

DOOSAN HEAVY INDUSTRIES & CONSTRUCTION CO., LTD.

Separate Financial Statements

December 31, 2020 and 2019

(With Independent Auditors' Report Thereon)

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Independent Auditors' Report

Based on a report originally issued in Korean

To the Shareholders and Board of Directors of
Doosan Heavy Industries & Construction Co., Ltd.:

Opinion

We have audited the separate financial statements of Doosan Heavy Industries & Construction Co., Ltd. ("the Company"), which comprise the separate statements of financial position as of December 31, 2020 and 2019, the separate statements of loss and comprehensive loss, changes in equity and cash flows for the years then ended, and notes, comprising significant accounting policies and other explanatory information.

In our opinion, the accompanying separate financial statements present fairly, in all material respects, the separate financial position of the Company as of December 31, 2020 and 2019, and its separate financial performance and its separate cash flows for the years then ended in accordance with Korean International Financial Reporting Standards ("K-IFRS").

We also have audited, in accordance with Korean Standards on Auditing (KSAs), the Company's Internal Control over Financial Reporting ("ICFR") as of December 31, 2020 based on the criteria established in Conceptual Framework for Designing and Operating ICFR issued by the Operating Committee of ICFR in the Republic of Korea, and our report dated March 18, 2021 expressed an unmodified opinion on the effectiveness of the Company's ICFR.

Basis for Opinion

We conducted our audits in accordance with KSAs. Our responsibilities under those standards are further described in the *Auditors' Responsibilities for the Audit of the Separate Financial Statements* section of our report. We are independent of the Company in accordance with the ethical requirements that are relevant to our audit of the separate financial statements in Republic of Korea, and we have fulfilled our other ethical responsibilities in accordance with these requirements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Emphasis of Matter

Without qualifying our opinion, we draw attention to following:

As described in Note 36 to the separate financial statements, the Company is pursuing financial structure improvement plans such as restructuring of human resources and capital expansion to respond to financial difficulties. In particular, in order to overcome liquidity risks, the Company has entered into an agreement to implement the financial structure improvement plan with Korea Development Bank and Korea EXIM Bank, and is in the process of rationalizing its business and selling the Company's major subsidiaries according to the agreement. If a disruption occurs in the Company's financial structure improvement plan, the financial position and business performance may change significantly depending on the impact.

Key Audit Matters

Key audit matters are those matters that, in our professional judgment, were of most significance in our audit of the separate financial statements of the current period. These matters were addressed in the context of our audit of the separate financial statements as a whole, and in forming our opinion thereon, and we do not provide a separate opinion on these matters.

1) Recognition of revenue such as using the input method

As described in the Note 2 to the separate financial statements, the Company recognizes its revenue when the control of products and services is transferred to the customers. Therefore, the Company estimates percentage-of-completion of performance obligation satisfied over time by using the input method and recognizes revenue over time depending on the progress. For performance obligations satisfied at a point of time, the Company recognizes revenue when the product is delivered to and accepted by the customer.

As the amount of revenue recognized over time using the input method depends on the measured percentage-of-completion, management's judgment is involved in determining the method of measuring progress, estimating total contract cost and changes in construction. In addition, there is an inherent risk in revenue such as overstatement of unit sales price and manipulation of revenue through fictitious customers as revenue is one of the major performance indicators of the Company. Therefore, as there is a risk of overstatement of revenue due to an error in judgment or intent, we have identified the recognition of revenue as a key audit matter.

Following audit procedures were performed regarding the revenue recognized using the input method.

- Evaluation and testing of internal controls related to the determination and modification of estimated total contract cost
- Evaluation and testing of internal controls related to changes in contract terms
- Evaluation and testing of internal controls related to product sales
- Evaluation and testing of internal controls related to aggregation and allocation of project costs
- Evaluation and testing of internal controls related to purchasing, production, inventory, and logistics of the Company affecting the input costs
- Evaluation and testing of internal controls related to calculation of liquidated damages
- Evaluation and testing of internal controls related to calculation of provisions for construction losses
- For major projects completed during the current year, performed retrospective review by comparing the actual cost incurred during the current year and construction cost estimated at the end of the prior year
- Inquiries and inspection of documents for projects with significant changes in estimated total contract cost
- Comparison of estimated total contract cost with those of other similar projects
- Inquiries and analytical review of changes in the percentage-of-completion for each reporting period
- For major projects, inquiries and inspection of documents if there were significant differences between the progress rate in the respective monthly progress reports received from customers and the percentage-of-completion calculated based on cost
- For selected samples, inspecting related documents to test the existence of cost of goods manufactured (including material costs, outsourced construction costs and other expenses) incurred during the current year and to test whether it attributed to appropriate project and period.
- Testing journal entries of cost transferred between projects to understand the reason of transfer and whether appropriate approval was obtained
- For the selected samples, performed site visits for on-going construction sites and sites which have equipment under construction
- Recalculation of the percentage-of-completion independently for each project
- For selected samples, inspection of documents (change order, official letter and others) to test changes in contract price
- Examined the contractual delivery date with the expected delivery date as of year-end. For those which the contractual delivery date has passed, inquired of the basis, performed analytical review and agreed to underlying documents
- Assessing the appropriateness of the estimation of liquidated damages at the end of current period

- For the selected samples of sales transactions, inspecting related documents to test whether it agrees with the substance of recorded sales transactions which incurred during the current year
- Assessing whether revenue is recognized in appropriate period by inspecting delivery acceptance notes signed by customers and bill of lading documents for selected samples of sales transactions
- For the selected samples, recalculation of the foreign currency translation of contract amount denominated in foreign currency
- Retrospective review and recalculation of provisions for construction losses by project

2) Recoverability of due from customers for contract work

As described in the Note 2 to the separate financial statements, the Company calculates expected credit losses ("ECLs") based on the expected life of the ECLs and evaluates the recoverability of due from customers for contract work.

In calculating ECLs, management's judgment is involved due to uncertainty over the collection of due from customers for contract work from delayed payment of the owner, changes in conditions or claims incurred. Therefore, we identified the assessment of the recoverability of due from customers for contract work as a key audit matter, given there are risks of overstatement of due from customers for contract work due to error or bias in judgment.

Following audit procedures were performed regarding assessment of the recoverability of due from customers for contract work.

- Evaluation and testing of internal controls related to the assessment of recoverability of due from customers for contract work
- Inquiries and inspection of documents to assess payment terms, delivery time, and other obligations of contracts for the due from customer for contract work which increased significantly
- Inquiries of long-term due from customers for contract work and inspection of documents to evaluate the reasonableness of the cause
- Assessed the current status of billing, collection and disposal of due from customers for contract work for each major projects
- For the projects with bad debt allowance reserved over trade receivables assessed whether an allowance is reserved for unbilled accounts receivable and inspected documents
- Reviewing legal opinion provided by external counsels

3) Impairment of investment in subsidiaries.

As described in the Note 2 to the separate financial statements, the Company assesses whether there are any indicators of impairment for investment in subsidiaries, conducts an impairment test for such investments with impairment indicators. The Company compares the carrying amount of investment in subsidiaries with the recoverable amount which is measured as the value in use using discounted cash flow projection or calculated as the fair value less costs to sell using market value approach to determine whether the investment is impaired.

In calculating the recoverable amount, significant management's judgment is involved in estimating long-term sales growth rate, discount rates and selected as a similar company and so on. Therefore, we identified the impairment of investment in subsidiaries as a key audit matter as certain key assumptions on which management has based cash flow projections such as growth rate and discount rates are included, and are subject to management bias.

Following audit procedures were performed regarding impairment of investment in subsidiaries.

- Evaluation and testing of internal controls related to impairment of investment in subsidiaries
- Inquiries and assessment of the valuation model applied by the Company
- Understanding of the future cash flows and agreeing whether the estimated future cash flow corresponds to business plan approved by the Company's management
- Testing the appropriateness of major assumptions (discount rate, growth rate) applied in the valuation model by comparing to benchmark of peer industry and past financial information of the investee (by using our internal valuation specialists)
- Evaluation of the sensitivity analysis results for the discount rate and permanent growth rate presented by the Company to assess the impact of changes in major assumptions on the impairment assessment (by using our internal valuation specialists)
- Testing the appropriateness of use of the market value approach by considering the business and financial characteristics of similar companies selected (by using our internal valuation specialists)

Other Matter

The procedures and practices utilized in the Republic of Korea to audit such separate financial statements may differ from those generally accepted and applied in other countries.

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

Management is responsible for the preparation and fair presentation of the separate financial statements in accordance with K-IFRS, and for such internal control as management determines is necessary to enable the preparation of separate financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the separate financial statements, management is responsible for assessing the Company'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 Company or to cease operations, or has no realistic alternative but to do so.

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

Auditors' Responsibilities for the Audit of the Separate Financial Statements

Our objectives are to obtain reasonable assurance about whether the separate financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditors' report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with KSAs will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these separate financial statements.

As part of an audit in accordance with KSAs, we exercise professional judgment and maintain professional skepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the separate 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.
- 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 Company's ability to continue as a going concern. If we conclude that a material uncertainty exists, then we are required to draw attention in our auditors' report to the related disclosures in the separate financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditors' report. However, future events or conditions may cause the Company to cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the separate financial statements, including the disclosures, and whether the separate 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.

We also provide those charged with governance with a statement that we have complied with relevant ethical requirements regarding independence, and communicate with them all relationships and other matters that may reasonably be thought to bear on our independence, and where applicable, related safeguards.

From the matters communicated with those charged with governance, we determine those matters that were of most significance in the audit of the separate financial statements of the current period and are therefore the key audit matters. We describe these matters in our auditors' report unless law or regulation precludes public disclosure about the matter or when, in extremely rare circumstances, we determine that a matter should not be communicated in our report because the adverse consequences of doing so would reasonably be expected to outweigh the public interest benefits of such communication.

The engagement partner on the audit resulting in this independent auditors' report is Hyun Joong Kim.

KPMG Samjory Accounting Corp.

Seoul, Korea
March 18, 2021

This report is effective as of March 18, 2021, 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 separate financial statements and notes thereto. Accordingly, the readers of the audit report should understand that the above audit report has not been updated to reflect the impact of such subsequent events or circumstances, if any.

DOOSAN HEAVY INDUSTRIES & CONSTRUCTION CO., LTD.

Separate Statements of Financial Position

As of December 31, 2020 and 2019

(In won)

	Note	2020	2019
Assets			
Cash and cash equivalents	4,5,10 ₩	281,631,480,208	345,832,725,637
Short-term financial instruments	4,5,10	116,097,319,654	118,830,190,261
Short-term investments in securities	4,6,10	1,600,000,000	-
Trade receivables, net	4,7,10,24,33	349,607,243,924	493,472,486,657
Other receivables, net	4,7,10,33	138,252,020,698	321,073,226,447
Due from customers for contract work, net	7,24	1,207,449,950,611	1,196,231,749,548
Prepayments, net	24	281,664,525,792	221,329,028,302
Prepaid expenses, net		41,971,911,164	41,872,735,684
Short-term loans, net	4,7,10,33	160,153,121,939	54,295,166,284
Derivative financial assets	4,9,10	68,617,278,477	15,119,388,050
Firm commitment assets	9	5,595,629,115	25,711,141,861
Inventories, net	8,24	293,320,650,160	344,226,842,276
Other current assets, net	4,7,10,14	24,114,023,815	21,555,927,014
Total current assets		<u>2,970,075,155,557</u>	<u>3,199,550,608,021</u>
Long-term financial instruments	4,5,10	1,263,671,423	1,348,936,186
Long-term investments in securities	4,6,10,32	790,252,742,997	81,995,003,716
Investments in subsidiaries, associates and joint ventures	11,32,33	3,088,476,287,069	3,633,853,120,412
Long-term loans, net	4,7,10,33	40,823,193,860	112,333,221,860
Property, plant and equipment, net	12,14,32	2,995,973,357,484	3,135,025,725,605
Intangible assets, net	13	907,454,617,963	983,761,832,516
Investment Property	15	24,371,746,800	-
Derivative financial assets	4,9,10	35,847,958,429	16,988,814,649
Firm commitment assets	9	9,811,337,143	18,149,165,186
Deferred tax assets	29	66,498,432,227	-
Guarantee deposits, net	4,7,10	109,108,315,479	67,973,632,479
Due from customers for contract work, net	7,24	102,739,503,644	102,739,503,644
Other non-current assets, net	4,7,10,14	4,519,838,968	7,158,040,827
Total non-current assets		<u>8,177,141,003,486</u>	<u>8,161,326,997,080</u>
Total assets	₩	<u>11,147,216,159,043</u>	<u>11,360,877,605,101</u>

See accompanying notes to the separate financial statements.

DOOSAN HEAVY INDUSTRIES & CONSTRUCTION CO., LTD.
Separate Statements of Financial Position, Continued
As of December 31, 2020 and 2019

<i>(In won)</i>	Note	2020	2019
Liabilities			
Trade payables	4,10,33	₩ 616,198,979,074	891,457,006,638
Short-term borrowings	4,10,16,32,33,34	4,031,380,429,175	2,659,815,090,995
Other payables	4,10	262,524,124,843	216,894,219,907
Advanced received	24	21,793,396,212	19,248,740,330
Due to customers for contract work	24	1,035,071,221,352	865,436,037,039
Withholdings		97,944,475	5,717,666,564
Accrued expenses	4,10	58,245,671,022	62,036,289,222
Current income tax liabilities	29	636,453,552	-
Current portion of long-term debt	4,10,16,32,33,34	462,969,883,340	1,529,162,243,545
Current lease liabilities	4,10,14,34	15,966,723,134	28,083,574,168
Derivative financial liabilities	9,10	15,576,478,356	69,822,414,457
Firm commitment liabilities	9	16,162,172,211	10,332,417,924
Provisions	18,24	258,143,731,053	121,897,745,819
Other current liabilities	4,10	1,958,255,904	220,994,448,788
Total current liabilities		6,796,725,463,703	6,700,897,895,396
Bonds	4,10,16,34	14,734,537,562	80,000,000,000
Long-term borrowings	4,10,16,32,33	309,108,947,636	484,078,455,716
Long-term asset-backed borrowings	4,10,16,32,33	49,102,652,561	132,513,583,033
Long-term other payables	4,10	14,384,777,140	13,111,187,382
Defined benefit liabilities, net	17	96,154,631,232	64,136,054,059
Deposits received	4,10	198,543,169,243	219,893,793,614
Non-current lease liabilities	4,10,14,34	12,146,293,061	15,602,097,248
Derivative financial liabilities	9,10	25,852,173,317	38,431,361,948
Firm commitment liabilities	9	23,745,413,460	13,228,719,317
Deferred tax liabilities	29	-	35,172,126,505
Provisions	18	108,970,403,058	99,508,571,448
Other non-current liabilities	4,10	37,070,443,819	23,596,375,369
Total non-current liabilities		889,813,442,089	1,219,272,325,639
Total liabilities		7,686,538,905,792	7,920,170,221,035
Equity			
Capital stock	19	1,937,707,325,000	1,075,255,425,000
Capital surplus	16,19,20	2,623,051,847,367	1,557,411,464,430
Other components of equity	19,21	620,128,929	1,463,939,543
Accumulated other comprehensive income	6,9,10,12,22	901,448,271,520	912,471,732,950
Accumulated deficit	23	(2,002,150,319,565)	(105,895,177,857)
Total equity		3,460,677,253,251	3,440,707,384,066
Total liabilities and equity		₩ 11,147,216,159,043	11,360,877,605,101

See accompanying notes to the separate financial statements.

DOOSAN HEAVY INDUSTRIES & CONSTRUCTION CO., LTD.

Separate Statements of Loss

For the years ended December 31, 2020 and 2019

<i>(In won)</i>	Note		2020	2019
Sales	24,33	₩	3,451,444,902,650	3,708,635,207,378
Cost of sales	24,25,33		3,209,753,196,445	3,318,487,344,952
Gross profit			241,691,706,205	390,147,862,426
Selling and administrative expenses	10,25,26,33		714,753,892,765	302,467,100,359
Operating profit (loss)			(473,062,186,560)	87,680,762,067
Finance income and expenses			(287,932,061,798)	(247,362,778,094)
Finance income	10,27		360,386,215,638	308,940,378,859
Finance expenses	10,27		648,318,277,436	556,303,156,953
Other non-operating income and expenses			(1,345,395,055,704)	(374,123,463,505)
Other non-operating income	10,28		102,829,818,942	24,605,490,643
Other non-operating expenses	10,28		1,448,224,874,646	398,728,954,148
Loss before income tax			(2,106,389,304,062)	(533,805,479,532)
Income tax benefit	29		(226,215,208,129)	(38,614,802,330)
Loss for the period		₩	(1,880,174,095,933)	(495,190,677,202)
Loss per share				
Basic loss per share	30	₩	(7,520)	(3,206)
Diluted loss per share	30		(7,520)	(3,206)

See accompanying notes to the separate financial statements.

DOOSAN HEAVY INDUSTRIES & CONSTRUCTION CO., LTD.

Separate Statements of Comprehensive Loss

For the years ended December 31, 2020 and 2019

<i>(In won)</i>	Note	2020	2019
Loss for the period		₩ (1,880,174,095,933)	(495,190,677,202)
Other comprehensive loss		(27,104,507,205)	(33,781,980,045)
Items that will not be reclassified to profit or loss		(16,033,351,217)	(39,809,785,215)
Remeasurements of defined benefit liabilities	17,29	(16,235,902,537)	(29,017,123,534)
Loss on valuation of fair value through other comprehensive income ("FVOCI") financial assets	6,29	(3,397,942)	(9,130,535,326)
Profit (loss) on revaluation of assets	12,29	205,949,262	(1,662,126,355)
Items that are or may be reclassified subsequently to profit or loss		(11,071,155,988)	6,027,805,170
Effective portion of changes in fair value of cash flow hedges	9,10,29	(11,071,155,988)	6,027,805,170
Total comprehensive loss for the period		₩ (1,907,278,603,138)	(528,972,657,247)

See accompanying notes to the separate financial statements.

DOOSAN HEAVY INDUSTRIES & CONSTRUCTION CO., LTD.

Separate Statements of Changes in Equity

For the years ended December 31, 2020 and 2019

(In won)

	Capital stock	Capital surplus	Other components of equity	Accumulated other comprehensive income	Retained earnings (accumulated deficit)	Total equity
Balance at January 1, 2019	₩ 650,255,065,000	1,518,056,715,325	3,454,767,878	924,551,891,038	844,338,586,740	3,940,657,025,981
Total comprehensive income (loss):						
Loss for the period	-	-	-	-	(495,190,677,202)	(495,190,677,202)
Effective portion of changes in fair value of cash flow hedges	-	-	-	6,027,805,170	-	6,027,805,170
Remeasurements of defined benefit liability	-	-	-	-	(29,017,123,534)	(29,017,123,534)
Loss on valuation of FVOCI	-	-	-	(9,130,535,326)	-	(9,130,535,326)
Gain (loss) on revaluation of assets	-	-	-	(8,977,427,932)	7,315,301,577	(1,662,126,355)
Subtotal	-	-	-	(12,080,158,088)	(516,892,499,159)	(528,972,657,247)
Dividends	-	-	-	-	(17,498,108,760)	(17,498,108,760)
Issuance of common shares	425,000,000,000	37,362,955,728	-	-	-	462,362,955,728
Exercise of stock warrants	360,000	965,042	-	-	-	1,325,042
Stock option	-	1,990,828,335	(1,990,828,335)	-	-	-
Repayment of redeemable convertible preferred stock	-	-	-	-	(415,843,156,678)	(415,843,156,678)
Subtotal	425,000,360,000	39,354,749,105	(1,990,828,335)	-	(433,341,265,438)	29,023,015,332
Balance at December 31, 2019	₩ 1,075,255,425,000	1,557,411,464,430	1,463,939,543	912,471,732,950	(105,895,177,857)	3,440,707,384,066
Balance at January 1, 2020	₩ 1,075,255,425,000	1,557,411,464,430	1,463,939,543	912,471,732,950	(105,895,177,857)	3,440,707,384,066
Total comprehensive income (loss):						
Loss for the period	-	-	-	-	(1,880,174,095,933)	(1,880,174,095,933)
Effective portion of changes in fair value of cash flow hedges	-	-	-	(11,071,155,988)	-	(11,071,155,988)
Remeasurements of defined benefit liability	-	-	-	-	(16,235,902,537)	(16,235,902,537)
Loss on valuation of FVOCI	-	-	-	(3,397,942)	-	(3,397,942)
Gain on revaluation of assets	-	-	-	51,092,500	154,856,762	205,949,262
Subtotal	-	-	-	(11,023,461,430)	(1,896,255,141,708)	(1,907,278,603,138)
Issuance of common shares	827,990,875,000	607,570,209,908	-	-	-	1,435,561,084,908
Exercise of stock warrants	5,735,000	12,900,393	-	-	-	18,635,393
Stock option	-	827,401,364	(827,401,364)	-	-	-
Stock exchange	34,455,290,000	2,031,650,780	(16,409,250)	-	-	36,470,531,530
Others (See Note 20)	-	455,198,220,492	-	-	-	455,198,220,492
Subtotal	862,451,900,000	1,065,640,382,937	(843,810,614)	-	-	1,927,248,472,323
Balance at December 31, 2020	₩ 1,937,707,325,000	2,623,051,847,367	620,128,929	901,448,271,520	(2,002,150,319,565)	3,460,677,253,251

See accompanying notes to the separate financial statements.

DOOSAN HEAVY INDUSTRIES & CONSTRUCTION CO., LTD.

Separate Statements of Cash Flows

For the years ended December 31, 2020 and 2019

(In won)

	Note	2020	2019
Cash flows from operating activities			
Cash generated from operations:	34 ₩	(454,004,125,440)	47,115,706,846
Loss for the period		(1,880,174,095,933)	(495,190,677,202)
Adjustments		1,837,833,131,445	734,025,287,647
Changes in operating assets and liabilities		(411,663,160,952)	(191,718,903,599)
Interest received		2,761,772,936	6,576,854,796
Interest paid		(179,004,112,560)	(165,577,511,545)
Dividends received		611,725,177	277,161,017
Income tax paid		(9,933,582,994)	(58,930,033,449)
Net cash from operating activities		(639,568,322,881)	(170,537,822,335)
Cash flows from investing activities			
Cash inflows from investing activities:			
Decrease in short-term financial instruments		170,187,306,802	91,267,673,079
Collection of short-term loans		158,416,000,000	11,395,561,141
Decrease in long-term financial instruments		29,464,966,524	15,396,143,136
Proceeds from disposal of short-term investments in securities		-	17,654,673,876
Proceeds from disposal of long-term investments in securities		1,936,794,289	2,449,245,367
Collection of long-term loans		61,979,706,416	19,643,400,000
Proceeds from disposal of investments in subsidiaries, associates and joint ventures		42,503,246,900	46,710,282,240
Proceeds from disposal of property, plant and equipment		1,433,673,747	150,605,085,607
Proceeds from disposal of intangible assets		4,393,636,370	242,698,181
Decrease in lease receivables		1,830,535,534	3,664,205,660
Subtotal		472,145,866,582	359,028,968,287
Cash outflows for investing activities:			
Increase of short-term financial instruments		(167,454,436,195)	(80,898,765,887)
Increase in short-term loans		(308,618,625,306)	(72,454,548,987)
Increase in long-term financial instruments		(29,464,966,524)	(15,255,962,712)
Acquisition of long-term investments in securities		(33,154,839,953)	(32,082,924,183)
Increase in long-term loans		(24,108,352,800)	(41,450,620,000)
Acquisition of investments in subsidiaries, associates and joint ventures		(290,340,942,498)	(342,731,202,776)
Acquisition of property, plant and equipment		(25,199,621,186)	(36,689,616,993)
Acquisition of intangible assets		(135,439,232,405)	(195,446,585,435)
Acquisition of right-of-use assets		(713,183,534)	-
Subtotal		(1,014,494,200,401)	(817,010,226,973)
Net cash used in investing activities	₩	(542,348,333,819)	(457,981,258,686)

See accompanying notes to the separate financial statements.

DOOSAN HEAVY INDUSTRIES & CONSTRUCTION CO., LTD.

Separate Statements of Cash Flows, Continued

For the years ended December 31, 2020 and 2019

(In won)

	Note	2020	2019
Cash flows from financing activities			
Cash inflows from financing activities:			
Increase in short-term borrowings, net	₩	1,384,016,704,786	1,406,446,651,471
Proceeds from long-term borrowings		300,000,000,000	733,000,000,000
Issuance of bonds		10,000,000,000	80,915,235,293
Issuance of common shares		1,212,523,393,400	471,750,000,000
Exercise of stock warrants		5,554,700	923,157
Proceeds from long-term asset-backed borrowings		-	166,041,573,600
Subtotal		<u>2,906,545,652,886</u>	<u>2,858,154,383,521</u>
Cash outflows for financing activities:			
Repayment of long-term borrowings		(275,000,000,000)	(656,000,000,000)
Repayment of current portion of long-term debt		(1,417,761,642,102)	(964,498,587,631)
Repayment of lease liabilities		(29,351,880,890)	(49,707,963,902)
Acquisition of treasury stock		(16,409,250)	-
Repayment of asset-backed borrowings		(41,800,000,000)	(179,444,385,626)
Payment of dividends		-	(17,498,108,760)
Expense of common stock issuance		(15,645,359,727)	(9,387,044,272)
Repayment of long-term asset-backed borrowings		-	(120,955,209,184)
Repayment of redeemable convertible preference stocks		-	(415,843,156,678)
Subtotal		<u>(1,779,575,291,969)</u>	<u>(2,413,334,456,053)</u>
Net cash provided by financing activities		<u>1,126,970,360,917</u>	<u>444,819,927,468</u>
Effect of movements in exchange rates on cash held		(9,254,949,646)	3,794,027,116
Net decrease in cash and cash equivalents		<u>(64,201,245,429)</u>	<u>(179,905,126,437)</u>
Cash and cash equivalents at January 1		<u>345,832,725,637</u>	<u>525,737,852,074</u>
Cash and cash equivalents at December 31	₩	<u><u>281,631,480,208</u></u>	<u><u>345,832,725,637</u></u>

See accompanying notes to the separate financial statements.

DOOSAN HEAVY INDUSTRIES & CONSTRUCTION CO., LTD.

Notes to the Separate Financial Statements

For the years ended December 31, 2020 and 2019

1. Reporting entity

Doosan Heavy Industries & Construction Co., Ltd. ("the Company") was incorporated on September 20, 1962, with its headquarters in Changwon, Korea. Since its incorporation, the Company has grown to become one of the leading global manufacturers of advanced power generation equipment. The Company engages in manufacturing of a range of power generation equipment including boilers, turbines and generators. It also engages in engineering, procurement and construction of thermal power plants. And the Company engages in general construction, seawater desalination and etc.

The Company was listed on the Korea Exchange on October 25, 2000 and its major stockholder as of December 31, 2020 is Doosan Corp. (holding 41.95% equity ownership).

2. Significant accounting policies and basis of preparation

(1) Basis of separate financial statements

These financial statements are separate financial statements prepared in accordance with K-IFRS No. 1027, 'Separate Financial Statements' presented by a parent, an investor in an associate or a venturer in a joint venture, in which the investments are accounted for on the basis of the direct equity interest rather than on the basis of the reported results and net assets of the investees.

The principal accounting policies are set out below. Except for the effect of the amendments to K-IFRS and new interpretations set out below, the principal accounting policies used to prepare the separate financial statements as of and for the year ended December 31, 2020 are consistent with the accounting policies used to prepare the separate financial statements as of and for the year ended December 31, 2019.

The accompanying separate financial statements have been prepared on the historical cost basis except for certain non-current assets and financial instruments that are measured at fair values, as explained in the accounting policies below. Historical cost is based on the fair values of the consideration given.

1) The Company has applied the amendments to the following standards with January 1, 2020 as the date of initial application.

- K-IFRS No. 1103 'Business Combinations' : Definition of a business
- K-IFRS No. 1001 'Presentation of Financial Statements' : Definition of a materiality
- K-IFRS No. 1109 'Financial Instruments' : Hedge accounting interest rate index reformation
- A review of the Conceptual Framework for Financial Reporting : The principles of the definition, recognition and derecognition of assets and liabilities

There is no significant effect of the above amendments to the standards on the Company's separate financial statements.

2) New and revised K-IFRSs in issue, but not yet effective

- COVID-19 Related Rent Concessions (K-IFRS No. 1116 'Lease')
- Proceeds before Intended Use (K-IFRS No. 1016 'Property, Plant and Equipment')
- Reference to the Conceptual Framework (K-IFRS No. 1103 'Business Combinations')

DOOSAN HEAVY INDUSTRIES & CONSTRUCTION CO., LTD.

Notes to the Separate Financial Statements

For the years ended December 31, 2020 and 2019

The Company anticipates that the application of the enactment and amendments will not have a significant impact on the Company's separate financial statements.

(2) Investments in subsidiaries, associates and joint ventures

The Company has elected to use book value under previous generally accepted accounting principles as deemed cost for subsidiaries, joint ventures and associates at the date of transition to K-IFRS. After the date of transition, subsidiaries, joint ventures and associates are measured at cost. Dividend income from investments in subsidiaries, joint ventures and associates is recognized in profit or loss in the period when the shareholders' right to receive payment has been established.

(3) Foreign currency translation

The Company's separate financial statements are presented in the currency of the primary economic environment in which it operates (its functional currency). The functional currency of the Company and the presentation currency for the separate financial statements of the Company are Korean won. Transactions in currencies other than the entity's functional currency are recognized at the rates of exchange prevailing at the dates of the transactions. Foreign currency gain (loss) from settlements of foreign currency transactions or translation of monetary items denominated in foreign currencies are recognized in profit or loss whereas the gain (loss) from qualified cash flow hedge and net investment hedge for foreign operations is deferred as an equity item.

(4) Cash and cash equivalents

Cash and cash equivalents include cash on hand, demand deposits, short-term, highly liquid investments with maturities (or date of redemption) of three months or less upon acquisition. Bank overdraft is classified as short-term borrowings on the separate statements of financial position.

DOOSAN HEAVY INDUSTRIES & CONSTRUCTION CO., LTD.

Notes to the Separate Financial Statements

For the years ended December 31, 2020 and 2019

(5) Non-derivative financial assets

1) Initial recognition and measurement

Trade and other receivables, and debt investment are initially recognized when they are originated. Other financial assets and financial liabilities are recognized when the Company becomes a party to the contractual provisions of the instruments.

A financial asset and financial liability (unless it is a trade receivable - trade without a significant financing component that is initially measured at the transaction price) are initially measured at fair value plus, for an item not at fair value through profit or loss ("FVTPL"), transaction costs that are directly attributable to its acquisition.

2) Classification and subsequent measurement

On initial recognition, a financial asset is classified as measured at: amortized cost; FVOCI - debt investment; FVOCI - equity investment; or FVTPL. The classification of financial assets is generally based on the business model in which a financial asset is managed and its contractual cash flow characteristics. In case of changing its business model, all affected financial asset are reclassified on the first day of the first reporting period after the change in the business model.

A financial asset is measured at amortized cost if it meets both of the following conditions and is not designated as at FVTPL:

- it is held within a business model whose objective is to hold assets to collect contractual cash flow; and
- its contractual terms give rise on specified dates to cash flows that are solely payments of principal and interest on the principal amount outstanding.

A debt investment is measured at FVOCI if it meets both of the following conditions and is not designated as at FVTPL:

- it is held within a business model whose objective is achieved by both collecting contractual cash flows and selling financial assets; and
- its contractual terms give rise on specified dates to cash flows that are solely payments of principal and interest on the principal amount outstanding.

On initial recognition of an equity investment that is not held for trading, the Company may irrevocably elect to present subsequent changes in the investment's fair value in other comprehensive income. This election is made on an investment-by-investment basis and irrevocable election can be made at initial recognition.

All financial assets not classified as measured at amortized cost or FVOCI as described above are measured at FVTPL. This includes all derivative financial assets. On initial recognition, the Company may irrevocably designate a financial asset that otherwise meets the requirements to be measured at amortized cost or at FVOCI as at FVTPL if doing so eliminates or significantly reduces an accounting mismatch that would otherwise arise.

The Company makes an assessment of the objective of the business model in which, financial assets is held at a portfolio level because this best reflects the way the business is managed, and information is provided to management. The information considered includes:

- the stated policies and objectives for the portfolio and the operation of those policies in practice;
- how the performance of the business model and the financial assets held within that business model are evaluated and reported to the entity's key management personnel;

DOOSAN HEAVY INDUSTRIES & CONSTRUCTION CO., LTD.

Notes to the Separate Financial Statements

For the years ended December 31, 2020 and 2019

- the risks that affect the performance of the business model (and the financial assets held within that business model) and, in particular, the way in which those risks are managed;
- how managers of the business are compensated (e.g., whether the compensation is based on the fair value of the assets managed or on the contractual cash flows collected); and
- the frequency, volume and timing of sales of financial assets in prior periods, the reason for those sales and expectation about future sales activity for financial asset.

Transfers of financial assets to third parties in transactions that do not qualify for derecognition are not considered sales for this purpose, consistent with the Company's continuing recognition of the assets.

For the purposes of this assessment, 'principal' is defined as the fair value of the financial assets on initial recognition. 'Interest' is defined as consideration for the time value of money and for the credit risk associated with the principal amount outstanding during a particular period of time and for other basic lending risks and costs (e.g., liquidity risk and administrative costs), as well as a profit margin.

In assessing whether the contractual cash flows are solely payments of principal and interest, the Company considers the contractual terms of the instrument. This includes assessing whether the financial asset contains a contractual term that could change the timing or amount of contractual cash flows such that it would not meet this condition. In making this assessment, the Company considers:

- contingent events that would change the amount or timing of cash flows;
- terms that may adjust the contractual coupon rate, including variable-rate features;
- prepayment and extension features; and
- terms that limit the Company's claim to cash flows from specified assets (e.g., non-recourse features).

A prepayment feature is consistent with the solely payments of principal and interest criterion if the prepayment amount substantially represents unpaid amounts of principal and interest on the principal amount outstanding, which may include reasonable additional compensation for early termination of the contract.

Additionally, for a financial asset acquired at a discount or premium to its contractual par amount, a feature that permits or requires prepayment at an amount that substantially represents the contractual par amount plus accrued (but unpaid) contractual interest (which may also include reasonable additional compensation for early termination) is treated as consistent with this criterion if the fair value of the prepayment feature is insignificant at initial recognition.

The following accounting policies apply to the subsequent measurement of financial assets.

Classification	Subsequent measurement
Financial assets at FVTPL	These assets are subsequently measured at fair value. Net gains and losses, including any interest or dividend income, are recognized in profit or loss.
Financial assets at amortized cost	These assets are subsequently measured at amortized cost using the effective Interest method. The amortized cost is reduced by impairment losses. Interest income, foreign exchange gains and losses and impairment are recognized in profit or loss. Any gain or loss on derecognition is recognized in profit or loss.
Debt investments at FVOCI	These assets are subsequently measured at fair value. Interest income calculated using the effective interest method, foreign exchange gains and losses and impairment are recognized in profit or loss. Other net gains and losses are recognized in OCI. On derecognition, gains and losses accumulated in OCI are reclassified to profit or loss.

DOOSAN HEAVY INDUSTRIES & CONSTRUCTION CO., LTD.

Notes to the Separate Financial Statements

For the years ended December 31, 2020 and 2019

Classification	Subsequent measurement
Equity investments at FVOCI	These assets are subsequently measured at fair value. Dividends are recognized as income in profit or loss unless the dividend clearly represents a recovery of part of the cost of the investment. Other net gains and losses are recognized in OCI and are never reclassified to profit or loss.

3) De-recognition

The Company derecognizes a financial asset when the contractual rights to the cash flows from the asset expire, or it transfers the rights to receive the contractual cash flows in a transaction in which substantially all the risks and rewards of ownership of the financial asset are transferred or in which the Company neither transfers nor retains substantially all of the risks and rewards of ownership and it does not retain control of the financial asset.

The Company enters into transactions whereby it transfers assets recognized in its statement of financial position but retain either all or substantially all of the risks and rewards of the transferred assets. In these cases, the transferred assets are not derecognized.

4) Offsetting between financial assets and financial liabilities

Financial assets and financial liabilities are offset and the net amount is presented in the separate statement of financial position only when the Company currently has a legally enforceable right to offset the recognized amounts, and there is the intention to settle on a net basis or to realize the asset and settle the liability simultaneously.

(6) Impairment of financial assets

1) Recognition of impairment on financial assets

The Company recognizes loss allowances for expected credit losses ("ECLs") on:

- financial assets measured at amortized costs;
- debt securities measured at FVOCI; and
- contract assets defined by K-IFRS No. 1115

The Company's impairment losses are likely to be recognized a lifetime ECLs based on the extent of increase in credit risk since inception except for below asset to be recognized loss allowances measured on 12-month.

- credit risk of debt instruments is low at the end of reporting date
- credit risk has not increased significantly since the initial recognition of debt investment (lifetime ECLs: ECL that resulted from all possible default events over the expected life of a financial instrument)

The Company adopted an accounting policy to recognize loss allowances at an amount equal to lifetime ECLs for trade receivables and contract assets.

In assessing whether the credit risk on a financial instrument has increased significantly since initial recognition and estimating ECLs, the Company considers both quantitative and qualitative information that is reasonable and supportable, including historical experience and forward-looking information that is available without undue cost or effort.

DOOSAN HEAVY INDUSTRIES & CONSTRUCTION CO., LTD.

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Lifetime ECLs are resulted from all possible default events over the expected life of a financial instrument. And 12-month ECLs are resulted from possible default events within the 12 months (or a shorter period if the expected life of the instrument is less than 12 months) after the reporting date.

2) Measurement of ECL

ECLs are a probability-weighted estimate of credit losses. Credit losses are measured as the present value of all cash shortfalls (i.e., the difference between the cash flows due to the entity in accordance with the contract and the cash flows that the Company expects to receive). ECLs are discounted at the effective interest rate of financial instrument.

3) Credit-impaired financial instrument

A debt instrument carried at amortized cost and FVOCI is assessed at the end of each reporting period to determine whether there is objective evidence that it is impaired. A financial asset is impaired if objective evidence indicates that the loss event had a negative effect on the estimated future cash flows of that asset that can be estimated reliably.

Objective evidence that a financial asset is impaired includes:

- significant financial difficulty of the issuer or borrower;
- a breach of contract, such as default or delinquency in interest or principal payments;
- the lender, for economic or legal reasons relating to the borrower's financial difficulty, granting to the borrower a concession that the lender would not otherwise consider;
- it becoming probable that the borrower will enter bankruptcy or other financial reorganization; or
- the disappearance of an active market for that financial asset because of financial difficulties.

4) Presentation of credit loss allowance on financial position

For loss allowance on financial assets measured at amortized cost is deducted from the carrying amount of the respective assets, while loss allowance on debt instruments at FVOCI is recognized in OCI.

5) De-recognition

The Company derecognizes a financial asset when it has no reasonable expectations of recovering the contractual cash flows on a financial asset in its entirety or a portion thereof. The Company assess whether there are reasonable expectations of recovering the contractual cash flows from customers and individually assess the timing and amount of write-off. The Company does not expect that such write-off will be recovered but they may be subject to collection activity according to the Company past due collection process.

(7) Trade receivables

Trade receivables are amounts owed by customer for products and services provided in the ordinary course of business. Trade receivables expected to be collected within one year are classified as current assets. Otherwise they are classified as non-current assets. Trade receivables are initially measured at fair value except that they do not contain a significant financing component in accordance with K-IFRS No. 1115 'Revenue from contracts with customers' and are presented as net of allowance for doubtful accounts, estimated on an individual basis based on past bad debt experience.

DOOSAN HEAVY INDUSTRIES & CONSTRUCTION CO., LTD.

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(8) Inventories

Inventories are stated at the lower of cost and net realizable value. Cost of inventories includes fixed and variable manufacturing overhead costs which is systematically allocated to inventories by appropriate methods based on each category of inventory. The cost of inventories is determined by the specific identification method for finished goods, work-in-process, and materials in transit, and gross average method for all other inventories.

The Company periodically reviews changes in net realizable value of inventories (current replacement cost for raw materials) due to damage, obsolescence, decline in selling prices and others and recognizes loss on inventory valuation. Loss on inventory valuation is charged to cost of sales when it is ordinary and to other non-operating expense when it is extraordinary. When the circumstances that previously caused inventories to be written down below cost no longer exist and the new market value of inventories subsequently recovers, the valuation loss is reversed to the extent of the original valuation loss and the reversal is deducted from cost of sales

(9) Property, plant and equipment

Property, plant and equipment is stated at cost less subsequent accumulated depreciation and accumulated impairment losses. When parts of an item of property, plant and equipment have different useful lives, they are accounted for as separate items (major components) of property, plant and equipment. The cost of an item of property, plant and equipment includes expenditure that is directly attributable to the acquisition of the asset including the initial estimate of the costs of dismantling and removing the item and restoring the site on which it is located.

Subsequent costs incurred to replace part of previously recognized item of property, plant and equipment are added to the carrying amount of an asset, or recognized as a separate asset, if it is probable that future economic benefits associated with the assets will flow into the Company and the cost of an asset can be measured reliably. The carrying amount of what was replaced is derecognized. Routine maintenance and repairs are expensed as incurred.

Depreciation of property, plant and equipment is calculated to the cost of each asset less residual value using the straight-line method over the estimated useful lives of the assets as follows:

	Useful lives
Buildings	10~40 years
Structures	10~40 years
Machinery	5~20 years
Right-of-use asset	Lease term
Others	3~15 years

If a part of a property, plant and equipment has significant cost in relation to the total cost property, plant and equipment, it is depreciated separately. The Company reviews the depreciation method, the estimated useful lives and residual values of property, plant and equipment at the end of each annual reporting period. If expectations differ from previous estimates, the changes are accounted for as a change in an accounting estimate.

When there is indicator for impairment, and the carrying amount of property, plant and equipment is higher than the recoverable amount, the carrying amount is adjusted to the recoverable amount and the difference is recognized as an impairment loss.

DOOSAN HEAVY INDUSTRIES & CONSTRUCTION CO., LTD.

Notes to the Separate Financial Statements

For the years ended December 31, 2020 and 2019

Meanwhile, when the recoverable amount subsequently exceeds the carrying amount of the impaired asset, the excess is recorded as a reversal of impairment loss to the extent that the asset's carrying amount does not exceed the carrying amount that would have been determined, net of depreciation, if no impairment loss had been recognized. Upon derecognition of a property, plant and equipment, the difference between the net disposals proceed and carrying amount of the item is recognized in other non-operating income (expense).

A revaluation surplus is recorded in OCI and credited to the asset revaluation reserve in equity. However, to the extent that it reverses a revaluation deficit of the same asset previously recognized in profit or loss, the increase is recognized in profit and loss. A revaluation deficit is recognized in the statement of profit or loss, except to the extent that it offsets an existing surplus on the same asset recognized in the asset revaluation reserve.

(10) Investment Property

Investment properties are properties held to earn rentals and/or for capital appreciation. Investment properties are measured initially at cost, including transaction costs. Subsequent to initial recognition, the book value of investment property is presented at the cost less accumulated depreciation and accumulated impairment. Land is not depreciated.

(11) Intangible assets

Intangible assets are initially measured at cost and are carried at cost less accumulated amortization and accumulated impairment losses. Subsequent expenditure on an intangible asset is capitalized only when it is probable that the expected future economic benefits that are attributable to the asset will increase.

Intangible assets other than goodwill and intangibles with indefinite useful lives are amortized on a straight-line basis over their estimated useful lives from the date that they are available for use. The estimated useful lives of the intangible assets are as follows:

	Useful lives
Industrial property rights	5~10 years
Development costs	5~20 years
Others	5~20 years

Expenditures relating to development activities are capitalized when the result of the development is for the development of new products or substantial improvement of functions of existing products; there is technical and commercial feasibility of completing the development; and the Company has the ability to measure reliably the expenditure attributable to the development. Capitalized development costs include expenditure on materials, salaries, wages and other employment-related costs of personnel directly engaged in generating assets and related overhead cost which is systematically allocated. Capitalized development costs are presented at the acquisition cost less accumulated amortization and accumulated impairment losses. Capitalized development costs are amortized using the straight-line method over the estimated useful life and amortization expenses are included in cost of goods manufactured and amortization in selling and administrative expenses. The expenditure on research and development which does not meet conditions noted above is recognized as an expense when it is incurred.

The estimated useful life and amortization method for intangible assets with finite useful lives are reviewed at the end of each reporting period and for the assets which have been assessed as having indefinite useful life,

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that assessment is revisited each period, with the effect of any changes in estimate being accounted for as a change in accounting estimate.

However, useful lives of certain trademarks and memberships, which are determined to be indefinite since there is no foreseeable limit to the period over which the assets are expected to generate net cash inflows for the Company, are not amortized but tested for impairment once a year.

(12) Borrowing costs

Borrowing costs directly attributable to the acquisition, construction or production of qualifying assets, which are assets that necessarily take a substantial period of time to get ready for their intended use, are added to the cost of those assets, until such time as the assets are substantially ready for their intended use.

(13) Impairment of non-financial assets

The carrying amounts of the Company's non-financial assets other than assets arising from contracts with customer, costs to obtain or fulfil a contract, employee benefits, inventories, deferred tax assets and non-current assets held for sale, are reviewed at the end of the reporting period to determine whether there is any indication of impairment. If any such indication exists, then the asset's recoverable amount is estimated. Goodwill and intangible assets that have indefinite useful lives or that are not yet available for use, irrespective of whether there is any indication of impairment, are tested for impairment annually by comparing their recoverable amounts to their carrying amounts.

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

An impairment loss is recognized in profit or loss to the extent the carrying amount of the asset exceeds its recoverable amount, immediately.

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

(14) Non-derivative financial liabilities

The Company classifies non-derivative financial liabilities into financial liabilities at FVTPL or other financial liabilities in accordance with the substance of the contractual arrangement and the definitions of financial liabilities. The Company recognizes financial liabilities in the separate statement of financial position when the Company becomes a party to the contractual provisions of the financial liability.

DOOSAN HEAVY INDUSTRIES & CONSTRUCTION CO., LTD.

Notes to the Separate Financial Statements

For the years ended December 31, 2020 and 2019

1) Financial liabilities at FVTPL

Financial liabilities at FVTPL include financial liabilities held for trading or designated as such upon initial recognition. Subsequent to initial recognition, financial liabilities at FVTPL are measured at fair value, and changes therein are recognized in profit or loss. Upon initial recognition, any directly attributable transaction costs are recognized in profit or loss as incurred.

2) Financial liabilities at amortized cost

Non-derivative financial liabilities other than financial liabilities at FVTPL are classified as financial liabilities at amortized cost. At the date of initial recognition, financial liabilities at amortized cost are measured at fair value less any directly attributable transaction costs. Subsequent to initial recognition, financial liabilities at amortized cost are measured at amortized cost using the effective interest rate method.

3) Derecognition of financial liability

The Company derecognizes financial liability when its contractual obligations are discharged, cancelled or expired. The Company also derecognizes a financial liability, when its terms are modified and the cash flows of the modified liability are substantially different, in which case a new financial liability based on the modified terms is recognized a fair value. On derecognition of a financial liability, the difference between the carrying amount extinguished and the consideration paid (including any non-cash assets transferred of liabilities assumed) is recognized in profit or loss.

(15) Borrowings

Borrowings are measured initially at fair value, net of transaction costs and subsequently at amortized cost using the effective interest method, with interest expense being recognized on an effective yield basis. The difference between the amount received and the redemption amount is amortized using the effective interest method and recognized in profit or loss. Borrowings are classified as non-current liabilities when the Company has an unconditional right to defer settlement of the liability for at least twelve months after the end of the reporting period. Otherwise borrowings are classified as current liabilities.

(16) Compound financial instrument

Compound financial instruments issued by the Company are classified as a financial liability or an equity instrument in accordance with the substance of the contractual arrangement. The conversion right of convertible bonds and stock warranties embedded in compound financial instrument issued by the Company which can, at the option of the holder, be converted into a fixed number of equity instruments in the Company, is classified as equity.

The liability component of a convertible bonds and bonds with stock warranties is recognized at the fair value of a similar liability on initial recognition and be measured at amortized cost by applying the effective interest method until it is extinguished. The equity component is measured by deducting the fair value of the liability component from the fair value of the compound financial instrument as a whole on initial recognition. Any tax effect is also reflected, and such instrument is not subsequently remeasured.

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The conversion right that is an embedded derivative is recognized at the market value of a similar derivative or at the fair value derived from an appropriate valuation model. Subsequent changes in fair value of the conversion right are recognized in profit or loss.

(17) Financial guarantee contracts

The Company has financial guarantee contract liabilities, which are obligations to pay specific amounts for indemnifying creditors' loss on insolvency of specific debtors according to initial or revised contract provisions of liabilities on the payment date. Financial guarantee contract liabilities are initially measured at their fair value less the direct transaction cost relating to the issuance. Subsequently, financial guarantee contract liabilities are measured at the higher of the amount of the loss allowance determined in accordance with K-IFRS No. 1109 'Financial instruments', and the amount initially recognized less the cumulative amortizations recognized in accordance with the K-IFRS No. 1115.

(18) Employee benefits liability

The Company operates various types of benefit plans, and generally makes contributions calculated based on periodic actuarial calculations to separately administered funds such as qualifying insurance companies or trust funds.

Defined benefit plans are post-employment benefit plans other than defined contribution plans. Generally, under the defined benefit plan, amounts to be paid as retirement benefits are determined by reference to a formula usually based on employees' earnings, years of service, ages and other considerations. The retirement benefit obligation recognized in the separate statements of financial position represents the present value of the defined benefit obligation, less fair value of plan assets and adjustment for unrecognized past service cost. The defined benefit obligation is calculated by an independent actuary using the projected unit credit method. The present value of the defined benefit obligation is denominated in the same currency in which the benefits are expected to be paid, and calculated at the discount rate which is the yield at the reporting date on high quality corporate bonds that have maturity dates approximating the terms of the Company's obligation.

Actuarial gain or loss from changes in actuarial assumptions or differences between actuarial assumptions and actual results is recognized in other comprehensive income or loss, which is immediately reflected in retained earnings. Past service cost is directly recognized in profit or loss in the period the plan amendment or curtailment occurs.

(19) Provisions

Provisions are recognized when the Company has a present obligation (legal or constructive) as a result of a past event, it is probable that the Company will be required to settle the obligation, and a reliable estimate can be made of the amount of the obligation. A provision is measured using the present value of the cash flows estimated to settle the present obligation when the effect of the time value of money is material.

At the end of each reporting period, the remaining provision balance is reviewed and assessed to determine if the current best estimate is being recognized. The increase in provision due to passage of time is recognized as interest expense. If the existence of an obligation to transfer economic benefit is no longer probable, the related provision is reversed during the period.

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When some or all of the economic benefits required to settle a provision are expected to be recovered from a third party, a receivable is recognized as an asset if it is virtually certain that reimbursement will be received and the amount of the receivable can be measured reliably. In this case, any income arising from the third party reimbursement is netted off against the related expense to be recognized in the separate statements of profit or loss from the recognition of provisions.

(20) Leases

The Company determines whether the contract is a lease or includes a lease at the time of the agreement. If the contract requires a transfer of control over the use of the identified asset for a certain period of time in exchange for consideration, the contract will either be a lease or include a lease. When determining whether a contract transfers control of the use of the identified asset, the Company uses the definition of a lease in K-IFRS No. 1116.

1) Lessee

At the commencement or effective date of the contract that includes the lease element, the Company allocates the consideration of the contract to each lease element based on its relative stand-alone price. However, the Company applies a practical expedient that does not separate the non-lease component for a real estate lease and accounts for the non-lease component related to the lease element as a single lease element.

The Company recognizes right-of-use assets and lease liabilities at the commencement date of the lease. Right-of-use assets are initially measured at cost, and the costs shall comprise the amount of the initial measurement of the lease liability, the initial direct costs incurred by the lessee, any lease payments made at or before the commencement date (less any lease incentives received) and an estimate of costs to be incurred by the lessee in dismantling and removing the underlying asset, or restoring the underlying asset or the site on which it is located.

Right-of-use assets are subsequently depreciated on a straight-line basis from the commencement of the lease to the end of the lease term. However, if the ownership of the right-of-use asset is transferred at the end of the lease term or the exercise price of the purchase option is reflected in the cost of the right-of-use asset, the right-of-use assets shall be depreciated until the end of the useful life of the underlying asset on the same basis as the depreciation of the property, plant and equipment. Also, right-of-use assets may be adjusted as a result of a reduction in impairment losses or a remeasurement of lease liabilities.

Lease liabilities are initially measured at the present value of the lease payments not paid as of the commencement of the lease. Lease is discounted at the intrinsic interest rate of the lease, but if the intrinsic interest rate is not readily calculated, the lease is discounted at the Company's incremental borrowing rate. Generally, the Company uses the incremental borrowing rate as the discount rate. Lease liabilities are amortized in accordance with the effective interest method. When remeasurement of a lease liability, the relevant right-of-use assets is adjusted and the remeasurement amount is recognized in profit or loss if the carrying amount of the right-of-use assets is reduced to nil.

Lease payments included in the measurement of the lease liability comprise the following:

- fixed payments, including in-substance fixed payments
- variable lease payments that depend on an index or a rate, initially measured using the index or rate as at the commencement date;
- amounts expected to be payable under a residual value guarantee; and

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- the exercise price under a purchase option that the Company is reasonably certain to exercise, lease payments in an optional renewal period if the Company is reasonably certain to exercise an extension option, and penalties for early termination of a unless the Company is reasonably certain not to terminate early.

As practical expedient, the Company does not recognize right-of-use assets and lease liabilities for short-term leases with a lease term of less than 12 months and low-value assets. The Company shall recognize the lease charges relating to these leases as expenses in accordance with the straight-line method over the lease term.

2) Lessor

The accounting policies applied during comparative periods by the Company as a lessor are not different from those in K-IFRS No. 1116. As a lessor, the Company determines whether the lease is a finance lease or an operating lease at the inception of the lease. To classify each lease, the Company generally determines whether the lease transfers most of the risks and rewards of ownership of the underlying asset. If most of the risks and rewards of ownership of the underlying asset are transferred to the lessee, the lease is classified as a finance lease, otherwise the lease is classified as an operating lease.

(21) Derivative financial instruments and hedge accounting

Derivatives are initially recognized at fair value at the date the derivative contract is entered into and are subsequently remeasured to their fair value at the end of each reporting period. The resulting gain or loss is generally recognized as profit or loss when it is incurred. However, the effective portion of changes in the fair value of derivatives that are designated and qualify as cash flow hedges is recognized in other comprehensive income or loss. The gain or loss relating to the ineffective portion is recognized immediately in profit or loss.

1) Hedge accounting

The Company operates fair value hedges to avoid the risk of fair value change, which is incurred from specific risk on assets, liabilities and firm contracts, and cash flow hedges to avoid the risk of future cash flow change, which is incurred from specific risk on expecting contracts. At the inception of the hedge relationship, the Company documents the relationship between the hedging instrument and the hedged item, along with its risk management objectives and its strategy for undertaking various hedge transactions. Furthermore, at the inception of the hedge and on an ongoing basis, the Company assesses whether there is an economic relationship between the hedged item and the hedging instrument.

a) Fair value hedges

Changes in the fair value of derivatives that are designated and qualified as fair value hedges (or gain or loss on foreign currency translation, when a financial instrument, not derivative is designated as the hedging instrument) are recognized in profit or loss immediately, together with any changes in the fair value of the hedged asset or liability that are attributable to the hedged risk.

b) Cash flow hedges

The effective portion of change in the fair value of derivatives that are designated and qualify as cash flow hedges for decreasing risk incurred from change of future cash flow on forecast transaction is recognized in other comprehensive income or loss. Amounts previously recognized in other comprehensive income or loss and accumulated in equity are reclassified to profit or loss in the periods when the hedged item is recognized in profit or loss, or is reflected in the carrying amount of the associated asset or liability when the forecasted transaction

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occurs. Even when hedge accounting is discontinued due to the expiration, termination or exercise of hedging instrument, subsequent accounting treatment of amounts recognized in other comprehensive income or loss and accumulated in equity is the same. However, when hedge accounting is discontinued due to forecast transaction being no longer expected to occur, the gain or loss accumulated in equity is recognized immediately in profit or loss.

2) Separable embedded derivatives

Embedded derivatives are separate from the host contract and accounted for separately only if the following criteria has been met: (a) the economic characteristics and risks of the host contract and the embedded derivatives are not clearly and closely related to a separate instrument with the same terms as the embedded derivative that would meet the definition of a derivative, and (b) the hybrid (combined) instrument is not measured at fair value through profit or loss. Changes in the fair value of separable embedded derivatives are recognized immediately in profit or loss.

3) Other derivative financial instruments

Derivative financial instruments other than the effective portion of derivative financial instruments that are designated as the hedging instruments are measured at fair value. Gain or loss arising from changes in fair value is recognized in profit or loss.

(22) Dividend

Dividend payable is recognized as liability when declaration of the dividend is approved in the shareholders' meeting.

(23) Issued capital

Common stocks are classified as equity, and the incremental costs directly arising from capital transactions, net of tax are deducted from equity. Preferred stocks are classified as equity only if the preferred stocks are not redeemable or redeemable solely upon the Company's decision, or the distribution of dividends is solely upon the Company's decision. Once a general meeting of shareholders meeting approves dividends, the Company recognizes the dividend liability accordingly.

Own equity instruments that are reacquired (treasury shares) are recognized at cost and deducted from equity. No gain or loss is recognized in profit or loss on the purchase, sale, issue or cancellation of the Company's own equity instruments.

(24) Share-based payments

The Company measures the cost of share options granted to employees by reference to the estimated fair value at the date at which they are granted. The share-based payment expenses are recognized on a straight-line basis over the vesting period reflecting expected forfeiture rate. The Company determines the fair value of share option using the Black-Scholes option pricing model.

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(25) Due from (to) customers for contract work

When contract costs incurred to date plus recognized profits less recognized losses exceed progress billing, the surplus is shown as amounts due from customers for contract work. For contracts where progress billings exceed contract costs incurred to date plus recognized profits less recognized losses, the surplus is shown as the amounts due to customers for contract work. Amounts received before the related work is performed are included in the separate statement of financial position, as a liability, as advances received. Amounts billed for work performed but not yet paid by the customer are included in the separate statement of financial position under trade receivables.

(26) Government grants

Government grants are recognized only when there is reasonable assurance that the grant will be received and to comply with the conditions that accompany the grant.

The benefits of government loans at an interest rate lower than the market interest rate are treated as government grants, and the government grants are measured as the difference between the fair value of the government loans calculated based on the market interest rate and the consideration received.

Asset-related government grants are deducted when determining the carrying amount of assets and presented in the statements of financial position. The government grants are recognized in profit or loss over the useful life of the related assets by reducing depreciation expenses.

Revenue-related government grants are recognized as revenue over the period based on a systematic basis in order to respond to expenses intended to be compensated. Government grants received for immediate financial assistance provided to the Company without compensation for expenses or losses already incurred or related costs in the future are recognized in profit or loss during the period in which the right to receive them is incurred.

(27) Taxes and deferred tax

Income tax expense is composed of current and deferred tax. Current and deferred tax are recognized in profit or loss, except when they relate to items that are recognized in other comprehensive income or loss or directly in equity, in which case, the current and deferred tax are also recognized in other comprehensive income or loss or directly in equity, respectively.

Income tax (current tax) expense is the sum of corporate tax for each fiscal year and tax added to corporate tax under corporate income tax law and other applicable laws. Additional income taxes or tax refunds for the prior periods are included in income tax expense for the current period when recognized. The Company's liability for current tax is calculated using tax rates that have been enacted or substantively enacted by the end of the reporting period.

Deferred tax is recognized on temporary differences between the carrying amounts of assets and liabilities in the separate financial statements and the corresponding tax bases used in the computation of taxable income. Deferred tax assets and liabilities are not recognized if the temporary difference arises from the initial recognition (other than in a business combination) of other assets and liabilities in a transaction that affects neither the taxable income nor the accounting income.

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

The carrying amount of deferred tax assets is reviewed at the end of each reporting period and reduced to the extent that it is no longer probable that sufficient taxable income will be available to allow all or part of the asset to be recovered.

(28) Non-current assets held for sale

Non-current assets and disposal groups are classified as held-for-sale if their carrying amount will be recovered principally through a sale transaction rather than through continuing use. Non-current assets (and disposal groups) classified as held for sale are measured at the lower of their previous carrying amount and fair value less costs to sell and are no longer depreciated or amortized.

If the fair value less costs to sell of the non-current assets held-for-sale (and disposal groups) decrease, impairment loss is recognized immediately in profit or loss. A gain should be recognized for any subsequent increase in fair value less costs to sell of an asset, but not in excess of the cumulative impairment loss previously recognized.

(29) Greenhouse gas emissions

The Company receives free emission rights as a result of emission trading schemes. The rights are received on an annual basis and, in return, the Company is required to remit rights equal to its actual emissions. The Company has adopted the net liability approach to the emission rights granted. Therefore, a provision is recognized only when actual emissions exceed the emission rights granted and still held. The emission costs are recognized as other operating costs. Where emission rights are purchased from other parties, they are initially recorded at cost, and treated as a reimbursement right, whereby they are matched to the emission liabilities and subsequently measured at fair value. The changes in fair value are recognized in profit or loss.

(30) Operation segments

The Company presents disclosure relating to operating segments on its consolidated financial statements in accordance with K-IFRS No. 1108 'Operating Segments' and such disclosures are not separately disclosed on these separate financial statements.

(31) Revenue from contracts with customers

1) Identify performance obligations

The Company is mainly engaged in the businesses of power generation facilities, industrial facilities, manufacturing of casting and forging products and comprehensive construction business. The Company identifies separate performance obligations in the contracts and determines whether each of the performance obligations is satisfied at a point of time or over time under K-IFRS No. 1115.

The Company identified as a separate performance obligation if the customer benefits from the good or service on its own or together with other readily available resources and the entity's promise to transfer the good or service separately is identifiable from other promises in the contract. In addition, the transaction price is allocated to each performance obligation in proportion to its stand-alone selling price and if the stand-alone selling price is not directly observable then the entity estimates the amount by using a suitable method.

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2) Obligations to perform over period

The Company manufactures and sells specialized power machinery which are built based on customer's orders designating the design elements and the manufacturing process generally takes one to three years. The Company recognizes revenue over time measuring the progress towards complete satisfaction of the performance obligation, only when the asset in its completed state has no alternative use to the Company and there is an enforceable right to payment for performance completed to date.

3) Measurement of the percentage-of-completion by contract cost incurred

The Company contracts for EPC plant construction contracts and power generating service contracts including purchasing, manufacturing and installing boiler, turbine and others and generally proceeds over a long period of time. The Company recognizes revenue following percentage-of-completion method, judging whether the construction/service contracts are provided over period if it meets all the following conditions:

- The customers simultaneously acquire and consume benefits that the Company provides
- The Company creates or enhances the value of the asset that customers control

However, to represent performance degree faithfully, the Company recognizes the amount equal to the cost of the goods to perform the obligation as revenue if it meets all of the following conditions:

- Undistinguished goods when the contract initiate
- Expected that the customer can control significantly before the service is provided related to the goods
- The cost of the goods transferred is more significant than the total cost expected to fully perform the obligation
- The Company is provided the goods from the third party
- Not significantly involved in the design and production of the goods

4) Variable consideration

The Company estimates an amount of variable consideration by using the method the Company expects to better predict the amount of consideration to which it will be entitled. The Company includes an amount of variable consideration in the transaction price only to the extent that it is highly probable that a significant reversal in the amount of cumulative revenue recognized will not occur when the return period expires.

5) Allocating the transaction price to performance obligations

The Company allocates the transaction price to each performance obligation on a relative stand-alone selling price basis. The Company uses adjusted market assessment approach to estimate the stand-alone selling price, however, for certain transactions, 'expected cost plus a margin approach' is used exceptionally.

6) Warranty obligation

The Company generally provide warranty contract with customers pursuant to the local laws and customs. Most of these warranties are assurance type of warranty and accrue provision based on reliable estimate under K-IFRS No. 1037, 'Provisions, Contingent Liabilities and Contingent Assets'.

However, if the Company provides extended warranty that is not assurance type of warranty under non-standardized contract, it is accrued as service type of warranty and separate to performance obligation requiring allocation of transaction price. Revenue is recognized over period of time.

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3. Significant accounting estimates and assumptions

The estimates and underlying assumptions are reviewed on an ongoing basis. The estimates and underlying assumptions are based on historical experiences and other factors including expectation on possible future events. Actual results may differ from these estimates. The following are critical assumptions and key sources of estimation uncertainty at the end of reporting period, that have a significant risk of causing a material adjustment to the carrying amounts of the Company's assets and liabilities within the next financial year.

(1) Recognition of revenue

The Company recognizes revenue over time using the input method in relation to its performance obligation over time. Revenue is recognized as work progresses in the ratio of actual costs incurred to estimated total costs. Any changes in the early stages of long-term projects in the scope and costs of project implementation in the construction period, and in construction plans may have a significant effect on the amount of revenue recognized.

(2) Defined benefit liability

The Company operates a defined benefit plan. Defined benefit liability is calculated by annual actuarial valuations as of the reporting date. In order to perform the actuarial valuations, assumptions for discount rates, future salary increases and others are required to be estimated.

(3) Provisions

Provisions are recognized when the Company has a present obligation (legal or constructive) as a result of a past event, and if it is probable that an outflow of resources embodying economic benefits will be required to settle the obligation and if a reliable estimate can be made of the amount of the obligation. In accordance with the relevant laws and practices, the estimated amounts may change to prescribe for additional provisions to be recognized in future periods.

(4) Deferred tax

Recognition and measurement of deferred tax assets and liabilities require judgment of the Company's management. Especially, the recognition of deferred tax asset and the scope of recognition are influenced by assumptions about future circumstances and judgment of management.

(5) Impairment of non-financial assets

The Company is assessing whether there is any indication that an asset may be impaired at the end of each reporting period. The Company estimates the recoverable amount of an asset when such indication exists or when an impairment test for an asset is required each year. Recoverable amount of an asset is the higher of its fair value less costs of disposal and its value in use. The recoverable amount is determined for individual assets. However, if an asset does not generate cash inflows that are largely independent of those from other assets, the recoverable amount is determined for the CGU to which the asset belongs. The asset is impaired if its carrying amount exceeds its recoverable amount and the carrying amount of the asset is reduced to its recoverable amount.

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4. Financial risk management

The Company is exposed to various financial risks, such as market (foreign currency risk, interest rate risk and price risk), credit and liquidity, relating to the operations of the Company. The purpose of risk management policy is to minimize potential risks, which could have adverse effect on financial performance.

Financial risk management activities are performed by the treasury department in accordance with the risk management policies. In addition, the Company enters into derivative contracts to hedge against certain risks. The Company is trying to minimize the effect of financial risks by reorganizing financial risk management policy and monitoring financial risks regularly.

(1) Market risk

1) Foreign currency risk

The Company's exposure to the risk of changes in foreign exchange rates relates primarily to the Company's operating activities and net investments in foreign subsidiaries. The Company's objective of foreign currency risk management is to minimize uncertainty and volatility arising from fluctuations in foreign currency exchange rates. Foreign currency risk is managed in accordance to the Company's policy on foreign currencies, and currency trading for speculative purposes is prohibited.

The Company's basis for foreign currency management is to reduce income/loss volatility. The Company reduces exposure to foreign currency risk by matching the inflow and the outflow of foreign currencies (natural hedge) and manages foreign currency risk by using currency derivatives, such as currency forwards, for the remaining exposure.

The book value of the Company's monetary assets and liabilities denominated in foreign currencies, which represents the maximum exposure to foreign currency risk as of December 31, 2020 and 2019 are as follows:

(In millions of won)

		2020				
		USD	EUR	JPY	GBP	Others(*1)
Financial assets	₩	406,596	28,521	15,378	84,170	124,068
Financial liabilities		335,128	92,145	19,537	4,210	81,966
Net assets (liabilities)	₩	71,468	(63,624)	(4,159)	79,960	42,102

(*1) Others are assets and liabilities denominated in foreign currencies other than USD, EUR, JPY and GBP.

(In millions of won)

		2019				
		USD	EUR	JPY	GBP	Others(*1)
Financial assets	₩	350,217	21,462	298	17,076	163,215
Financial liabilities		352,125	163,698	6,550	11,428	30,546
Net assets (liabilities)	₩	(1,908)	(142,236)	(6,252)	5,648	132,669

(*1) Others are assets and liabilities denominated in foreign currencies other than USD, EUR, JPY and GBP.

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A sensitivity analysis on the Company's income before tax for the year, assuming a 10% increase and decrease in currency exchange rates, as of December 31, 2020 and 2019 are as follows:

(In millions of won)		2020		2019	
		10% increase	10% decrease	10% increase	10% decrease
Income before tax impact	₩	12,575	(12,575)	(1,208)	1,208

The above-mentioned sensitivity analysis is based on monetary assets and liabilities denominated in foreign currencies other than the Company's functional currency as of December 31, 2020 and 2019.

2) Interest rate risk

Interest rate risk is related to borrowings and bank deposits with floating interest rates, and related interest income and expense are exposed to interest rate risk. The Company is exposed to interest rate risk mainly due to its borrowing or deposit with floating interest rates. The purpose of interest rate risk management is to minimize uncertainty and financial expense arising from interest rate fluctuation.

To manage its interest rate risk, the Company minimizes external borrowings using internal funds, reduces borrowings with high interest rates and maintains an appropriate balance between borrowings with floating interest rate, fixed-interest rate and improves system for short-term and long-term borrowings. The Company manages its interest rate risk preemptively through regular monitoring and adjustments to the changing domestic and overseas markets conditions and nature of its interest rates.

Floating rate financial assets and liabilities exposed to interest rate risk as of December 31, 2020 and 2019 are as follows:

(In millions of won)		2020		2019	
Financial assets	₩		119,000		169,000
Financial liabilities			831,521		1,546,582
Net liabilities	₩		(712,521)		(1,377,582)

A sensitivity analysis on the Company's income before tax for the year, assuming a 1% increase and decrease in interest rates, as of December 31, 2020 and 2019 are as follows:

(In millions of won)		2020		2019	
		1% increase	1% decrease	1% Increase	1% decrease
Income before tax impact	₩	(7,125)	7,125	(13,776)	13,776

3) Price risk

The Company is exposed to equity price risks arising from its listed equity investments among financial instruments. The Company periodically measures the risk as the fair value or future cash flows of equity investments may fluctuate due to the changes in market prices. Significant investments in the Company's portfolio are individually managed, and acquisition and disposal are approved by the Board of Directors.

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(2) Credit risk

The Company is exposed to credit risk that a counterparty will not meet its obligations under a financial instrument or customer contract, leading to a financial loss. Credit risk arises from trade and other receivables, debt instruments, beneficiary certificates, deposit in financial institutions, derivative financial instruments and financial guarantee contracts.

The Company enters into transactions with customers having met a certain level of credit quality and maintains policies and procedures on financial assets to manage such risks. The credit quality of a new customer is assessed based on publicly announced financial information and the information provided by credit rating agencies. Such assessment is used as a basis for determining a customer's credit limit. Furthermore, collaterals and credit guarantees are obtained as security, if necessary. In addition, the Company periodically reassesses the credit quality of customers by auditing credit limits and adjusts the amount covered by collaterals when deemed necessary. The Company also monitors whether the collection of financial assets have been impaired to take relevant actions.

The carrying amount of financial assets represents the Company's maximum exposure. The maximum exposure to credit risk as of December 31, 2020 and 2019 are as follows:

(In millions of won)

		2020	2019
Cash and cash equivalents	₩	281,631	345,833
Short-term and long- term financial instruments		117,361	120,179
Trade receivables and other receivables		707,939	999,059
Deposits in financial institutions		109,108	67,974
Short-term and long- term investment in securities (excluding equity securities)		100,192	73,086
Derivative financial assets		104,466	32,108
Total	₩	1,420,697	1,638,239

In addition to the above, the maximum amounts to be paid for the principal debtor related to financial guarantee contract are described in Notes 31 (6), (7) and (8).

The Company's receivables' aging analysis as of December 31, 2020 and 2019 are as follows:

(In millions of won)

(In millions of won)		2020					
		Receivables assessed for impairment individually or on a collective basis					Total
		Before maturity	0-3 months	3-6 months	6-12 months	More than 12 months	
Trade receivables	₩	200,039	50,030	40,402	49,559	334,701	674,731
Loans and other receivables		881,372	13,867	7,312	8,548	83,906	995,005
Accrued income		8,397	-	-	-	16,794	25,191
Lease receivables		6,501	-	-	-	-	6,501
Total	₩	1,096,309	63,897	47,714	58,107	435,401	1,701,428

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(In millions of won)

		2019					
		Receivables assessed for impairment individually or on a collective basis					
		Before maturity	0-3 months	3-6 months	6-12 months	More than 12 months	Total
Trade receivables	₩	250,382	40,853	12,016	33,049	317,126	653,426
Loans and other receivables		929,184	5,873	3,871	5,031	110,953	1,054,912
Accrued income		9,554	-	-	-	12,426	21,980
Lease receivables		8,494	-	-	-	-	8,494
Total	₩	1,197,614	46,726	15,887	38,080	440,505	1,738,812

ECLs are measured at the present value of all cash shortfalls. If the Company does not have reasonable and supportable information that is available without under overwhelming cost or effort to measure ECLs on an individual instrument basis, the Company can group financial instruments on the basis of shared credit risk characteristics.

(3) Liquidity risk

The Company is exposed to liquidity risk, which is the risk that it will encounter difficulties in fulfilling the obligations associated with its financial liabilities that are settled by delivering cash or another financial asset. The Company manages liquidity risk by matching the duration of financial assets and liabilities through estimating future cash flows from its operating, investing and financing activities, and securing moderate levels of liquidity in advance.

A summary of the Company's non-derivative liabilities maturity as of December 31, 2020 and 2019 are as follows:

(In millions of won)

		2020					
		Nominal cash flows according to contract					
	Book value	Total	Less than 1 year	1-2 years	2-5 years	More than 5 years	
Principle on financial liabilities (*1)	₩ 6,074,653	6,078,445	5,487,526	575,542	12,998	2,379	
Interest on financial liabilities	-	97,060	90,253	6,805	2	-	
Total	₩ 6,074,653	6,175,505	5,577,779	582,347	13,000	2,379	

(*1) This includes provision for payment guarantees in the amount of ₩54,855 million.

(In millions of won)

		2019					
		Nominal cash flows according to contract					
	Book value	Total	Less than 1 year	1-2 years	2-5 years	More than 5 years	
Principle on financial liabilities (*1)	₩ 6,563,230	6,594,218	5,604,014	891,826	97,738	640	
Interest on financial liabilities	-	119,031	83,831	24,570	10,630	-	
Total	₩ 6,563,230	6,713,249	5,687,845	916,396	108,368	640	

(*1) This includes provision for payment guarantees in the amount of ₩54,855 million.

The contractual amounts of financial liabilities in the above tables are calculated based on non-discounted cash flows (including estimated interest expense) and differ from its book values. Besides the above non-derivative

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liabilities, the maximum guarantee amounts based on financial guarantee contracts provided by the Company as of December 31, 2020 are described in Notes 31 (6), (7) and (8).

(4) Capital risk

The objective of the Company's capital risk management is to secure its ability to provide earnings to its shareholders and interested parties and sustain optimal capital structure to reduce the cost of capital. In order to sustain optimal capital structure, the Company uses a debt-to-equity ratio similar to other entities in the industry. Debt-to-equity ratio is calculated by dividing total liabilities by total equity.

Debt-to-equity ratios as of December 31, 2020 and 2019 are as follows:

(In millions of won)		2020	2019
Total liabilities	₩	7,686,539	7,920,170
Total equity		3,460,677	3,440,707
Debt-to-equity ratio		222.11%	230.19%

5. Restricted financial assets

Details of restricted financial assets as of December 31, 2020 and 2019 are as follows:

(In millions of won)		2020	2019	Restrictions
Cash and cash equivalents	₩	55,428	-	Establishment of pledge related to financial loan
Short-term financial instruments		3,121	6,861	National R&D projects(*1) and others
		80,843	71,570	Price return swap ("PRS") deposit(*2)
		12,000	40,400	Shared growth fund
		20,134	-	Establishment of pledge related to working capital borrowing
Long-term financial instruments		4	4	Deposits for maintenance of checking accounts
Total	₩	171,530	118,835	

(*1) The amounts are restricted in use and may only be used for specific national R&D projects.

(*2) This is deposit amount for the PRS contract that had been signed coincidentally with disposal of Doosan Bobcat Inc. shares.

6. Investments in securities

(1) Investments in securities as of December 31, 2020 and 2019 are as follows:

(In millions of won)	Description	2020	2019
Short-term investments in securities	Financial assets as measured at amortized cost	₩ 1,600	-
Long-term investments in securities	Financial assets as measured at amortized cost	-	1,600
	Financial assets as measured at FVOCI	3,885	3,889
	Financial assets as measured at FVTPL	786,368	76,506
	Subtotal	790,253	81,995
Total		₩ 791,853	81,995

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(2) Details of the Company's investments in securities as of December 31, 2020 and 2019 are as follows:

(In millions of won)

Description				2020
Short-term	Financial assets as measured at amortized cost	Debt securities	57 U-best 5 th Co., Ltd.	
				₩ 1,600
			Total	₩ 1,600
Long-term	Financial assets as measured at FVOCI	Equity securities	Al Ashkarah Desalination Company	
				₩ 3,885
			Subtotal	3,885
	Financial assets as measured at FVTPL	Equity securities	Doosan Fuel Cell Co., Ltd.(*2,3)	682,850
			Nuscale Power LLC	4,737
			HTC Purenergy Inc	128
			Others	61
		SOC	Incheon-Gimpo Expressway Co.(*1)	780
			Gyeonggi East-West Beltway Co.(*1)	4,453
		Investment in guarantee cooperative	Machinery Financial Cooperative	8,588
			Construction Guarantee Cooperative(*2)	69,458
			Engineering Guarantee Insurance(*2)	5,130
			Others	1,409
		Beneficiary certificates	Gyeongnam GNTech Creative Economy Innovation Fund	2,473
			Korea EXIM Bank - Public Carbon Fund	325
			Emerald Technology Ventures	5,976
			Subtotal	786,368
			Total	₩ 790,253

(*1) It has been pledged as collateral for developers' project financing as of December 31, 2020 (See Note 32).

(*2) It has been pledged as collateral for the Company's debt as of December 31, 2020 (See Note 32).

(*3) It was given free of charge by related person during the current year.

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Description				2019
Long-term	Financial assets as measured at amortized cost	Debt securities	57 U-best 5 th Co., Ltd.	₩ 1,600
	Financial assets as measured at FVOCI	Equity securities	Lanco Kondapali Power Ltd.	4
			Al Ashkara Desalination Company	3,885
			Subtotal	3,889
	Financial assets as measured at FVTPL	Equity securities	Nuscale Power LLC	4,737
			HTC Purenergy Inc	222
			Others	61
		SOC	Incheon-Gimpo Expressway Co.	7,484
			Gyeonggi East-West Beltway Co.	4,534
		Investment in guarantee cooperative	Machinery Financial Cooperative	7,491
			Construction Guarantee Cooperative	38,536
			Engineering Guarantee Insurance	4,839
			Others	405
		Beneficiary certificates	Gyeongnam GNTech Creative Economy Innovation Fund	3,501
			The Export-Import Bank of Korea - Public Carbon Fund	314
			Emerald Technology Ventures	4,382
			Subtotal	76,506
			Total	₩ 81,995

(3) Changes in financial assets as measured at fair value for the years ended December 31, 2020 and 2019 are as follows:

(In millions of won)

2020					
	January 1	Acquisition	Disposal	Gain or loss on valuation	December 31
Financial assets as measured at FVOCI	₩ 3,889	-	-	(4)	3,885
Financial assets as measured at FVTPL	76,506	633,680	(1,938)	78,120	786,368
Total	₩ 80,395	633,680	(1,938)	78,116	790,253

(In millions of won)

2019					
	January 1	Acquisition	Disposal	Gain or loss on valuation	December 31
Financial assets as measured at FVOCI	₩ 15,213	722	-	(12,046)	3,889
Financial assets as measured at FVTPL	66,372	29,761	(18,468)	(1,159)	76,506
Total	₩ 81,585	30,483	(18,468)	(13,205)	80,395

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7. Trade and other receivables

(1) Trade and other receivables as of December 31, 2020 and 2019 are as follows:

(In millions of won)

	2020			2019		
	Gross	Allowance for doubtful accounts	Book value	Gross	Allowance for doubtful accounts	Book value
Current asset:						
Trade receivables	₩ 674,731	(325,124)	349,607	653,426	(159,954)	493,472
Other receivables	245,547	(107,295)	138,252	412,825	(91,752)	321,073
Accrued income	25,191	(12,588)	12,603	21,980	(12,588)	9,392
Short-term loans	234,953	(74,800)	160,153	86,495	(32,200)	54,295
Lease receivables	1,981	-	1,981	1,336	-	1,336
Subtotal	1,182,403	(519,807)	662,596	1,176,062	(296,494)	879,568
Non-current asset:						
Long-term loans	514,505	(473,682)	40,823	555,592	(443,259)	112,333
Lease receivables	4,520	-	4,520	7,158	-	7,158
Subtotal	519,025	(473,682)	45,343	562,750	(443,259)	119,491
Total	₩ 1,701,428	(993,489)	707,939	1,738,812	(739,753)	999,059

(2) Changes in allowance for doubtful accounts for the years ended December 31, 2020 and 2019 are as follows:

(In millions of won)

	2020			
	January 1	Provision for allowance	Others	December 31
Trade and other receivables:				
Trade receivables	₩ 159,954	165,170	-	325,124
Other receivables	91,752	643	14,900	107,295
Accrued income	12,588	-	-	12,588
Short and long-term loans	475,459	73,022	-	548,481
Subtotal	739,753	238,835	14,900	993,488
Others:				
Due from customers for contract work	52,138	2,735	-	54,873
Deposits	2,339	-	-	2,339
Subtotal	54,477	2,735	-	57,212
Total	₩ 794,230	241,570	14,900	1,050,700

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(In millions of won)		2019			
		January 1	Provision for (reversal of) allowance	Write-off of uncollectable amounts	December 31
Trade and other receivables:					
Trade receivables	₩	162,051	(2,097)	-	159,954
Other receivables		67,551	34,586	(10,385)	91,752
Accrued income		12,588	-	-	12,588
Short and long-term loans		423,635	51,824	-	475,459
Subtotal		665,825	84,313	(10,385)	739,753
Others:					
Due from customers					
for contract work		50,505	1,633	-	52,138
Deposits		2,339	-	-	2,339
Subtotal		52,844	1,633	-	54,477
Total	₩	718,669	85,946	(10,385)	794,230

8. Inventories

Inventories as of December 31, 2020 and 2019 are as follows:

(In millions of won)

		2020			2019		
		Acquisition cost	Valuation allowance	Book value	Acquisition cost	Valuation allowance	Book value
Finished goods	₩	21,495	(2,110)	19,385	25,544	(1,295)	24,249
Work-in-process		207,446	(10,790)	196,656	242,085	(9,047)	233,038
Raw materials		42,112	(2,757)	39,355	40,470	(2,344)	38,126
Supplies		18,150	(2,581)	15,569	16,933	(2,579)	14,354
Materials-in-transit		22,356	-	22,356	34,460	-	34,460
Total	₩	311,559	(18,238)	293,321	359,492	(15,265)	344,227

Losses on inventory valuation recognized within the cost of sales amounted to ₩2,973 million and ₩1,036 million for the years ended December 31, 2020 and 2019, respectively.

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9. Derivatives

(1) Overview of the derivatives of the Company is as follows:

	Category	Summary
Fair value hedge	Forward exchange	Avoiding the risk of exchange rate fluctuations for foreign currency contracts that meet the requirements of the firm commitment
Cash flow hedge	Forward exchange	Avoiding the cash flow risk due to fluctuations in the exchange rate of the expected foreign currency collection and the expected foreign currency expenditure related to the purchasing of foreign materials
	Interest rate swap	Contracts that pay a fixed rate and receives a variable rate on the future interest payment date in order to avoid the risk of cash flow fluctuations due to fluctuations in interest rates
Trading	Forward exchange	Contracts that concluded a forward currency contract to avoid the risk of future cash flow fluctuations, but did not apply hedging accounting

The Company classified derivatives as non-current assets (liabilities) if their remaining maturity exceeds 12 months from the end of the reporting period to the contract maturity date, and current assets (liabilities) if they are within 12 months. When cash flow hedging is applied, the ineffective portion is recognized in profits (losses).

(2) Details of valuation of derivatives as of December 31, 2020 and 2019 are as follows:

(In millions of won, in thousands of foreign currency)

				2020			
Buy		Sell		Derivative financial assets (liabilities)	Gain (loss) on valuation of derivative financial instruments	Accumulated other comprehensive income (loss) (*1)	Firm commitment assets (liabilities) (*2)
Currency	Amount	Currency	Amount				
Foreign currency forwards:							
KRW	1,926,579	USD	1,722,052 ₩	49,645	69,081	1,724	(21,622)
KRW	181,670	EUR	133,820	969	452	(465)	(404)
KRW	132,388	JPY	11,468,220	9,253	2,919	1,000	(3,335)
KRW	50,479	Others		2,513	2,430	62	(1,263)
USD	428,842	KRW	482,949	(15,722)	(15,116)	(10,586)	1,906
EUR	264,230	KRW	357,794	(184)	(1,364)	4,511	44
JPY	13,798,410	KRW	172,915	(24,486)	(2,705)	(6,254)	130
Others		KRW	54,232	(2,337)	(14)	(2,272)	7
Long-term (short-term) borrowing denominated in foreign currencies(*3)							
KRW	-	USD	-	-	-	-	36
Interest rate swap ("IRS")				(832)	-	(832)	-
Stock warrant(*4)				19,605	17,755	-	-
PRS(*5)				24,613	24,613	-	-
Subtotal				63,037	98,051	(13,112)	(24,501)
Tax effect				-	-	3,173	-
Total				₩ 63,037	98,051	(9,939)	(24,501)

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- (*1) In consideration of the amounts adjusted in sales and cost of sales, the effective portion of changes in fair value of cash flow hedges amounting to (-) ₩9,939 million, net of tax, was recognized in accumulated other comprehensive income or loss.
- (*2) In consideration of the amounts adjusted in revenue, firm commitment assets of ₩15,407 million and firm commitment liabilities of ₩39,908 million were recognized in the separate statements of financial position by applying a fair value hedge accounting.
- (*3) The Company designated its short-term and long-term borrowings denominated in foreign currencies as hedging instruments to hedge the fair value change of firm commitments.
- (*4) It is stock warrants of detachable bonds with stock warrants issued by Doosan Infracore Co., Ltd.
- (*5) The Company has entered into PRS contract to exchange profits due to changes in stock prices at the same time as the disposal of Doosan Bobcat Inc. shares.

(In millions of won, in thousands of foreign currency)

2019							
Buy		Sell		Derivative financial assets (liabilities)	Gain (loss) on valuation of derivative financial instruments	Accumulated other comprehensive income (loss) (*1)	Firm commitment assets (liabilities) (*2)
Currency	Amount	Currency	Amount				
Foreign currency forwards:							
KRW	1,978,942	USD	1,766,910	₩ (46,830)	(34,440)	628	25,605
KRW	260,424	EUR	195,276	4,346	1,524	617	(720)
KRW	199,713	JPY	18,082,201	3,449	(2,622)	(1,112)	(1,895)
KRW	70,902	Others		(862)	(978)	(64)	424
USD	1,450,610	KRW	1,674,689	11,410	38,493	3,178	(3,497)
EUR	269,516	KRW	364,052	(10,462)	(3,907)	(1,085)	129
JPY	15,746,081	KRW	196,213	(23,953)	(1,527)	25	73
Others		KRW	21,007	284	(88)	527	-
Long-term (short-term) borrowing denominated in foreign currencies(*3)							
KRW	-	USD	-	-	-	-	180
Currency rate swap				(17)	1,588	(17)	-
Interest rate swap ("IRS")				(1,204)	-	(1,204)	-
Stock warrant(*4)				1,850	(12,984)	-	-
PRS(*5)				(14,157)	(14,157)	-	-
Subtotal				(76,146)	(29,098)	1,493	20,299
Tax effect				-	-	(361)	-
Total				₩ (76,146)	(29,098)	1,132	20,299

- (*1) In consideration of the amounts adjusted in sales and cost of sales, the effective portion of changes in fair value of cash flow hedges amounting to ₩1,132 million, net of tax, was recognized in accumulated other comprehensive income or loss.
- (*2) In consideration of the amounts adjusted in revenue, firm commitment assets of ₩43,860 million and firm commitment liabilities of ₩23,561 million were recognized in the separate statements of financial position by applying a fair value hedge accounting.
- (*3) The Company designated its short-term and long-term borrowings denominated in foreign currencies as hedging instruments to hedge the fair value change of firm commitments.
- (*4) It is stock warrants of detachable bonds with stock warrants issued by Doosan Infracore Co., Ltd.

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(*5) The Company has entered into PRS contract to exchange profits due to changes in stock prices at the same time as the disposal of Doosan Bobcat Inc. shares.

10. Financial instruments

(1) Financial assets as of December 31, 2020 and 2019 are as follows:

(In millions of won)

		2020					
		Financial assets as measured at amortized cost	Financial assets as measured at FVOCI	Financial assets as measured at FVTPL	Other financial assets (*1)	Carrying amounts	Fair value
Cash and cash equivalents	₩	281,631	-	-	-	281,631	281,631
Short-term and long-term financial instruments		117,361	-	-	-	117,361	117,361
Short-term and long-term investment in securities		1,600	3,885	786,368	-	791,853	791,853
Derivative financial assets		-	-	50,332	54,134	104,466	104,466
Trade and other receivables		707,939	-	-	-	707,939	707,939
Deposits		109,108	-	-	-	109,108	109,108
Total	₩	1,217,639	3,885	836,700	54,134	2,112,358	2,112,358

(*1) Other financial assets include derivatives as hedged item.

(In millions of won)

		2019					
		Financial assets as measured at amortized cost	Financial assets as measured at FVOCI	Financial assets as measured at FVTPL	Other financial assets (*1)	Carrying amounts	Fair value
Cash and cash equivalents	₩	345,833	-	-	-	345,833	345,833
Short-term and long-term financial instruments		120,179	-	-	-	120,179	120,179
Short-term and long-term investment in securities		1,600	3,889	76,506	-	81,995	81,995
Derivative financial assets		-	-	11,397	20,711	32,108	32,108
Trade and other receivables		999,059	-	-	-	999,059	999,059
Deposits		67,974	-	-	-	67,974	67,974
Total	₩	1,534,645	3,889	87,903	20,711	1,647,148	1,647,148

(*1) Other financial assets include derivatives as hedged item.

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(2) Financial liabilities as of December 31, 2020 and 2019 are as follows:

(In millions of won)

(In millions of won)

	2020				
	Financial liabilities as measured at amortized cost	Financial liabilities as measured at FVTPL	Other financial liabilities(*1)	Carrying amounts	Fair value
Trade and other payables	₩ 893,108	-	-	893,108	893,108
Borrowings and bonds	4,867,296	-	-	4,867,296	4,867,296
Derivative financial liabilities	-	20,260	21,169	41,429	41,429
Financial guarantee liabilities	-	-	1,121	1,121	1,121
Lease liabilities	28,113	-	-	28,113	28,113
Others	230,159	-	-	230,159	230,159
Total	₩ 6,018,676	20,260	22,290	6,061,226	6,061,226

(*1) Other financial liabilities include derivatives as hedged item and others.

(In millions of won)

(In millions of won)

	2019				
	Financial liabilities as measured at amortized cost	Financial liabilities as measured at FVTPL	Other financial liabilities(*1)	Carrying amounts	Fair value
Trade and other payables	₩ 1,121,462	-	-	1,121,462	1,121,462
Borrowings and bonds	4,885,569	-	-	4,885,569	4,885,569
Derivative financial liabilities	-	45,863	62,391	108,254	108,254
Financial guarantee liabilities	-	-	994	994	994
Lease liabilities	43,686	-	-	43,686	43,686
Others(*2)	236,663	-	220,000	456,663	456,663
Total	₩ 6,287,380	45,863	283,385	6,616,628	6,616,628

(*1) Other financial liabilities include derivatives as hedged item and others.

(*2) Others include PF payment guarantees for Club Mow in the amount of ₩220,000 million.

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(3) As of December 31, 2020 and 2019, the Company uses the following hierarchy for determining and disclosing the fair value of financial instruments.

Level 1: Quoted (unadjusted) prices in active markets for identical assets or liabilities.

Level 2: Inputs other than quoted prices that are observable for the asset or liability either directly or indirectly.

Level 3: Inputs that are not based on observable market data (unobservable inputs).

The fair value of financial instruments traded in active markets is based on quoted market prices at the dates of the separate statements of financial position. These instruments are included in level 1, instruments included in level 1 primarily comprise listed equity investments classified as trading securities.

The fair value of financial instruments that are not traded in an active market (for example, over-the counter derivatives) is determined by using valuation techniques. These valuation techniques maximize the use of observable market data where it is available and rely as little as possible on entity-specific estimates. If all significant inputs required to fair value an instrument are observable, the instrument is included in level 2.

If one or more of the significant inputs are not based on observable market data, the instrument is included in level 3.

Specific valuation techniques used to value financial instruments include:

- quoted or dealer price of similar instruments;
- the fair value of forward foreign exchange contracts determined by using forward exchange rates at the reporting date, with the resulting value discounted to present value; and
- other financial techniques such as discounted cash flow analysis.

The level of fair value measurements of financial instruments as of December 31, 2020 and 2019 are as follows:

(In millions of won)

		2020			
		Level 1	Level 2	Level 3	Total
Financial assets measured at fair value:					
Measured at FVOCI	₩	-	-	3,885	3,885
Measured at FVTPL		682,980	50,332	103,388	836,700
Others		-	54,134	-	54,134
Total	₩	682,980	104,466	107,273	894,719
Financial liabilities measured at fair value:					
Measured at FVTPL	₩	-	20,260	-	20,260
Others		-	21,169	-	21,169
Total	₩	-	41,429	-	41,429

(In millions of won)

		2019			
		Level 1	Level 2	Level 3	Total
Financial assets measured at fair value:					
Measured at FVOCI	₩	-	-	3,889	3,889
Measured at FVTPL		223	11,397	76,283	87,903
Others		-	20,711	-	20,711
Total	₩	223	32,108	80,172	112,503
Financial liabilities measured at fair value:					
Measured at FVTPL	₩	-	45,863	-	45,863
Others		-	62,391	-	62,391
Total	₩	-	108,254	-	108,254

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The above tables exclude financial assets and financial liabilities which are not measured at fair value as differences between the carrying amounts and fair values are not significant.

Assumptions used for the measurement of financial assets at fair value based on level 3 valuation techniques as of December 31, 2020 are as follows:

	Valuation techniques	Discount rate	Note
Incheon-Gimpo Expressway Co.	Dividend discount model	6.67%	Expected dividend cash flow for each financial period
Gyeonggi East-West Beltway Co.	Net asset value assessment	-	Fair value of net asset
Korea EXIM Bank - Public Carbon Fund	Estimated sales price valuation method	-	Expected sales price
Construction Guarantee Cooperative	Estimated sales price valuation method	-	Expected sales price
Machinery Financial Cooperative	Estimated sales price valuation method	-	Expected sales price
Engineering Guarantee Insurance	Estimated sales price valuation method	-	Expected sales price
Gyeongnam GNTech Creative Economy Innovation Fund	Net asset value assessment	-	Fair value of net asset
Emerald Technology Venture	Estimated sales price valuation method	-	Return rate on investment
Lanco Kondapalli Power Ltd.	Net asset value assessment	-	Fair value of net asset
Al Asilah Desalination Company	Net asset value assessment	-	Fair value of net asset
NuScale Power LLC	Net asset value assessment	-	Fair value of net asset
Others	Estimated sales price valuation method, etc.	-	Expected sales price, etc.

Changes in financial assets included in level 3 of the fair value hierarchy for the years ended December 31, 2020 and 2019 are summarized as follows:

(In millions of won)

		2020					
		January 1	Acquisition	Disposal	Gain or loss on valuation	Others	December 31
Financial assets as measured at FVOCI	₩	3,889	-	-	-	(4)	3,885
Financial assets as measured at FVTPL		76,283	33,155	(1,938)	(4,112)	-	103,388
Total	₩	80,172	33,155	(1,938)	(4,112)	(4)	107,273

(In millions of won)

		2019					
		January 1	Acquisition	Disposal	Gain or loss on valuation	Others	December 31
Financial assets as measured at FVOCI	₩	15,213	722	-	-	(12,046)	3,889
Financial assets as measured at FVTPL		66,217	29,761	(18,468)	(1,227)	-	76,283
Total	₩	81,430	30,483	(18,468)	(1,227)	(12,046)	80,172

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(4) Gain or loss by categories of financial instruments

1) Gain or loss by categories of financial instruments for the years ended December 31, 2020 and 2019 are as follows:

(In millions of won)

		2020					
		Gain or loss					
		Interest income (expense)	Dividend income	Gain or loss on valuation(*1)	Impairment loss on financial instruments	Gain or loss on disposal	Gain or loss on financial guarantee
							Comprehensive gain (loss)(*2)
Financial assets:							
Measured at							
amortized cost	₩	9,831	-	-	(238,835)	(7,758)	-
Measured at							
FVTPL		-	612	78,119	-	-	-
Measured at							
FVOCI		-	-	-	-	-	(4)
Financial liabilities:							
Measured at							
amortized cost		(186,409)	-	-	-	(31,385)	-
Others		-	-	-	-	-	(2,915)

(*1) The amounts of gains and losses of foreign exchange and derivatives are excluded.

(*2) The amounts in other comprehensive income or loss exclude deferred tax effect.

(In millions of won)

		2019					
		Gain or loss					
		Interest income (expense)	Dividend income	Gain or loss on valuation(*1)	Impairment loss on financial instruments	Gain or loss on disposal	Gain or loss on financial guarantee
Financial assets:							
Measured at							
amortized cost	₩	16,235	-	-	(85,946)	(7,515)	-
Measured at							
FVTPL		-	277	(1,159)	-	(172)	-
Total	₩	16,235	277	(1,159)	(85,946)	(7,687)	-
Financial liabilities:							
Measured at							
amortized cost	₩	(184,338)	-	-	-	-	-
Others		-	-	-	-	-	(16)

(*1) The amounts of gains and losses of foreign exchange and derivatives are excluded.

Gains or losses on translation or transaction of foreign currencies arising from foreign currency transactions except for derivative financial instruments have been mostly incurred from financial assets and liabilities measured at amortized cost.

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2) Details of gains and losses on valuation and settlement of derivative financial instruments for the years ended December 31, 2020 and 2019 are as follows:

(In millions of won)

		2020		
		Gain or loss on valuation	Gain or loss on settlement	Other comprehensive income (loss)(*1)
Derivatives measured at FVTPL	₩	38,880	(19,870)	-
Derivatives for fair value hedge		59,503	-	-
Derivatives for cash flow hedge		(332)	(416)	(14,605)
Total	₩	98,051	(20,286)	(14,605)

(*1) Amounts in other comprehensive income or loss exclude deferred tax effect.

(In millions of won)

		2019		
		Gain or loss on valuation	Gain or loss on settlement	Other comprehensive income (loss)(*1)
Derivatives measured at FVTPL	₩	9,711	8,038	-
Derivatives for fair value hedge		(38,238)	-	-
Derivatives for cash flow hedge		(571)	(584)	7,952
Total	₩	(29,098)	7,454	7,952

(*1) Amounts in other comprehensive income or loss exclude deferred tax effect.

Above gains or losses on financial instruments include amounts in selling and administrative expenses, finance income or expenses, other non-operating income and expenses and other comprehensive income or loss from each financial instrument.

(5) Financial assets and financial liabilities subject to an enforceable master netting arrangement or similar agreement as of December 31, 2020 are as follows:

(In millions of won)

		Eligible for legal right to offset		
		Total assets (liabilities)	Offset amount	Amount after offset
Derivative financial assets	₩	79,580	(19,332)	60,248
Derivative financial liabilities		(59,929)	19,332	(40,597)

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11. Investments in subsidiaries, associates and joint ventures

(1) Details of share of investments in subsidiaries, associates and joint ventures as of December 31, 2020 and 2019 are as follows:

(In millions of won)

	Location of incorporation	Percentage of ownership (%)		2020	2019
Subsidiaries:					
Doosan Engineering & Construction Co., Ltd. ("DEC") (*1,8)	Korea	100.00	₩	439,307	1,158,402
Doosan Infracore Co., Ltd. ("DI")(*1,2)	Korea	34.97		1,483,471	1,483,471
Doosan Cuvex Co., Ltd.(*1,3)	Korea	21.11		40,139	40,139
Doosan Power Systems S.A. ("DPS S.A.") (*11)	Luxembourg	100.00		404,074	404,074
Doosan Enpure Ltd.	UK	100.00		4,951	4,951
S.C. Doosan IMGB S.A. ("IMGB")(*12)	Romania	-		-	40,772
Doosan Heavy Industries Vietnam Co., Ltd.(*13)	Vietnam	100.00		203,038	139,342
Doosan Heavy Industries Japan Corp.	Japan	100.00		1,993	1,993
Doosan Heavy Industries America Holdings Inc.	USA	100.00		101,437	101,437
Doosan HF Controls Corp.	USA	100.00		5,642	5,642
Doosan Power Systems India Private Ltd. ("DPSI")(*10)	India	99.90		-	131,392
Doosan Heavy Industries Muscat LLC	Oman	70.00		319	319
Doosan Power System Arabia Company Limited	Saudi Arabia	51.00		3,968	3,968
Doosan GridTech Inc.(*13)	USA	100.00		70,455	61,609
Azul Torre Construction Corporation(*4)	Philippines	40.00		9	9
Osung Power O&M Co., Ltd.	Korea	100.00		360	360
PT.Doosan Heavy industries Indonesia(*13)	Indonesia	83.64		761	-
Doosan Heavy industries Malaysia sdn. Bhd	Malaysia	100.00		-	-
Doosan Mecatec Co., Ltd.(*1,9)	Korea	100.00		269,210	-
Subtotal				3,029,134	3,577,880
Associate:					
The HS-City Expressway(*5)	Korea	27.29		9,578	9,578
Samcheok Blue Power Co., Ltd.(*5,6,15)	Korea	9.00		43,568	43,568
Daejung Offshore Wind Power Co., Ltd.(*14)	Korea	26.65		3,196	2,827
Hychangwon Co., Ltd.(*9,16)	Korea	18.52		3,000	-
Subtotal				59,342	55,973
Joint ventures:					
Haman Industrial Complex Company(*7)	Korea	-		-	-
Total			₩	3,088,476	3,633,853

(*1) As of December 31, 2020, investments in the investee have been pledged as collateral for the Company's liabilities and hybrid securities issued by DPS S.A. (See Note 32, 35).

(*2) Although the Company's ownership interest in the investee is less than 50%, the Company assessed that it exercises control over the investee based on its holdings relative to the size and dispersion of ownership interests held by other equity holders and the voting patterns in previous shareholders' meetings.

(*3) Although the Company's ownership interest in the investee is less than 50%, it is classified as a consolidated subsidiary since the Company is considered to have the voting rights in shareholders' meetings, and others.

(*4) Although the Company's ownership interest in the investee is less than 50%, the investee is controlled by the Company considering the exercise of voting rights in the board of directors and others.

(*5) Investments in the investee have been pledged as collateral for the Company's project financing and contract of completion guarantee (See Note 32).

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- (*6) Although the Company's ownership interest in the investee is less than 20%, the investee is classified as an associate considering the exercise of voting rights in the board of directors.
- (*7) Liquidated in 2020.
- (*8) The Company acquired an additional ₩51,009 million through comprehensive stock exchange, and recognized an impairment loss (other non-operating expenses) of ₩739,094 million as the carrying amount exceeded its recoverable amount in 2020.
- (*9) Newly acquired in 2020.
- (*10) The Company recognized an impairment loss (other non-operating expenses) of ₩331,392 million, including an additional ₩200,000 million contributed in 2020, as the carrying amount exceeded its recoverable amount in 2020.
- (*11) As of December 31, 2020, investments in the investee have been pledged as collateral for export bond insurance limit contract signed with Korea Export Insurance Corporation (See Note 32).
- (*12) Disposed in 2020.
- (*13) Additional acquired in 2020.
- (*14) Additional acquired through the debt for equity swap in 2020.
- (*15) The Company name was changed from POSPOWER Co., Ltd. to Samcheok Blue Power Co., Ltd. in 2020.
- (*16) The Company's ownership interest in the investee included preferred stocks, and the investee is classified as an associate since the Company hold more than 20% of the stocks with voting rights.

(2) Impairment of investments in subsidiaries, associates and joint ventures

1) DEC

The Company recognized an impairment loss (other non-operating expenses) of ₩739,034 million and ₩61,200 million based on the impairment test of DEC for the years ended December 31, 2020 and 2019 respectively as the carrying amount exceeds the aggregate recoverable amount of DEC. The recoverable amount of DEC is valued based on value-in-use calculated by the valuation expert in 2019, and valued based on fair value in 2020 as it is included in the sale list in accordance with the financial structure Improvement plan signed with the Korea development bank and Korea EXIM bank. The market value approach was applied to calculate fair value.

2) DPSI

As the carrying amount exceeded its recoverable amount due to the slowdown in the Indian coal power market and the suspension of new orders, the Company recognized an impairment loss of ₩331,392 million (other non-operating expenses) including ₩200,000 million contributed in 2020. The Company decided that the asset value appropriately reflects recoverable amount of DPSI and assessed it as fair value less cost to sell. Net fair value is calculated as the value of financial assets and PP&E and others less cost to sell.

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12. Property, plant and equipment

(1) Changes in property, plant and equipment for the years ended December 31, 2020 and 2019 are as follows:

(In millions of won)

	2020						
	Land	Buildings and structures	Machinery	Others	Construction in progress	Right-of-use assets	Total
As of January 1, 2020	₩ 2,432,461	259,689	263,165	27,854	115,849	36,008	3,135,026
Acquisition / capital expenditure	-	-	523	900	25,852	14,198	41,473
Transfer(*1)	(24,372)	3,262	23,680	2,799	(40,304)	-	(34,935)
Disposals(*2)	(484)	(349)	(40)	(143)	-	(1,210)	(2,226)
Depreciation	-	(28,543)	(42,580)	(8,383)	-	(31,317)	(110,823)
Impairment loss	-	-	-	-	(36,107)	-	(36,107)
Others	-	-	-	-	(81)	3,646	3,565
As of December 31, 2020	₩ 2,407,605	234,059	244,748	23,027	65,209	21,325	2,995,973
- Acquisition cost	₩ 1,206,173	740,692	1,193,764	214,500	101,316	62,296	3,518,741
- Accumulated depreciation(*3)	-	(506,633)	(949,016)	(191,473)	(36,107)	(40,971)	(1,724,200)
- Revaluation surplus	1,201,432	-	-	-	-	-	1,201,432

(*1) For the year, the land of ₩24,372 million was reclassified as investment property (See Note 15).

(*2) Includes the amount due to contract cancelation of the right-of-use assets (See Note 14).

(*3) Includes the accumulated impairment losses.

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(In millions of won)

	2019						
	Land	Buildings and structures	Machinery	Others	Construction in progress	Right-of-use assets	Total
As of January 1, 2019	₩ 2,573,606	281,273	284,679	35,697	135,046	-	3,310,301
Adjustment of changes in K-IFRS(*1)	-	-	-	-	-	65,901	65,901
Acquisition / capital expenditure	-	-	178	1,165	38,190	13,996	53,529
Transfer	-	17,144	24,231	4,489	(33,654)	-	12,210
Disposals(*2)	(138,880)	(9,928)	(7)	(1,554)	(23,733)	-	(174,102)
Depreciation	-	(28,800)	(45,916)	(11,943)	-	(44,060)	(130,719)
Net decrease due to revaluation	(2,265)	-	-	-	-	-	(2,265)
Others	-	-	-	-	-	171	171
As of December 31, 2019	₩ 2,432,461	259,689	263,165	27,854	115,849	36,008	3,135,026
- Acquisition cost	₩ 1,218,829	738,050	1,176,110	217,389	115,849	79,897	3,546,124
- Accumulated depreciation(*3)	-	(478,361)	(912,945)	(189,535)	-	(43,889)	(1,624,730)
- Revaluation surplus	1,213,632	-	-	-	-	-	1,213,632

(*1) Right-of-use asset from the adoption of K-IFRS No. 1116 is classified as property, plant and equipment (See Note 14).

(*2) Includes the land reclassified as non-current assets held for sale and sold during 2019.

(*3) Includes the accumulated impairment losses.

As of December 31, 2020, certain property, plant and equipment and others have been pledged as collateral for borrowings (See Note 32).

(2) Capitalized borrowing costs for the years ended December 31, 2020 and 2019 are as follows:

(In millions of won)

	2020	2019
Capitalized borrowing costs	₩ 2,075	2,843
Interest rate of borrowing costs	3.40%	3.69%

(3) Details of depreciation on property, plant and equipment for the years ended December 31, 2020 and 2019 are as follows:

(In millions of won)

	2020	2019
Cost of sales	₩ 96,871	117,813
Selling and administrative expenses	13,952	12,906
Total	₩ 110,823	130,719

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(4) Revaluation of land

The Company accounts for land using revaluation model; and if the land were accounted for using cost model, the carrying amount of land would have been ₩1,206,173 million and ₩1,218,829 million as of December 31, 2020 and 2019, respectively. As of December 31, 2020, there is no significant difference compared to the fair value of land measured as of December 31, 2019.

13. Intangible assets

(1) Changes in intangible assets for the years ended December 31, 2020 and 2019 are as follows:

(In millions of won)

		2020			
		Goodwill	Industrial property rights	Development costs	Other intangible assets
As of January 1, 2020	₩	3,014	67	902,749	77,932
Increase		-	3,963	156,776	24,478
Internal development		-	-	156,776	-
Individual acquisition		-	3,963	-	46
Transfer from other assets		-	-	-	24,432
Decrease		-	(1,016)	(228,877)	(31,631)
Amortization		-	(1,016)	(64,165)	(20,711)
Impairment loss		-	-	(147,304)	(6,329)
Disposal		-	-	-	(4,591)
Transfer to other assets		-	-	(16,952)	-
Transfer to other expenses		-	-	(456)	-
As of December 31, 2020	₩	3,014	3,014	830,648	70,779

(In millions of won)

		2019			
		Goodwill	Industrial property rights	Development costs	Other intangible assets
As of January 1, 2019	₩	3,014	99	789,363	94,957
Increase		-	-	219,953	4,316
Internal development		-	-	219,953	-
Individual acquisition		-	-	-	710
Transfer from other assets		-	-	-	3,606
Decrease		-	(32)	(106,567)	(21,341)
Amortization		-	(32)	(69,916)	(18,784)
Impairment loss		-	-	(4,186)	(2,223)
Disposal		-	-	-	(334)
Transfer to other assets		-	-	(28,436)	-
Transfer to other expenses		-	-	(4,029)	-
As of December 31, 2019	₩	3,014	67	902,749	77,932

The carrying amounts of intangible assets with indefinite useful lives including memberships and others as of December 31, 2020 and 2019 amounted to ₩27,494 million and ₩38,413 million, respectively.

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(2) Research and development expenses expensed as incurred for the years ended December 31, 2020 and 2019 are as follows:

(In millions of won)		2020	2019
Selling and administrative expenses	₩	10,681	19,191

(3) Recognition criteria of development cost

The new R&D project is approved by the new business technology committee semi-annually, considering the commercial feasibility and others and it is decided whether to continue or stop the R&D through reviewing the appropriateness of investment. After completion of technical development, the Company performs a final review of the appropriateness of development costs through commercial operation. The Company classifies the projects into research or technology development projects based on the capitalization criteria (technical feasibility, intention, future economic benefits). Research projects are recognized as an expense when it is incurred and technology development projects are recorded as intangible assets.

(4) Details of development costs as of December 31, 2020 and 2019 are as follows:

(In millions of won)		2020		2019	
	Description	Book value	Remaining amortization period(*1)	Book value	Remaining amortization period(*1)
Development costs	Large-sized Gas Turbine	₩ 518,802	-	444,398	-
	500MW Standard TPP	-	-	54,435	-
	IGCC Gasification Plant	-	-	46,491	18.58 years
	3MW Class III Wind Turbine Generator	-	-	18,989	3.67 years
	Gas Turbine 7F Retrofit	34,275	-	21,540	-
	Mid-size Gas Turbine Development Phase 1	861	8.58 years	962	9.58 years
	Mid-size Gas Turbine Development Phase 2	17,835	-	2,112	-
	5.5MW Offshore Wind Power	17,220	-	15,238	-
	8MW Offshore Wind Power	15,728	-	5,591	-

(*1) Remaining amortization period is disclosed for assets which amortization has been initiated and disclosed as '-' for assets not yet amortized.

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(5) Intangible assets for which an impairment loss has been recognized for the years ended December 31, 2020 and 2019 are as follows:

(In millions of won)

Description	2020					
	Acquisition cost	Impairment loss		Accumulated depreciation	Book value	Method used to assess recoverability
		Loss	Accumulated			
Development costs(*1)						
500MW Standard TPP ₩	55,931	(55,931)	(55,931)	-	-	Value in use
IGCC Gasification Plant	47,493	(44,197)	(44,197)	(3,296)	-	Value in use
3MW Class III Wind Turbine Generator	25,612	(14,293)	(14,293)	(11,319)	-	Value in use
USC CFB Boiler RPM Development	16,894	(10,921)	(10,921)	(5,973)	-	Value in use
Others(*2)	29,702	(21,962)	(21,962)	(7,740)	-	Value in use
Subtotal	175,632	(147,304)	(147,304)	(28,328)	-	
Other intangible assets						
Reclamation license	40,898	(10,749)	(30,149)	-	10,749	Value in use
Total ₩	216,530	(158,053)	(177,453)	(28,328)	10,749	

(*1) The related carrying amount recognized an impairment loss, as the value in use decreased due to changes in energy policy, etc.

(*2) The amount of impairment loss for development costs for 18 cases other than the above 4 cases.

(In millions of won)

Description	2019					
	Acquisition cost	Impairment loss		Accumulated depreciation	Book value	Method used to assess recoverability
		Loss	Accumulated			
Development costs						
Development of top mounted furnace internal measuring system (TM-ICI) and one other case(*1) ₩	1,507	(1,237)	(1,237)	(270)	-	Value in use
PCCS passive heat exchanger conceptual design development and 7 other cases(*1)	2,442	(2,442)	(2,442)	-	-	Value in use
Others	507	(507)	(507)	-	-	Value in use
Subtotal	4,456	(4,186)	(4,186)	(270)	-	
Other intangible assets						
Golf membership	4,737	(4,277)	(4,277)	-	460	Net fair value
Total ₩	9,193	(8,463)	(8,463)	(270)	460	

(*1) The carrying amount was reduced in full accordance with the development of new nuclear power plants stopped due to the domestic construction stopped and government policy.

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(6) Reversal of impairment loss of intangible assets

Reversal of impairment loss of intangible assets for the years ended December 31, 2020 and 2019 are as follows:

(In millions of won)

Description	Assets	2020		2019	
		Reversal of impairment loss	Method used to assess recoverability	Reversal of impairment loss	Method used to assess recoverability
Other intangible assets	Golf membership ₩	4,420	Net fair value	2,054	Net fair value

(7) Statement of income items included (reversal of) impairment loss

For the years ended December 31, 2020 and 2019, statement of profit (loss) items the Company recognized (reversal of) impairment loss are as follows:

(In millions of won)

	2020	2019
Other non-operating expenses	₩ (158,053)	(8,463)
Other non-operating income	4,420	2,054
Total	₩ (153,633)	(6,409)

(8) Capitalized borrowing costs for the years ended December 31, 2020 and 2019 are as follows:

(In millions of won)

	2020	2019
Capitalized borrowing costs	₩ 24,890	21,187
Interest rate of borrowing costs	3.40%	3.69%

(9) Details of amortization of intangible assets for the years ended December 31, 2020 and 2019 are as follows:

(In millions of won)

	2020	2019
Cost of sales	₩ 66,700	71,562
Selling and administrative expenses	19,192	17,170
Total	₩ 85,892	88,732

14. Lease

(1) Changes in right-of-use assets for the years ended December 31, 2020 and 2019 are as follows:

(In millions of won)

		2020		
		Buildings	Other tangible assets	Total
As of January 1, 2020	₩	22,867	13,141	36,008
Acquisition		9,436	4,762	14,198
Depreciation		(19,791)	(11,526)	(31,317)
Contract cancelation		(27)	(1,183)	(1,210)
Others		4,325	(679)	3,646
As of December 31, 2020	₩	16,810	4,515	21,325
- Acquisition cost	₩	49,368	12,928	62,296
- Accumulated depreciation		(32,558)	(8,413)	(40,971)

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(In millions of won)

		2019		
		Buildings	Other tangible assets	Total
As of January 1, 2019	₩	-	-	-
Adjustment on initial application of changes in K-IFRS		32,474	33,427	65,901
Acquisition		6,406	7,590	13,996
Depreciation		(16,499)	(27,561)	(44,060)
Others		486	(315)	171
As of December 31, 2019	₩	22,867	13,141	36,008
- Acquisition cost	₩	39,258	40,639	79,897
- Accumulated depreciation		(16,391)	(27,498)	(43,889)

(2) Changes in the lease liabilities for the years ended December 31, 2020 and 2019 are as follows:

(In millions of won)

		2020	2019
As of January 1	₩	43,686	-
Adjustment on initial application of changes in K-IFRS		-	79,398
Payment of lease		(31,863)	(53,345)
Acquisition of leased assets		14,198	13,996
Interest expense		2,511	3,637
Contract cancelation		(1,252)	-
Others		833	-
As of December 31	₩	28,113	43,686

(3) The details of depreciation of right-of-use assets for the years ended December 31, 2020 and 2019 are as follows:

(In millions of won)

		Depreciation of right-of-use assets	
		2020	2019
Cost of sales	₩	20,962	44,060
Selling and administrative expenses		10,355	-
Total	₩	31,317	44,060

(4) The maturity of lease receivables and liabilities as of December 31, 2020 are as follows:

(In millions of won)

		Contractual nominal cash flow				
		Total	Less than 1 year	1-2 years	2-5 years	More than 5 years
Lease receivables	₩	7,857	2,335	2,816	2,706	-
Lease liabilities		30,538	17,004	6,854	6,527	153

(5) Expenses incurred in short-term leases and low-value asset lease that are not included in the right-of-use assets for the years ended December 31, 2020 and 2019 are as follows:

(In millions of won)

		2020	2019
Cost of sales	₩	1,440	1,154
Selling and administrative expenses		1,657	2,557

The Company, as an intermediate lessor, recognized a lease income amounted to ₩1,830 million and ₩3,664 million from the sub-lease of right-of-use assets for the years ended December 31, 2020 and 2019, respectively.

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15. Investment Property

Changes in the investment property for the year ended December 31, 2020 is as follows:

<i>(In millions of won)</i>		2020
As of January 1	₩	-
Acquisition/ capital expenditure		-
Transfer(*1)		24,372
As of December 31	₩	24,372
- Acquisition cost	₩	24,372

(*1) In order to build a hydrogen liquefaction plant, the Company started lease to Hychangwon Co., Ltd. during the current year and reclassified it as an investment property.

Rental income from investment properties for the year ended December 31, 2020 is ₩238 million.

16. Bonds and borrowings

(1) Borrowings

1) Short-term borrowings as of December 31, 2020 and 2019 are as follows:

(In millions of won)

Type of borrowings	Lender	Annual interest rate (%) as of December 31, 2020		2020	2019
Denominated in KRW	Korean Development Bank ("KDB") and others(*1)	1.14~5.83	₩	3,802,627	2,239,206
Denominated in foreign currencies	Woori Bank and others	0.35~3.19		228,753	420,609
	Total		₩	4,031,380	2,659,815

(*1) The Company's PP&E and others have been pledged as collateral for borrowings (See Note 32).

2) Long-term borrowings as of December 31, 2020 and 2019 are as follows:

(In millions of won)

Type of borrowings	Lender	Maturity	Annual interest rate (%) as of December 31, 2020		2020	2019
Denominated in KRW	Korea EXIM Bank and others(*1)	2021.02.17~2023.03.15	2.34~4.81	₩	513,291	538,097
Denominated in foreign currencies	Mashreq Bank and others	2021.03.17~2022.07.26	2.78~3.14		91,966	244,446
	Subtotal				605,257	782,543
	Less: Current portion				(296,148)	(298,465)
	Total			₩	309,109	484,078

(*1) The Company's PP&E and others have been pledged as collateral for borrowings (See Note 32).

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(2) Bonds

1) Details of bonds as of December 31, 2020 and 2019 are as follows:

(In millions of won)

Type	Series	Maturity	Annual interest rate (%) as of December 31, 2020	2020	2019
Public subscription bonds in KRW	56	-	-	₩ -	50,000
Public subscription bond in foreign currencies	-	-	-	-	578,900
Private subscription bond in KRW	54-2	-	-	-	10,000
	55-1	-	-	-	25,000
	55-2	-	-	-	15,000
	57	2021.05.15	4.29	80,000	80,000
	58	2021.10.26	4.70	10,000	-
Private subscription bond in foreign currencies	-	-	-	-	43,080
Bonds with stock warrants	48	2022.05.04	1.00	14,825	499,795
Subtotal				104,825	1,301,775
Add: Redemption premium				778	26,213
Less: Exchange rights adjustment				(795)	(45,682)
Less: Current portion of long-term bonds				(90,000)	(1,197,570)
Less: Discount on bonds				(73)	(4,736)
Long-term bonds				₩ 14,735	80,000

2) As of December 31, 2020, bonds with stock warrants are summarized as follows:

Issue date	Maturity date	Coupon rate	YTM	Exercise year	Exercise price (in won)	Issuance value
May 4, 2017	May 4, 2022	1.00%	2.00%	From one month after date of issue to one month before maturity	₩14,900/share	₩491,546 million (Par value : ₩500,000 million)

① Early redemption

The early redemption right is exercisable as a whole or in part against the par value of bond with stock warrants at the interest payment date in 3 years after the date of issuance of bonds. Meanwhile, according to the exercise of the early redemption right, ₩484,957 million was repaid on May 4, 2020, and the remaining unexercised portion will be repaid on the maturity date.

② Redemption at maturity

The coupon rate for the bond is 1.00%. For bonds not converted until maturity, 105.2448% of the principal amount will be paid on May 4, 2022 with a yield to maturity rate of 2.00% compounded quarterly.

③ Calculation of exercise price

The exercise price is adjusted when there is an increase in paid-in capital through issuance of shares at a price lower than the market price, stock dividends, or capitalization of reserves, before exercising the stock warrants, or when there is an issuance of stock purchase warrants or debt securities with warrants.

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Changes in the carrying amount of bonds with stock warrants for the year ended December 31, 2020 are as follows:

(In millions of won)

	January 1	redemption	Exercise / Amortization	December 31
Bond with stock warrants	₩ 499,795	(484,957)	(13)	14,825
Redemption premium	26,213	(25,435)	-	778
Discount on bond	(4,220)	3,540	607	(73)
Exchange rights adjustment	(45,682)	38,324	6,563	(795)
Book value(*1)	₩ 476,106	(468,528)	7,157	14,735
Consideration for stock warrants rights (other capital surplus)	₩ 49,467	-	(1)	49,466

(*1) As the early redemption rights of bond holders were extinguished, the entire amount was reclassified as non-current during 2020.

As of December 31, 2020, stock warrants were exercised in the amount pertaining to 0.05% of the principal amount of 48th bond with stock warrants and 0.04% of the principal amount was substituted. The number of shares issued as a result of the exercise of the stock warrants were 12,541 shares.

(3) The Company transferred revenue from construction contracts to a special purpose vehicle, and the special purpose vehicle issued asset-backed securities backed by transferred assets. Asset-backed borrowings as of December 31, 2020 and 2019 are as follows:

(In millions of won)

Type	Maturity	Discount rate (%)	2020	2019
KDPP 5 th Co., Ltd. (*1)	2021.01.29~2022.10.29	6.00	₩ 127,200	169,000
	Subtotal		127,200	169,000
	Less: Current portion		(76,822)	(33,128)
	Less: Discounts		(1,275)	(3,358)
	Total		₩ 49,103	132,514

(*1) As of December 31, 2020, the Company provides payment guarantees to above Asset-backed borrowings (See Note 31).

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17. Defined benefit liabilities

The Company operates defined benefit plans, and the cost of providing benefit under the defined benefit plans is determined using the projected unit credit method on actuarial valuation of the present value of its defined benefit obligations.

(1) Details of defined benefit liabilities as of December 31, 2020 and 2019 are as follows:

<i>(In millions of won)</i>		2020	2019
Present value of defined benefit obligations	₩	347,272	419,018
Fair value of plan assets(*1)		(251,117)	(354,882)
Defined benefit liabilities	₩	96,155	64,136

(*1) Include employer contributions of ₩605 million and ₩966 million to the National Pension Service as of December 31, 2020 and 2019, respectively.

(2) Expenses recognized in statements of income for the years ended December 31, 2020 and 2019 are as follows:

<i>(In millions of won)</i>		2020	2019
Current service cost	₩	32,035	32,880
Net interest cost		1,866	694
Past service cost(*1)		6,241	-
Total	₩	40,142	33,574

(*1) Changes in retirement benefit obligations due to voluntary retirement were recognized as past service costs in 2020.

(3) Classification of expenses related to the employee benefit liability for the years ended December 31, 2020 and 2019 are as follows:

<i>(In millions of won)</i>		2020	2019
Cost of sales	₩	29,516	32,628
Selling and administrative expenses		10,626	946
Total	₩	40,142	33,574

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(4) Changes in the present value of the defined benefit obligations for the years ended December 31, 2020 and 2019 are as follows:

<i>(In millions of won)</i>	2020	2019
As of January 1	₩ 419,018	384,034
Current service costs	32,035	32,880
Transfer from related parties	316	-
Transfer to related parties	(1,257)	(1,244)
Interests	7,219	10,570
Remeasurement loss in OCI:		
Actuarial changes arising from changes in demographic assumptions	(4,153)	(55)
Actuarial changes arising from changes in financial assumptions	16,384	28,108
Others	8,344	7,274
Reduction and liquidation	6,241	-
Benefits paid	(136,875)	(42,549)
As of December 31	₩ 347,272	419,018

(5) Changes in the fair value of plan assets for the years ended December 31, 2020 and 2019 are as follows:

<i>(In millions of won)</i>	2020	2019
As of January 1	₩ 354,882	376,074
Expected return on plan assets	5,352	9,876
Transfer to related parties	(714)	(3,785)
Remeasurement loss in OCI	(844)	(2,955)
Contributions by employer	-	10,000
Benefits paid	(107,559)	(34,328)
As of December 31	₩ 251,117	354,882

(6) The principal assumptions used in determining employee benefit obligation for the years ended December 31, 2020 and 2019 are as follows:

	2020	2019
Discount rate	2.30%	2.00%
Future salary increase rate	Technical employee 3.00%	Technical employee 2.00%
	Office employee 3.00%	Office employee 2.00%
	Executive 1.40%	Executive 2.30%

(7) Details of fair value of plan assets as of December 31, 2020 and 2019 are as follows:

<i>(In millions of won)</i>	2020	2019
Insurance contracts	₩ 116,876	131,738
Bank deposits	8,504	41,121
Trust funds, etc.	125,737	182,023
Total	₩ 251,117	354,882

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(8) Details of a sensitivity analysis on the defined benefit obligation for changes in the significant assumptions as of December 31, 2020 are as follows:

(In millions of won)		1%p increase	1%p decrease
Discount rate	₩	(32,478)	36,681
Future salary increase rate		27,679	(25,800)

(9) The weighted average maturity of defined benefit obligations is approximately 10.13 years as of December 31, 2020.

18. Provision

Changes in significant provisions for the years ended December 31, 2020 and 2019 are as follows:

(In millions of won)		2020				
		January 1	Arising during the year	Unused amounts reversed	Utilized	December 31
Provisions for construction warranties	₩	99,509	18,180	(162)	(8,557)	108,970
Provisions for construction losses		6,072	40,801	(1,290)	-	45,583
Others(*1)		115,826	136,695	-	(39,960)	212,561
Total	₩	221,407	195,676	(1,452)	(48,517)	367,114

(*1) As of December 31, 2020, it includes ₩54,855 million in provisions related to guarantee the return of membership fees.

(In millions of won)		2019				
		January 1	Arising during the year	Unused amounts reversed	Utilized	December 31
Provisions for construction warranties	₩	111,163	7,945	(899)	(18,700)	99,509
Provisions for construction losses		6,349	3,184	(3,461)	-	6,072
Others(*1)		55,211	86,115	(25,500)	-	115,826
Total	₩	172,723	97,244	(29,860)	(18,700)	221,407

(*1) As of December 31, 2019, it includes ₩54,855 million in provisions related to guarantee the return of membership fees and ₩39,331 million in provisions related to ordinary wage suits.

The Company estimates expenses required to settle the Company's obligations on product warranties, refunds, maintenance and others based on the level of warranty period, historical experience and other considerations.

19. Capital stock

The Company is authorized to issue 2,000,000,000 shares, with a par value of ₩5,000 per share and the number of ordinary shares issued as of December 31, 2020 and 2019 is 374,637,255 shares and 202,146,875 shares, respectively. The number of shares with limited voting rights under Korean Commercial Code as of December 31, 2020 and 2019 is 14,329 treasury shares and 8,479 treasury shares, respectively. During the year The Company issued 44,102,845 new shares in exchange for Doosan Mecatec Co., Ltd.'s ordinary shares acquired through in-kind investment from Doosan Corp., and the Company issued 6,891,058 new ordinary shares through

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comprehensive share exchange with DEC's shareholders. Also, the Company issued 121,495,330 new ordinary shares on December 11, 2020.

Details in capital stock and paid-in capital in excess of par value as of December 31, 2020 and 2019 are as follows:

(In millions of won except for share, in shares)	Number of shares		Capital stock			Paid-in capital in excess of par value		
	Ordinary shares	Preference shares	Ordinary shares	Preference shares(*1)	Total	Ordinary shares	Preference shares	Total
Balance at								
December 31, 2020	374,637,255	- ₩	1,873,185	64,522	1,937,707	875,460	299,701	1,175,161
Balance at								
December 31, 2019	202,146,875	-	1,010,733	64,522	1,075,255	265,843	299,701	565,544

(*1) Redeemable convertible preference shares were purchased and retired using voluntary reserves for the year ended December 31, 2019, and there is no reduction in capital stock.

20. Capital surplus

Capital surplus as of December 31, 2020 and 2019 are summarized as follows:

(In millions of won)	2020	2019
Paid-in capital in excess of par value	₩ 1,175,161	565,544
Asset revaluation surplus	594,262	594,262
Other capital surplus(*1)	853,629	397,605
Total	₩ 2,623,052	1,557,411

(*1) Doosan Fuel Cell Co., Ltd.'s stocks were given free of charge from related parties in 2020, and profits from the free receipts are included in other capital surplus.

21. Other components of equity

(1) Other components of equity as of December 31, 2020 and 2019 are summarized as follows:

(In millions of won)	2020	2019
Stock options	₩ 772	1,599
Treasury stock	(152)	(135)
Total	₩ 620	1,464

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(2) The Company has granted stock options to its executives. The settlement method for stock options includes issuance of new shares, issuance of treasury shares or cash settlement. The type of settlement method chosen is determined based on the Board of Directors' decision at the time of exercise. These stock options require a vesting condition of a two-year continuous employment from the grant date.

1) The terms and conditions of stock options granted as of December 31, 2020 are summarized as follows:

(In won, shares)

Grant date	Number of shares to be issued	Exercise period	Exercise price	Estimated fair value as of the grant date
Mar 25 2011	2,600	Mar 25 2014~ Mar 24 2021	₩ 65,700	₩ 24,642
Mar 30 2012	8,400	Mar 30 2015~ Mar 29 2022	66,800	16,337
Mar 29 2013	20,400	Mar 29 2016~ Mar 28 2023	44,900	10,860
Mar 28 2014	43,900	Mar 28 2017~ Mar 27 2024	34,550	7,948
Total	75,300			

2) Change in the stock options for the year ended December 31, 2020 is summarized as follows:

(In shares)

Grant date	Number of shares to be issued			December 31
	January 1	Newly granted	Retired	
Mar 26 2010	2,300	-	(2,300)	-
Mar 25 2011	6,900	-	(4,300)	2,600
Mar 30 2012	20,000	-	(11,600)	8,400
Mar 29 2013	37,700	-	(17,300)	20,400
Mar 28 2014	75,300	-	(31,400)	43,900
Total	142,200	-	(66,900)	75,300

(In millions of won)

Grant date	Valuation			December 31
	January 1	Increase	Retired	
Mar 26 2010	₩ 94	-	(94)	-
Mar 25 2011	170	-	(106)	64
Mar 30 2012	329	-	(192)	137
Mar 29 2013	408	-	(186)	222
Mar 28 2014	598	-	(249)	349
Total	₩ 1,599	-	(827)	772

No compensation expenses are recognized for the years ended December 31, 2020 and 2019 and are expected to be recognized in the future periods.

3) The estimated fair value was calculated using the modified fair value method and assumptions applied to this method are summarized as follows:

Grant date	Risk free rate(*1)	Expected exercise period	Expected volatility	Expected dividend yield
Mar 25 2011	3.66%	3 years	53.12%	10.00%
Mar 30 2012	3.57%	3 years	38.21%	13.33%
Mar 29 2013	2.45%	3 years	35.98%	15.00%
Mar 28 2014	2.88%	3 years	34.72%	15.00%

(*1) Based on a three-year treasury bond yield rate.

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22. Accumulated other comprehensive income

(1) Accumulated other comprehensive income as of December 31, 2020 and 2019 are summarized as follows:

<i>(In millions of won)</i>		2020	2019
Loss on valuation of FVOCI	₩	(9,134)	(9,131)
Gain (loss) on valuation of derivative financial instruments		(9,939)	1,132
Gain on revaluation of assets		920,521	920,471
Total	₩	<u>901,448</u>	<u>912,472</u>

(2) Details of income taxes on OCI items directly reflected in equity as of December 31, 2020 and 2019 are as follows:

<i>(In millions of won)</i>		2020	
		Balance before tax	Tax effect
Loss on valuation of FVOCI	₩	(12,050)	2,916
Gain on valuation of derivative financial instruments		(13,112)	3,173
Gain on revaluation of assets		1,214,408	(293,887)
Total	₩	<u>1,189,246</u>	<u>(287,798)</u>

<i>(In millions of won)</i>		2019	
		Balance before tax	Tax effect
Loss on valuation of FVOCI	₩	(12,046)	2,915
Gain on valuation of derivative financial instruments		1,493	(361)
Gain on revaluation of assets		1,214,341	(293,870)
Total	₩	<u>1,203,788</u>	<u>(291,316)</u>

23. Accumulated deficit

(1) Accumulated deficit as of December 31, 2020 and 2019 are as follows:

<i>(In millions of won)</i>		2020	2019
Legal reserve	₩	138,118	138,118
Voluntary reserve		42,807	179,451
Undisposed accumulated deficit		(2,183,075)	(423,465)
Total	₩	<u>(2,002,150)</u>	<u>(105,896)</u>

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(2) Changes in accumulated deficits for the years ended December 31, 2020 and 2019 are as follows:

(In millions of won)		2020	2019
Undisposed accumulated deficits	₩	(2,183,075)	(423,465)
Unappropriated retained earnings			
(deficits) at the beginning of the year		(286,821)	93,428
Loss for the period		(1,880,174)	(495,191)
Remeasurements of			
defined benefit liability		(16,235)	(29,017)
Gain on revaluation of lands		155	7,315
Voluntary reserve and others		-	136,644
Reserves for sinking Funds		-	136,644
Disposal of deficits		2,183,075	-
Paid-in capital in excess of par value		1,175,161	-
Gain on disposal of treasury stock		358,500	-
Asset revaluation surplus		594,262	-
Legal reserve		55,152	-
Undisposed accumulated deficits at the end of the year	₩	-	(286,821)

The proposed date of disposition of accumulated deficits for 2020 will be March 30, 2021 and the approved date of appropriation of retained earnings for 2019 was March 30, 2020.

(3) There are no dividends for the years ended December 31, 2020 and 2019.

24. Revenue

(1) Revenue for the years ended December 31, 2020 and 2019 are as follows:

(In millions of won)		2020	2019
Revenue from contracts with customers			
Sales of goods	₩	240,838	282,413
Construction contracts		3,226,537	3,504,563
Subtotal		3,467,375	3,786,976
Others			
Hedging gains		(16,771)	(79,268)
Others		841	927
Subtotal		(15,930)	(78,341)
Total	₩	3,451,445	3,708,635

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- (2) In the following table, revenue for the years ended December 31, 2020 and 2019 are disaggregated by primary geographical market and timing of revenue recognition. The table also includes a reconciliation of the disaggregated revenue with the Company's reportable segments.

(In millions of won)

		2020	2019
Primary geographical market			
Domestic	₩	2,393,512	2,285,901
Americas		16,573	23,431
Asia		751,405	753,700
Middle East		238,642	594,685
Europe		47,033	46,898
Others		4,280	4,020
Total	₩	3,451,445	3,708,635
Timing of revenue recognition			
At a point in time	₩	239,636	281,482
Over time		3,211,809	3,427,153
Total	₩	3,451,445	3,708,635

(3) Contract balances

The following table provides information about receivables, contract assets and contract liabilities from contracts with customers as of December 31, 2020 and 2019.

(In millions of won)

		2020	2019
Receivables, which are included in 'trade and other receivables'	₩	356,546	501,421
Contract assets		1,310,189	1,298,971
Contract liabilities		1,038,284	867,303

The contract assets primarily relate to the Company's rights to consideration for work completed but not billed at the reporting date. The contract assets are transferred to receivables when the rights become unconditional. The contract liabilities primarily relate to the advance consideration received from customers for construction, for which revenue is recognized over time. Of the contract liabilities as of December 31, 2019, the amount of recognized as revenue in 2020 is ₩595,024 million.

- (4) Changes in transaction price for construction contract allocated to the performance obligations satisfied over time for the years ended December 31, 2020 and 2019 are as follows:

(In millions of won)

		2020			
	Project name		Increase (Decrease)	Revenue recognized	December 31
			January 1		
ENGIE and others	Fadhili CHP and others	₩	10,182,072	3,201,092	3,211,809
					10,171,355

(In millions of won)

		2019			
	Project name		Increase (Decrease)	Revenue recognized	December 31
			January 1		
ENGIE and others	Fadhili CHP and others	₩	11,075,303	2,533,922	3,427,153
					10,182,072

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- (5) The Company shall recognize as an asset for the incremental costs of obtaining a contract with a customer that is, agent fee if the Company expects to recover those costs.

<i>(In millions of won)</i>		December 31, 2020	December 31, 2019
Incremental costs of obtaining a contract with a customer recognized an asset	₩	48,720	51,722
The amount of amortization recognized as cost of sales		25,726	15,041

An asset recognized in accordance with above shall be amortized on a systematic basis that is consistent with the transfer to the customer of the good or services to which the asset relates.

- (6) The Company shall recognize an asset from the costs incurred to fulfill a contract if those costs relate directly to a contract or to an anticipated contract the Company can specifically identify. The Company believes that these costs generate or enhance resources of the Company that will be used in satisfying performance obligations in the future and are expected to be recovered.

<i>(In millions of won)</i>		December 31, 2020	December 31, 2019
Costs incurred to fulfill a contract recognized an asset	₩	106,241	112,408
The amount of amortization recognized as cost of sales		50,847	38,166

An asset recognized in accordance with above shall be amortized on a systematic basis that is consistent with the transfer to the customer of the good or services to which the asset relates.

- (7) Changes in profit or loss in current and future reporting periods and the book value of due from (to) customers for contracts work (excluding foreign currency translation effect) resulting from changes in total contract revenue and in total estimated contract costs for construction contracts in progress as of December 31, 2020 are as follows:

<i>(In millions of won)</i>		Provision for construction loss	Changes in total contract revenue	Changes in total contract cost	Effect on profit (loss) for the period	Effect on profit (loss) for the future	Changes in due from (to) customer for contract work
Fadhili CHP and others	₩	45,583	246,645	473,436	(161,441)	(65,350)	(161,441)

Impacts on current and future profit were calculated based on total contract revenue and costs which were estimated based on the current circumstances as of December 31, 2020. Those estimations may change in the future.

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- (8) As of December 31, 2020, details of contracts that the revenue was recognized based on the percentage-of-completion measured by input method, and whose contract revenue is more than 5% of sales of the year ended December 31, 2019 are as follows. There is no contract that the Company decided not to disclose due to the prohibition by related regulations or contracts.

(In millions of won)

	Contract date	Due date / Delivery date(*1)	Percentage-of-completion (%)		Due from customers for contract work		Trade receivables (receivables from construction contract)	
					Gross amounts	Accumulated impairment losses	Gross amounts	Allowance for doubtful accounts
UAE BNPP #1,2 NSSS	Jun-30-10	Dec-08-21	98.88	₩	-	-	6,190	72
Samcheok #1,2 EPC	Jul-24-18	Apr-30-24	28.97		243,595	609	-	-
Shinhanul #1,2 NSSS	Jul-31-09	Aug-31-21	98.25		-	-	-	-
Shingori #5,6 NSSS	Aug-28-14	Jun-30-24	76.86		-	-	2,017	5
UAE BNPP #3,4 NSSS	Jun-30-10	Nov-30-23	98.59		14,757	37	-	-
Vinh Tan 4 TPP	Feb-26-14	Oct-31-21	99.85		21,105	53	20,958	4,192
Shingori #3,4 NSSS	Aug-28-06	Aug-31-19	100.00		-	-	-	-
Yanbu ph.3 MSF	Dec-4-12	Dec-31-21	98.54		-	-	-	-
Qurayyah Add-On	Sep-16-09	May-14-20	99.99		-	-	-	-
Fadhili CHP	Nov-12-16	May-31-21	98.76		6,954	17	1,103	67
Song Hau1	Apr-10-15	Mar-31-22	87.40		23,318	58	-	-
Nghi Son 2	Dec-24-14	Jul-10-22	85.30		193,076	483	19,805	50
UAE BNPP #3,4 T/G	Sep-27-11	Nov-30-23	96.68		-	-	-	-
UAE BNPP #1,2 T/G	Jun-30-10	Dec-08-21	98.29		-	-	-	-
Vinh Tan 4 Extension	Mar-10-16	Aug-31-21	96.24		238	1	656	482
Shinboryung #1, 2 Boiler	Oct-22-13	Apr-15-21	99.89		-	-	770	9
Van Phong 1	Aug-26-19	Dec-25-23	24.15		-	-	4,669	-
Shingori #5,6 main equipment construction	Jun-12-15	May-31-24	72.38		58,629	147	-	-
Shingori #3,4 main equipment construction	Mar-9-07	Dec-31-21	99.58		-	-	-	-
Gangneung Anin #1,2 Boiler	Mar-31-15	Mar-15-23	74.74		-	-	13,196	233
Namyangju Alfheim	Jun-23-17	Dec-31-21	96.26		74,660	187	21,430	-
Shoaiba RO Ph.4	Mar-29-17	Jun-30-21	93.18		75,242	188	-	-
Goseong Hai #1,2 Boiler	Dec-27-16	Oct-31-21	96.50		-	-	-	-
Shinhanul #1,2 T/G	Jun-23-09	Aug-31-21	99.03		-	-	-	-
Shingori #5,6 T/G	Aug-28-14	Jun-30-24	87.35		-	-	-	-
Doha RO Stage-I	May-30-16	Dec-31-21	95.75		77,627	194	9,421	29
IEC Add-On	Mar-28-11	Feb-10-20	99.86		-	-	87	8
Karabatan CCPP	Dec-27-14	Dec-14-20	96.04		10,153	25	-	-
Shingori #3,4 T/G	Aug-28-06	Aug-31-19	100.00		-	-	-	-

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	Contract date	Due date / Delivery date(*1)	Percentage-of-completion (%)	Due from customers for contract work		Trade receivables (receivables from construction contract)	
				Gross amounts	Accumulated impairment losses	Gross amounts	Allowance for doubtful accounts
Whasung-Dongtan collective energy cyclor	Aug-11-14	Jun-30-21	99.97	-	-	-	-
Seoul complex #1,2 cyclor	Jul-5-13	Jun-30-21	99.95	-	-	-	-
Muara Tawar Add-On	Mar-29-17	Mar-28-23	89.76	61,832	155	78	-
Al Khalij Boiler Package PJT(*2)	Nov-1-08	Dec-31-18	98.61	36,988	92	-	-
Vogtle #3,4 AP1000	May-8-08	Dec-31-22	99.93	9,912	25	-	-
Shinboryung #1,2 T/G	Oct-22-13	Oct-23-20	99.07	-	-	-	-
Seoul forest Doosan weve	Oct-21-13	Dec-31-21	99.99	-	-	359	-
Botswana Morupule A Retrofit	Dec-5-15	Oct-2-20	99.35	-	-	658	98
Hanbit #5,6 RSG	Aug-31-16	Jul-31-21	89.35	-	-	6,100	15
Hanbit #3,4 RSG	Oct-31-14	Dec-31-21	96.43	-	-	-	-
Tripoli West(*2)	Dec-23-10	Nov-30-14	59.19	-	-	-	-
Gyeongju yonggangdong Doosan weve	Jan-11-18	Dec-31-21	96.95	-	-	86,644	-
Samcheok greenpower #1,2	Jun-28-10	Apr-30-21	97.69	-	-	-	-
Yangsan Doosan weve	Nov-30-16	Nov-30-19	100.00	-	-	-	-
Gimpo cogeneration powerblock EPC	Jun-17-20	Jun-30-23	2.37	-	-	-	-
Kudgi STPP	Oct-15-14	Dec-31-21	99.49	-	-	767	767
IEC Orot Rabin FGD	Jun-30-10	Nov-30-21	92.02	2,396	6	2,416	334
Jawa #9,10	Mar-20-19	Feb-15-25	2.10	-	-	-	-
Suncheon Wangji 2	Apr-24-19	Aug-31-24	0.03	179	-	-	-

(*1) Negotiating to extend contract period with respective contract party or due date/delivery date in contract.

(*2) Construction was temporarily suspended due to civil war in Libya and others.

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25. Expenses classified by nature

Expenses (cost of sales, selling and administrative expenses) classified by nature for the years ended December 31, 2020 and 2019 are as follows:

<i>(In millions of won)</i>		2020	2019
Changes in inventories	₩	50,906	(46,193)
Purchases of raw materials and goods		1,353,483	1,449,969
Salaries		660,283	604,197
Depreciation and amortization		196,715	219,451
Others		1,663,120	1,393,530
Total	₩	<u>3,924,507</u>	<u>3,620,954</u>

26. Selling and administrative expenses

Selling and administrative expenses for the years ended December 31, 2020 and 2019 are as follows:

<i>(In millions of won)</i>		2020	2019
Salaries	₩	96,520	115,737
Severance and retirement benefit		4,385	946
Termination benefits		184,987	-
Employee welfare benefits		14,983	16,575
Travel		1,549	4,881
Training		643	1,395
Taxes and dues		1,978	2,107
Commissions		55,682	48,995
Bad debt expenses (reversal)		167,905	(464)
Depreciation		13,952	12,906
Amortization		19,192	17,170
Insurance		5,649	5,120
Research		10,672	19,185
Marketing		12,646	15,665
Advertising		5,573	7,971
Warranty		9,495	14,317
Provision for loss compensation		92,100	-
Others		16,843	19,961
Total	₩	<u>714,754</u>	<u>302,467</u>

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27. Finance income and expenses

(1) Finance income for the years ended December 31, 2020 and 2019 are summarized as follows:

(In millions of won)		2020	2019
Interest income	₩	9,831	16,235
Dividend income		612	277
Gain on foreign currency transaction		71,376	52,724
Gain on foreign currency translation		46,469	30,743
Gain on settlement of derivative financial instruments		102,171	63,972
Gain on valuation of derivative financial instruments		122,483	83,150
Gain on valuation of firm commitments		7,443	61,820
Gain on financial guarantee		1	19
Total	₩	360,386	308,940

(2) Finance expenses for years ended December 31, 2020 and 2019 are summarized as follows:

(In millions of won)		2020	2019
Interest expenses	₩	186,409	184,338
Loss on foreign currency transaction		132,245	79,775
Loss on foreign currency translation		47,132	48,364
Loss on settlement of derivative financial instruments		122,457	56,517
Loss on valuation of derivative financial instruments		24,432	112,248
Loss on valuation of firm commitments		66,946	23,583
Loss on redemption of bond		31,385	-
Loss on financial guarantee		2,916	34
Others		34,396	51,444
Total	₩	648,318	556,303

28. Other non-operating income and expenses

(1) Other non-operating income for the years ended December 31, 2020 and 2019 are summarized as follows:

(In millions of won)		2020	2019
Commissions income	₩	7,851	10,054
Gain on disposal of property, plant and equipment		630	2,161
Gain on disposal of investment in subsidiaries		1,731	102
Gain on valuation of long-term investment in securities		85,527	1,957
Reversal of impairment loss of intangible assets		4,420	2,054
Miscellaneous gain and others		2,671	8,277
Total	₩	102,830	24,605

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(2) Other non-operating expenses for the years ended December 31, 2020 and 2019 are summarized as follows:

<i>(In millions of won)</i>		2020	2019
Commission fee	₩	11,518	23,506
Loss on disposal of trade receivables		7,758	7,515
Loss on disposal of property, plant and equipment		212	25,658
Loss on disposal of intangible assets		197	116
Donations		284	511
Impairment loss of property, plant and equipment		36,107	-
Impairment loss of intangible assets		158,053	8,463
Land revaluation loss		271	72
Loss on valuation of short-term and long-term investment in securities		7,408	3,116
Loss on disposal of inventories		13,317	1,636
Other bad debt expenses		73,665	86,410
Impairment loss of investment in subsidiaries		1,070,485	167,537
Loss on other provisions		-	20,655
Depreciation on assets not in use		3,839	3,719
Miscellaneous loss and others		65,111	49,815
Total	₩	<u>1,448,225</u>	<u>398,729</u>

29. Income tax benefit

(1) The component of income tax benefit for the years ended December 31, 2020 and 2019 are as follows:

<i>(In millions of won)</i>		2020	2019
Current income tax expense (benefit)	₩	(1,951)	5,473
Adjustments in respect of current income tax of prior year		14,079	52,280
Tax effect of temporary difference		(101,670)	(107,154)
Total income tax benefit		<u>(89,542)</u>	<u>(49,401)</u>
Current income tax related to items recognized in equity during the year		(145,442)	(2,335)
Deferred tax related to items recognized in equity during the year		8,769	13,121
Income tax benefit	₩	<u>(226,215)</u>	<u>(38,615)</u>

(2) The component of income tax expense and deferred tax related to items recognized in equity for the years ended December 31, 2020 and 2019 are as follows:

<i>(In millions of won)</i>		2020	2019
Gain (loss) on revaluation of assets	₩	(66)	531
Gain on valuation of FVOCI		1	2,915
Gain (loss) on valuation of derivative financial instruments		3,535	(1,924)
Remeasurements of defined benefit liabilities		5,183	9,264
Other capital surplus		(145,326)	-
Total	₩	<u>(136,673)</u>	<u>10,786</u>

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(3) Changes in deferred tax assets (liabilities) for the years ended December 31, 2020 and 2019 are as follows:

(In millions of won)

		2020		
		January 1	Change	December 31
Provision for retirement and severance benefits	₩	101,169	(17,276)	83,893
Allowance for doubtful accounts		203,579	61,003	264,582
Property, plant and equipment		11,841	(780)	11,061
Development costs		31,068	(1,860)	29,208
Derivative financial instruments (including firm commitments)		17,298	(22,055)	(4,757)
Foreign currency denominated assets (liabilities)		10,752	(9,728)	1,024
Gain on revaluation of assets		(475,691)	50	(475,641)
Others		64,812	92,316	157,128
Total	₩	(35,172)	101,670	66,498

(In millions of won)

		2019		
		January 1	Change	December 31
Provision for retirement and severance benefits	₩	92,698	8,471	101,169
Allowance for doubtful accounts		183,352	20,227	203,579
Property, plant and equipment		13,951	(2,110)	11,841
Development costs		34,006	(2,938)	31,068
Derivative financial instruments (including firm commitments)		6,103	11,195	17,298
Foreign currency denominated assets (liabilities)		3,350	7,402	10,752
Gain on revaluation of assets		(478,557)	2,866	(475,691)
Others		2,771	62,041	64,812
Total	₩	(142,326)	107,154	(35,172)

(4) The amount of deductible temporary differences for which no deferred tax asset is recognized in the statements of financial position as of December 31, 2020 and 2019 are as follows:

(In millions of won)

	2020	2019
Deductible temporary differences	₩ 2,650,780	1,252,175
Tax credit carried forward	5,325	5,325

The probability of deferred tax assets being realized depends on the Company's ability to generate taxable income in future years over which temporary differences are expected to reverse depending on the economic situation, industry forecast and other various factors. The Company periodically reviews such matters.

(5) Temporary differences related to investments in subsidiaries, associates and joint ventures which are not recognized as deferred tax asset as of December 31, 2020 and 2019 are as follows:

(In millions of won)

	2020	2019
Investments in subsidiaries	₩ 2,166,980	1,136,708

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(6) Reconciliation of loss before income tax at the statutory tax rate to income tax benefit at the effective income tax rate of the Company for the years ended December 31, 2020 and 2019 are as follows:

<i>(In millions of won)</i>	2020	2019
Loss before income tax	₩ (2,106,389)	(533,805)
Income tax benefit using statutory tax rate	(509,746)	(129,181)
Adjustments:		
Permanent differences	22,638	58,178
Unrecognized deferred tax related to temporary differences	276,963	29,154
Tax credit	-	3,280
Others	(16,070)	(46)
Income tax benefit	₩ (226,215)	(38,615)
Effective tax rate(*1)	-	-

(*1) Effective tax rate for the years ended December 31, 2020 and 2019 were not calculated due to loss before income tax.

30. Loss per share

(1) Basic loss per share

Basic loss per share for the years ended December 31, 2020 and 2019 are as follows:

<i>(In won, except for share)</i>	2020	2019
Loss for the period	₩ (1,880,174,095,933)	(495,190,677,202)
Less : preference share dividends(*1)	-	51,299,224,178
Loss for the period of ordinary shares	₩ (1,880,174,095,933)	(546,489,901,380)
Weighted-average number of ordinary shares outstanding	250,006,947 shares	170,467,151 shares
Basic loss per share	₩ (7,520)	(3,206)

(*1) Preference share dividends for the year ended December 31, 2019, are due to redemption of redeemable convertible preference share.

Weighted-average number of ordinary shares outstanding for the years ended December 31, 2020 and 2019 are as follows:

<i>(In shares)</i>	2020	2019
Beginning outstanding shares	202,138,396	117,138,324
Effect of treasury stock held	(4,731)	-
Capital increase	47,873,092	53,328,767
Exercise of bonds with stock warrants	190	60
Weighted-average number of ordinary shares outstanding as of December 31	250,006,947	170,467,151

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(2) Diluted loss per share

There are no potential ordinary shares with dilutive effect for the years ended December 31, 2020 and 2019. Therefore, diluted loss per share are the same as basic loss per share.

Details of potential ordinary shares that are potentially dilutive but were not included in the calculation of loss per share, as there were no dilutive effects for the years ended December 31, 2020 and 2019 are as follows:

<i>(In shares)</i>	2020	2019
Stock option (Mar 26, 2010)	-	2,300
Stock option (Mar 25, 2011)	2,600	6,900
Stock option (Mar 30, 2012)	8,400	20,000
Stock option (Mar 29, 2013)	20,400	37,700
Stock option (Mar 28, 2014)	43,900	75,300
Bonds with stock warrants	33,530,786	29,217,999
Total	33,606,086	29,360,199

31. Commitments and contingencies

- As of December 31, 2020, 7 blank checks (regarding the ₩18,162 million funds replenishing requirement) have been provided as collateral to Incheon-Gimpo Expressway Co. in relation with Incheon-Gimpo Expressway SOC construction project, to the HS-City Expressway in relation with Bibong-Maesong Expressway construction project and to Gyunggi East-West Beltway Co. in relation with Bongdam-Songsan Expressway construction project.
- As of December 31, 2020, the Company has credit lines of borrowings, bank overdraft and others from financial institutions up to ₩6,319,165 million and used ₩4,610,265 million. As a result, the Company maintains unused credit lines amounting to ₩1,708,900 million as of December 31, 2020.

As of December 31, 2020, the Company's borrowings (₩31,429 million) from SC Bank require that the credit ratings of the corporate bonds issued by the Company, evaluated by two or more credit rating agencies to be maintained at BBB or higher respectively. In addition, borrowings (₩64,736 million) from Mashreq Bank require that credit rating evaluated by Korea credit rating agency to be maintained at BBB or higher during the borrowing agreement period, and if major financial indicators (the debt to equity ratio below 3 and interest coverage ratio above 2.2) cannot be maintained, additional investments are required within a certain period. Non-fulfillment of these debt covenants would trigger accelerated repayment of these borrowings, but related financial institutions are suspending the application of the related clauses in consideration of changes in circumstances such as changes in the Company's business environment. Asset-backed borrowings of ₩127,200 million for KDPP 5th Co., Ltd. require that a domestic effective credit rating to be maintained BB+ or higher, and failure to comply is a reason for early payment.

- As of December 31, 2020, the Company is involved in pending lawsuits as a defendant with total claims against the Company amounting to approximately ₩55,833 million and the result is currently unpredictable.

<i>(In millions of won)</i>	Claim amount
Arbitration	₩ 13,727
Others	42,106
Total	₩ 55,833

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- (4) As of December 31, 2020, the Company has entered into 19 technical contracts with Mitsubishi Hitachi Power System, Ltd. and others, which have been effective from April 12, 2007 to August 24, 2035. For the years ended December 31, 2020 and 2019, royalty payments amounted to ₩4,709 million and ₩11,083 million, respectively.
- (5) As of December 31, 2020, the Company has been provided with guarantees of ₩6,268,173 million from financial institutions in connection with domestic and overseas construction and others.
- (6) As of December 31, 2020, the Company provides payment guarantees to Yongin Doosan We've tenants related to lease deposits and to the Construction Credit Union for completion of Bongdam Songsan Expressway in the amount of ₩600 million and ₩11,794 million, respectively. As of December 31, 2020, payment guarantees for progress loans are also provided to pre-sale buyers for apartments in the Baekbong district of Namyangju, 2nd apartment units in Yangsan, the apartments in Yong-gang dong, Gyeongju, the Anyang Myunghak Knowledge Industry Center, the apartments of Deungchon Doosan We've and the complex of Ungcheon-dong, Yeosu in total amount of ₩207,598 million.
- (7) Payment guarantees provided by the Company for the subsidiaries and other related parties.
- 1) As of December 31, 2020, details of payment guarantees provided by the Company for the subsidiaries and other related parties are as follows:

(In millions of won, in thousands of foreign currency)

Guarantee	Currency	Guarantee amount	Translated in KRW	Guarantee plan	Beneficiary
Doosan Babcock Ltd.	GBP	25,000	₩ 37,060	Debt guarantee	SC Bank
	GBP	26,700	39,580	Construction guarantee	NNB Generation (HPC) Ltd.
Doosan Babcock General Maintenance Service LLC	AED	25,000	7,405	Debt guarantee	Mashreq Bank
Doosan Heavy Industries America LLC	USD	4,500	4,896	Debt guarantee	Woori Bank
DPS S.A.	USD	300,000	326,400	Hybrid security(*1)	Korea EXIM Bank
	GBP	15,795	23,415	Debt guarantee	Woori Bank
	EUR	39,480	52,834	Debt guarantee	KDB
Doosan Power Systems Arabia Company Limited.	USD	8,000	8,704	Debt guarantee	Korea EXIM Bank
	SAR	10,000	2,900	Debt guarantee	SABB
DPSI	EUR	9,095	12,172	Construction guarantee	Axis Bank and others
				Construction guarantee	Construction guarantee cooperative and others
	INR	47,034,439	698,932		
	INR	5,250,000	78,015	Debt guarantee	HSBC and others
	JPY	362,022	3,817	Construction guarantee	KEB and others
				Construction guarantee	Construction guarantee cooperative and others
	USD	115,672	125,851		
Doosan Enpure Ltd.	GBP	63,280	93,807	Construction guarantee	Northumbrian Water and others
	GBP	6,500	9,636	Debt guarantee	SC Bank
Doosan Heavy Industries Japan	JPY	220,000	2,319	Debt guarantee	KDB
Doosan Heavy Industries Muscat LLC	USD	182,484	198,543	Construction guarantee(*2)	AL ASILAH DESALINATION

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(In millions of won, in thousands of foreign currency)

Guarantee	Currency	Guarantee amount	Translated in KRW	Guarantee plan	Beneficiary
					COMPANY S.A.O.C and others
Doosan Heavy Industries Vietnam Co., Ltd.	OMR	2,214	6,258	Construction guarantee	Arab Bank
	USD	2,423	2,636	Construction guarantee	Kookmin Bank and others
	USD	119,900	130,451	Debt guarantee	HSBC and others
	VND	4,554,673,854	214,525	Construction guarantee	Construction guarantee cooperative
	VND	256,800,000	12,095	Debt guarantee	Woori Bank
PT. Doosan Heavy Industries Indonesia	IDR	1,132,674,049	87,669	Construction guarantee	Construction guarantee cooperative and others
				Construction guarantee	Wandoan BESS Project Co Pty Ltd
Doosan GridTech Inc.	AUD	122,249	102,268	Construction guarantee	Construction guarantee cooperative and others
	USD	11,359	12,358	Construction guarantee	Korea EXIM Bank
DEC	EUR	7,847	10,501	Construction guarantee	Seoul guarantee insurance and others
	USD	1,075	1,170	Construction guarantee	KDB and others
KDDP 5 th Co., Ltd.	KRW	165,360	165,360	Debt guarantee	Construction guarantee cooperative
Doosan Lentjes GmbH	EUR	17,590	23,540	Construction guarantee	Korea Securities Finance
Employee Stock Ownership Plan	KRW	51,210	51,210	Member loans	
Total			₩ 2,546,327		

(*1) This permanent bond is recorded as equity by DPS S.A. due to automatically postponable redemption features for 30 years.

(*2) The Company is providing parent company payment guarantee (guarantee amount: USD 117.7 million / maturity: March 2021) to the client in connection with the implementation of the Sharqiyah EPC project. The credit rating of the company evaluated by the Korea Credit Rating Agency must be maintained at the BBB or higher, and if this is not maintained, it is obligated to provide a valid guarantee under the same conditions within 10 days from the date of the decline in the credit rating. Meanwhile, as of December 31, 2020, the application of the related provisions has been suspended in consideration of various circumstances such as changes in the company's business environment.

2) As of December 31, 2020, details of the collateral provided by related parties for the Company's borrowing agreement are as follows:

(In millions of won)

Collateral provider	Collateralized asset	Collateralized amount	Amount of borrowing contract	Amount of borrowings	Pledgee
Doosan Corp., Park Jeong-won and 31 others	Stocks of Doosan Corp., Doosan Heavy Industries & Construction, etc. and beneficiary certificates, etc.	₩ 3,600,000	3,000,000	1,546,990	KDB, Korea EXIM Bank

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(8) Other commitments and contingencies

- 1) As of December 31, 2020, the Company has entered into a contract to assume a liability (limit: ₩223,000 million) if it fails to complete construction of apartments in the Baekbong district of Namyangju, the Anyang Myunghak Knowledge Industry Center, Hanam Misa Knowledge Industry Center, 2nd apartment units in Yangsan and the complex of Ungcheon-dong, Yeosu projects.
- 2) The Company terminated the Bundang Doosan Tower lease contract with DBC Co., Ltd. on January 8, 2021, and signed a new lease contract with Bundang Doosan Tower REIT Co., Ltd..
- 3) During 2019, the Company and financial investors, Nuscale Korea and others, acquired preferred shares of Nuscale Power LLC. The Company entered into a put option contract that could only be exercised under the conditions of non-compliance, including failure to obtain design certification in relation to the preferred shares (USD 39.8 million) acquired by Nuscale Korea and others.
- 4) The Company is an investor of Samcheok Blue Power Co., Ltd. which is responsible for the EPC construction project of Samcheok #1, 2 TPP, and is obligated to make an additional investment of ₩77,740 million in the related investor agreement in September 2023. To fulfill this obligation, the Company agreed to deposit a certain percentage of the construction collection amount into Samcheok Blue Power Co., Ltd.'s account from November 2020 to June 2022.

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32. Assets pledged as collateral

(1) As of December 31, 2020, assets that have been pledged as collateral for the Company's borrowings and others are as follows:

(In millions of won)

Collateralized asset	Collateralized amount	Amount of borrowings and others	Pledgee
Land, buildings, equipment and others ₩	4,189,234	1,935,034	KDB, Korea EXIM Bank, SC Bank
Stocks of Doosan Mecatec Co., Ltd. and others, land, etc. (*1)	35,000	1,546,990	KDB, Korea EXIM Bank
Common stock of DEC, etc.	408,865	287,078	Woori Bank
Equity shares of Construction Guarantee Cooperative	69,458	49,171	Construction Guarantee Cooperative
Equity shares of Engineering Guarantee Insurance	5,130	2,250	Engineering Guarantee Insurance
Total	₩ 4,707,687	3,820,523	

(*1) In accordance with this borrowing agreement, Doosan Corp., Park Jeong-won and 31 related persons provide stocks of Doosan Corp. and Doosan Heavy Industries & Construction Co., Ltd. and beneficiary certificates and others as collateral (See Note 31).

(2) As of December 31, 2020, shares of Incheon-Gimpo Expressway Co. and others with the book value of ~~₩~~14,811 million are pledged for the project financing of that entity to Kookmin Bank and others.

(3) As of December 31, 2020, the Company entered into exchange rights agreement with the Korea EXIM Bank regarding hybrid bonds with equity shares issued by DPS S.A. The Korea EXIM Bank is granted the right to request the exchange of hybrid bonds for the Company's common stock and obliged to cash settlement in accordance with the investor's put option rights exercise. In this regard, the Company has provided as collateral 75,509,366 shares (the book value of ~~₩~~1,483,471 million) of DI to Korea EXIM Bank.

As of December 31, 2020, the Company has entered into a contract of completion guarantee regarding the Samcheok #1,2 TPP construction project and provided 1,193,066 shares (the book value of ~~₩~~43,568 million) in Samcheok Blue Power Co., Ltd. as collateral.

As of December 31, 2020, the Company has signed the export bond insurance limit contract (~~₩~~347,000 million) with Korea Export Insurance Corporation and provided part of the land, buildings, and machinery of the Changwon Plant (~~₩~~420,000 million) and all shares of DPS S.A. held by the Company (GBP 293 million) as collateral.

33. Related party transactions

(1) The related parties of the Company and nature of their relationship with the Company as of December 31, 2020 and 2019 are as follows:

1) As of December 31, 2020, the Company's ultimate parent company is Doosan Corp. (equity ownership: 41.95%).

2) As of December 31, 2020 and 2019, the details of the Company's subsidiaries are as follows:

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Related party	Equity ownership (%)(*1)	
	2020	2019
Doosan Heavy Industries Vietnam Co., Ltd.(*5)	100.00	100.00
Doosan HF Controls Corp.	100.00	100.00
Doosan HF Controls Asia Co., Ltd.	100.00	100.00
PT. Doosan Heavy Industries Indonesia(*5)	83.64	55.00
Doosan Heavy Industries Malaysia Sdn. Bhd	100.00	100.00
Doosan Heavy Industries Japan Corp.	100.00	100.00
IMGB(*6)	-	99.92
Doosan Enpure Ltd.	100.00	100.00
DPSI(*5)	100.00	100.00
Doosan Heavy Industries Muscat LLC	70.00	70.00
Doosan Power Systems Arabia Company Limited	51.00	51.00
Azul Torre Construction Corporation	40.00	40.00
Doosan Heavy Industries America Holdings Inc.	100.00	100.00
Doosan Heavy Industries America LLC	100.00	100.00
Doosan ATS America, LLC	100.00	100.00
Doosan Power Service America, LLC	100.00	100.00
Doosan Turbomachinery Services Holding, Inc.	95.90	95.90
Doosan Turbomachinery Services Inc.	100.00	100.00
Doosan GridTech Inc.(*5)	100.00	100.00
Doosan GridTech LLC	100.00	100.00
Doosan GridTech CA LLC	100.00	100.00
Doosan GridTech EPC LLC	100.00	100.00
Doosan GridTech C&I LLC	100.00	100.00
Continuity Energy LLC	100.00	100.00
Doosan Skoda Power s.r.o	100.00	100.00
Skoda Power Private Ltd.	100.00	100.00
Doosan Power Systems Pension Trustee Company Ltd.	100.00	100.00
Doosan Power Systems Overseas Investments Ltd.	100.00	100.00
Doosan Babcock Ltd.	100.00	100.00
Doosan Power Systems Europe Limited GmbH	100.00	100.00
Doosan Power Systems Americas LLC	100.00	100.00
Doosan Lentjes UK Limited(*2)	-	100.00
Doosan Lentjes GmbH	100.00	100.00
DPS S.A.	100.00	100.00
Doosan Babcock Energy Technologies (Shanghai) Ltd.(*2)	-	100.00
Doosan Babcock Energy Services (Overseas) Ltd.	100.00	100.00
Doosan Babcock Energy Polska S.A.	98.91	98.91
Doosan Babcock Energy Germany GmbH	100.00	100.00
Doosan Lentjes Czech s.r.o	100.00	100.00
Doosan Power Systems (Scotland) Ltd. Partnership	100.00	100.00
Doosan Babcock General Maintenance Services LLC	49.00	49.00
Osung power O&M Co., Ltd.	100.00	100.00
Doosan Mecatec Co., Ltd.(*3)	100.00	-
KDPP 3 rd Co., Ltd.(*4)	-	-
KDPP 5 th Co., Ltd.	-	-
U-best 5 th Co., Ltd.	-	-
Doosan Cubex Co., Ltd.	56.60	64.97
DI and the subsidiaries	34.97	36.27
DEC and the subsidiaries	100.00	89.74

(*1) The ownership represents addition of the investment owned by the Company and its subsidiaries.

(*2) Liquidated in 2020.

(*3) Newly acquired in 2020.

(*4) Control was lost due to borrowings repayment in 2020.

(*5) Additionally acquired in 2020.

(*6) Disposed in 2020.

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3) The associates and joint ventures and other related parties of the Company and nature of their relationship with the Company as of December 31, 2020 are as follows:

Control relationship	Related party
Associates and joint ventures (*2)	The HS-City Expressway, Samcheok Blue Power Co., Ltd.(*1), Daejung Offshore Wind Power Co., Ltd., Hychangwon Co., Ltd.(*4)
Related parties:	
Subsidiaries of the parent company(*5)	Oricom Inc., Hancor Co., Ltd., Doosan Bears Inc., Doosan Business Research Institute(*3), Doosan Robotics Co., Ltd., Doosan Mobility Innovation Co., Ltd., Doosan Logistics Solutions Co., Ltd, DBC Co., Ltd., Sunny Russel 8 th Co., Ltd. DPAY 1 st Co., Ltd., DPAY 2 nd Co., Ltd.(*4), New Star Motive 1 st Co., Ltd.(*4) Doosan 2 nd Real Estate Securitization Specialty Co., Ltd., Doosan Mobility Innovation (Shen Zhen) Co., Ltd., Doosan Electro-Materials Singapore Pte Ltd., Doosan (Hong Kong) Ltd., Doosan Electro-Materials (Shen Zhen) Ltd., Doosan Shanghai Chemical Materials Co., Ltd., Doosan Electro-Materials (Changshu) Co., Ltd., Doosan Digital Innovation America LLC., Doosan Digital Innovation China LLC., Doosan Mottrol (Jiangyin) Co., Ltd., Doosan Digital Innovation Europe Limited, Doosan Industrial Vehicle Europe N.A., Doosan Industrial Vehicle UK Ltd., Doosan Logistics Europe GmbH, Doosan Industrial Vehicle America Corp., Doosan Material Handling Solutions LLC, Doosan Industrial Vehicle Yantai Co., Ltd., Genesis Forklift Trucks Limited, Rushlift Holdings Ltd., Doosan Materials Handling UK Ltd., Rushlift Ltd., Doosan Electro-Materials America, LLC, Doosan Fuel Cell America, Inc., Doosan Energy Solutions America, Inc., DESA Service, LLC, Doosan Electro-Materials Vietnam Company Limited(*4), Mottrol Co., Ltd.(*4), Bundang Doosan Tower REIT Co., Ltd.(*4), Doosan Fuel Cell Co., Ltd.(*7) and others Prestoliteasia Co., Ltd., KDDI Korea Corporation, Wise-fashion Co., Ltd., Protera SAS.(*6) Sichuan Kelun-Doosan Biotechnology Company Limited, PT. SEGARA AKASA(*4), Stathera IP Holding Inc.(*4) and others
Associates and joint ventures of the parent company	Dongdaemoon Miraechangcho Foundation, Doosan Credit Union, Yonkang Foundation, Chung-Ang University, Chung-Ang University Hospital, Kyunggi Railroad Co., Ltd., Shinbundang Railroad Co., Ltd., Neo Trans Co., Ltd., New Seoul Railroad Co., Ltd. KIAMCO Kyunggi Railway Investment private property investment trust, Incheon Fuel Cell Co. Ltd., Potenit Co., Ltd, Doosan Infracore Liaoning Machinery Sales Co., Ltd., Tianjin Lovol Doosan Engine Co., Ltd., Doosan Babcock BlackCat W.L.L, Daejeon Riverside Expressway Co., Ltd., ReCarbon, Inc. and others
Others(*8)	

(*1) The company name was changed from POSPOWER Co., Ltd. to Samcheok Blue Power Co., Ltd. in 2020.

(*2) Haman Industrial Complex Company was liquidated in 2020.

(*3) The company name was changed from Doosan Leadership Institute to Doosan Business Research Institute in 2020.

(*4) Newly acquired in 2020.

(*5) Neoplux Co., Ltd. was disposed in 2020.

(*6) The company name was changed from Geaenzymes to Protera SAS. in 2020.

(*7) The company was converted into a subsidiary of the parent company in 2020.

(*8) Doosan Solus Co., Ltd., Doosan Electro-Materials Luxembourg Sarl and Doosan Corporation Europe Kft were excluded from other related parties due to the disposal of shares in 2020.

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Notes to the Separate Financial Statements

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(2) Significant transactions (excluding financial and investment) with related parties for the years ended December 31, 2020 and 2019 are as follows:

(In millions of won)

Related party	2020				
	Sales and others		Purchases and others		
	Sales	Other revenue	Purchase	Acquisition of PP&E and intangible assets	Other expense
Parent:					
Doosan Corp.	₩ -	357	24,575	-	29,826
Subsidiaries:					
Clark Equipment Co.	-	-	1,158	-	-
DEC	-	-	2,256	(5,070)	1,340
Doosan Cuvex Co., Ltd.	42	-	10,835	-	369
Osung Power O&M Co., Ltd.	-	4	5,461	-	-
KDPP 5 th Co., Ltd.	-	-	-	-	9,251
Doosan Mecatec Co., Ltd.	3,856	-	-	-	-
Doosan Heavy Industries Vietnam Co., Ltd.	1,475	861	113,860	-	-
Doosan Heavy Industries America LLC	-	11	1,992	-	-
IMGB(*1)	-	-	4,743	-	-
DPSI	40,116	3,602	14	-	-
Doosan Enpure Ltd.	-	221	664	-	-
Doosan Heavy Industries Muscat LLC	9,818	778	-	-	-
Doosan Power Systems Arabia Company Limited	-	61	9,634	-	-
Doosan ATS America, LLC	-	-	5,595	-	-
Doosan Babcock Ltd.	159	494	8,949	-	-
Doosan Skoda Power s.r.o	2,441	-	15,499	-	1,509
Doosan HF Controls Corp.	-	-	7,123	-	-
U-best 5 th Co., Ltd.	-	-	-	-	3,900
Others	576	2,311	5,075	-	1,630
Subtotal	58,483	8,343	192,858	(5,070)	17,999
Associates					
Samcheok Blue Power Co., Ltd.	363,954	-	-	-	-
The HS-City Expressway	32	-	-	-	-
Hychangwon Co., Ltd.	21	238	-	-	-
Subtotal	364,007	238	-	-	-
Others:					
Oricom Inc.	-	-	-	-	2,122
Others	-	-	936	-	120
Subtotal	-	-	936	-	2,242
Total	₩ 422,490	8,938	218,369	(5,070)	50,067

(*1) The relationship ended during 2020, and the above amount is aggregated before the relationship ended.

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(In millions of won)

Related party	2019					
	Sales and others			Purchases and others		
	Sales	Disposal of PP&E and intangible assets	Other revenue	Purchase	Acquisition of PP&E and intangible assets	Other expense
Parent:						
Doosan Corp.	₩ 829	-	240	27,668	-	28,274
Subsidiaries:						
Clark Equipment Co.	-	39,509	-	768	-	-
DEC	-	-	3,934	-	393	889
Doosan Cuvex Co., Ltd.	39	-	19	11,002	-	979
Osung Power O&M Co., Ltd.	2	-	4	4,471	-	-
KDPP 4 th Co., Ltd.(*1)	-	-	-	-	-	12,456
Doosan Heavy Industries Vietnam Co., Ltd.	322	-	1,044	59,803	-	-
Doosan Heavy Industries America LLC	-	-	19	3,314	-	-
IMGB	-	-	94	32,138	-	-
DPSI	77,063	-	1,200	57	-	-
Doosan Enpure Ltd.	4	-	189	8,991	-	-
Doosan Heavy Industries Muscat LLC	25,071	-	525	-	-	-
Doosan Power Systems Arabia Company Limited	-	-	54	7,232	-	-
Doosan ATS America, LLC	-	-	-	7,938	-	-
Doosan Babcock Ltd.	314	-	223	13,727	-	-
Doosan Skoda Power s.r.o	2,310	-	-	10,562	-	1,900
Others	469	-	1,569	7,966	-	4,505
Subtotal	105,594	39,509	8,874	167,969	393	20,729
Associates						
POSPower Co., Ltd.	124,523	-	-	-	-	-
Others	354	-	-	-	-	-
Subtotal	124,877	-	-	-	-	-
Others:						
Oricom Inc.	2	-	-	249	-	3,390
Doosan Mecatec Co., Ltd.	3,887	-	-	-	-	-
Others	88	-	273	1,422	-	193
Subtotal	3,977	-	273	1,671	-	3,583
Total	₩ 235,277	39,509	9,387	197,308	393	52,586

(*1) The relationship ended during 2019, and the above amount is aggregated before the relationship ended.

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For the years ended December 31, 2020 and 2019

(3) The outstanding receivables and payables arising from the transactions with related parties (excluding dividend and investment) as of December 31, 2020 and 2019 are as follows:

(In millions of won)

Related party	2020					
	Receivables			Payables		
	Accounts receivable	Loans receivable	Other receivables	Trade payable	Borrowings	Other payables
Parent:						
Doosan Corp.	₩ -	-	1,117	21,922	-	21,210
Subsidiaries:						
DEC	-	-	8,807	122	-	14,842
Doosan Cuvex Co., Ltd.	-	-	4,826	731	-	37
KDPP 5 th Co., Ltd.	-	-	-	-	127,200	-
U-best 5 th Co., Ltd.	-	-	-	-	80,000	-
Doosan Heavy Industries Vietnam Co., Ltd.	951	-	4,104	104,981	-	26,542
Doosan Heavy Industries America LLC	-	-	10	15,141	-	-
Doosan Heavy Industries Japan Corp.	-	-	47	4,588	-	511
DPSI(*1)	185,940	34,891	34,308	734	-	-
Doosan Enpure Ltd.	-	-	5,037	1,169	-	-
Doosan Heavy Industries Muscat LLC	-	-	1,410	-	-	-
Doosan Power Systems Arabia Company Limited	466	-	27	1,184	-	-
Azul Torre Construction Corporation	-	3,616	4,242	-	-	-
Doosan Heavy Industries America Holdings Inc.	-	28,288	1,974	-	-	-
DPS S.A.	-	-	5,314	-	-	-
Doosan Babcock Ltd.	-	64,485	12,823	8,115	-	-
Doosan Skoda Power s.r.o	-	-	1,123	11,407	-	-
Doosan GridTech Inc.	-	5,440	414	-	-	-
Doosan HF Controls Corp.	-	-	3	855	-	-
Others	-	-	1,804	3,563	-	318
Subtotal	187,357	136,720	86,273	152,590	207,200	42,250
Others:						
DBC Co., Ltd	-	-	12,255	-	-	-
Others	-	-	-	-	-	3,029
Subtotal	-	-	12,255	-	-	3,029
Total	₩ 187,357	136,720	99,645	174,512	207,200	66,489

(*1) As of December 31, 2020, the Company has set an allowance for doubtful accounts of ₩219,427 million for DPSI's receivables, and the same amount was recognized as bad debt expenses in 2020.

DOOSAN HEAVY INDUSTRIES & CONSTRUCTION CO., LTD.

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For the years ended December 31, 2020 and 2019

(In millions of won)

Related party	2019					
	Receivables			Payables		
	Accounts receivable	Loans receivable	Other receivables	Trade payable	Borrowings	Other payables
Parent:						
Doosan Corp.	₩ -	-	521	4,548	-	2,496
Subsidiaries:						
DEC	-	-	674	122	-	7,802
Doosan Cuvex Co., Ltd.	-	-	4,827	676	-	37
KDPP 3 rd Co., Ltd.	-	275	-	-	40,000	-
KDPP 5 th Co., Ltd.	-	-	-	-	169,000	-
U-best 5 th Co., Ltd.	-	-	-	-	80,000	-
Doosan Heavy Industries Vietnam Co., Ltd.	3,021	-	2,692	60,095	-	26,942
Doosan Heavy Industries America LLC	-	-	52	9,793	-	708
Doosan Heavy Industries Japan Corp.	-	-	43	5,082	-	501
IMGB	3	-	518	5,963	-	-
DPSI	148,375	38,108	33,561	-	-	-
Doosan Enpure Ltd.	-	-	4,676	5,228	-	-
Doosan Heavy Industries Muscat LLC	888	-	1,887	-	-	-
Doosan Power Systems Arabia Company Limited	496	-	86	100	-	-
Azul Torre Construction Corporation	-	3,449	4,514	-	-	-
Doosan Heavy Industries America Holdings Inc.	780	42,839	-	-	-	-
DPS S.A.	-	-	4,925	-	-	-
Doosan Babcock Ltd.	-	-	10,999	11,074	-	-
Doosan Skoda Power s.r.o	1,845	-	399	3,928	69,468	224
Others	-	5,789	2,036	3,105	-	2,742
Subtotal	155,408	90,460	71,889	105,166	358,468	38,956
Associates and joint ventures:						
Haman Industrial Complex Company	522	-	-	-	-	-
Others:						
Oricom Inc.	-	-	-	1,959	-	-
Doosan Mecatec Co., Ltd.	1,702	-	-	-	-	-
Others	88	-	81	-	-	14
Subtotal	1,790	-	81	1,959	-	14
Total	₩ 157,200	90,460	72,491	111,673	358,468	41,466

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(4) Financial transactions (including investment) with related parties for the years ended December 31, 2020 and 2019 are as follows:

(In millions of won)

Related party	2020									
	Loans		Borrowings		Investments		Dividend		Equity	
	Lending	Collection	Borrowed	Repaid	Received	Provided	Income	Payout	Acquisition	Disposal
Doosan Corp.	₩	-	-	-	-	673,376	-	-	-	-
Subsidiaries:										
DEC	-	-	-	-	-	-	-	-	51,009	-
KDDP 3 th Co., Ltd.	-	276	-	40,000	-	-	-	-	-	-
KDDP 5 th Co., Ltd.	-	-	-	41,800	-	-	-	-	-	-
Osung Power O&M Co., Ltd.	-	-	-	-	-	-	600	-	-	-
Doosan Mecatec Co., Ltd.	-	-	-	-	-	-	-	-	238,199	-
Doosan Heavy Industries Vietnam Co., Ltd.	-	-	-	-	-	-	-	-	63,697	-
DPSI	-	-	-	-	-	200,000	-	-	-	-
Azul Torre Construction Corporation	201	-	-	-	-	-	-	-	-	-
Doosan Heavy Industries America Holdings Inc.	20,686	33,516	-	-	-	-	-	-	-	-
Doosan GridTech Inc.	-	-	-	-	-	8,846	-	-	-	-
Doosan Skoda Power s.r.o	-	-	-	69,468	-	-	-	-	-	-
Doosan Babcock Limited PT. Doosan Heavy Industries Indonesia	64,484	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	760	-	-	-	-
Subtotal	85,371	33,792	-	151,268	-	209,606	600	-	352,905	-
Associates and joint ventures:										
Daejung Offshore Wind Power Co., Ltd.	-	-	-	-	-	369	-	-	-	-
Hychangwon Co., Ltd.	-	-	-	-	-	3,000	-	-	-	-
Subtotal	-	-	-	-	-	3,369	-	-	-	-
Others:										
KDDI Korea Corporation	-	-	-	-	-	-	8	-	-	-
Total	₩ 85,371	33,792	-	151,268	673,376	212,975	608	-	352,905	-

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(In millions of won)

Related party	2019									
	Loans		Borrowings		Investments		Dividend		Equity	
	Lending	Collection	Borrowed	Repaid	Received	Provided	Income	Payout	Acquisition	Disposal
Doosan Corp.	₩	-	-	-	-	141,586	-	-	-	23,615
Subsidiaries:										
DI		-	-	-	-	-	-	-	-	11,948
Doosan Infracore North America LLC		-	-	-	-	-	-	12,640	-	-
Doosan bobcat Korea		-	-	-	-	-	-	-	-	11,148
DEC	300,000	300,000	-	-	-	300,000	-	-	-	-
KDDP 4 th Co.,Ltd.(*1)	-	-	-	203,000	-	-	-	-	-	-
KDDP 5 th Co.,Ltd.	-	-	169,000	-	-	-	-	-	-	-
FSS 8 th Co., Ltd.(*1)	-	-	-	97,000	-	-	-	-	-	-
U-best 4 th Co., Ltd.(*1)	-	-	-	80,000	-	-	-	-	-	-
U-best 5 th Co., Ltd.	-	-	80,000	-	-	-	-	-	-	-
IMGB	-	-	-	-	-	35,837	-	-	-	-
DPSI	39,540	-	-	-	-	-	-	-	-	-
Azul Torre Construction Corporation	3,449	-	-	-	-	-	-	-	-	-
Doosan Heavy Industries America Holdings Inc.	21,543	-	-	-	-	-	-	-	-	-
Doosan GridTech Inc.	9,495	3,552	-	-	-	6,551	-	-	-	-
Doosan Skoda Power s.r.o	-	-	162,272	92,804	-	-	-	-	-	-
Subtotal	374,027	303,552	411,272	472,804	-	342,388	-	12,640	-	23,096
Others:										
Neo-plux Co., Ltd.	-	-	-	-	-	-	-	-	-	582
KDDI Korea Corporation	-	-	-	-	-	-	58	-	-	-
Total	₩	374,027	303,552	411,272	472,804	141,586	342,388	58	12,640	47,293

(*1) The related relationship ended during 2019, and the above amount is aggregated before the related relationship ended.

(5) The Company provides payment guarantees and collateral for certain related parties as of December 31, 2020 (See Notes 31, 32).

(6) Key management personnel are standing directors who have authorities and responsibilities for planning, operation and control of the business of the Company. Compensation for key management personnel for the years ended December 31, 2020 and 2019 consists of following:

(In millions of won)

	2020	2019
Short-term employee benefits	₩ 9,356	14,309
Severance and retirement benefits	1,253	1,420
Total	₩ 10,609	15,729

DOOSAN HEAVY INDUSTRIES & CONSTRUCTION CO., LTD.
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34. Separate statements of cash flows

(1) Details of cash generated from operations for the years ended December 31, 2020 and 2019 are as follows:

<i>(In millions of won)</i>		2020	2019
	₩		
Loss for the period		(1,880,174)	(495,191)
Adjustments:			
Interest expenses		186,409	184,338
Loss on foreign currency translation		47,132	48,364
Bad debt expenses (reversal of bad debt allowance)		167,905	(464)
Other bad debt expenses		73,665	86,410
Loss on valuation of derivative financial instruments		24,432	112,248
Loss on valuation of firm commitments		66,946	23,583
Depreciation		110,823	130,719
Amortization		85,892	88,732
Income tax benefit		(226,215)	(38,615)
Severance and retirement benefits		40,142	33,574
Loss on valuation of inventory		2,973	1,036
Loss on disposal of property, plant and equipment		212	25,658
Loss on disposal of intangible assets		197	116
Impairment loss on property, plant and equipment		36,107	-
Impairment loss on intangible assets		158,053	8,463
Impairment loss on investments in subsidiaries		1,070,485	167,537
Loss on short-term and long-term investment securities evaluation		7,408	3,116
Loss on redemption of bond		31,385	-
Loss on disposal of trade receivables		7,758	7,515
Provision for construction warranties		18,180	7,045
Loss on disposal of inventory		13,317	1,636
Provision for loss compensation		92,100	-
Interest income		(9,831)	(16,235)
Dividend income		(612)	(277)
Gain on foreign currency translation		(46,469)	(30,743)
Gain on valuation of derivatives financial instruments		(122,483)	(83,150)
Gain on valuation of firm commitments		(7,443)	(61,820)
Gain on disposal of property, plant and equipment		(630)	(2,161)
Gain on disposal of intangible assets		-	(25)
Gain on disposal of investments in subsidiaries		(1,731)	(102)
Gain on short-term and long-term investment securities evaluation		(85,527)	(1,957)
Reversal of impairment loss of intangible assets		(4,420)	(2,054)
Others		101,673	41,538
Subtotal		1,837,833	734,025
Changes in operating assets and liabilities:			
Trade receivables		(43,033)	(96,159)
Due from customers for contract work		(14,019)	223,733
Other receivables		(38,635)	13,995
Prepayments		(60,705)	(16,589)
Inventories		34,616	(48,865)
Derivative financial assets and liabilities		(55,737)	32,687
Firm commitments assets and liabilities		(14,703)	15,318

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(In millions of won)

	2020	2019
Trade payables	(270,300)	(505,886)
Other payables	6,665	45,627
Advanced receipts	1,916	8,510
Due to customers for contract work	169,635	199,229
Accrued expenses	(5,037)	(42,161)
Severance payments paid	(136,875)	(42,549)
Plan assets	107,559	24,328
Others	(93,010)	(2,937)
Subtotal	(411,663)	(191,719)
Cash generated from operations	₩ (454,004)	47,115

(2) Significant non-cash transactions for the years ended December 31, 2020 and 2019 are as follows:

(In millions of won)

	2020	2019
Transfer to current portion of bonds, borrowings and others	₩ 377,445	1,602,942
Transfer from construction-in-progress to other assets	40,304	21,035
Acquisition of investment in subsidiaries through investment in kind	238,199	-
Acquisition of investment in subsidiaries through comprehensive stock exchange	36,971	-
Acquisition of long-term investment in securities through stock receipt	600,525	-
Transfer from land to investment property	24,372	-

(3) Changes of liability in financing activities for the years ended December 31, 2020 and 2019 are as follows:

(In millions of won)

		Balance at January 1, 2020	Cash flows from financing activities, net	Non-cash changes				Balance at December 31, 2020
				Current portion of long-term debt	Changes in foreign currency translation	Interest expenses amortization	Others(*1)	
Short-term borrowings	₩	2,659,815	1,384,017	-	(12,452)	-	-	4,031,380
Current portion of								
long-term borrowings		1,529,162	(1,459,562)	359,791	(5,338)	7,532	31,385	462,970
Current lease liabilities		28,084	(29,352)	17,654	-	-	(419)	15,967
Bonds		80,000	10,006	(75,665)	-	412	(18)	14,735
Long-term borrowings		484,078	25,000	(199,408)	(561)	-	-	309,109
Long-term asset-backed								
Borrowings		132,514	-	(84,718)	-	1,307	-	49,103
Non-current lease liabilities		15,602	-	(17,654)	-	-	14,198	12,146
Total	₩	4,929,255	(69,891)	-	(18,351)	9,251	45,146	4,895,410

(*1) Non-cash changes such as loss on debt redemption and account transfer are included.

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(In millions of won)

	Balance at January 1, 2019	Cash flows from financing activities, net	Non-cash changes					Balance at December 31, 2019
			Current portion of long-term debt	Changes in foreign currency translation	Interest expenses amortization	Change in accounting standards(*1)	Others	
Short-term borrowings	₩ 1,261,779	1,406,447	-	(8,411)	-	-	-	2,659,815
Current portion of								
long-term borrowings	1,041,219	(1,143,943)	1,602,942	26,483	2,461	-	-	1,529,162
Current lease liabilities	-	(49,708)	28,084	-	-	39,349	10,359	28,084
Bonds	1,154,393	80,915	(1,174,867)	-	19,559	-	-	80,000
Long-term borrowings	708,254	77,000	(304,275)	3,099	-	-	-	484,078
Long-term asset-backed								
Borrowings	208,788	45,086	(123,800)	-	2,440	-	-	132,514
Non-current lease liabilities	-	-	(28,084)	-	-	40,049	3,637	15,602
Total	₩ 4,374,433	415,797	-	21,171	24,460	79,398	13,996	4,929,255

(*1) The lease liability is recognized on transition to K-IFRS No. 1116.

35. Subsequent events

In accordance with the resolution of the Board of Directors on February 5, 2021, the Company decided to sell the ordinary shares and others of Doosan Infracore Co., Ltd. ("DI") and the details are as follows:

	Description
Subject entity	DI
Relationship with the Company	Subsidiary
Purpose of disposal	Enhancement of business efficiency and improvement of governance structure
Disposal consideration	₩850,000 million
Subject of disposal	All common stock and stock warrant held by the Company after the carve-out from some assets, liabilities, human resources, and contract relations that are not directly related to the business operated by DI

DOOSAN HEAVY INDUSTRIES & CONSTRUCTION CO., LTD.

Notes to the Separate Financial Statements

For the years ended December 31, 2020 and 2019

Pursuance of the financial structure improvement plan

The Company faces financial difficulties as the global power market slump and external environmental change resulted in accumulated losses incurred in the Company's business from 2014. Accordingly, the Company is carrying out the plan to streamline its business for improving profitability (i.e., human-resources restructuring) and the plan to improve the financial structure in stages for reducing debts through expansion of capital.

The Company received financial support (approximately ₩3,000,000 million) from KDB and Korea EXIM Bank ("State-owned Banks") in the first half of 2020, in order to respond to short-term liquidity risks. The Company, Doosan Corp., Park Jeong-won and other related persons provided collateral to State-owned Banks for their respective major assets and signed agreements with State-owned Banks to implement the plan to improve financial structure in June 2020. The agreement contains that the Company, Doosan Corp., Park Jeong-won and other related persons repay debts to State-owned Banks by raising more than ₩3,000,000 million through self-rescue efforts, including the sale of non-core assets. In order to implement the financial structure improvement plan, the Company raised approximately ₩1,200,000 million through issuance of new shares in December 2020 to repay the debts of State-owned Banks and received 12,764 thousand shares of Doosan Fuel Cell Co., Ltd. for free of charge from Park Jeong-won and other related parties on November 26, 2020 for capital expansion. The management of the Company judges that sufficient liquidity can be secured according to the financial structure improvement work being carried out in accordance with the agreements with State-owned Banks.

Meanwhile, although the Company's separate financial statements are accounted for under the assumption that assets and liabilities can be recovered or redeemed through the ordinary course of business, depending on the success or failure of the financial and business improvement plan, there is a possibility that the financial position and management performance may fluctuate significantly. If these plans are disrupted, the Company's assets and liabilities may not be recovered or redeemed at their carrying amount through the ordinary course of business, and the Company's separate financial statements do not reflect such adjustments in relation to the assets and liabilities and the classification thereof and the related profit or loss that may arise from this uncertainty.

36. Effect of coronavirus disease-19 ("COVID-19")

The World Health Organization declared a global pandemic against COVID-19 on March 11, 2020 and the Company believes that the spread and persistence of COVID-19 will have a negative impact on the Company's business and financial environment. However, as of December 31, 2020, the effects of COVID-19 are not reflected in the separate financial statement because the Company can not reasonably estimate the effects.

37. Approval of the separate financial statements

The separate financial statements were authorized for issue by the Board of Directors on February 9, 2021 and will get final approval during the shareholders' meeting on March 30, 2021.

Independent Auditors' Report on Internal Control over Financial Reporting

Based on a report originally issued in Korean

To the Shareholders and Board of Directors of
Doosan Heavy Industries & Construction Co., Ltd.:

Opinion on Internal Control over Financial Reporting

We have audited Doosan Heavy Industries & Construction Co., Ltd.'s ("the Company") internal control over financial reporting ("ICFR") as of December 31, 2020 based on the criteria established in the Conceptual Framework for Designing and Operating ICFR ("ICFR Design and Operation Framework") issued by the Operating Committee of Internal Control over Financial Reporting in the Republic of Korea (the "ICFR Committee").

In our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2020, based on ICFR Design and Operation Framework.

We also have audited, in accordance with Korean Standards on Auditing (KSAs), the separate financial statements of the Company, which comprise the separate statements of financial position as of December 31, 2020 and 2019, the separate statements of loss and comprehensive loss, changes in equity and cash flows for the years then ended, and notes, comprising significant accounting policies and other explanatory information, and our report dated March 18, 2021 expressed an unmodified opinion on those separate financial statements.

Basis for Opinion

We conducted our audit in accordance with KSAs. Our responsibilities under those standards are further described in the Auditors' Responsibilities for the Audit of the Internal Control over Financial Reporting section of our report. We are independent of the Company in accordance with the ethical requirements that are relevant to our audit of the internal control over financial reporting in Republic of Korea, and we have fulfilled our other ethical responsibilities in accordance with these requirements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Responsibilities of Management and Those Charged with Governance for the Internal Control over Financial Reporting

The Company's management is responsible for designing, operating and maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Report on the Operations of Internal Control over Financial Reporting.

Those charged with governance are responsible for overseeing the Company's internal control over financial reporting.

Auditors' Responsibilities for the Audit of the Internal Control over Financial Reporting

Our responsibility is to express an opinion on the Company's internal control over financial reporting based on our audit. We conducted our audit in accordance with KSAs. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects.



Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk.

Definition and Limitations of Internal Control over Financial Reporting

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with Korean International Financial Reporting Standards ("K-IFRS"). The company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with K-IFRS, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

The engagement partner on the audit resulting in this independent auditors' report is Hyun Joong Kim.

KPMG Samjong Accounting Corp.

Seoul, Korea
March 18, 2021

<p>This report is effective as of March 18, 2021, 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 internal control over financial reporting. Accordingly, the readers of the audit report should understand that the above audit report has not been updated to reflect the impact of such subsequent events or circumstances, if any.</p>
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Report on the Operations of Internal Control over Financial Reporting **("ICFR")**

English Translation of a Report Originally Issued in Korean

To the Shareholders, Board of Directors and Audit Committee of Doosan Heavy Industries & Construction Co., Ltd.

We, as the CEO and Internal Accounting Control Officer ("IACO") of Doosan Heavy Industries & Construction Co., Ltd. ("the Company"), assessed the status of the design and operation of the Company's ICFR for the year ended December 31, 2020.

The Company's management including CEO and IACO are responsible for designing and operating ICFR. We, as the CEO and IACO, assessed whether the ICFR has been appropriately designed and is effectively operating to prevent and detect any error or fraud which may cause any misstatement of the financial statements, for the purpose of preparing and disclosing reliable financial statement.

We, as the CEO and IACO, adopted the 'ICFR Design and Operation Concept Framework' established by the Operating Committee of Internal Control over Financial Reporting for the design and operation of the ICFR. Also applied the 'ICFR Assessment and Reporting Standards' established by the Operating Committee of Internal Control over Financial Reporting for the assessment of design and operation of the ICFR.

Based on assessment of the ICFR, the Company's ICFR has been appropriately designed and is operating effectively as of December 31, 2020, in all material respect, in accordance with the ICFR Design and Operation Concept Framework.

We, as the Company's CEO and IACO, confirmed that the contents of the report are not misstated or displayed, and there is no missing information to be stated or displayed.

Also, We, as the Company's CEO and IACO, confirmed that the report did not contain or display any content that cause major misunderstanding, and sufficiently reviewed the report.

9 February 2021

Chief Executive Officer YEONIN JUNG
Internal Accounting Control Officer SANGHYUN PARK

