.35%	249,516,052	65,000,000
		CD 90days+1.14%		
Loans for facility	Korea Development Bank and others	MOR+1.60 - 1.75%	706,472,885	456,368,629
		3.67%~3.8%		
PF borrowings	Korea Development Bank and others	2.63 - 4.45%	-	326,358,207
General borrowings	Kookmin Bank and others	2.3% - 3.20%	45,443,735	294,511,033
		2.91% - 3.86%		
Borrowing in foreign currency	Korea Exim Bank and others	Libor(3M)+1.05 - 1.74%	968,797,986	321,197,294
			<u>2,008,188,498</u>	<u>1,506,400,457</u>
	Less: Current portion of borrowings		<u>(805,093,218)</u>	<u>(283,842,203)</u>
			<u>₩ 1,203,095,280</u>	<u>₩ 1,222,558,254</u>

Under a PF arrangement, the Group provided it's subsidiaries' issued shares, cash and cash equivalents, insurance contractual rights and PP&E to PF syndicate as collaterals (Notes 32).

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Details of debentures as at December 31, 2018 and 2017, are as follows:

<i>(in thousands of Korean won)</i>	Bonds	Issuance date	Maturity date	Annual interest rate	2018	2017
SK E&S Co., Ltd.	Public offering bonds No.10-1	2013.02.26	2018.02.26	3.02%	₩ -	₩ 200,000,000
	Public offering bonds No.10-2	2013.02.26	2020.02.26	3.18%	100,000,000	100,000,000
	Public offering bonds No.11-2	2013.10.04	2018.10.04	3.46%	-	100,000,000
	Public offering bonds No.11-3	2013.10.04	2020.10.04	3.65%	50,000,000	50,000,000
	Public offering bonds No.12-1	2016.08.29	2019.08.29	1.48%	100,000,000	100,000,000
	Public offering bonds No.12-2	2016.08.29	2021.08.29	1.60%	140,000,000	140,000,000
	Public offering bonds No.12-3	2016.08.29	2023.08.29	1.70%	100,000,000	100,000,000
	Public offering bonds No.13-1	2017.04.12	2022.04.12	2.39%	150,000,000	150,000,000
	Public offering bonds No.13-2	2017.04.12	2024.04.12	2.62%	50,000,000	50,000,000
	Public offering bonds No.13-3	2017.04.12	2027.04.12	2.88%	50,000,000	50,000,000
Paju Energy Service Co., Ltd.	Public offering bonds No.1-1	2015.03.18	2022.03.18	2.53%	100,000,000	100,000,000
	Public offering bonds No.1-2	2015.03.18	2025.03.18	2.92%	190,000,000	190,000,000
	Public offering bonds No.1-3	2015.03.18	2027.03.18	3.01%	60,000,000	60,000,000
	Public offering bonds No.2-1	2015.09.04	2022.09.04	2.54%	50,000,000	50,000,000
	Public offering bonds No.2-2	2015.09.04	2025.09.04	2.77%	50,000,000	50,000,000
	Public offering bonds No.2-3	2015.09.04	2027.09.04	2.97%	50,000,000	50,000,000
	Public offering bonds No.3-1	2018.11.26	2021.11.26	2.35%	80,000,000	-
	Public offering bonds No.3-2	2018.11.26	2023.11.24	2.52%	70,000,000	-
Wirye Energy Service Co.	Public offering bonds No.1-1	2014.12.09	2024.12.09	3.45%	200,000,000	200,000,000
	Public offering bonds No.1-2	2014.12.09	2026.12.09	3.68%	50,000,000	50,000,000
	Public offering bonds No.2-1	2017.10.27	2020.10.27	3.32%	125,000,000	125,000,000
	Public offering bonds No.2-2	2017.10.27	2022.10.27	3.82%	10,000,000	10,000,000
Narae Energy Service Co., Ltd.	Public offering bonds No.1	2013.02.13	2018.02.13	3.28%	-	80,000,000
	Non-guaranteed private bonds No.1	2018.02.13	2021.02.13	3.70%	40,000,000	-
					1,815,000,000	2,005,000,000
	Less: Discount on bonds				(4,624,643)	(5,175,631)
	Less: Current portion of bonds				(99,899,081)	(379,893,704)
					<u>₩ 1,710,476,276</u>	<u>₩ 1,619,930,665</u>

17. Net Defined Benefit Liabilities

Details of net defined benefit liabilities as at December 31, 2018 and 2017, are as follows:

<i>(In thousands of Korean won)</i>	2018	2017
Present value of defined benefit obligations	₩ 152,105,925	₩ 134,701,059
Fair value of plan assets	(147,329,378)	(135,580,320)
Net defined benefit liabilities (assets)	<u>₩ 4,776,547</u>	<u>₩ (879,261)</u>

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Changes in the present values of defined benefit obligations for the years ended December 31, 2018 and 2017, are as follows:

<i>(In thousands of Korean won)</i>		2018		2017
Beginning balance	₩	134,701,059	₩	128,115,660
Current service costs		15,106,830		15,236,620
Interest costs		3,608,645		3,034,303
Remeasurements:		4,992,722		(3,964,672)
Benefits paid		(7,805,289)		(9,138,842)
Others		1,501,958		1,417,990
Ending balance	₩	<u>152,105,925</u>	₩	<u>134,701,059</u>

Changes in the fair value of plan assets for the years ended December 31, 2018 and 2017, are as follows:

<i>(In thousands of Korean won)</i>		2018		2017
Beginning balance	₩	135,580,320	₩	121,571,805
Interest income		4,055,530		3,177,505
Remeasurements		(1,899,525)		(790,961)
Employers' contributions		16,023,463		17,426,501
Benefits paid		(10,039,332)		(7,236,863)
Others		3,608,922		1,432,333
Ending balance	₩	<u>147,329,378</u>	₩	<u>135,580,320</u>

Plan assets as at December 31, 2018 and 2017, consist of the following:

<i>(In thousands of Korean won)</i>		2018		2017
Equity instruments	₩	-	₩	1,900,654
Debt instruments		51,475,091		66,161,418
Time deposits		95,854,287		67,518,248
	₩	<u>147,329,378</u>	₩	<u>135,580,320</u>

The rate used to discount defined benefit obligations shall be determined by reference to market yields at the date of the statement of financial position on high quality corporate bonds.

The currency and term of the corporate bonds shall be consistent with the currency and estimated term of the post-employment benefit obligations.

The principal actuarial assumptions as at December 31, 2018 and 2017, are as follows:

	2018	2017
Discount rate	2.6 - 3.1%	3.1 - 3.2%
Inflation rate	2.0 - 2.7%	2.0%
Future salary growth rate	1.8 - 5.1%	2.8 - 5.1%

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The sensitivity of the defined benefit obligations as at December 31, 2018, to changes in the weighted principal assumptions is:

	Effect on defined benefit obligations		
	Changes in principal assumption	Increase in principal assumption	Decrease in principal assumption
Discount rate	0.5%P	2.0% decrease	2.2% increase
Salary growth rate	0.5%P	2.2% increase	2.1% decrease

Expected maturity analysis of undiscounted pension benefits as at December 31, 2018, is as follows:

<i>(in thousands of Korean won)</i>		Less than 1 year	Between 1 and 2 years	Between 2 and 5 years	Over 5 years	Total
Pension benefits	₩	9,472,709	₩ 32,166,892	₩ 38,400,721	₩ 282,209,144	₩ 362,249,465

The weighted average of maturities of the defined benefit obligations is 8.2 years and estimated expenses related to the defined benefit plan for the year ending December 31, 2018, is ₩ 15,393,940 thousand.

18. Other Finance Liabilities

Other finance liabilities as at December 31, 2018 and 2017, are as follows:

<i>(in thousands of Korean won)</i>	2018		2017	
	Non-current	Current	Non-current	Current
Guarantee deposits received	₩ 5,842,717	₩ 6,595,154	₩ 5,380,628	₩ 6,051,784
Non-trade accounts payable	490,777	89,260,405	-	309,301,823
Accrued expenses	-	167,271,291	-	124,759,355
	₩ 6,333,494	₩ 263,126,850	₩ 5,380,628	₩ 440,112,962

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19. Other Liabilities

Details of other liabilities as at December 31, 2018 and 2017, are as follows:

<i>(in thousands of Korean won)</i>	2018		2017	
	Non-current	Current	Non-current	Current
Other long-term employee benefits ¹	₩ 1,437,400	₩ -	₩ 1,331,196	₩ -
Advances received	440,976	92,761,799	-	4,351,904
Withholdings	-	15,932,132	-	13,360,462
Contract liabilities	-	6,045,321	-	5,045,464
Provision for restoration	4,889,873	-	2,030,269	-
Emission obligations	-	59,640,680	-	41,216,173
Other liabilities	-	41,272,897	-	-
	<u>₩ 6,768,249</u>	<u>₩ 215,652,829</u>	<u>₩ 3,361,465</u>	<u>₩ 63,974,003</u>

¹ Recognized in relation to long-term employee benefits provided to employees with long service periods, and the same accounting methodology as used for defined benefit obligations was used.

Changes emission obligations for the years ended December 31, 2018 and 2017, are as follows:

<i>(In thousands of Korean won)</i>	2018	2017
Beginning balance	₩ 41,216,173	₩ 1,556,429
Addition (reversal) ¹	18,424,507	39,659,744
Ending balance	<u>₩ 59,640,680</u>	<u>₩ 41,216,173</u>

¹ Expected emission of carbon gases for the year ended December 31, 2018 is 2,870,694 tons and free allocated emission credit is 1,728,672 tons. The Group accrued the liability for estimated expenses due to the excess of annual emission allowance.

20. Contract Liabilities from Contracts with Customers

Details of contract liabilities as at December 31, 2018 and 2017, are as follows:

<i>(in thousands of Korean won)</i>	2018		2017	
	Non-current	Current¹	Non-current	Current¹
Unearned revenue of customers' contribution to construction costs	₩ 458,831,740	₩ 5,679,648	₩ 397,687,934	₩ 4,680,036
Meter replacement revenue	22,430,723	-	-	-
Others	-	365,673	-	365,428
	<u>₩ 481,262,463</u>	<u>₩ 6,045,321</u>	<u>₩ 397,687,934</u>	<u>₩ 5,045,464</u>

¹ Current contract liabilities are included in current other liabilities in the statements of financial position.

(b) Revenue recognized in relation to contract liabilities

The following table shows how much of the revenue recognized in the current reporting period relates to carried-forward contract liabilities and how much relates to performance obligations that

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were satisfied in a prior year.

(in thousands of Korean won)

2018

Revenue recognized that was included in the contract liability balance at the beginning of the period

Unearned revenue of customers' contribution to construction costs	₩	24,231,532
Meter replacement revenue		5,233,646

(c) The following table shows unsatisfied performance obligations in relation to customers' contribution to construction costs received from applicants for city gas supply.

(in thousands of Korean won)

2018

Aggregate amount of the transaction price allocated to Unearned revenue of customers' contribution to construction costs that are partially or fully unsatisfied as at December 31

₩ 464,511,388

21. Share Capital and Share Premium

The Company's number of authorized shares is 100,000,000 shares. Total number of ordinary shares issued is 46,401,990 shares with the par value of ₩ 5,000 per share as at December 31, 2018.

Details of changes in capital stock and Share Premium during the years ended December 31, 2018 and 2017 are as follows.

(in thousands of Korean won except number of shares)

	Number of Shares	Ordinary shares	Share Premium	Total
January 1, 2017	41,761,791	₩ 221,058,960	₩ 420,107,123	₩ 641,166,084
Issuance of shares	4,640,199	23,200,995	654,455,176	677,656,171
December 31, 2017	46,401,990	244,259,955	1,074,562,299	1,318,822,254
January 1, 2018	46,401,990	244,259,955	1,074,562,299	1,318,822,254
Transfer of retained earning	-	-	(450,000,000)	(450,000,000)
December 31, 2018	46,401,990	₩ 244,259,955	₩ 624,562,299	₩ 868,822,254

The Company retired 2,450,001 treasury shares in 2009. Accordingly, as at December 31, 2018 share capital does not agree with the total amount of face value of the shares issued.

22. Retained Earnings

Retained earnings as at December 31, 2018 and 2017, consist of the following:

(In thousands of Korean won)

2018

2017

Legal reserves	₩	122,129,978	₩	110,529,480
Unappropriated retained earnings		1,729,783,936		937,787,078
	₩	1,851,913,914	₩	1,048,316,558

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23. Other Components of Equity

Other components of equity as at December 31, 2018 and 2017, consist of the following:

<i>(In thousands of Korean won)</i>	2018		2017	
Cumulative other comprehensive income				
Share of other comprehensive income of associates	₩	(38,911,819)	₩	(40,043,850)
Gain (loss) on valuation of financial assets at fair value through other comprehensive income		(2,657,979)		-
Change in value of available-for-sale financial assets		-		1,770,779
Gain(loss) on valuation of derivatives		20,032,769		(1,889,179)
Exchange differences on translation of foreign operations		5,633,600		(33,155,838)
Other capital surpluses				
Gain on statutory merger		-		257,586,894
Consolidated capital surplus		88,766,029		91,541,576
Treasury stock		(8,807,669)		(8,807,669)
Share options		347,763		149,041
Discount on stock issuance		(6,573,551)		(6,573,551)
Other paid-in capital				
Hybrid bonds		723,918,899		723,918,899
	₩	<u>781,748,042</u>	₩	<u>984,497,102</u>

Changes in accumulated other comprehensive income for the years ended December 31, 2018 and 2017, are as follows:

<i>(in thousands of Korean won)</i>		2018				
		Beginning balance	Changes in accounting policies	Beginning balance	Increase (decrease)	Ending balance
Share of other comprehensive income of associates	₩ (40,043,850)	₩	-	₩ (40,043,850)	₩ 1,132,031	₩ (38,911,819)
Gain (loss) on valuation of financial assets at fair value through other comprehensive income	-		(2,738,588)	(2,738,588)	80,609	(2,657,979)
Change in value of available-for-sale financial assets	1,770,779		(1,866,556)	(95,777)	95,777	-
Gain (loss) on valuation of derivatives	(1,889,179)		-	(1,889,179)	21,921,948	20,032,769
Exchange differences on translation of foreign operations	(33,155,838)		-	(33,155,838)	(38,789,437)	5,633,599
	₩ (73,318,088)	₩	<u>(4,605,144)</u>	₩ (77,923,232)	₩ (15,559,072)	₩ (15,903,430)

<i>(in thousands of Korean won)</i>		2017		
		Beginning balance	Increase (decrease)	Ending balance
Share of other comprehensive income of associates	₩ (17,293,081)	₩	(22,750,769)	₩ (40,043,850)
Change in value of available-for-sale financial assets		268,658	1,502,121	1,770,779

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Gain (loss) on valuation of derivatives	(11,429,105)	9,539,926	(1,889,179)
Exchange differences on translation of foreign operations	60,401,629	(93,557,467)	(33,155,838)
	<u>₩ 31,948,101</u>	<u>₩ (105,266,189)</u>	<u>₩ (73,318,088)</u>

Changes in accumulated other comprehensive income represent amounts net of tax effect.

Details of hybrid bonds as at December 31, 2018 and 2017, are as follows:

<i>(in thousands of Korean won)</i>	Issuance Date	Maturity Date	Interest rate	2018	2017
1 st hybrid bond in foreign currency ¹	2014.11.26	2074.11.26	4.875%	₩ 329,520,000	₩ 329,520,000
1-1 st hybrid bond in Korean won	2015.07.15	2045.07.15	3.903%	270,000,000	270,000,000
1-2 nd hybrid bond in Korean won	2015.07.15	2045.07.15	3.853%	<u>130,000,000</u>	<u>130,000,000</u>
Less: Discount on bonds				<u>(5,601,101)</u>	<u>(5,601,101)</u>
				<u>₩ 723,918,899</u>	<u>₩ 723,918,899</u>

¹ Exchange rate of KRW1,098.4/USD1 applied to USD 300,000,000.

Details of hybrid bond as at December 31, 2018, are as follows:

	Overseas	Domestic	
	1st	1-1 st	1-2 nd
Number of issuance			
Issuance date	2014.11.26	2015.07.15	2015.07.15
Period of adjustment of interest rate	5 years		
Criteria of adjustment of interest rate	5-year US Treasury + initial added rate	5-year Treasury + initial added rate	
Added rate	Add 0.25% to the initial added rate after 10 to 25 years from the issuance date Add 1.00% to the initial added rate after 25 years from the issuance date		
Period of payment of interest	Semiannually	Quarterly	
Postponement of payment of interest	Depending on the Company's option, interest payments can be deferred until the next payment date including accrued interest.		
Early redemption	Early redemption is possible after five years from the issuance date		
Extension of maturity	Depending on the Company's option, the maturity can be extended with the same maturity on the maturity date.		
Priority of payment	In the event of liquidation, it will have the same priority claim as preferred stock		

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24. Selling and Administrative Expenses

Selling and administrative expenses for the years ended December 31, 2018 and 2017, are as follows:

<i>(in thousands of Korean won)</i>		2018		2017
Salaries	₩	175,180,531	₩	143,441,606
Post-employment benefits		12,149,368		12,661,108
Welfare expense		34,657,830		28,975,735
Travel expense		6,570,833		5,123,630
Communication expense		5,174,417		5,270,964
Utilities expense		5,740,317		5,519,239
Taxes and dues		16,557,370		16,985,590
Supplies expense		4,365,627		4,937,220
Rent		11,586,307		10,449,169
Depreciation		102,191,934		97,618,254
Amortization		4,083,807		5,733,213
Repairs expense		6,303,074		5,426,896
Vehicles maintenance expense		2,801,600		2,588,744
Insurance expense		1,525,957		1,190,928
Advertisement expense		2,366,185		2,661,030
Management and security service expense		4,117,953		3,395,038
Training and research expense		4,564,118		4,236,180
Service fees		127,023,526		108,106,061
Professional service fees		10,023,199		7,923,480
Bad debts expense		1,025,996		1,161,181
Entertainment expense		4,288,600		4,522,055
Conference expense		2,467,661		1,962,083
Others		1,536,427		5,667,477
	₩	546,302,637	₩	485,556,881

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25. Other Income and Other Expenses

Other income and other expenses for the years ended December 31, 2018 and 2017, are as follows:

<i>(In thousands of Korean won)</i>		2018		2017
Other income				
Dividend income	₩	830,399	₩	817,508
Rental income		77,019		43,225
Gain on disposal of property, plant and equipment		850,612		844,896
Gain on disposal of intangible assets		55,788		70,000
Construction deferred income		-		20,603,423
Other non-operating expenses		99,271,376		77,040,777
Miscellaneous gains		101,793		101,479
	₩	<u>101,186,987</u>	₩	<u>99,521,308</u>
Other expenses				
Loss on disposal of property, plant and equipment	₩	657,658	₩	730,026
Loss on disposal of intangible assets		133,779		33,515
Impairment losses on property, plant and equipment		13,874,942		12,979,160
Loss on abandonment of property, plant and equipment		459,870		3,078,097
Impairment losses on intangible assets		133,010		366,552
Impairment losses on available-for-sales assets		-		86,858
Loss on disposal of financial assets at fair value through other comprehensive income		80		-
Donations		9,196,886		9,266,675
Miscellaneous losses		24,716,810		31,426,624
	₩	<u>49,173,035</u>	₩	<u>57,967,507</u>

26. Expenses by Nature

Expenses by nature for the years ended December 31, 2018 and 2017, are as follows:

<i>(In thousands of Korean won)</i>		2018		2017
Sale of merchandise	₩	2,982,953,993	₩	2,914,953,584
Raw materials used		1,883,433,971		1,302,545,571
Employee benefit expense		256,087,102		218,139,404
Depreciation and amortization		363,165,849		316,785,363
Advertising expense		2,366,185		2,661,185
Operating leases payments and rents		14,125,602		12,547,561
Other expenses		517,619,030		411,875,349
Total cost of sales and selling and administrative expenses	₩	<u>6,019,751,732</u>	₩	<u>5,179,508,017</u>

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27. Finance Income and Costs

Finance income and costs for the years ended December 31, 2018 and 2017, are as follows:

<i>(In thousands of Korean won)</i>	2018		2017	
Finance income				
Interest income	₩	11,047,199	₩	7,844,561
Gain on foreign currency transactions		3,001,098		11,740,116
Gain on foreign currency translation		2,467,722		23,510,230
Gain on valuation of financial assets		4,153,046		-
Gain on valuation of derivatives		19,161,782		36,590
Gain on derivative transactions		8,350,500		6,966,868
	₩	<u>48,181,346</u>	₩	<u>50,098,365</u>
Finance costs				
Interest expense	₩	117,588,768	₩	102,727,768
Loss on foreign currency transactions		10,587,803		3,948,756
Loss on foreign currency translation		14,441,009		59,189
Loss on valuation of financial assets		15,528,286		-
Loss on valuation of derivatives		-		25,110,088
Loss on transaction of derivatives		11,304,990		7,237,041
	₩	<u>169,450,855</u>	₩	<u>139,082,842</u>

28. Income Tax

Income tax expense for the years ended December 31, 2018 and 2017, consists of the following:

<i>(In thousands of Korean won)</i>	2018		2017	
Current tax				
Current tax on profits for the year	₩	89,944,732	₩	76,141,614
Adjustments to prior year income tax		5,344,970		892,135
Total current tax		<u>95,289,702</u>		<u>77,033,749</u>
Deferred tax				
Temporary differences		21,012,951		6,651,154
Income tax recognized directly in equity		2,447,484		6,219,726
Total deferred tax		<u>23,460,435</u>		<u>12,870,880</u>
Income tax expense	₩	<u>118,750,137</u>	₩	<u>89,904,629</u>

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Income tax recognized directly in equity as at December 31, 2018 and 2017, is as follows:

<i>(in thousands of Korean won)</i>	2018			2017		
	Before tax	Tax effect	After tax	Before tax	Tax effect	After tax
Share of comprehensive income of associates	₩ 1,399,456	₩ (328,072)	₩ 1,071,383	₩ (30,690,679)	₩ 7,412,380	₩ (23,278,299)
Change in value of available-for sale financial assets	-	-	-	1,975,416	(543,889)	1,431,527
Remeasurements of the net benefit liability	(6,892,247)	1,479,301	(5,412,945)	3,173,711	(648,765)	2,524,946
Gain on valuation of derivatives	20,616,379	1,296,256	21,912,633	-	-	-
	<u>₩ 15,123,588</u>	<u>₩ 2,447,485</u>	<u>₩ 17,571,071</u>	<u>₩ (25,541,552)</u>	<u>₩ 6,219,726</u>	<u>₩ (19,321,826)</u>

The tax on the Group's profit before tax differs from the theoretical amount that would arise using the weighted average tax rate applicable to profits of the consolidated entities as follows:

<i>(In thousands of Korean won)</i>	2018	2017
Profit before tax	₩ 557,783,642	₩ 464,229,786
Tax calculated at domestic tax rates	131,985,977	111,881,608
Adjustments:		
Income not subject to tax	(33,239,584)	(35,352,655)
Expenses not deductible for tax purposes	33,630,745	23,350,537
Tax credits	(2,917,788)	(8,994,127)
Tax effect for which no deferred tax was recognized	(2,912,383)	2,971,875
Impact of change in tax rate	-	52,204
Others	(7,796,830)	(4,004,813)
Income tax expense	<u>₩ 118,750,137</u>	<u>₩ 89,904,629</u>
Weighted average effective tax rate	21.29%	19.37%

Deferred tax expected to reverse after December 31, 2017, has been measured using the effective rate of 24.2% that will apply to future periods.

The analysis of deferred tax assets and deferred tax liabilities as at December 31, 2018 and 2017, is as follows:

<i>(In thousands of Korean won)</i>	2018	2017
Deferred tax assets		
to be recovered after more than 12 months	₩ 133,536,620	₩ 109,730,499
to be recovered within 12 months	27,961,558	35,510,052
	<u>161,498,178</u>	<u>145,240,551</u>
Deferred tax liabilities		
to be recovered after more than 12 months	(256,406,765)	(211,911,283)
to be recovered within 12 months	(26,190,737)	(33,415,641)
	<u>(282,597,502)</u>	<u>(245,326,924)</u>
Deferred tax liabilities, net	<u>₩ (121,099,324)</u>	<u>₩ (100,086,373)</u>

Changes in deferred tax assets and liabilities during the year, without taking into consideration the

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offsetting of balances within the same tax jurisdiction, are as follows:

(in thousands
of Korean won)

	2018			
	Beginning balance	Statement of profit or loss	Other comprehensive income	Ending balance
Deferred tax assets				
Customer's contribution to construction costs	₩ 65,776,308	₩ 4,889,986	₩ -	₩ 70,666,294
Provision for impairment of receivables	649,782	(222,215)	-	427,567
Available-for-sale financial assets	2,416,397	(2,416,397)	-	-
Financial assets at fair value	-	4,324,022	1,296,255	5,620,277
Contract liabilities	-	5,180,057	-	5,180,057
Accrued expenses	28,491,096	10,246,989	-	38,738,085
Loss on foreign currency transaction	15,116	(15,116)	-	-
Property, plant and equipment	11,569,420	(956,278)	-	10,613,142
Inventories	55,449	(10,931)	-	44,518
Provision for post-employment benefits	20,574,459	241,142	849,327	21,664,928
Investment securities	1,745,034	6,212,063	-	7,957,097
Others	13,947,490	6,695,899	-	20,643,389
	<u>145,240,551</u>	<u>34,169,221</u>	<u>2,145,582</u>	<u>181,555,354</u>
Deferred tax liabilities				
Interest receivable	(5,946,728)	(5,620,677)	-	(11,567,405)
Employee welfare fund	(1,392,708)	(3,107,434)	-	(4,500,142)
Property, plant and equipment	(68,099,729)	(7,856,757)	-	(75,956,486)
Temporary depreciation provision	(67,616,235)	(14,911,018)	-	(82,527,253)
Provision for post-employment benefits	(21,140,043)	(1,576,520)	629,975	(22,086,588)
Investment securities	(73,063,457)	(23,076,841)	(328,072)	(96,468,370)
Others	(8,068,024)	(1,480,410)	-	(9,548,434)
	<u>(245,326,924)</u>	<u>(57,629,657)</u>	<u>301,903</u>	<u>(302,654,678)</u>
	<u>₩ (100,086,373)</u>	<u>₩ (23,460,436)</u>	<u>₩ 2,447,485</u>	<u>₩ (121,099,324)</u>

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	2017			
	Beginning balance	Statement of profit or loss	Other comprehensive income	Ending balance
Deferred tax assets				
Customer's contribution to construction costs	₩ 62,686,604	₩ 3,089,704	₩ -	₩ 65,776,308
Provision for impairment of receivables	1,662,926	(1,013,144)	-	649,782
Available-for-sale financial assets	4,157,506	(1,197,220)	(543,889)	2,416,397
Accrued expenses	10,060,494	18,430,602	-	28,491,096
Loss on foreign currency transaction	15,116	-	-	15,116
Property, plant and equipment	5,339,069	6,230,351	-	11,569,420
Inventories	64,544	(9,095)	-	55,449
Provision for post-employment benefits	20,238,437	1,090,960	(754,938)	20,574,459
Investment securities	-	1,745,034	-	1,745,034
Others	10,243,037	3,704,453	-	13,947,490
	<u>114,467,733</u>	<u>32,071,645</u>	<u>(1,298,827)</u>	<u>145,240,551</u>
Deferred tax liabilities				
Interest receivable	(1,364,623)	(4,582,105)	-	(5,946,728)
Employee welfare fund	(1,531,212)	138,504	-	(1,392,708)
Property, plant and equipment	(65,500,938)	(2,598,791)	-	(68,099,729)
Temporary depreciation provision	(64,528,626)	(3,087,609)	-	(67,616,235)
Provision for post-employment benefits	(19,373,720)	(1,871,083)	104,760	(21,140,043)
Investment securities	(49,956,984)	(30,518,853)	7,412,380	(73,063,457)
Others	(5,646,849)	(2,422,588)	1,413	(8,068,024)
	<u>(207,902,952)</u>	<u>(44,942,525)</u>	<u>7,518,553</u>	<u>(245,326,924)</u>
	<u>₩ (93,435,219)</u>	<u>₩ (12,870,880)</u>	<u>₩ 6,219,726</u>	<u>₩ (100,086,373)</u>

Amounts of deductible temporary differences, unused tax loss carryforwards and tax credit which were not recognized as deferred tax assets as at December 31, 2018, are as follows:

(in thousands of Korean won)	Maturity	Amounts
Deductible temporary differences	-	₩ 165,229,891
Tax loss carryforwards	2024	961,553
	2027	6,743,039
	2028	10,068,995
Tax credit carryforwards	2019	301,624
	2020	17,180,371
	2021	239,846
	2022	9,665,253
	2023	100,840

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Taxable temporary difference of ₩ 476,592,662 thousand (2017: ₩ 343,450,021 thousand) and deductible temporary differences of ₩ 141,845,134 thousand (2017: ₩ 158,830,227 thousand) arising on investments in subsidiaries, joint ventures and associates were not recognized as deferred tax assets and liabilities as these will not reverse in the foreseeable future.

29. Earnings per Share

Basic earnings per share is calculated by dividing the profit attributable to owners of the Company by the weighted average number of ordinary shares outstanding during the year.

<i>(In Korean won)</i>	2018	2017
Profit from continuing operations attributable to owners of the Controlling Company	₩ 412,432,121,512	₩ 350,437,947,661
Total	₩ 412,432,121,512	₩ 350,437,947,661
Weighted average number of ordinary shares outstanding	46,401,990	42,333,870
Basic earnings per share		
Continuing operations basic earnings per share	₩ 8,888	₩ 8,278

Diluted earnings per share and basic earnings per share are the same because there are no potential dilutive common shares.

30. Dividends

The dividends paid in 2018 and 2017 were ₩ 264,212,931 thousand (₩5,694 per share) and ₩ 150,843,589 thousand (₩3,612 per share), respectively.

A dividend in respect of the year ended December 31, 2018, has not yet been determined. These financial statements do not reflect these dividend payables.

31. Cash Generated from Operations

Adjustments to reconcile profit for the year to net cash provided by operating activities for the years ended December 31, 2018 and 2017, are as follows:

<i>(In thousands of Korean won)</i>	2018	2017
Interest expense	₩ 117,588,768	₩ 102,727,768
Income tax expense	118,750,137	89,904,629
Depreciation	358,748,903	310,654,744
Amortization	4,416,946	6,130,619
Post-employment benefits	14,659,945	15,093,418
(Reversal of) Impairment loss on receivables	1,025,996	1,161,181
Loss on foreign currency translation	14,441,009	59,189
Share of loss of associates	1,008,504	2,801,620
Impairment losses on investment in associates	3,235,572	-
Impairment losses on available-for-sales financial assets	-	86,858
Impairment losses on financial assets at fair value through profit or loss	13,148,695	-

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Losses on valuation of financial assets at fair value through profit or loss	2,379,591	-
Losses on disposal of financial assets at fair value through other comprehensive income	80	-
Losses (gains) on valuation of derivatives	(43,953)	25,110,088
Losses on disposal of property, plant, and equipment	657,658	730,026
Losses on abandonment of property, plant and equipment	459,870	3,078,097
Impairment losses on property, plant, and equipment	13,874,942	12,979,160
Losses on disposal of intangible assets	133,779	33,515
Impairment losses on intangible assets	133,010	366,552
Interest income	(11,047,199)	(7,844,561)
Dividends income	(830,399)	(817,508)
Gains on foreign currency translation	(2,467,722)	(23,510,230)
Gains on disposal of associates	(15,130,122)	(13,765,622)
Gains on disposal of property, plant and equipment	(850,612)	(844,896)
Gains on disposal of intangible assets	(55,788)	(70,000)
Gains on valuation of financial assets at fair value through profit or loss	(4,153,046)	-
Share of profit of associates	(168,330,114)	(144,978,362)
Gains on valuation of derivatives	(19,117,829)	(36,590)
Construction deferred income	-	(20,603,423)
Others	1,090,389	7,253,147
	<u>₩ 443,727,010</u>	<u>₩ 365,699,419</u>

Changes in operating assets and liabilities for the years ended December 31, 2018 and 2017, are as follows:

<i>(In thousands of Korean won)</i>	2018	2017
	₩	₩
Increase in trade receivables	(46,822,108)	(210,170,602)
Increase in non-trade receivables	(5,128,182)	(3,808,205)
Increase in accrued revenues	(62,190,674)	(21,866,307)
Increase in advance payments	(29,844,141)	(15,069,509)
Decrease (increase) in prepaid expenses	6,651,462	(13,207,352)
Decrease (increase) in prepaid value added tax	(4,120,596)	4,452,674
Decrease (increase) in inventories	1,561,382	(51,323,653)
Decrease (increase) in long-term guarantee deposits provided	(556,075)	427,136
Decrease (increase) in long-term non-trade receivables	80,000	-
Decrease (increase) in long-term prepaid expenses	(481,699)	4,636
Increase (decrease) in trade payables	(82,714,650)	164,003,449
Increase in advances received	3,641,381	203,380
Increase (decrease) in withholdings	5,390,471	(1,081,769)
Increase (decrease) in unearned revenue	73,731,229	(698,657)
Increase (decrease) in non-trade payables	(168,290,479)	18,880,267
Increase in accrued expense	63,445,794	83,555,637
Increase (decrease) in value added tax withheld	(13,066,403)	296,880
Increase in other current liabilities	2,009,434	1,042,377
Payment of post-employment benefits	(7,805,289)	(9,138,842)

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Increase in plan assets	(12,964,119)	(10,189,638)
Decrease (increase) in guarantee deposits received	1,105,244	(100)
Increase in derivatives related to operating activities	(10,068)	-
Increase in non-current contract assets	(356,206)	-
Decrease in non-current contract liabilities	(2,301,744)	-
Others	(18,621,449)	(29,612,593)
	<u>₩ (297,657,485)</u>	<u>₩ (93,300,791)</u>

Significant transactions not affecting cash flows are as follows:

<i>(In thousands of Korean won)</i>	<u>2018</u>	<u>2017</u>
Reclassification of construction-in-progress to specific property, plant and equipment	₩ 258,208,968	₩ 2,253,378,068
Reclassification of borrowings to current portion of borrowings	315,453,812	441,067,092

Changes in liabilities arising from financial activities for the years ended December 31, 2018 and 2017, are as follows:

(in thousands of Korean won)

	<u>2018</u>					
	<u>Short-term borrowings</u>	<u>Bond</u>	<u>Current position of bond</u>	<u>Current position of borrowed</u>	<u>Long-term borrowings</u>	<u>Total</u>
At January 1, 2018	₩ 126,374,394	₩ 1,619,930,665	₩ 379,893,704	₩ 157,467,809	₩ 1,222,558,254	₩ 3,506,224,826
Cash flow	480,086,503	189,331,190	(380,000,000)	(177,266,590)	171,041,658	283,192,761
Reclassification of current maturities of borrowing	44,724,000	(99,848,356)	99,848,356	170,881,456	(215,605,456)	-
Others	-	1,062,777	157,021	185,031	1,586,108	2,990,937
Exchange differences	(1,562,385)	-	-	4,203,000	23,514,716	26,155,331
At December 31, 2018	<u>₩ 649,622,512</u>	<u>₩ 1,710,476,276</u>	<u>₩ 99,899,081</u>	<u>₩ 155,470,706</u>	<u>₩ 1,203,095,280</u>	<u>₩ 3,818,563,855</u>

(in thousands of Korean won)

	<u>2017</u>					
	<u>Short-term borrowings</u>	<u>Bond</u>	<u>Current position of bond</u>	<u>Current position of borrowed</u>	<u>Long-term borrowings</u>	<u>Total</u>
At January 1, 2017	₩ 276,652,912	₩1,615,227,450	₩ 259,912,534	₩ 12,942,350	₩ 1,167,328,987	₩ 3,332,064,233
Cash flow	(148,106,980)	383,478,383	(260,000,000)	(12,942,350)	271,590,257	234,019,310
Reclassification of current maturities of borrowing	-	(379,712,118)	379,712,118	162,817,410	(162,817,410)	-
Others	1,385,779	936,950	269,052	-	(266,413)	2,325,368
Exchange differences	(3,557,317)	-	-	(5,349,601)	(53,277,167)	(62,184,085)
At December 31, 2017	<u>₩ 126,374,394</u>	<u>₩ 1,619,930,665</u>	<u>₩ 379,893,704</u>	<u>₩ 157,467,809</u>	<u>₩ 1,222,558,254</u>	<u>₩ 3,506,224,826</u>

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32. Contingencies and Commitments

Details of commitments on borrowings as at December 31, 2018, are as follows:

<i>(in thousands of Korean won, in thousands of US dollars)</i>						Amount borrowed
	Financial institution	Details		Amount of Limit		
SK E&S Co., Ltd.	Hana Bank	Line of Credit	₩	20,000,000		-
	Kookmin Bank and others	Consumer loans		52,000,000		20,451,499
	Hana Bank and others	Line of Credit		215,000,000		30,000,000
	Kookmin Bank and others	Line of Credit	USD	255,000		139,822
	Korea Exim Bank	General borrowings	USD	200,000		132,900
	Korea Development Bank and others	Derivative contract	USD	632,059		632,059
Kangwon City Gas Co., Ltd.	NH Bank and others	Bank overdrafts	₩	6,000,000		-
	Kookmin Bank and others	Line of Credit		10,000,000		-
Ko-one Energy Service Co., Ltd.	Woori Bank	Consumer loans		20,000,000		-
	Shinhan Bank	Bank overdrafts		5,000,000		-
Busan City Gas Co., Ltd.	Kookmin Bank	Line of Credit		5,000,000		-
Yeongnam Energy Service Co., Ltd.	NH Bank and others	Bank overdrafts		11,000,000		-
	Kookmin Bank	Consumer loans		10,000,000		-
Chungcheong Energy Service Co., Ltd.	Citibank Korea and others	Bank overdrafts		12,000,000		-
	Woori Bank and others	Consumer loans		23,000,000		-
Chonnam City Gas Co., Ltd.	NH Bank and others	Bank overdrafts		13,000,000		-
Jeonbuk Energy Service Co., Ltd.	NH Bank	Bank overdrafts		5,000,000		-
	Kookmin Bank	Line of Credit		5,000,000		-
Wirye Energy Service Co.	Kookmin Bank and others	Line of Credit		70,000,000		70,000,000
	Hana Bank	Consumer loans		10,000,000		-
	Kookmin Bank	Derivative contract		70,000,000		70,000,000
Paju Energy Service Co., Ltd.	NH Bank and others	Line of Credit		300,000,000		300,000,000
	NH Bank and others	Derivative contract	USD	26,000		26,000
Narae Energy Service Co., Ltd.	Korea Development Bank and others	Line of Credit	₩	337,500,000		337,500,000
		Consumer loans		2,000,000		-
		Derivative contract		337,500,000		337,500,000
Prism Energy International Pte., Ltd.	Citibank Singapore and others	Letter of Credit	USD	260,000		-
	J.ARON&COMPANY(SINGAPORE) PTE and others	Derivative contract	USD	430,000		-
SK E&S Australia Pty Ltd.	Bank of America and others	Line of Credit	USD	140,000		140,000
SK E&S Americas, Inc.	Korea Exim Bank	Line of Credit	USD	160,000		160,000
	Bank of America	Line of Credit	USD	30,000		-
CAILIP Gas Marketing, LLC	JP Morgan Chase Bank, National Association and others	Derivative contract	USD	76,000		-
SK E&S LNG, LLC	Citi Group Energy Inc.	Derivative contract	USD	15,000		-
			₩	1,539,000,000		1,165,451,499
			USD	2,224,059		1,230,781

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Details of payment guarantees provided by and to the Group as at December 31, 2018, are as follows:

<i>(in thousands of Korean won)</i>	Provided by	Beneficiary	Guaranteed by	Details	Amounts
Payment guarantees	Seoul Guarantee Insurance Co., Ltd.	SK E&S Co., Ltd.	-	Performance guarantee	₩ 1,422,534
		Yeongnam Energy Service	-	Maintenance performance guarantee and license guarantee	1,197,711
		Chungcheong Energy Service Co. Ltd.	-	Maintenance performance guarantee and execution of construction	1,194,579
		Ko-one Energy Service Co., Ltd.	-	Performance guarantee	1,165,587
		Busan City Gas Co., Ltd.	-	Management and operation of group energy facilities and others	2,168,381
		Chonnam City Gas Co., Ltd.	-	Performance guarantee and license guarantee	110,748
		Jeonbuk Energy Service Co., Ltd.	-	Maintenance performance guarantee and performance guarantee	109,381
		Kangwon City Gas Co., Ltd.	-	Performance guarantee and license guarantee insurance	1,332,757
		Paju Energy Service Co., Ltd.	-	Deposit guarantee for management of construction safety and others	477,370
		Wirye Energy Service Co.	-	Management of group safety and others	3,384,221
		Narae Energy Service Co., Ltd.	-	Performance guarantee	75,974
Fund supplement	SK E&S Co., Ltd.	Boryeong LNG Terminal Co., Ltd	Holders of public offering bonds PF syndicate	Principle and related interest on borrowing PF contract ¹	360,000,000
Performance guarantee	SK Holdings Co., Ltd.	SK E&S Co., Ltd.	FLNG Liquefaction 3, LLC	Usage of liquefaction	Excess costs
	Prism Energy International Pte., Ltd.	SK Shipping Co., Ltd.	HHIENS1 Shipholding S.A.	BBCHP	Service fee
			HHIENS2 Shipholding S.A.		Charterage

¹ The Group has an obligation to replenish the funds, in case of shortage.

The Group provides a commitment to use LNG Tank for expansion of Boryeong LNG Terminal Co., Ltd.

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Details of significant pending litigations as at December 31, 2018, are as follows:

<i>(in thousands of Korean won)</i>	Plaintiff	Defendant	Details	Amounts	Progress
The Group as a plaintiff	SK E&S Co., Ltd.	Head of Seoul customs office	Cancellation of tariff imposition	₩ 2,251,754	Third trial ¹
	SK E&S Co., Ltd.	Head of Gwangju customs office	Cancellation of imposition of VAT and others	159,921,080	Hearing on tax Tribunal
The Group as a defendant	Busan Green Energy BBS Co., Ltd.	Busan City Gas Co., Ltd.	Return of unfair profits	539,302	Complaint filed
	BBS Co., Ltd.	Jeonbuk Energy Service Co., Ltd.	Return of unfair profits and others	278,481	First trial

¹ On January 17, 2019, the Group won the case for the entire amount of lawsuit.

The outcome of these pending litigations and the effects on the financial statements cannot be reasonably determined as at December 31, 2018.

Blank notes and checks provided by the Group as collaterals as at December 31, 2018, are as follows:

	Provided to	Type	Quantity	Purpose
SK E&S Co., Ltd.	Korea Energy Agency	Blank notes	3	Collateral for long-term borrowings
SK E&S Co., Ltd.	Korea Energy Agency	Blank check	6	Collateral for long-term borrowings
Kangwon City Gas Co., Ltd.	Korea Gas Corporation	Blank check	1	Collateral for natural gas supply agreement

Assets pledged as collaterals by the Group as at December 31, 2018, are as follows:

(in thousands of Korean won)

Collateral	Provided by	Provided to	Book amount	Maximum credit amount	Details
Property, plant and equipment	Kangwon City Gas Co., Ltd.	Korea Development Bank	₩ 5,705,487	₩ 5,705,487	Borrowings
Land and buildings	Chonnam City Gas Co., Ltd.	CJ Hellovision arabroadcasting Co., Ltd.	4,886,150	80,661	Deposits received
Investment properties	Busan City Gas Co. Ltd.	Megamart Co., Ltd. and others	70,653,191	3,990,000	Deposits
Property, plant and equipment	Paju Energy Service Co., Ltd.	NH Bank, Woori Bank and Kookmin Bank	1,346,388,463	360,000,000	Facility loans
Property, plant and equipment	Wirye Energy Service Co.	Kookmin Bank and others	697,852,484	84,000,000	Facility loans
Short-term financial instruments	Narae Energy Service Co., Ltd.	Korea Development Bank and others	1,897,003		Facility loans
Property, plant and equipment	Narae Energy Service Co., Ltd.	Korea Development Bank and others	598,951,558	505,000,000	Facility loans

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Details of collaterals provided by the Group in relation to PF borrowings and facility loans as at December 31, 2018, are as follows:

(in thousands of Korean won)

	Secured assets	Provided to	Contribution amount	Collateral limit amount	Details
Subsidiaries	Equity securities of Narae Energy Service Co., Ltd.	Korea Development Bank and Woori Bank	₩ 192,348,307	₩ 480,000,000	Collateral for facility loans
Joint venture	Equity securities of Boryeong LNG Terminal Co., Ltd.	Woori Bank and others, the Project Financing syndicate	110,000,000	1,034,000,000	Collateral for PF borrowings
Associate	Equity securities of Busan Green Energy	Shinhan Bank and others, the Project Financing syndicate	12,321,183	12,321,183	Collateral for PF borrowings

Details of commitments as at December 31, 2018, are as follows:

Commitment	Company	Counterparty	Contract period
Long-term natural gas supply agreement ¹	Kangwon City Gas Co., Ltd. and seven other subsidiaries	Korea Gas Corporation	-
Agreement to purchase LNG	SK E&S Co., Ltd.	Tangguh PSC Contractor Parties	2006.1~2026.12
Gas turbine maintenance and repair agreement	SK E&S Co., Ltd.	GE International Inc.	2004.6~2026.12 (estimate)
Natural gas storage and vaporization service agreement	SK E&S Co., Ltd.	Posco Co., Ltd.	2005.6~2025.12
Lease agreement on the power generator and pylon site	SK E&S Co., Ltd.	Posco Co., Ltd.	2003.8~2028.12
Longterm Maintenance Program	Paju Energy Service Co., Ltd.	Siemens AG and others	2014.6~2031.6 (estimate)
Longterm Maintenance Program	Wirye Energy Service Co.	Siemens AG and others	2015.1~2032.1 (estimate)
Longterm Maintenance Program	Narae Energy Service Co., Ltd.	Doosan Heavy Industries & Construction Co., Ltd	12 years from 2012
Natural gas storage and liquefaction service agreement	SK E&S LNG, LLC	FLNG Liquefaction 3, LLC	20 years from 2019
Use of pipe facility	Wirye Energy Service Co., Paju Energy Service Co., Ltd.	Korea Gas Corporation	20 years from 2017
Use of pipelines	SK E&S LNG, LLC	Kinder Morgan, Inc.	20 years from 2019
Natural gas storage and vaporization service agreement	SK E&S Co., Ltd Wirye Energy Service Co., Paju Energy Service Co., Ltd.	Boryeong LNG Terminal Co., Ltd.	20 years from 2017
Agreement to purchase LNG	Prism Energy International Pte., Ltd.	Chevron Australia Pty Ltd and others	2017.1~2022.3
Long-term ship chartering agreement	Prism Energy International Pte., Ltd.	SK Shipping Co., Ltd.	20 years from delivery date
Operation and maintenance agreement	Narae Energy Service Co., Ltd.	Jeonbuk co-generation Co., Ltd., Gimcheon energy service Co., Ltd.	2015.1~2025.1
LNG supply agreement	Narae Energy Service Co., Ltd.	Korea Gas Corporation	20 years from 2015.1
Business of mutual agreement	Paju Energy Service Co., Ltd.	SK Engineering & Construction co., ltd and others	2018.5~2019.10

¹ Each city gas company contracted with Korea Gas Corporation for natural gas supply for 20 years.

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Details of construction contracts as at December 31, 2018, are as follows:

(in thousands of Korean won)

Contract	Company	Counterparty	Contract period	Contract amount
Heat pipeline construction and others	Narae Energy Service Co., Ltd.	Eulmyo Construction Co., Ltd. and others	2017.5 ~ 2019.3	₩ 7,746,650
Construction on the undelivered works and heat pipelines for additional users in the 3 rd and 4 th zones of Wirye	Wirye Energy Service Co.	Darim Construction Co., Ltd.	2018.05~2019.04	2,948,000

Details of resource development contracts as at December 31, 2018, are as follows:

(in thousands of US dollars)

Contact	Company	Counterparty	Percentage of ownership	Contract amount	Executing amount
Australian Barossa-Caldita Gas field	SK E&S Australia Pty Ltd.	ConocoPhillips Company and others	37.5%	USD 310,000	USD 280,000
USA Woodford field	DewBlaine Energy, LLC	Continental Resources, Inc.	49.9%	USD 360,000	USD 324,948

Apart from the above contract amount, the Group has the obligation to pay the development costs corresponding to the percentage of ownership.

In December 2017, value-added tax amounting to ₩ 161,919,407 thousand related to the LNG import price was imposed to the Group by the relevant tax authority. As at December 31, 2018, the Group has recognized an amount of ₩ 159,921,080 thousand as advance payment in the statement of financial position.

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33. Information on Non-controlling Interests

Profit or loss allocated to non-controlling interests and accumulated non-controlling interests of subsidiaries that are material to the Group for the years ended December 31, 2018 and 2017, are as follows:

(in thousands of Korean won)

(in thousands of Korean won)

		2018											
	Ratio of Non-controlling Interests	Beginning book amount		Gain		Dividends received		Capital transaction		Others		Ending book amount	
Busan City Gas Co., Ltd.	25.95%	₩	140,391,876	₩	12,722,420	₩	(1,297,799)	₩	-	₩	(932,865)	₩	150,883,632
Paju Energy Service Co., Ltd.	-		247,362,901		12,263,699		(12,263,699)		(247,362,901)		-		-
Wirye Energy Service Co.	4.83%		10,816,224		1,514,570		-		-		(17,060)		12,313,734
SK E&S Hong Kong Co., Ltd.	12.97%		9,912,700		100,695		-		-		153,735		10,167,130
		₩	408,483,701	₩	26,601,384	₩	(13,561,498)	₩	(247,362,901)	₩	(796,190)	₩	173,364,496

(in thousands of Korean won)

(in thousands of Korean won)

		2017									
	Ratio of Non-controlling Interests	Beginning book amount		Gain		Dividends received		Capital transaction		Ending book amount	
Busan City Gas Co., Ltd.	25.95%	₩	164,137,254	₩	11,716,198	₩	(1,297,798)	₩	-	₩ (34,163,778)	₩ 140,391,876
Paju Energy Service Co., Ltd.	-		247,993,296		12,097,912		(12,097,912)		-	(630,395)	247,362,901
Wirye Energy Service Co.	4.83%		10,766,694		61,049		-		-	(11,519)	10,816,224
SK E&S Hong Kong Co., Ltd.	12.97%		13,691,294		12,050		-		-	(3,790,644)	9,912,700
		₩	436,588,538	₩	23,887,209	₩	(13,395,710)	₩	-	₩ (38,596,336)	₩ 408,483,701

SK E&S Co., Ltd. and Subsidiaries

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Hybrid bond classified as non-controlling interests as at December 31, 2018 and 2017, are as follows:

<i>(in thousands of Korean won)</i>	Issuance date	Maturity date	Interest rate		2018	2017
Subordinated debt	2015.10.12	2022.11.01	4.80%	₩	-	₩ 250,000,000
Discount of bond					-	(2,637,099)
				₩	-	₩ 247,362,901

Details of conditions of hybrid bond classified as non-controlling interests as at December 31, 2017, are as follows:

	Interest payment	Conversion	Redemption Option
Term	Quarterly	2022.11.01	From the date 5 years after the initial issuance to 2022.10.31
Amount	Principal and interest	Principal including deferred interest payments	Full or Partial
Note	Same priority as preferred stock upon liquidation	7/25 and 18/25 of amounts are converted to common and preferred stock, respectively with par value (₩5,000 per share).	Commission for redemption option : 0.5% of redemption amount

Summarized statements of financial position for each subsidiary with non-controlling interests as at December 31, 2018 and 2017, are as follows:

<i>(in thousands of Korean won)</i>	2018				
	Current assets	Non- current assets	Current liabilities	Non-current liabilities	Equity
Busan City Gas Co., Ltd.	₩ 336,589,629	₩ 641,721,093	₩ 237,047,283	₩ 117,708,102	₩ 623,555,337
Paju Energy Service Co., Ltd.	351,528,907	1,401,524,175	110,816,489	954,072,916	688,163,677
Wirye Energy Service Co.	79,102,782	707,087,268	43,582,836	487,901,334	254,705,880
SK E&S Hong Kong Co., Ltd.	72,732,249	5,464,597	-	-	78,196,846

<i>(in thousands of Korean won)</i>	2017				
	Current assets	Non- current assets	Current liabilities	Non-current liabilities	Equity
Busan City Gas Co., Ltd.	₩ 329,723,792	₩ 577,441,518	₩ 233,409,649	₩ 92,837,694	₩ 580,917,967
Paju Energy Service Co., Ltd.	351,313,396	1,471,764,508	137,465,253	814,218,292	871,394,359
Wirye Energy Service Co.	98,833,406	716,316,667	95,797,246	495,629,911	223,722,916
SK E&S Hong Kong Co., Ltd.	71,255,266	5,464,597	-	-	76,719,863

SK E&S Co., Ltd. and Subsidiaries

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Summarized statements of comprehensive income for each subsidiary with non-controlling interests for the years ended December 31, 2018 and 2017, are as follows:

(in thousands of Korean won)

	2018			
	Revenue	Profit (loss) for the year	Other comprehensive income	Total comprehensive income (loss)
Busan City Gas Co., Ltd.	₩ 951,807,947	₩ 49,231,739	₩ 1,426,718	₩ 50,658,457
Paju Energy Service Co., Ltd.	1,304,144,333	116,447,340	(3,414,324)	113,033,016
Wirye Energy Service Co.	366,146,744	31,335,921	(352,957)	30,982,964
SK E&S Hong Kong Co., Ltd.	-	377,051	1,073,815	1,450,867

(in thousands of Korean won)

	2017			
	Revenue	Profit (loss) for the year	Other comprehensive income	Total comprehensive income (loss)
Busan City Gas Co., Ltd.	₩ 935,235,002	₩ 45,014,306	₩ (3,516,273)	₩ 41,498,033
Paju Energy Service Co., Ltd.	907,049,941	106,754,217	(5,636)	106,748,581
Wirye Energy Service Co.	229,934,803	1,263,087	(458,195)	804,892
SK E&S Hong Kong Co., Ltd.	-	(276,063)	(7,183,747)	(7,459,810)

Summarized statements of cash flows for each subsidiary with non-controlling interests for the years ended December 31, 2018 and 2017, are as follows:

(in thousands of Korean won)

	2018				
	Operating activities	Investing activities	Financing activities	Cash at the beginning of year	Cash at the end of year
Busan City Gas Co., Ltd.	₩ 93,634,088	₩ (74,895,076)	₩ (5,000,500)	₩ 172,624,894	₩ 186,363,406
Paju Energy Service Co., Ltd.	123,377,394	45,910,433	(176,530,565)	65,974,502	58,731,764
Wirye Energy Service Co.	45,365,435	(19,675,530)	(65,000,000)	51,903,971	12,593,876
SK E&S Hong Kong Co., Ltd.	2,528,179	-	-	51,706,331	54,234,510

(in thousands of Korean won)

	2017				
	Operating activities	Investing activities	Financing activities	Cash at the beginning of year	Cash at the end of year
Busan City Gas Co., Ltd.	₩ 55,659,686	₩ (11,043,560)	₩ (5,000,500)	₩ 133,009,268	₩ 172,624,894
Paju Energy Service Co., Ltd.	64,938,067	(230,971,368)	174,154,975	57,852,828	65,974,502
Wirye Energy Service Co.	(2,693,391)	(53,000,338)	89,143,690	18,454,011	51,903,971
SK E&S Hong Kong Co., Ltd.	(7,359,135)	-	-	59,065,466	51,706,331

SK E&S Co., Ltd. and Subsidiaries

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34. Related Party Transactions

The Controlling Company and subsidiaries as at December 31, 2018 and 2017, are as follows:

		Percentage of ownership	
		2018	2017
Ultimate Parent Company	SK Holdings Co., Ltd.	90.0%	90.0%
Subsidiaries	Kangwon City Gas Co., Ltd.	100.0%	100.0%
	Yeongnam Energy Service	100.0%	100.0%
	Ko-one Energy Service Co., Ltd.	100.0%	100.0%
	Busan City Gas Co., Ltd. ¹	67.3%	67.3%
	Jeonbuk Energy Service Co., Ltd.	100.0%	100.0%
	Chonnam City Gas Co., Ltd.	100.0%	100.0%
	Chungcheong Energy Service Co., Ltd.	100.0%	100.0%
	Paju Energy Service Co., Ltd.	100.0%	100.0%
	Wirye Energy Service Co.	95.2%	95.2%
	Narae Energy Service Co., Ltd.	100.0%	100.0%
	Yeoju Energy Service Co., Ltd. ²	100.0%	-
	SK E&S Hong Kong Co., Ltd. ³	87.0%	87.0%
	Prism Energy International Pte., Ltd.	100.0%	100.0%
	PT SK E&S Nusantara	100.0%	100.0%
	SK E&S Australia Pty Ltd.	100.0%	100.0%
	SK E&S Americas, Inc.	100.0%	100.0%
	SK E&S LNG, LLC ⁴	100.0%	100.0%
	DewBlaine Energy, LLC ⁴	100.0%	100.0%
	CALIP Gas Marketing, LLC ⁴	100.0%	100.0%
	Fajar Energy International Pte., Ltd. ⁵	100.0%	100.0%
	Prism Energy International Hong Kong Ltd. ⁵	100.0%	-
	SK E&S Dominicana, S.R.L. ⁶	100.0%	-

¹ The percentage of ownership did not consider treasury stock held by Busan City Gas.

² Newly acquired in 2018.

³ SK E&S Hong Kong Co., Ltd. is classified as the subsidiaries as Busan City Gas, a subsidiary of the Group, holds additional 50% of the equity shares.

⁴ SK E&S Americas, Inc., a subsidiary, has 100% ownership.

⁵ Prism Energy International Pte., Ltd., a subsidiary, has 100% ownership.

⁶ SK E&S Co., Ltd. and Prism Energy International Pte., Ltd., the Group's subsidiary, have 50% ownership, respectively.

SK E&S Co., Ltd. and Subsidiaries

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Details of joint ventures, associates and other related parties that have sales and other transactions with the Group or have receivables and payables balances as at December 31, 2018 and 2017, are as follows:

	Related Parties		Relationship
	2018	2017	
Joint ventures	Boryeong LNG Terminal Co., Ltd.	Boryeong LNG Terminal Co., Ltd.	
Associates	China Gas Holdings Ltd.	China Gas Holdings Ltd.	
	SK South East Asia Investment Pte. Ltd.	-	
	Shinan Green Energy	Shinan Green Energy	
	Busan Green Energy	Busan Green Energy	
Other related parties	SK Innovation Co., Ltd.	SK Innovation Co., Ltd.	SK Holdings Co., Ltd.'s subsidiary
	SK Networks Company Limited	SK Networks Company Limited	SK Holdings Co., Ltd.'s subsidiary
	SK Engineering & Construction Co., Ltd.	SK Engineering & Construction Co., Ltd.	SK Holdings Co., Ltd.'s subsidiary
	SK Hynix Inc.	SK Hynix Inc.	SK TELECOM CO., LTD.'s associate
	SKC LTD.	SKC LTD.	SK Holdings Co., Ltd.'s subsidiary
	M&SERVICE Co., Ltd.	M&SERVICE Co., Ltd.	SK Planet Co., Ltd.'s subsidiary
	SK Energy Co. Ltd.	SK Energy Co. Ltd.	SK Innovation Co., Ltd.'s subsidiary
	SK Siltron Co., Ltd.	SK Siltron Co., Ltd.	SK Holdings Co., Ltd.'s subsidiary
	SK CHEMICALS CO., LTD.	SK CHEMICALS CO., LTD.	The largest shareholder is a relative of SK's key management personnel
	SK China Co., Ltd.	SK China Co., Ltd.	The largest shareholder is SK Holdings Co., Ltd
	SK SHIPPING CO., LTD.	SK SHIPPING CO., LTD.	SK Holdings Co., Ltd.'s associate
	SK TELECOM CO., LTD.	SK TELECOM CO., LTD.	SK Holdings Co., Ltd.'s subsidiary
	SK Incheon Petrochem Co., Ltd.	-	SK Innovation Co., Ltd.'s subsidiary
	SK Global Chemical Co., Ltd.	-	SK Innovation Co., Ltd.'s subsidiary
	SK TNS Co., Ltd.	-	SK Engineering & Construction Co., Ltd.'s subsidiary
	Other 29 company	Other 21 company	

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Sales and purchases with related parties for the years ended December 31, 2018 and 2017, are as follows:

	2018		
	Sales and others	Purchase and others	Acquisition of tangible and intangible assets
<i>(in thousands of Korean won)</i>			
Ultimate Parent Company			
SK Holdings Co., Ltd.	₩ 94,825	₩ 17,780,047	₩ 3,410,564
Joint venture			
Boryeong LNG Terminal Co., Ltd.	-	77,456,626	-
Associates			
Shinan Green Energy	-	2,592,556	-
Busan Green Energy	31,705,309	-	-
Other related parties			
SK Innovation Co., Ltd.	10,664,487	8,557,155	13,365
SK Networks Company Limited	81,371	4,685,087	-
SK Engineering & Construction Co., Ltd.	501,082	209,000	10,908,803
SK hynix Inc.	19,211,641	-	-
SKC LTD.	5,973,176	-	-
M&Service Co., Ltd.	-	4,955,966	-
SK Energy Co., Ltd.	46,488,231	7,870,329	-
SK Siltron Co., Ltd.	5,415,355	-	-
SK Incheon Petrochem Co., Ltd.	-	8,295,456	-
SK Chemicals Co., Ltd.	-	3,782,500	-
SK Global Chemical Co., Ltd.	-	2,165,225	-
SK TNS Co., Ltd.	592	-	57,417,000
SK China Co., Ltd.	-	3,711,480	-
SK Telecom Co., Ltd. and others	2,720,755	9,255,747	1,121,665
	<u>₩ 122,856,824</u>	<u>₩ 151,317,174</u>	<u>₩ 72,871,397</u>

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	2017		
	Sales and others	Purchase and others	Acquisition of tangible and intangible assets
<i>(in thousands of Korean won)</i>			
Ultimate Parent Company			
SK Holdings Co., Ltd.	₩ 200,215	₩ 18,275,314	₩ 1,364,230
Joint venture			
Boryeong LNG Terminal Co., Ltd.	127,700	95,001,437	-
Associates			
Shinan Green Energy	-	1,234,815	-
Busan Green Energy	20,671,812	-	-
Other related parties			
SK Innovation Co., Ltd.	9,394,767	7,342,189	-
SK Networks Company Limited	99,368	4,532,597	819
SK Engineering & Construction Co., Ltd.	616,932	-	166,221,503
SK hynix Inc.	15,747,733	10,000	-
SKC LTD.	6,054,846	30,000	-
M&Service Co., Ltd.	-	5,471,958	-
SK Energy Co., Ltd.	37,838,412	273,149	-
SK Siltron Co., Ltd.	983,247	-	-
SK China Co., Ltd.	-	2,333,078	-
SK Telecom Co., Ltd. and others	2,569,432	8,181,281	594,411
	<u>₩ 94,304,464</u>	<u>₩ 142,685,818</u>	<u>₩ 168,180,963</u>

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Details of receivables and payables with related parties as at December 31, 2018 and 2017, are as follows:

	2018				2017			
	Trade receivables	Other receivables	Trade payables	Other liabilities	Trade receivables	Other receivables	Trade payables	Other liabilities
Ultimate Parent Company								
SK Holdings Co., Ltd.	₩ 1,705	₩ 107	₩ -	₩ 2,207,491	₩ 3,262	₩ 126	₩ -	₩ 2,153,655
Joint venture								
Boryeong LNG Terminal Co., Ltd.	-	12,375,427	-	-	-	5,104,345	-	-
Associates								
Busan Green Energy	3,250,378	-	-	-	2,861,407	-	-	-
Other related parties								
SK Innovation Co., Ltd.	1,044,363	693,287	-	437,643	1,047,431	764,480	-	230,488
SK Networks Company Limited	4,462	160,082	-	1,097,734	8,022	160,082	-	1,090,483
SK Engineering & Construction Co., Ltd.	27,919	37,009,616	-	458,745	26,619	15,660,199	-	57,059,660
M&SERVICE Co., Ltd.	-	-	-	453,923	-	-	-	483,348
SK hynix Inc.	4,288,881	785	-	19,020	2,561,227	855	-	11,000
SKC LTD.	722,999	-	-	-	339,553	-	-	-
SK Shipping Co., Ltd.	-	19,991,416	-	-	-	19,156,428	-	-
SK Energy Co. Ltd.	7,377,000	924	-	3,419	5,335,407	764	-	-
SK Siltron Co., Ltd.	-	-	-	-	511,126	-	-	-
SK China Co., Ltd.	-	-	-	3,623,944	-	-	-	2,261,446
SK TNS Co., Ltd.	-	-	-	1,321,983	-	-	-	-
SK TELECOM CO., LTD. and other companies	311,680	52,338	3,914	1,175,118	255,059	48,716	4,897	779,628
	<u>₩ 17,029,387</u>	<u>₩ 70,283,982</u>	<u>₩ 3,914</u>	<u>₩ 10,799,020</u>	<u>₩ 12,949,113</u>	<u>₩ 40,895,995</u>	<u>₩ 4,897</u>	<u>₩ 64,069,708</u>

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Major transactions between the Company and its related parties for the years ended December 31, 2018 and 2017 are as follows:

(in thousands of Korean won)

	2018					
	Dividends paid		Dividend income		Contributions in cash	
Ultimate Parent Company						
SK Holdings Co., Ltd.	₩	237,791,638	₩	-	₩	-
Other shareholders						
MD Prime 1st Co., Ltd		15,592,951		-		-
MD Prime 2nd Co., Ltd		10,828,342		-		-
Associates						
China Gas Holdings Ltd.		-		39,160,425		-
SK South East Asia Investment Pte. Ltd.		-		-		110,890,000
	₩	264,212,931	₩	39,160,425	₩	110,890,000

(in thousands of Korean won)

	2017					
	Dividends paid		Dividend income		capital decrease	
Ultimate Parent Company						
SK Holdings Co., Ltd.	₩	150,843,589	₩	-	₩	-
Associates						
China Gas Holdings Ltd.		-		28,110,949		-
Busan Green Energy		-		-		9,159,900
	₩	150,843,589	₩	28,110,949	₩	9,159,900

Compensation for key management of the Controlling Company for the years ended December 31, 2018 and 2017, consists of:

(In thousands of Korean won)

	2018		2017	
Salaries	₩	4,853,145	₩	3,416,418
Post-employment benefits		1,310,107		2,450,353
Share-based compensation		198,722		149,041
	₩	6,361,974	₩	6,015,812

Key management includes executive directors, members of the Executive Committee.

As at December 31, 2018, the Parent Company provides payment guarantees, financial support agreements, and performance guarantees for subsidiaries, joint ventures and associates (Note 32).

35. Segment Information

The Group has determined the operating segments based on the information reviewed by the Group's chief operating decision maker. For the purposes of allocating resources and assessing performance, chief operating decision maker reviews the information based on segment profit before income tax.

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The Group's operating segments consist of the power generation, LNG, city gas and other segments as at December 31, 2018.

The segment information for the years ended December 31, 2018 and 2017, is presented after considering the distribution of intra-company transactions, adjustments of depreciation cost, interest income, interest expense and profit before tax. Assets and liabilities of each operating segment are excluded as such information is not provided regularly to the chief operating decision maker.

The following table presents segment profit (loss) for the years ended December 31, 2018 and 2017:

(in thousands of Korean won)

	2018					
	Power generation	LNG	City gas	Other segments	Adjustment for consolidation	Total
Total segment revenue	₩ 2,770,751,564	₩ 1,945,743,948	₩ 3,563,897,737	₩ -	₩ (1,812,818,478)	₩ 6,467,574,771
Inter-segment revenue	-	(1,812,818,478)	-	-	1,812,818,478	-
Net-segment revenue	2,770,751,564	132,925,470	3,563,897,737	-	-	6,467,574,771
Segment profit before income tax	120,030,126	250,154,190	163,906,511	23,692,815	-	557,783,642

(in thousands of Korean won)

	2017					
	Power generation	LNG	City gas	Other segments	Adjustment for consolidation	Total
Total segment revenue	₩ 2,001,511,013	₩ 1,382,476,465	₩ 3,449,479,159	₩ -	₩ (1,298,240,522)	₩ 5,535,226,115
Inter-segment revenue	-	(1,298,240,522)	-	-	1,298,240,522	-
Net-segment revenue	2,001,511,013	84,235,943	3,449,479,159	-	-	5,535,226,115
Segment profit before income tax	49,108,835	211,146,491	159,880,444	44,094,016	-	464,229,786

Breakdown of the Group's revenue from all services for the years ended December 31, 2018 and 2017, follows:

(In thousands of Korean won)	2018	2017
Finished Goods	₩ 2,884,132,762	₩ 2,082,435,830
Trading	3,504,285,597	3,426,233,774
Others	71,840,599	19,461,691
Rental	7,315,814	7,094,820
	<u>₩ 6,467,574,771</u>	<u>₩ 5,535,226,115</u>

Revenues of ₩ 2,700,473,296 thousand (2017: ₩ 1,955,688,492 thousand), which are more than 10% of the Group's revenue in 2018, are derived from Korea Power Exchange, and these revenues are attributable to the power generation segments.

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36. Changes in Accounting Policies

36.1 Adoption of Korean IFRS 1109 *Financial Instruments*

As explained in Note 2, Group has applied Korean IFRS 1109 *Financial Instruments* on January 1, 2018, the date of initial application. In accordance with the transitional provisions in Korean IFRS 1109, comparative figures for prior reporting period have not been restated. The application of Korean IFRS 1109 has following impacts on the financial statements.

(a) Classification and Measurement of Financial Instruments

The total impact on the Group's retained earnings due to classification and measurement of financial instruments as at January 1, 2018, is as follows:

<i>(In thousands of Korean won)</i>	Notes	January 1, 2018
Retained earnings		
Beginning balance - Korean IFRS 1039		₩ 1,048,316,558
Reclassification of available-for-sale securities to financial assets at fair value through profit or loss	36.(a)(i),(ii)	(1,758,141)
Reclassification of available-for-sale securities to financial assets at fair value through other comprehensive income	36.(a)(iii)	2,738,587
Beginning balance of retained earnings - Korean IFRS 1109		₩ 1,049,297,004

On the date of initial application of Korean IFRS 1109, January 1, 2018, the Group's management has assessed which business models apply to the financial assets held by the Group and has classified its financial instruments into the appropriate Korean IFRS 1109 categories. The main effects resulting from this reclassification are as follows:

<i>(in thousands of Korean won)</i>	Notes	Fair value through profit or loss	Fair value through other comprehensive income (Available-for-sale financial assets in 2017)	Amortized cost (Held-to-maturity financial assets, loans and receivables in 2017)¹	Total
Financial assets – January 1, 2018					
Beginning balance – Korean IFRS 1039		₩ -	₩ 110,771,878	₩ 2,153,521,843	₩ 2,264,293,721
Reclassification from available-for-sale financial assets to financial assets at fair value through profit or loss	(i),(ii)	104,253,477	(107,873,556)	-	(3,620,079)
Reclassification of equity investments that are not held for trading from available-for-sale financial assets to financial assets at fair value through other comprehensive income	(iii)	-	-	-	-
Reclassification of listed and unlisted debt securities from available-for-sale financial assets to financial assets at fair value through other comprehensive income	(iv)	-	-	-	-
Beginning balance - Korean IFRS 1109¹		₩ 104,253,477	₩ 2,898,322	₩ 2,153,521,843	₩ 2,260,673,642

¹ The amount includes cash and cash equivalents.

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The impact on these changes on the Group's equity is as follows:

<i>(in thousands of Korean won)</i>	Notes	Effect on accumulated other comprehensive income	Effects on fair value through other comprehensive income reserve	Effect on retained earnings
Beginning balance – Korean IFRS 1039		₩ 73,318,088	₩ -	₩ 1,048,316,558
Reclassification from available-for-sale financial assets (Level 3) to financial assets at fair value through profit or loss	(i)	(1,866,556)	-	1,866,556
Reclassification from available-for-sale financial assets (cost method) to financial assets at fair value through profit or loss	(ii)	-	-	(3,624,698)
Reclassification from available-for-sale financial assets (cost method) to equity investments at fair value through other comprehensive income	(iii)	(2,738,588)	-	2,738,589
		<u>(4,605,144)</u>	<u>-</u>	<u>980,447</u>
Beginning balance - Korean IFRS 1109 ¹		₩ 68,712,944	₩ -	₩ 1,049,297,005

(i) Reclassification from available-for-sale financial assets (Level 3) to financial assets fair value through profit or loss

As at January 1, 2018, previously classified as available-for-sale financial assets (Level 3) amounting to ₩ 23,462,475 thousand were reclassified from available-for-sale financial assets to financial assets fair value through profit or loss. They do not meet the criteria to be classified as at amortized cost in accordance with Korean IFRS 1109, because their cash flows do not represent solely payments of principal and interest. Related accumulated other comprehensive income of ₩ 1,866,556 thousand were transferred from the available-for-sale financial assets to retained earnings on January 1, 2018. For the year ended December 31, 2018, changes in the fair value of these investments amounting to ₩ 2,758,734 thousand were recognized in profit or loss, along with related deferred tax expense of ₩ 667,614 thousand.

(ii) Reclassification from available-for-sale financial assets (cost method) to financial assets fair value through profit or loss

As at January 1, 2018, previously classified as available-for-sale financial assets (amortized cost) amounting to ₩ 84,411,080 thousand were reclassified from available-for-sale financial assets to financial assets fair value through profit or loss. As at January 1, 2018, the accumulated amount of ₩ 3,620,079 thousand as a result of the fair value valuation of the financial assets and related deferred tax expense of ₩ 4,619 thousand was recognized as beginning balance of retained earnings. For the year ended December 31, 2018, fair value losses related to these investments amounting to ₩ 14,133,974 thousand were recognized in profit or loss, along with related deferred tax expense of ₩ 3,420,422 thousand.

(iii) Reclassification from available-for-sale financial assets (cost method) to equity investments at fair value through other comprehensive income

The Group elected to present changes in the fair value of all its equity investments previously classified as available-for-sale, because these investments are not held for trading, in other comprehensive income. As a result, assets with a fair value of ₩ 2,858,105 thousand were

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reclassified from available-for-sale financial assets to financial assets at fair value through other comprehensive income. And, impairment loss on equity investments of ₩ 2,738,588 thousand were reclassified to the accumulated other comprehensive income.

(iv) Reclassification from available-for-sale financial assets to debt investments at fair value through other comprehensive income

Listed and unlisted bonds were reclassified from available-for-sale financial assets to financial assets at fair value through other comprehensive income, as the Group's business model is achieved both by collecting contractual cash flows and selling of these assets. The contractual cash flows of these investments are solely principal and interest. As a result, listed and unlisted bonds with a fair value ₩ 40,217 thousand were reclassified from available-for-sale financial assets to financial assets at fair value through other comprehensive income on January 1, 2018.

(v) Reclassifications of financial instruments on adoption of Korean IFRS 1109

On the date of initial application, January 1, 2018, the financial instruments of the Group with any reclassifications noted, were as follows:

(in thousands of Korean won)	Measurement category		Carrying amount			
	Korean IFRS 1039	Korean IFRS 1109	Korean IFRS			
			Korean IFRS 1039	1109	Difference ¹	
Current financial assets						
Trade receivables	Amortized costs	Amortized costs	₩ 834,178,541	₩ 834,178,541	₩	-
Cash and cash equivalents	Amortized costs	Amortized costs	1,137,775,579	840,099,055		(297,676,524)
	Amortized costs	Fair value through profit or loss ²	-	297,676,524		297,676,524
Derivative instruments	Financial assets at fair value through profit or loss ²	Fair value through profit or loss ²	174,866	174,866		-
	Derivative financial instruments designated for hedging	Derivative financial instruments designated for hedging	218,298	218,298		-
Other receivables	Amortized costs	Amortized costs	159,634,686	159,634,686		-
Non-current financial assets						
Equity instruments	Available-for-sale financial assets	Fair value through other comprehensive income ¹	₩ 2,858,105	₩ 2,858,105	₩	-
Listed and unlisted equity securities	Available-for-sale financial assets	Fair value through other comprehensive income ¹	40,217	40,217		-
Funds and others	Available-for-sale financial assets	Fair value through profit or loss ²	107,873,555	104,253,476		(3,620,079)
Other receivables	Amortized costs	Amortized costs	21,933,037	21,933,037		-
Current financial liabilities						
Derivative instruments	Financial assets at fair value through profit or loss ²	Fair value through profit or loss ²	₩ 3,774,180	₩ 3,774,180	₩	-
	Derivative financial instruments designated for hedging	Derivative financial instruments designated for hedging	1,879,599	1,879,599		-

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Non-current financial liabilities

Derivative instruments	Financial assets at fair value through profit or loss ²	Fair value through profit or loss ²	17,277,389	17,277,389	-
	Derivative financial instruments designated for hedging	Derivative financial instruments designated for hedging	255,148	255,148	-

¹ Financial instruments measured at fair value through other comprehensive income: investments in equity instruments and debt instruments.

² Financial assets measured at fair value through profit or loss.

(b) Impairment of Financial Assets

The Group has three types of financial assets subject to Korean IFRS 1109's new expected credit loss model:

- trade receivables for sales of inventory
- debt investments carried at fair value through other comprehensive income, and
- debt investments carried at amortized cost

Upon adoption of Korean IFRS 1109, accounting policies for recognition of impairment have changed. The impact of the change in impairment methodology on the Group's beginning balance of retained earnings is disclosed in the table on (a) above.

(i) Trade receivables

The Group applies the simplified approach to measure the loss allowance at an amount equal to lifetime expected credit losses for trade receivables.

(ii) Debt instruments

Debt investments at amortized cost and those at fair value through other comprehensive income are considered to be low risk, and thus the provision for impairment is determined as 12 months expected credit losses.

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36.2 Adoption of Korean IFRS 1115 Revenue from Contracts with Customers

As explained in Note 2, Group has applied Korean IFRS 1115 *Revenue from contracts with customers* on January 1, 2018. In accordance with the transitional provisions in Korean IFRS 1115, comparative figures have not been restated. The application of Korean IFRS 1115 has impact on the financial statements as follows.

In summary, the following adjustments were made to the amounts recognized in the statements of financial position at the date of initial application (January 1, 2018):

<i>(in thousands of Korean won)</i>	December 31, 2017 (Before adjustments)	Adjustments	January 1, 2018 (After adjustments)
Investments in joint venture and associates	₩ 874,635,300	₩ 141,313	₩ 874,776,613
Total assets	9,342,919,043	141,313	9,343,060,356
Non-current liabilities			
Deferred tax liabilities	129,114,996	(4,406,140)	124,708,856
Unearned revenues and others ¹	403,253,334	(403,253,334)	-
Contract liabilities ¹	-	424,754,489	424,754,489
Total liabilities	5,582,799,428	17,095,015	5,599,894,443
Retained earnings	1,048,316,558	(16,169,915)	1,032,146,643
Non-controlling interests	408,483,701	(783,787)	407,699,914
Total equity	₩ 3,760,119,616	₩ (16,953,702)	₩ 3,743,165,914

¹ The total amount of the current and non-current balances.

As at January 1, 2018, the Group reclassified the long-term unearned revenues and others related to customer's contribution to construction costs received from applicants for city gas supply to contract liabilities to reflect the terminology of Korean IFRS 1115.

The impact on the Group's retained earnings at the date of initial application is as follows:

<i>(in thousands of Korean won)</i>	Changes in retained earnings
Retained earnings – after Korean IFRS 1109 restatement	₩ 1,049,297,005
Presentation of contract liabilities and others	(21,359,843)
Increase in deferred tax assets	4,406,140
Initial adjustments of non-controlling interest	783,787
Adjustment to retained earnings from adoption of Korean IFRS 1115	(16,169,916)
Beginning balance of retained earnings at January 1 – Korean IFRS 1109 and Korean IFRS 1115	₩ 1,033,127,089

Financial statement line items affected by the adoption of the new rules in the current period are as follows:

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Statement of financial position

<i>(in thousands of Korean won)</i>	Reported amount¹	Adjustments	Amount before application of Korean IFRS 1115
Investments in joint venture and associates	₩ 1,127,111,584	₩ (33,638)	₩ 1,127,077,946
Total assets	9,569,514,035	(33,638)	9,569,480,397
Non-current liabilities			
Deferred tax liabilities	151,892,669	3,900,877	155,793,546
Unearned revenues and others	-	464,877,061	464,877,061
Contract liabilities	487,307,784	(487,307,784)	-
Total liabilities	5,893,665,329	(18,529,846)	5,875,135,483
Retained earnings	1,851,913,914	17,546,729	1,869,460,643
Non-controlling interests	173,364,496	949,479	174,313,975
Total equity	₩ 3,675,848,706	₩ 18,496,208	₩ 3,694,344,914

¹ Amounts include adjustments arising from adoption of Korean IFRS 1109.

Statements of profit or loss and total comprehensive income

<i>(in thousands of Korean won)</i>	Reported amount	Adjustments	Amount before application of Korean IFRS 1115
Sales	₩ 6,467,574,771	₩ (29,877,908)	₩ 6,437,696,863
Cost of sales	5,473,449,095	(15,470,012)	5,457,979,083
Selling and administrative expenses	546,302,637	3,553,345	549,855,982
Other income	101,186,987	30,094,810	131,281,797
Other expenses	49,172,955	11,285,522	60,458,477
Share of profit (loss) of associates	179,216,160	(33,638)	179,182,522
Financial income	48,137,393	-	48,137,393
Financial costs	169,406,982	-	169,406,982
Income tax expenses	118,750,137	109,819	118,859,956
Profit for the period	439,033,505	704,590	439,738,095
Total comprehensive income	495,709,716	704,590	496,414,306

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Statements of cash flows

<i>(in thousands of Korean won)</i>	<u>Reported amount</u>	<u>Adjustments</u>	<u>Amount before application of Korean IFRS 1115</u>
Cash flows from operating activities			
Profit for the year	₩ 439,033,505	₩ 704,590	₩ 439,738,095
Adjustments for Income and expenses	443,727,010	(18,071,590)	425,655,420
Changes in operating assets and liabilities	(212,888,971)	(52,261,807)	(265,150,778)
Interest paid and others	(163,388,654)	-	(163,388,654)
	<u>506,482,890</u>	<u>(69,628,807)</u>	<u>436,854,083</u>
Cash flows from investing activities	(739,583,826)	69,628,807	(669,955,019)
Cash flows from financing activities	(276,421,386)	-	(276,421,386)
Changes in cash and cash equivalents from currency translation	4,864,514	-	4,864,514
Net increase in cash and cash equivalents	<u>₩ (504,657,808)</u>	<u>₩ -</u>	<u>₩ (504,657,808)</u>

With the application of Korean IFRS 1115, cash flows have been adjusted resulting in decrease in cash flows from operating activities of ₩ 69,628,807 thousand and increase in cash flows from investing activities of ₩ 69,628,807 thousand, compared to cash flows according to the previous standard; however, the net change in cash and cash equivalents is unaffected by adoption of IFRS 1115.