

**NON-CONFIDENTIAL**

**SENT VIA TITANFILE**

August 26, 2024

SIMA Registry and Disclosure Unit  
Anti-dumping and Countervailing Program  
Canada Border Services Agency  
11<sup>th</sup> Floor, 100 Metcalfe Street  
Ottawa ON K1A 0L8

**RE: Request for Re-Investigation of Normal Values and Export Prices for Exports of Large Power Transformers and Small Power Transformers by HD Hyundai Electric Co., Ltd.**

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This request is filed on behalf of Northern Transformer Corporation, PTI Transformers Inc., PTI Transformers L.P., and Transformateurs Delta Star Inc. (collectively, the “domestic producers”). In accordance with the CBSA policy set out in Memorandum D14-1-8, the domestic producers are requesting a normal value and export price review for exports of large power transformers (“LPTs”) and small power transformers (“SPTs”) by HD Hyundai Electric Co., Ltd. (“HD Hyundai”). The request concerning LPTs is pursuant to the CBSA’s enforcement of the Canadian International Trade Tribunal’s (“CITT”) Order in *Liquid Dielectric Transformers* (the LPT Order)<sup>1</sup> and the request concerning SPTs is pursuant to the CBSA’s enforcement of the Tribunal’s Finding in *Certain Small Power Transformers* (the “SPT Finding”).<sup>2</sup>

**I. INTRODUCTION**

There are four primary reasons why the CBSA should initiate as soon as practicable a normal value and export price review for LPTs and SPTs exported by HD Hyundai to Canada.

*First*, imports of Korean LPTs and SPTs continue to enter Canada in material volumes, with 2023 LPT imports representing the highest value of Korean imports in LPTs since 2018 and H1 2024 SPT imports increasing fourfold over imports in the same period of 2023. Given the CITT’s assessment in 2023 that HD Hyundai was responsible for all Korean LPT exports to Canada between 2020 and Q1 2023, which is corroborated by the domestic producers’ market intelligence, it is likely that HD Hyundai is mostly if not entirely responsible for these increased exports. Furthermore, increased exports are a continuation of a longstanding pattern: Korean transformers—again largely from HD Hyundai—increase in volume the further from the last

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<sup>1</sup> *Liquid Dielectric Transformers* (20 December 2023), RR-2022-004 (CITT).

<sup>2</sup> *Certain Small Power Transformers* (24 December 2021), NQ-2021-003 (CITT).

August 26, 2024  
Page 2

CBSA administrative action updating their normal values and export prices. Put another way, as these normal values and export price methodologies become out of date, HD Hyundai takes advantage of the system and increases their imports. Conversely, after CBSA administrative action, Korean imports fall as they become subject to the updated normal values and export prices. As such, these import trends demonstrate the need for a fresh normal value and export price review to ensure HD Hyundai has priced its exports in compliance with its obligations under the *Special Import Measures Act* (“SIMA”).

*Second*, normal values for HD Hyundai have not been recently updated. Although the CBSA has conducted export price reviews for HD Hyundai’s LPT and SPT exports in 2022 and 2023, respectively, it has not conducted a normal value review for HD Hyundai’s LPT exports since 2019 and it has never conducted a normal value review for its SPT exports. A normal value review will provide the CBSA with the opportunity to update key elements of the normal value calculation such as the home market amount for profit rate, which has likely changed significantly since they were last determined.

*Third*, and relatedly, HD Hyundai has reported increases to its total firm operating and net profit before taxes since 2019 and 2021 that suggest its reasonable amount for profit on domestic sales may no longer be accurate. By conducting a new normal value and export price review, the CBSA will be able to assign a new reasonable amount for profit for HD Hyundai that accurately reflects current market conditions.

*Finally*, there have been significant increases in key transformer material costs since 2019 and 2021, including for critical inputs such as grain-oriented electrical steel, mineral oil, paper, and copper. Given that normal values have not been updated since 2019 and 2021 for LPTs and SPTs, respectively, a new normal value review would allow CBSA to ensure that HD Hyundai has increased its prices in line with its costs.

#### **A. Material Volumes of Subject Imports Continue to Enter the Canadian Market**

SPT and LPT imports continue to enter Canada in significant volumes. It is the domestic industry’s belief—supported by market intelligence—that HD Hyundai is largely responsible for these increased imports, which are made through its affiliated importers Hyundai Electric America Corporation (“HE America”) and Hyundai Canada Inc. (“Hyundai Canada”).

As shown in **Confidential Attachment 1**, based on Statistics Canada data, LPT import have increased significantly in the past 24 months. In 2023, LPT imports from South Korea increased substantially to \$40.8 million, more than three times the \$13.1 million imported in 2022 and eight

August 26, 2024  
Page 3

times the \$5.0 million imported in 2021.<sup>3</sup> It also represented the largest value of imports since 2018. The significance of being the largest figure since 2018 should not be understated, as 2018 was first full year after the conclusion of the CBSA's previous re-investigation in July 2017.<sup>4</sup> As described in detail below, given the lagged lead times between order and delivery, 2018 was the last year where imports would have reflected sales in the market prior to conclusion of the re-investigation. Import trends through June 2024 suggest that 2023 is not an outlier—\$12.4 million has been imported so far in 2024, on pace for the second largest year since 2018 after 2023. Likewise, SPT imports from Korea have spiked in 2024, with \$4.6 million in imports through June 2024, more than four times the pace of imports through June 2023 and already more than the total value of Korean imports in 2023.

There is no reason to expect that elevated imports will abate anytime soon given the significant number of outstanding transformer procurements in Canada. Indeed, the CITT noted in 2023 that at least 3,000 MVA in LPT procurements were to be issued between the conclusion of the LPT expiry review (*i.e.*, October 2023) and March 31, 2025.<sup>5</sup> While [

]. As the CITT noted in its reasons, HD Hyundai was the only active Korean LPT exporter between 2020 and Q1 2023, so there is good reason to believe that Hyundai is responsible for most if not all of the value of these increased Korean LPTs imports.<sup>6</sup> Given the nearly \$5.0 million in duties assessed on Korean transformers in 2023 and the more than \$13.4 million assessed on Korean LPTs since 2020, the significant increase in imports raises significant compliance issues regarding HD Hyundai's exports and whether it has been increasing its prices in line with its costs and selling into the Canadian market at reliable export prices as required by the *SIMA*.

Notably, with respect to the CBSA's enforcement of LPTs, there has been a trend since the time of the CITT's original finding where Korean imports increase as time extends since the last CBSA enforcement proceeding and a trend where there is reduction in imports immediately after a CBSA enforcement proceeding. This strongly suggests that when there are increases in imports, this is a sign of outdated normal values or export price methodologies that can be addressed through a new enforcement proceeding. As seen in **Confidential Attachment 1**, after the initial CITT LPT finding in 2012, LPT imports from South Korea decreased significantly from \$73.8 million to \$46.5 million in 2013. Imports once again rose in 2014 to \$80.2 million after the Federal Court of Appeal remanded the CBSA's final determination of dumping back to the CBSA,<sup>7</sup> before falling

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3 The domestic producers have used value as opposed to volume for these data as the volume data appear to inconsistently use units and MVA, resulting in an inability to properly capture and analyze trends in imports in the Statistics Canada data.

<sup>4</sup> *Liquid Dielectric Transformers* (July 5, 2017), TR 2017 RI (Notice of Conclusion of Re-Investigation).

<sup>5</sup> *Liquid Dielectric Transformers* (20 December 2023), RR-2022-004 (CITT) at para 101.

<sup>6</sup> *Liquid Dielectric Transformers* (20 December 2023), RR-2022-004 (CITT) at para 69.

<sup>7</sup> *Hyundai Heavy Industries Co., Ltd. v ABB Inc.*, 2013 FCA 284 at para 25.

August 26, 2024  
Page 4

back down to a then-low \$39.4 million in 2016 after the CBSA once again found that Korean transformers were dumped.<sup>8</sup> Imports increased once again to \$56.5 million in 2017, and fell by 2019 to \$5.4 million after the CBSA's 2017 re-investigation which saw imports rapidly decrease in 2018. These trends strongly suggest that Korean LPT imports are directly correlated with CBSA enforcement targeting outdated normal values and export prices. In 2023 and 2024, the Canadian market is once again seeing the resurgence of Korean transformer imports.

The domestic producers are only requesting a review concerning HD Hyundai as it is their understanding that HD Hyundai is largely responsible for the increase in imports. As noted above, the Tribunal found in its most recent expiry review that HD Hyundai and its affiliates were responsible for all LPT imports in Canada during the Tribunal's period of record, *i.e.*, 2020 through Q1 2023.<sup>9</sup> This is consistent with the domestic producers' experience since Q1 2023 as well as market intelligence that corroborates the participation of HD Hyundai at accounts across Canada. Furthermore, HD Hyundai is likely responsible for the majority of SPT imports as well for the same reasons: only HD Hyundai and ILJIN Electric Co., Ltd. ("Iljin") have normal values for SPTs.<sup>10</sup> To be sure, [

]. Given that [ ] 3,000 MVA in outstanding procurement opportunities in Canada between 2023 and Q1 2025, [ ]. It is therefore of paramount importance to the effectiveness of the anti-dumping order that the CBSA ensures HD Hyundai's normal values and export prices are up to date.

As set out in Memorandum D-14-1-8, the CBSA will conduct a normal value review "where a significant volume of the imports of the subject goods are from a particular exporter or a limited number of exporters."<sup>11</sup> Here, an increase in imports from Korea that have likely originated from HD Hyundai would support this factor calling for a normal value review.

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<sup>8</sup> *Liquid Dielectric Transformers* (March 21, 2014), AD/1395 (CBSA) at para 9.

<sup>9</sup> *Liquid Dielectric Transformers* (20 December 2023), RR-2022-004 (CITT) at para 69.

<sup>10</sup> **Public Attachment 2**, Small Power Transformer (SPT) Normal Value ID Table. Available online: <https://www.cbsa-asfc.gc.ca/sima-lmsi/mif-mev/id/spt-eng.html>.

<sup>11</sup> Memorandum D14-1-8, "Re-investigation and Normal Value Review Policy – Special Import Measures Act (SIMA) at para. 14.



August 26, 2024  
Page 5

## **B. Both Normal Values and Export Prices Have Not Been Reviewed Since 2019**

Another factor considered by the CBSA in deciding whether to initiate a normal value and export price review is “the elapsed time since values were last issued.”<sup>12</sup> Here, it has been several years since the last normal value reviews and export price reviews were conducted on HD Hyundai in the context of LPTs. While an export price review was conducted on HD Hyundai in 2022 (Hyundai Electric at the time),<sup>13</sup> a normal value review has not been conducted since 2019. With regard to SPTs, while an export price review was conducted between 2022 and 2023,<sup>14</sup> there has not yet been a normal value review since the SPT Finding in December 2021.

Further, there is a need to revisit HD Hyundai’s data given the findings of unreliability in the most recent export price reviews for HD Hyundai with respect to its LPT and SPT imports, respectively.<sup>15</sup> Memorandum D-14-1-8 confirms that a factor justifying the initiation of a normal value and export price review is “the need to review the export prices, such as where exporters are associated with the importers.”<sup>16</sup> A normal value and export price review concerning HD Hyundai and its affiliated importers will allow the CBSA to determine if HD Hyundai’s sales continue to be unreliable and, consequently, apply the cascading effect to offset the hidden dumping. The *SIMA Handbook* at section 5.11.2.6. states that in situations where hidden dumping is found, the CBSA will conduct a follow-up export price review and that the normal timeframe for this follow-up is four to six months after the finding of hidden dumping. The *SIMA Handbook* also stresses the need to frequently review the export price if importers found to be unreliable to ensure that Canadian resale prices have been sufficiently increased to offset hidden dumping.

In addition, the Federal Court of Appeal has provided certainty regarding the CBSA’s previously assessed duties on HD Hyundai, dating back to enforcement appeals originally filed in 2019. In February 2024, the Federal Court of Appeal dismissed enforcement appeals filed by HD Hyundai and its affiliated importers (then Remington Sales Co., d.b.a. Hyundai Heavy Industries (Canada)). The Federal Court of Appeal also validated the reliability test methodology used by the CBSA in its previous enforcement actions, including HD Hyundai’s most recent re-investigation, normal value review, and export price reviews.<sup>17</sup> Now that this litigation has concluded, the CBSA should

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<sup>12</sup> Memorandum D14-1-8, “Re-investigation and Normal Value Review Policy – Special Import Measures Act (SIMA) at para. 12.

<sup>13</sup> *Liquid Dielectric Transformers* (February 8, 2022), TR 2021 UP1 (CBSA).

<sup>14</sup> *Small Power Transformers* (April 11, 2023), SPT 2022 UP1 (CBSA).

<sup>15</sup> *Liquid Dielectric Transformers* (February 8, 2022), TR 2021 UP1 (CBSA) at “Conclusion of Export Price Review”; *Small Power Transformers* (April 11, 2023), SPT 2022 UP1 (CBSA) at “Conclusion of Export Price Review.”

<sup>16</sup> Memorandum D14-1-8, “Re-investigation and Normal Value Review Policy – Special Import Measures Act (SIMA) at para. 12.

<sup>17</sup> *Remington Sales Co. (Hyundai Heavy Industries (Canada)) v. Canada (Border Services Agency)*, 2024 FCA 25. As the CBSA is aware, this appeal concerned the following enforcement appeals: EA-2019-008 and EA-2019-010.

August 26, 2024  
Page 6

conduct a new normal value and export price review in order to ensure that HD Hyundai is fully complying with its obligations under the *SIMA*, the LPT Order, and the SPT Finding.

To be sure, HD Hyundai was instructed by the CBSA in both the most recent LPT and SPT export price reviews after it was found unreliable that, where there are increases in domestic selling prices or costs, the export price should be increased to ensure the selling price is above the issued normal values or above selling prices in Canada once costs and profit are accounted for. But as set out in greater detail below there have been significant changes in home market profit levels and in the costs of producing LPTs and SPTs since the time of the last normal value determinations for LPTs and SPTs. As seen in **Confidential Attachment 1** and as noted in **Section I.A.**, above, there have been significant duty assessments made on imports of Korean transformers—most likely HD Hyundai-sourced transformers—since 2020, including \$6.8 million since March 2022 (*i.e.*, after the conclusion of the most recent LPT export price review). Likewise, there has been over \$400,000 of duties assessed on Korean SPT imports since the conclusion of the last SPT export price review in April 2023. These duty assessments highlight the importance of conducting a new normal value and export price review concerning imports of LPTs and SPTs from HD Hyundai to ensure that it is appropriately pricing above normal value and at reliable levels, and to reassess duties where it has failed to do so.

### **C. There have Been Changes in Home Market Profits**

As part of updating HD Hyundai's normal values, the CBSA would also update HD Hyundai's reasonable amount for profit. Recent reporting suggests that HD Hyundai is more profitable in its home market than at the last times its normal values were updated under both the LPT Order and the SPT Finding.

According to HD Hyundai's 2019 consolidated financial statements (then known as Hyundai Electric and Energy Systems Co., Ltd.), HD Hyundai generated a KRW 156.694 billion operating loss (-8.8 percent) and a KRW 333.636 billion net loss (-18.8 percent) before taxes. In 2021, this improved to a KRW 9.736 billion operating profit (0.5 percent) and a KRW 40.422 billion net loss (-2.2 percent) before taxes. Since then, HD Hyundai has improved its operating profit and net profit before tax to KRW 315.200 billion (11.7 percent) and KRW 298.100 billion (11.0 percent) in 2023, respectively. Likewise, it has reported operating profit and net profit before tax of KRW 338.900 billion (19.7 percent) and KRW 332.200 billion (19.3 percent) in H1 2024, respectively. These figures suggest that HD Hyundai's reasonable amount for profit on domestic sales, last determined in July 2019 for LPTs and November 2021 for SPTs, may be out of date. Please see **Public Attachments 3 to 6**.

Although HD Hyundai's financial statements are total firm and do not disclose solely profit on domestic Korean sales, HD Hyundai has made statements suggesting improved profits in the domestic market. For example, in its H1 2024 financial report, HD Hyundai points to

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August 26, 2024  
Page 7

“{p}rofitability growth in both domestic and overseas markets.” *See Public Attachment 6.* By conducting a normal value review of HD Hyundai’s LPT and SPT export sales to Canada, the CBSA will be able to determine a more accurate reasonable amount for profit and ensure that HD Hyundai is complying with its obligations under the *SIMA*.

#### D. There Have Been Significant Changes in Costs

As the re-investigation policy notes, where “the costs . . . of the goods have risen considerably over the past two-year period” a normal value review may be justified.<sup>18</sup> Such cost increases are evident in the case of both LPTs and SPTs. As shown in **Table 1**, below, material costs for the key raw inputs for transformers have increased considerably since both the last normal value review for LPTs (July 2019) and the final determination for SPTs (November 2021) involving HD Hyundai. These significant cost increases are born out in transformer cost indices, which also show considerable inflation since 2019. According to the Federal Reserve Bank of St. Louis Economic Research Division (“FRED”), as of July 2024, the producer price index for transformers has increased 70 percent since July 2019 and 26 percent since November 2021. This substantial increase is unsurprising given the significant cost increases for the inputs described below.

<b>Table 1:</b>					
<b>Transformer Material Cost Input – % Price Changes Since July 2019</b>					
	<b>2019</b>	<b>2021</b>	<b>2024</b>	<b>% Change (19-24)</b>	<b>% Change (21-24)</b>
FRED <sup>19</sup>	252.8	340.6	429.4	70%	26%
Grain-Oriented Electrical Steel <sup>20</sup>	110.7	176.8	196.5	78%	11%
Mineral Oil	107.5	115.4	153.6	43%	33%
Paper	115.5	130.0	147.8	28%	14%
Copper <sup>21</sup>	2.645	3.280	4.145	57%	26%

These cost increases demonstrate that transformers production has experienced significant inflation since the last time normal values were calculated for HD Hyundai in both LPTs and SPTs. Therefore, an update to HD Hyundai’s normal values is warranted, as the initiation of a new normal value review will allow the CBSA to ensure that HD Hyundai has increased its prices accordingly to account for its increased production costs.

<sup>18</sup> Memorandum D14-1-8, “Re-investigation and Normal Value Review Policy – Special Import Measures Act (SIMA) at para. 13.

<sup>19</sup> **Public Attachment 7**, FRED Transformers Price Index (PCU335311335311) through July 2024.

<sup>20</sup> **Public Attachment 8**, T&D Europe Cost Indices (through May 2024). Note that for Mineral Oil, the latest available costing data is through November 2023.

<sup>21</sup> **Public Attachment 9**, Trading Economics Copper Futures (through August 2024).

August 26, 2024  
Page 8

## **II. CONCLUSION**

The domestic producers submit that there are compelling reasons to initiate a review of HD Hyundai's normal values and export prices for LPTs and SPTs. The re-investigation is critical to the ongoing enforcement of the LPT Order and SPT Finding and to ensure that the LPT Order and SPT Finding provides the protection afforded to the domestic producers under the *SIMA*.

To fulsomely review HD Hyundai's information, the CBSA should conduct a period of review for this normal value and export price review of two years starting July 1, 2022. Doing so will ensure that the CBSA is collecting information starting from the beginning of the increase in Korean exports starting H2 2022, where \$7,201,521 worth of LPTs were imported. Furthermore, collecting information for the entire fiscal year 2023 and H1 2024 will ensure that the CBSA is able to review the substantial import volumes exporter from Korea to Canada during that time.

The domestic producers would be happy to answer any questions the CBSA may have about this request, either directly or through counsel.

Sincerely yours,



Andrew M. Lanouette  
Cassidy Levy Kent (Canada) LLP

August 26, 2024

Page 9

**TABLE OF ATTACHMENTS**

<b>Attachment No.</b>	<b>Description</b>	<b>Designation</b>
1	LPT and SPT Import Data	Confidential
2	SPT Normal Value ID Table	Non-Confidential
3	HD Hyundai Financial Statements 2019	Non-Confidential
4	HD Hyundai Financial Statements 2021	Non-Confidential
5	HD Hyundai Financial Statements 2023	Non-Confidential
6	HD Hyundai Financial Statements H1 2024	Non-Confidential
7	FRED Transformers Price Index (PCU335311335311) through July 2024	Non-Confidential
8	T&D Europe Cost Indices (through May 2024)	Non-Confidential
9	Trading Economics Copper Futures (through August 2024).	Non-Confidential

## ATTACHMENT 1

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LPT and SPT Import Data

*This Attachment has been designated confidential.  
The Attachment contains materials subject to copyright restrictions,  
the disclosure of which would violate the terms of use agreement.*

*This document will be provided in excel format only.*



## ATTACHMENT 2

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Small Power Transformer (SPT) Normal Value ID Table



[Canada.ca](#) > [CBSA](#) > [Anti-dumping and countervailing](#) > [Measures in force](#)

> [Small power transformers](#)

# Normal value model ID table: Small power transformers (SPT)

Information relating to model IDs, model descriptions and units of measure is available in the table below. Please note that model information is posted only for exporters who have successfully enrolled in an exporter ID.

Filter items

Showing 1 to 3 of 3 entries

Show 

50

 entries

Exporter <div>↑ ↓</div>	Exporter ID <div>↑ ↓</div>	Model ID <div>↑ ↓</div>	Model description	Unit of measure
HD Hyundai Electric Co., Ltd.	709294128RM0002	SMALL POWER TRANSFORMER	Small Power Transformer - 1	NMB (Number)
ILJIN Electric Co., Ltd.	806119897RM0002	SMALL POWER TRANSFORMER	Small Power Transformer - 1	NMB (Number)
Shihlin Electric & Engineering Corporation	814909537RM0002	SMALL POWER TRANSFORMER	Small Power Transformer - 1	NMB (Number)

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Date modified:

## **ATTACHMENT 3**

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HD Hyundai Financial Statements 2019

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
AND SUBSIDIARIES

Consolidated Financial Statements

**December 31, 2019 and 2018**

(With Independent Auditors' Report Thereon)

## Contents

	<b>Page</b>
<b>Independent Auditors' Report</b>	1
Consolidated Statements of Financial Position	4
Consolidated Statements of Comprehensive Loss	6
Consolidated Statements of Changes in Equity	7
Consolidated Statements of Cash Flows	9
Notes to the Consolidated Financial Statements	10

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## Independent Auditors' Report

Based on a report originally issued in Korean

To the Shareholders and Board of Directors of  
 Hyundai Electric & Energy Systems Co., Ltd.

### Opinion

We have audited consolidated financial statements of Hyundai Electric & Energy Systems Co., Ltd. and its subsidiaries (the "Group"), which comprise the consolidated statements of financial position as of December 31, 2019 and 2018, the consolidated statements of 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 consolidated financial statements present fairly, in all material respects, the consolidated financial position of the Group as of December 31, 2019 and 2018, and its consolidated financial performance and its consolidated cash flows for the years then ended in accordance with Korean International Finance Reporting Standards ("K-IFRS").

### Basis for Opinion

We conducted our audits in accordance with Korean Standards on Auditing (KSAs). Our responsibilities under those standards are further described in the *Auditors' Responsibilities for the Audit of the consolidated Financial Statements* section of our report. We are independent of the Group in accordance with the ethical requirements that are relevant to our audit of the consolidated financial statements in 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.

### Key Audit Matters

Key audit matters are those matters that, in our professional judgment, were of most significance in our audit of the consolidated financial statements as of and for the year ended December 31, 2019. These matters were addressed in the context of our audit of the consolidated financial statements as a whole, and in forming our opinion thereon, and we do not provide a separate opinion on these matters.

#### *Assessment of impairment on cash generating unit*

Management reviews whether there are any impairment indicators at the end of each reporting period, and if there are any, the recoverable amount is estimated and the impairment is assessed. As described in the Note 4(12) to the consolidated financial statements, an impairment loss is recognized if the carrying amount exceeds the recoverable amount.

#### *Reasons determined as Key Audit Matters*

The Group estimated the recoverable amount of cash generating unit ("CGU") due to identified impairment indicators that caused by operating loss of ₩156,694 million resulting from the deterioration of the operating environment for the current year, and expected economic performance of assets less than expected level. Considering an increase in the uncertainty relates to the estimation of recoverable amount based on assumptions and estimates applied by the Group, we identified the assessment of impairment on CGU as a key audit matter.





#### *How Key Audit Matters were addressed in the audit*

The primary procedures we performed to address this key audit matter included the following:

- Assessing the qualification and independence of the external institution engaged by the Group for the impairment assessment.
- Engaging our valuation specialists to assist us in evaluating the key assumptions used to determine the value-in-use including the discount rates and others and the methodology of the assessment.
- Comparing and analyzing the financial data used for impairment assessment and mid-to long-term business plans confirmed by the management.
- Performing the recalculation of the recognized impairment loss.
- Testing certain internal controls over the Group's impairment assessment process.
- Evaluating the reliability of major forecasts used to estimate fair value less costs to sell and examine the accuracy of calculations.

#### *Other Matter*

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

#### ***Responsibilities of Management and Those Charged with Governance for the consolidated financial Statements***

Management is responsible for the preparation and fair presentation of these consolidated financial statements in accordance with Korean International Financial Reporting Standards, and for such internal control as management determines is necessary to enable the preparation of consolidated financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, management is responsible for assessing the Group's ability to continue as going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless management either intends to liquidate the Group or the cease operations, or has no realistic alternative but to do so.

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

#### ***Auditors' Responsibility for the Audit of the Consolidated Financial Statements***

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

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

- Identify and assess the risks of material misstatement of the consolidated financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations or the override of internal control.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Group's internal control.
- Evaluate the appropriateness of accounting policies used in the preparation of the consolidated financial statements and the reasonableness of accounting estimates and related disclosures made by management.



- Conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Group's ability to continue as a going concern. If we conclude that a material uncertainty exists, then we are required to draw attention in our auditors' report to the related disclosures in the consolidated financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditors' report. However, future events or conditions may cause the Group to cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the consolidated financial statements, including the disclosures, and whether the consolidated financial statements represent the underlying transactions and events in a manner that achieves fair presentation.
- Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the Group to express an opinion on the consolidated financial statements. We are responsible for the direction, supervision and performance of the group audit. We remain solely responsible for our audit opinion.

We communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

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 consolidated financial statements as of and for the year ended December 31, 2019 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 audit resulting in this independent auditors' report is Dong-Hyun Chi.

*KPMG Samjong Accounting Corp.*

Seoul, Korea  
March 17, 2020

This report is effective as of March 17, 2020, the audit report date. Certain subsequent events or circumstances, which may occur between the audit report date and the time of reading this report, could have a material impact on the accompanying consolidated financial statements and notes thereto. Accordingly, the readers of the audit report should understand that the above audit report has not been updated to reflect the impact of such subsequent events or circumstances, if any.

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Consolidated Statement of Financial Position  
As of December 31, 2019 and 2018

<i>(In won)</i>	<i>Note</i>	<i>2019</i>	<i>2018</i>
<b>Assets</b>			
Cash and cash equivalents	6,8,33	₩ 189,724,611,893	376,328,702,307
Short-term financial assets	7,33	149,680,501,568	15,000,000,000
Trade and other receivables	9,23,33	487,479,246,228	649,018,990,259
Contract assets	9,23,33	202,504,881,866	145,931,077,075
Inventories	10	390,771,146,147	424,705,401,756
Derivative assets	18,33	7,586,571,805	1,184,536,130
Non-current assets held for sale	37	33,629,002,019	–
Other current assets	11	22,767,339,801	38,694,206,842
Current tax assets	28	76,943,061	788,944,317
<b>Total Current assets</b>		<u>1,484,220,244,388</u>	<u>1,651,651,858,686</u>
Long-term financial assets	7,8,33	2,997,612,858	3,098,006,698
Long-term trade and other receivables	9,33	1,161,607,456	1,194,989,867
Property, plant and equipment	12	516,893,453,293	527,967,462,785
Right-of-use assets	3,29	7,038,442,363	–
Intangible assets	13	49,385,893,405	17,410,319,517
Derivative assets	18,33	–	20,200,446
Deferred tax assets	28	191,187,804,885	121,119,061,370
Other non-current assets	11	3,589,789,829	3,593,815,525
<b>Total Non-current assets</b>		<u>772,254,604,089</u>	<u>674,403,856,208</u>
<b>Total assets</b>		<u>₩ 2,256,474,848,477</u>	<u>2,326,055,714,894</u>

See accompanying notes to the consolidated financial statements.

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Consolidated Statement of Financial Position, Continued  
As of December 31, 2019 and 2018

(In won)	Note	2019	2018
<b>Liabilities</b>			
Short-term financial liabilities	14,33	₩ 406,887,223,452	667,353,905,131
Trade and other payables	15,33	417,166,807,550	345,601,947,798
Short-term Contract liabilities	23	172,730,163,940	95,520,160,385
Short-term Lease liabilities	3,29	3,751,711,212	-
Short-term Provisions	17	113,248,164,803	11,116,814,519
Derivative liabilities	18,33	454,031,925	91,739,616
Income tax payable	28	75,526,479	64,991,784
Other current liabilities		3,529,112,649	3,566,484,789
Liabilities held for sale	37	5,924,631,322	-
<b>Total Current liabilities</b>		<u>1,123,767,373,332</u>	<u>1,123,316,044,022</u>
Long-term financial liabilities	14,33	365,802,368,878	239,302,719,247
Long-term Trade and other payables	15,33	200,000,000	490,000,000
Long-term contract liabilities	23	21,884,923,432	-
Long-term lease liabilities	3,29	5,226,211,818	-
Defined benefit liabilities	16	8,551,560,230	20,971,221,972
Long-term provisions	17	26,304,880,239	85,414,933,015
Derivative liabilities	18,33	417,827,758	327,438,905
Deferred tax liabilities	28	4,103,771,284	4,934,813,633
<b>Total Non-current liabilities</b>		<u>432,491,543,639</u>	<u>351,441,126,772</u>
<b>Total liabilities</b>		<u>1,556,258,916,971</u>	<u>1,474,757,170,794</u>
<b>Equity</b>			
Common stock	19	180,235,675,000	101,785,675,000
Capital surplus	19	901,707,052,055	874,148,831,705
Capital adjustments	20	(15,240,682,452)	(15,240,682,452)
Accumulated other comprehensive income	21	61,154,638,474	63,625,476,690
Retained earnings (accumulated deficit)	22	(427,892,647,018)	(173,307,675,050)
<b>Equity attributable to owners of the Group</b>		<u>699,964,036,059</u>	<u>851,011,625,893</u>
<b>Non-controlling interests</b>		<u>251,895,447</u>	<u>286,918,207</u>
<b>Total Equity</b>		<u>700,215,931,506</u>	<u>851,298,544,100</u>
<b>Total liabilities and equity</b>		<u>₩ 2,256,474,848,477</u>	<u>2,326,055,714,894</u>

See accompanying notes to the consolidated financial statement

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Consolidated Statement of Comprehensive Loss  
For the years ended December 31, 2019 and 2018

(In won)	Note	2019	2018
Sales	23	₩ 1,771,133,588,482	1,940,412,136,088
Cost of sales	25	1,617,777,085,454	1,787,659,456,259
<b>Gross profit</b>		<u>153,356,503,028</u>	<u>152,752,679,829</u>
Selling, general and administrative expenses	24	310,050,968,583	253,334,137,078
<b>Operating profit (loss)</b>		<u>(156,694,465,555)</u>	<u>(100,581,457,249)</u>
Finance income	26,32	42,295,489,473	52,805,906,701
Finance costs	26,32	56,531,426,801	58,021,796,676
Other non-operating income	27	11,067,705,000	20,418,707,675
Other non-operating expenses	27	173,773,468,470	130,987,756,122
<b>Profit (loss) before income tax</b>		<u>(333,636,166,353)</u>	<u>(216,366,395,671)</u>
Income tax expense(benefit)	28	(69,335,343,811)	(37,440,316,826)
<b>Profit (loss) for the year</b>		<u>(264,300,822,542)</u>	<u>(178,926,078,845)</u>
<b>Other comprehensive income (loss)</b>			
<b>Items that are or may be classified subsequently to profit or loss:</b>			
Effective portion of changes in fair value of cash flow hedges		4,626,044,586	(2,559,767,919)
Exchange differences on translating foreign operations		<u>3,606,490,821</u>	<u>2,186,952,754</u>
<b>Total items that are or may be reclassified subsequently to profit or loss</b>		<u>8,232,535,407</u>	<u>(372,815,165)</u>
<b>Items that will not be reclassified to profit or loss:</b>			
Revaluation of property, plant and equipment		-	1,246,114,574
Profit (loss) on financial assets measured at fair value through other comprehensive income		(1,682,107)	(170,518,626)
Actuarial gains		<u>(1,020,863,702)</u>	<u>(10,022,818,083)</u>
<b>Total items that will not be reclassified to profit or loss</b>		<u>(1,022,545,809)</u>	<u>(8,947,222,135)</u>
<b>Other comprehensive income (loss) for the period, net of income tax</b>		<u>7,209,989,598</u>	<u>(9,320,037,300)</u>
<b>Total comprehensive income(loss)</b>		<u>(257,090,832,944)</u>	<u>(188,246,116,145)</u>
<b>Loss attributable to:</b>			
Owners of the Group		(264,261,418,251)	(178,910,249,804)
Non-controlling interests		(39,404,291)	(15,829,041)
		<u>(264,300,822,542)</u>	<u>(178,926,078,845)</u>
<b>Total comprehensive loss attributable to:</b>			
Owners of the Group		(257,055,810,184)	(188,230,486,395)
Non-controlling interests		(35,022,760)	(15,629,750)
	₩	<u>(257,090,832,944)</u>	<u>(188,246,116,145)</u>
<b>Loss per share</b>			
Basic loss per share	29	₩ (12,961)	(8,812)

See accompanying notes to the consolidated financial statements.

### Attributable to owners of the Group

See accompanying notes to the consolidated financial statements.



HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Consolidated Statement of Changes in Equity, Continued  
For the years ended December 31, 2019 and 2018

(In won)

	Attributable to owners of the Group						
	Common stock	Capital surplus	Capital adjustments	Accumulated other comprehensive income	Retained Earnings (Accumulated deficit)	Non-controlling interests	Total equity
<b>Balance at January 1, 2019</b>	¥ 101,785,675,000	874,148,831,705	(15,240,682,452)	63,625,476,690	(173,307,675,050)	286,918,207	851,298,544,100
<b>Total comprehensive income (loss) for the period</b>							
Profit (loss) for the year	-	-	-	-	(264,261,418,251)	(39,404,291)	(264,300,822,542)
Profit or loss on valuation of financial assets at fair value through other comprehensive income	-	-	-	(1,682,107)	-	-	(1,682,107)
Effective portion of changes in fair value of cash flow hedges	-	-	-	4,626,044,586	-	-	4,626,044,586
Exchange differences on translating foreign operations	-	-	-	3,602,109,290	-	4,381,531	3,606,490,821
Actuarial gains	-	-	-	-	(1,020,863,702)	-	(1,020,863,702)
<b>Transactions with owners of the Group, recognized directly in equity</b>							
Revaluation surplus	-	-	-	(10,697,309,985)	10,697,309,985	-	-
Reclassification							
Proceeds from issue of common stock	78,450,000,000	28,869,600,000	-	-	-	-	107,319,600,000
Stock issue expenses	-	(1,311,379,650)	-	-	-	-	(1,311,379,650)
<b>Balance at December 31, 2019</b>	¥ 180,235,675,000	901,707,052,055	(15,240,682,452)	61,154,638,474	(427,892,647,018)	251,895,447	700,215,931,506

See accompanying notes to the consolidated financial statements.

## HYUNDAI ELECTRIC &amp; ENERGY SYSTEMS CO., LTD.

## Consolidated Statement of Cash Flows

For the years ended December 31, 2019 and 2018

(In won)	Note	2019	2018
<b>Cash flows from operating activities</b>			
Profit (loss) for the year	₩	(264,300,822,542)	(178,926,078,845)
Adjustments		349,677,034,705	194,110,956,706
<b>Cash generated from operations</b>	31	85,376,212,163	15,184,877,861
Interest received		5,989,116,871	4,489,662,826
Interest paid		(32,712,014,415)	(24,839,246,224)
Dividends received		9,450,000	23,908,000
Income taxes received (paid)		(1,119,929,777)	1,114,083,821
<b>Net cash provided by (used in) operating activities</b>		57,542,834,842	(4,026,713,716)
<b>Cash flows from investing activities</b>			
Decrease in short-term loans		914,126,419	1,703,629,025
Decrease of short-term financial assets		5,000,000,000	—
Decrease of long-term financial assets		7,741,292	—
Decrease of long-term other receivables		66,733,480	14,339,265
Proceeds from sales of other current assets		9,727,366,939	9,210,759,138
Proceeds from sale of property, plant and equipment		60,506,022,911	—
Proceeds from sale of non-current assets held for sale		18,892,946,850	—
Increase in short-term financial assets		(139,484,413,838)	(15,000,000,000)
Increase in short-term loans		(2,113,428,220)	(721,131,469)
Increase in long-term other receivables		(29,605,985)	—
Increase in long-term financial assets		(7,995,000)	(1,016,408,000)
Increase in long-term loans		—	(12,176,061)
Acquisition of property, plant and equipment		(146,690,116,251)	(54,257,717,156)
Acquisition of intangible assets		(13,004,232,596)	(14,133,155,090)
Changes in scope of consolidation		—	(50,485,352,743)
<b>Net cash used in investing activities</b>		(206,214,853,999)	(124,697,213,091)
<b>Cash flows from financing activities</b>			
Repayment of short-term borrowings		(483,414,369,573)	(141,041,985,299)
Repayment of current portion of long-term borrowings		(11,656,500,000)	(146,003,030,000)
Repayment of current portion of debentures		(300,000,000,000)	—
Decrease of Lease liabilities		(4,654,902,557)	—
Proceeds from short-term borrowings		404,738,556,726	310,320,118,139
Proceeds from long-term borrowings		233,313,000,000	40,000,000,000
Proceeds from Issuance of debentures		20,000,000,000	199,214,106,800
Payment of debentures issue expenses		(120,220,000)	—
Proceeds from issue of common stock		107,319,600,000	—
Cost of issuing common stock		(1,311,379,650)	(569,235,588)
<b>Net cash provided by (used in) financing activities</b>		(35,786,215,054)	261,919,974,052
<b>Changes in net cash of assets held for sale</b>		(3,234,402,349)	—
<b>Effects of exchange rate changes on cash and cash equivalents</b>		1,088,546,146	1,758,388,002
<b>Net increase(decrease) in cash and cash equivalents</b>		(186,604,090,414)	134,954,435,247
<b>Cash and cash equivalents at January 1, 2019 and 2018</b>		376,328,702,307	241,374,267,060
<b>Cash and cash equivalents at December 31</b>	₩	189,724,611,893	376,328,702,307

See accompanying notes to the consolidated financial statements.

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to Consolidated financial Statements  
For the years ended December 31, 2019 and 2018

## 1. Reporting Entity

### (1) Description of the controlling company

Hyundai Electric & Energy Systems Co., Ltd. (the "Group") was incorporated on April 1, 2017 through the spin-off of the electro and electric systems segment of Hyundai Heavy Industries Co., Ltd., and is engaged in the manufacture and sale of electronic and electric products. The head office of the Group is located in Seoul, Republic of Korea.

As of December 31, 2019, the Group's major stockholders consist of Hyundai Heavy Industries Holdings Co., Ltd. (37.22%), South Korea National Pension Service (8.66%), National Pension Service (4.47%), and KCC Corporation (3.60%) etc.

### (2) Consolidated subsidiaries

Subsidiaries as of December 31, 2019 and 2018 are summarized as follows:

Group	Main business	Location	Fiscal year end	Ownership (%)
Hyundai Technologies Center Hungary Kft.	Research and development of technology	Hungary	December	100.00
Hyundai Electric Switzerland AG	Research and development of technology	Switzerland	December	100.00
HDENE Power Solution India Private Ltd.	Electric construction and power equipment manufacturing	India	March	100.00
Hyundai Heavy Industries Co. Bulgaria(*)	Transformer manufacturing and sales	Bulgaria	December	99.09
Hyundai Heavy Industries (China) Electric Co., Ltd.	Manufacture and sale of voltage switchboard	China	December	100.00
Hyundai Heavy Industries (Shanghai) R&D Co., Ltd.	Research and development of technology	China	December	100.00
Hyundai Power Transformers USA Inc.	Manufacture and sale of electronic and electric products	USA	December	100.00
Hyundai Electric Arabia L.L.C	Customer support services	Saudi Arabia	December	100.00

(\*) The sale is scheduled as of the end of the current year and is classified as assets/liabilities held for sale.

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to Consolidated financial Statements  
For the years ended December 31, 2019 and 2018

1. Reporting Entity, Continued

(3) Condensed financial information of Consolidated Subsidiaries

Condensed financial information of significant consolidated subsidiaries as of and for the year ended December 31, 2019 and 2018 is summarized as follows:

(In millions of won)

Group	2019				
	Assets	Liabilities	Equity	Sales	Net income (loss)
Hyundai Technologies Center Hungary Kft.	₩ 8,748	143	8,605	3,632	(219)
Hyundai Electric Switzerland AG	2,387	1,810	577	5,155	202
HDENE Power Solution India Private Ltd.	275	–	275	–	(174)
Hyundai Heavy Industries Co. Bulgaria	33,629	5,925	27,704	29,748	(4,277)
Hyundai Heavy Industries (China) Electric Co., Ltd.	106,232	60,079	46,153	105,937	5,217
Hyundai Heavy Industries (Shanghai) R&D Co., Ltd.	4,572	305	4,267	2,555	251
Hyundai Power Transformers USA Inc.	228,842	173,522	55,320	174,610	(14,160)
Hyundai Electric Arabia L.L.C	616	96	520	1,051	(336)

(In millions of won)

Group	2018				
	Assets	Liabilities	Equity	Sales	Net income (loss)
Hyundai Technologies Center Hungary Kft.	₩ 9,118	163	8,955	5,430	(60)
Hyundai Electric Switzerland AG	802	449	353	2,694	168
HDENE Power Solution India Private Ltd.	649	210	439	4,846	370
Hyundai Heavy Industries Co. Bulgaria	39,262	7,761	31,501	43,128	(1,686)
Hyundai Heavy Industries (China) Electric Co., Ltd.	111,223	70,937	40,286	113,697	4,222
Hyundai Heavy Industries (Shanghai) R&D Co., Ltd.	4,179	230	3,949	3,398	421
Hyundai Power Transformers USA Inc.	186,227	119,221	67,006	120,446	(13,448)
Hyundai Electric Arabia L.L.C	863	39	824	–	(368)

(4) Non-controlling interests

The information about non-controlling interests of significant Group subsidiaries as of December 31, 2019 and 2018 is summarized as follows:

(In millions of won)

Hyundai Heavy Industries Co. Bulgaria		
	2019	2018
Proportion of non-controlling interest	0.91%	0.91%
Net assets	₩ 27,704	31,501
Carrying amount of non-controlling interest	252	287

## HYUNDAI ELECTRIC &amp; ENERGY SYSTEMS CO., LTD.

## Notes to Consolidated financial Statements

For the years ended December 31, 2019 and 2018

**2. Basis of Preparation**

The consolidated financial statements of Hyundai Electric & Energy Systems Co., Ltd. and its subsidiaries (the "Group") have been prepared in accordance with Korean International Financial Reporting Standards ("K+FRS"), as prescribed in Article 5, Clause 1 of the Act on External Audits of Corporations in the Republic of Korea.

The consolidated financial statements were authorized for issue by the Board of Directors on February 21, 2020 and submitted for approval to the stockholders' meeting to be held on March 25, 2020.

The Group has initially adopted K+FRS No.1116, 'Leases' which is described in Note 3.

**(1) Basis of measurement**

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

- Property, plant and equipment measured at fair value
- Derivative financial instruments measured at fair value
- Financial assets measured at fair value through profit or loss ("FVTPL")
- Financial assets measured at fair value through other comprehensive income ("FVOCI")
- Liabilities for defined benefit plans are recognized at the net of the total present value of defined benefit obligations less the fair value of plan assets

**(2) Functional and presentation currency**

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

**(3) Use of estimates and judgements****(i) Assumptions and estimation uncertainties**

The preparation of the financial statements in conformity with K+FRS requires management to make judgments, estimates and assumptions that affect the application of accounting policies and the reported amounts of assets, liabilities, income and expenses. Actual results may differ from these estimates.

Estimates and underlying assumptions are reviewed consistently. Revisions to accounting estimates are recognized in the period in which the estimates are revised and in any future periods affected.

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

- Notes 12 and 13 – Impairment test: key assumptions underlying recoverable amounts, including the recoverability of property and intangible assets;
- Note 16 – Measurement of defined benefit obligations: key actual assumptions;
- Notes 17 and 34 – Recognition and measurement of provisions and contingencies: key assumptions about the likelihood and magnitude of an outflow of resources;
- Note 23 – Revenue recognition in proportion to the stage of completion, the estimates of total contract costs;
- Note 28 – Measurement of deferred tax

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to Consolidated financial Statements  
For the years ended December 31, 2019 and 2018

**2. Basis of Preparation, Continued**

**(3) Use of estimates and judgements, Continued**

(ii) Measurement of fair value

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

The valuation team regularly reviews significant unobservable inputs and valuation adjustments. If third party information, such as broker quotes or pricing services, is used to measure fair values, then the valuation team assesses the evidence obtained from the third parties to support the conclusion that such valuations meet the requirements of K4FRS, including the level in the fair value hierarchy in which such valuations should be classified.

Significant valuation issues are reported to the Group's Audit Committee.

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

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

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

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

- Note 7 : Financial assets measured at fair value through profit or loss
- Note 12 : Property, plant and equipment
- Note 18 : Derivative financial instruments
- Note 33 : Financial instruments



## HYUNDAI ELECTRIC &amp; ENERGY SYSTEMS CO., LTD.

## Notes to Consolidated financial Statements

For the years ended December 31, 2019 and 2018

**3. Changes in Accounting policies**

The Group has initially applied K+FRS No.1116 'Leases' from January 1, 2019.

A number of other new standards are also effective from January 1 2019, but they do not have a material effect on the Group's financial statements.

The Group applied K+FRS No.1116 using the modified retrospective approach, under which the cumulative effect of initial application is recognized in retained earnings at January 1, 2019. Accordingly, the comparative information presented for 2018 is not restated – i.e. it is presented, as previously reported, under K+FRS No.1017 and related interpretations. The details of the changes in accounting policies are disclosed below. Additionally, the disclosure requirements in K+FRS No.1116 have not generally been applied to comparative information.

**(1) Definition of a lease**

Previously, the Group determined at contract inception whether an arrangement was or contained a lease under K+FRS No.2104 'Determining whether an Arrangement contains a Lease.' The Group now assesses whether a contract is or contains a lease based on the definition of a lease, as explained in Note 4(18).

On transition to K+FRS No.1116, the Group elected to apply the practical expedient that does not the reassess of which transactions are leases. The Group applied K+FRS No.1116 only to contracts that were previously identified as leases. Contracts that were not identified as leases under K+FRS No.1017 and K+FRS No.2104 were not reassessed for whether there is a lease under K+FRS No.1116. Therefore, the definition of a lease under K+FRS No.1116 was applied only to contracts entered into or changed on or after January 1, 2019.

**(2) As a lessee**

As a lessee, the Group leases many assets including Land, Buildings, and Vehicles. The Group previously classified leases as operating or finance leases based on its assessment of whether the lease transferred significantly all of the risks and rewards incidental to ownership of the underlying asset to the Group. Under K+FRS No.1116, the Group recognises right-of-use assets and lease liabilities for most of these leases and presented in the Consolidated statement of financial position.

Previously, the Group classified real estate and business vehicle leases as operating leases under K+FRS No.1017. On transition, for these leases, lease liabilities were measured at the present value of the remaining lease payments, discounted at the Group's incremental borrowing rate as at 1 January 2019. Right-of-use assets are measured at an amount equal to the lease liability, adjusted by the amount of any prepaid or accrued lease payments.

The Group used a number of practical expedients when applying K+FRS No.1116 to leases previously classified as operating leases under K+FRS No.1017.

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to Consolidated financial Statements  
For the years ended December 31, 2019 and 2018

### 3. Changes in Accounting policies, Continued

#### (2) As a lessee, Continued

In particular, the Group:

- did not recognize right-of-use assets and liabilities for leases for which the lease term ends within 12 months of the date of initial application;
- did not recognize right-of-use assets and liabilities for leases of low value assets;
- excluded initial direct costs from the measurement of the right-of-use asset at the date of initial application;
- used hindsight when determining the lease term.

On transition, there are no lease contracts classified as finance leases under K4FRS No.1017.

#### (3) As a lessor

The accounting policies applicable to the Group as a lessor are not different from K4FRS No.1017.

However, when the Group is an intermediate lessor, it assesses the lease classification of a sub-lease with reference to the right-of-use asset arising from the head lease, not with reference to the underlying asset.

Since we do not have a lease asset corresponding to the lessor, there is no financial impact on transition.

#### (4) Impact on financial statements

On transition to K4FRS No. 1116, The Group recognised additional right-of-use assets and lease liabilities. In Group case, there is no amount to be reflected in retained earnings due to differences between assets and liabilities because the right-of-use assets was measured at the same amount as the lease liabilities. The impact on transition is summarised below.

<i>(In millions of won)</i>		<b>2019-01-01</b>
Right-of-use assets	₩	10,224
Lease liabilities		10,224

When measuring lease liabilities for leases that were classified as operating leases, the Group discounted lease payments using its incremental borrowing rate at January 1, 2019. The weighted average rate applied is 2.31%~5.01%.

<i>(In millions of won)</i>		<b>2019-01-01</b>
Operating lease commitments at December 31, 2018	₩	11,997
- Recognition exemption for leases of low-value assets		(126)
- Recognition exemption for leases with less than 12 months of lease term at transition		(409)
Adjusted operating lease commitments		11,462
Discounted using the incremental borrowing rate at 1 January 2019		(1,238)
Lease liabilities recognized at January 1, 2019	₩	10,224

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to Consolidated financial Statements  
For the years ended December 31, 2019 and 2018

#### 4. Significant Accounting Policies

The significant accounting policies applied by the Group in the preparation of its consolidated statements of its consolidated financial statements are include below and the Group has consistently applied the accounting policies to all period presented in these consolidated financial statements, changes in accounting policies described in Note 3.

The significant accounting policies applied by the Group in the preparation of its consolidated financial statements are included below.

##### (1) Operating Segments

The Group did not disclose separate business segment information because the reporting segment under K+FRS No.1108 'Operating Segments' is a single segment.

##### (2) Basis of consolidation

###### (i) Business combinations

The Group accounts for business combinations using the acquisition method when control is transferred to the Group.

The consideration transferred in the acquisition is generally measured at fair value, as are the identifiable net assets acquired. Any goodwill that arises is tested annually for impairment. Any gain on a bargain purchase is recognized in profit or loss immediately. Transaction costs are expensed as incurred, except if related to the issue of debt or equity securities. The costs to issue debt or equity securities are recognized in accordance with K+FRS No.1032, 'Financial Instruments: Presentation' and K+FRS No.1109, 'Financial Instruments: Recognition and Measurement'.

The consideration transferred does not include amounts related to the settlement of pre-existing relationships. Such amounts are generally recognized in profit or loss.

Any contingent consideration is measured at fair value at the date of acquisition. If an obligation to pay contingent consideration that meets the definition of a financial instrument is classified as equity, then it is not remeasured and settlement is accounted for within equity. Otherwise, subsequent changes in the fair value of the contingent consideration are recognized in profit or loss.

###### (ii) Subsidiaries

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

###### (iii) Non-controlling interests

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

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

## HYUNDAI ELECTRIC &amp; ENERGY SYSTEMS CO., LTD.

## Notes to Consolidated financial Statements

For the years ended December 31, 2019 and 2018

**4. Significant Accounting Policies, Continued****(2) Basis of consolidation, continued**

- (iv) Non-controlling interests  
NCI are measured at their proportionate share of the acquiree's identifiable net assets at the acquisition date.

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

- (v) Transactions eliminated on consolidation  
Intra-group balances and transactions, and any unrealized income and expenses arising from intra-group transactions, are eliminated.

**(3) Cash and cash equivalents**

Cash and cash equivalents comprise cash balances and call deposits with maturities of three months or less from the acquisition date that are subject to an insignificant risk of changes in their fair value, and are used by the Group in the management of its short-term commitments. Equity investments are excluded from cash equivalents unless they are, in substance, cash equivalents, for example in the case of preferred shares when it has a short maturity with a specified redemption date.

**(4) Inventories**

The cost of inventories is based on the moving-average method with the exception of cost of materials-in-transit, which is determined on the specific identification method. Cost of inventories includes expenditures incurred in acquiring the inventories, production or conversion costs and other costs incurred in bringing them to their existing location and condition.

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

**(5) Non-derivative financial assets**

- (i) Recognition and initial measurement  
Trade receivables and debt securities issued are initially recognized when they are originated. All other financial assets and financial liabilities are initially recognized when the Group becomes a party to the contractual provisions of the instrument.

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

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to Consolidated financial Statements  
For the years ended December 31, 2019 and 2018

**4. Significant Accounting Policies, Continued**

**(5) Non-derivative financial assets, continued**

(ii) Classification and subsequent measurement

(a) Financial assets

On initial recognition, a financial asset is classified as measured at: amortized cost; FVOCI-debt investment; FVOCI – equity investment; or FVTPL.

Financial assets are not reclassified subsequent to their initial recognition unless the Group changes its business model for managing financial assets, in which case all affected financial assets are reclassified on the first day of the first reporting period following the change in the business model.

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

- 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 payment of principal and interest on the principal amount outstanding.

On initial recognition of an equity investment that is not held for trading, the Group may irrevocably elect to present subsequent changes in the investment's fair value in OCI. This election is made on an investment-by-investment basis.

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

## HYUNDAI ELECTRIC &amp; ENERGY SYSTEMS CO., LTD.

## Notes to Consolidated financial Statements

For the years ended December 31, 2019 and 2018

**4. Significant Accounting Policies, Continued****(5) Non-derivative financial assets, continued**

(ii) Classification and subsequent measurement, continued

(b) Financial assets – Business model assessment

The Group makes an assessment of the objective of the business model in which a financial asset is held at portfolio level because this best reflects the way the business is managed and information is provided to management.

The information considered includes:

- The stated policies and objectives for the portfolio and the operation of those policies in practice. These include whether management's strategy focuses on earning contractual interest income, maintaining a particular interest rate profile, matching the duration of the financial assets to the duration of any related liabilities or expected cash outflows or realizing cash flows through the sale of the assets;
- How the performance of the portfolio is evaluated and reported to the Group's management;
- The risks that affect the performance of business model (and the financial assets held within that business model) and how those risks are managed;
- How managers of the business are compensated – e.g. whether compensation is based on the fair value of the assets managed or the contractual cash flows collected; and
- The frequency, volume and timing of sales of financial assets in prior periods, the reasons for such sales and expectations about future sales activity.

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 Group's continuing recognition of the assets.

Financial assets that are held for trading or are managed and whose performance is evaluated on a fair value are measured at FVTPL.

(c) Financial assets – Assessment whether contractual cash flows are solely payments of principal and interest: For the purposes of this assessment, 'principal' is defined as the fair value of the financial asset on initial recognition. 'Interest' is defined as consideration for the time value of money and for the credit risk associated with the principal amount outstanding during a particular period of time and for other basic lending risks and cost (e.g. liquidity risk and administrative costs), as well as a profit margin.

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

In making this assessment, the Group considers:

- Contingent events that would change the amount or timing of cash flow;
- Terms that may adjust the contractual coupon rate, including variable-rate features;
- Prepayment and extension features; and
- Terms that limit the Group's claim to cash flows from specified assets

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.

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to Consolidated financial Statements  
For the years ended December 31, 2019 and 2018

**4. Significant Accounting Policies, Continued**

**(5) Non-derivative financial assets, continued**

(ii) Classification and subsequent measurement, continued

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.

(d) Financial assets: Subsequent measurement and gains and losses:

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 and 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 and loss. Other net gain and losses are recognized in OCI. On derecognition, gains and losses accumulated in OCI are reclassified to profit or loss.
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.

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to Consolidated financial Statements  
For the years ended December 31, 2019 and 2018

#### 4. Significant Accounting Policies, Continued

##### (5) Non-derivative financial assets, continued

###### (iii) Derecognition

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

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

###### (iv) Offsetting

Financial assets and financial liabilities are offset and the net amount presented in the statement of financial position when, and only when, the Group currently has a legally enforceable right to set off the amounts and it intends either to settle them on a net basis or to realize the asset and settle the liability simultaneously.

##### (6) Derivative financial instruments

Derivatives are initially recognized at fair value. Subsequent to initial recognition, derivatives are measured at fair value, and changes therein are accounted for as described below.

###### (i) Hedge accounting

The Group holds forward exchange contracts to manage foreign exchange risk. The Group designated derivatives as hedging instruments to hedge the risk of changes in the fair value of assets, liabilities or firm commitments (a fair value hedge) and foreign currency risk of highly probable forecasted transactions or firm commitments (a cash flow hedge).

On initial designation of the hedge, the Group formally documents the relationship between the hedging instrument(s) and hedged item(s), including the risk management objectives and strategy in undertaking the hedge transaction, together with the methods that will be used to assess the effectiveness of the hedging relationship.

###### (ii) Cash flow hedge

When a derivative is designated to hedge the variability in cash flows attributable to a particular risk associated with a recognized asset or liability or a highly probable forecasted transaction that could affect profit or loss, the effective portion of changes in the fair value of the derivative is recognized in other comprehensive income, net of tax, and presented in the hedging reserve in equity. Any ineffective portion of changes in the fair value of the derivative is recognized immediately in profit or loss.

If the hedging instrument no longer meets the criteria for hedge accounting, expires or is sold, terminated, exercised, or the designation is revoked, then hedge accounting is discontinued prospectively. The cumulative gain or loss on the hedging instrument that has been recognized in other comprehensive income is reclassified to profit or loss in the periods during which the forecasted transaction occurs. If the forecasted transaction is no longer expected to occur, then the balance in other comprehensive income is recognized immediately in profit or loss.



HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to Consolidated financial Statements  
For the years ended December 31, 2019 and 2018

#### 4. Significant Accounting Policies, Continued

##### (7) Impairment of financial assets

###### (i) Financial instruments and contract assets

The Group recognized loss allowances for expected credit losses ("ECL") on;

- Financial assets measured at amortized cost;
- Contract assets defined in K-IFRS No.1115; and
- Debt investments measured at FVOCI

The Group measures loss allowances at an amount equal to lifetime ECLs, except for the following, which are measured at 12-month ECLs;

- Debt securities that are determined to have low credit risk at the reporting date; and
- Other debt securities and bank balances for which credit risk (i.e. the risk of default occurring over the expected life of the financial instrument) has not increased significantly since initial recognition

Loss allowances for trade receivables and contract assets are always measured at an amount equal to lifetime ECLs.

When determining whether the credit risk of a financial asset has increased significantly since initial recognition and when estimating ECLs, the Group considers reasonable and supportable information that is relevant and available without undue cost or effort. This includes both quantitative and qualitative information and analysis, based on the Group's historical experience and informed credit assessment and including forward-looking information.

The Group considers a financial asset to be in default when:

- The borrower is unlikely to pay its credit obligations to the Group in full, without recourse by the Group to actions such as realizing security (if an is held); or
- Past due of the financial asset is significantly increased

Lifetime ECLs are the ECLs that result from all possible default events over the expected life of a financial instrument.

12-month ECLs are the portion of ECLs that result from default events that are possible within the 12 months after the reporting date (or a shorter period if the expected life of the instrument is less than 12 months).

###### (ii) Measurement of ECLs

ECLs are 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 Group expects to receive). ECLs are discounted at the effective interest rate of financial assets.

The longest period considered in measuring ECLs is the maximum contract period during which the Group is exposed to credit risk.

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to Consolidated financial Statements  
For the years ended December 31, 2019 and 2018

#### 4. Significant Accounting Policies, Continued

##### (7) Impairment of financial assets, continued

###### (iii) Credit-impaired financial assets

At each reporting date, the Group assesses whether financial assets carried at amortized cost and debt securities at FVOCI are credit-impaired. A financial asset is 'credit-impaired' when one or more events that have a detrimental impact on the estimated future cash flows of the financial asset have occurred.

Evidence that a financial asset is credit-impaired includes the following observable data:

- Significant financial difficulty of the borrower or issuer;
- A breach of contract such as a default or being more than 90 days past due;
- The restructuring of a loan or advance by the Group on terms that the Group would not consider otherwise;
- It is probable that the borrower will enter bankruptcy or other financial reorganization; or
- The disappearance of an active market for a security because of financial difficulties.

###### (iv) Presentation of allowance for ECL in the statement of financial position

Loss allowance for financial assets measured at amortized cost and contract assets are deducted from the gross carrying amount of the assets and presented separately using an allowance account. Impairment losses related to trade and other receivables and contract assets, from the materiality perspective, were included in 'Selling, general and administration expenses' or 'Other non-operating expenses' in the consolidated statements of comprehensive income, similar to those presentation under K+FRS No.1039, instead of being presented as a Group account. Also, impairment losses on other financial assets are included in 'Finance costs' and not presented as a Group account.

###### (v) Write-off

The gross carrying amount of a financial asset is written off when the Group has no reasonable expectation of recovering a financial asset in its entirety or a portion thereof. The Group expects no significant recovery from the amount written off. However, financial assets that are written off could still be subject to enforcement activities in order to comply with the Group's procedures for recovery of amounts due.

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to Consolidated financial Statements  
For the years ended December 31, 2019 and 2018

#### 4. Significant Accounting Policies, Continued

##### (8) Property, plant and equipment

Property, plant and equipment are initially measured at cost and after initial recognition, are carried at cost less accumulated depreciation and accumulated impairment losses. The cost of property, plant and equipment includes expenditures arising directly from the construction or acquisition of the asset, any costs directly attributable to bringing the asset to the location and condition necessary for it to be capable of operating in the manner intended by management and the initial estimate of the costs of dismantling and removing the item and restoring the site on which it is located.

Subsequent to initial recognition, an item of property, plant and equipment excluding land shall be carried at its cost less any accumulated depreciation and any accumulated impairment losses.

Subsequent to initial recognition land whose fair value can be measured reliably are carried at revalued amount, being its fair value at the date of the revaluation less subsequent accumulated impairment losses. Revaluations shall be made with sufficient regularity to ensure that the carrying amount does not differ materially from that which would be determined using fair value at the end of the reporting period.

Property, plant and equipment, except for land, are depreciated on a straight-line basis over estimated useful lives that appropriately reflect the pattern in which the asset's future economic benefits are expected to be consumed.

A component that is significant compared to the total cost of property, plant and equipment is depreciated over its Group useful life.

Gains and losses on disposal of an item of property, plant and equipment are determined by comparing the proceeds from disposal with the carrying amount of property, plant and equipment and are recognized in profit or loss.

The useful lives of property, plant and equipment are as follows:

	<b>Useful lives (years)</b>
Buildings	25~50
Structures	20~45
Machinery	5~20
Vehicles	5~14
Tools, furniture and fixtures	3~20

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

## HYUNDAI ELECTRIC &amp; ENERGY SYSTEMS CO., LTD.

## Notes to Consolidated financial Statements

For the years ended December 31, 2019 and 2018

**4. Significant Accounting Policies, Continued****(9) Intangible assets**

Intangible assets are measured initially at cost and, subsequently, are carried at cost less accumulated amortization and accumulated impairment losses.

Amortization of intangible assets is calculated on a straight-line basis over the estimated useful lives of intangible assets from the date that they are available for use. The residual value of intangible assets is zero.

	<b>Useful lives (years)</b>
software	5
Capitalized development costs, Patents	5
Other intangible assets	20
Trademarks	Indefinite

Useful lives and the amortization methods for intangible assets with finite useful lives are reviewed at the end of each reporting period. Changes are accounted for as changes in accounting estimates.

**(i) Research and development**

Expenditures on research activities, undertaken with the prospect of gaining new scientific or technical knowledge and understanding, are recognized in profit or loss as incurred. Development expenditures are capitalized only if development costs can be measured reliably, the product or process is technically and commercially feasible, future economic benefits are probable, and the Group intends to and has sufficient resources to complete development and to use or sell the asset. Other development expenditures are recognized in profit or loss as incurred.

**(ii) Subsequent expenditures**

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

**(10) Borrowing costs**

The Group capitalizes borrowing costs directly attributable to the acquisition, construction or production of a qualifying asset as part of the cost of that asset. Other borrowing costs are recognized in expense as incurred. A qualifying asset is an asset that requires a substantial period of time to get ready for its intended use or sale. Financial assets and inventories that are manufactured or otherwise produced over a short period of time are not qualifying assets. Assets that are ready for their intended use or sale when acquired are not qualifying assets.

To the extent that the Group borrows funds specifically for the purpose of obtaining a qualifying asset, the Group determines the amount of borrowing costs eligible for capitalization as the actual borrowing costs incurred on that borrowing during the period less any investment income on the temporary investment of those borrowings. The Group immediately recognizes other borrowing costs as an expense. To the extent that the Group borrows funds generally and uses them for the purpose of obtaining a qualifying asset, the Group shall determine the amount of borrowing costs eligible for capitalization by applying a capitalization rate to the expenditures on that asset. The capitalization rate shall be the weighted average of the borrowing costs applicable to the borrowings of the Group that are outstanding during the period, other than borrowings made specifically for the purpose of obtaining a qualifying asset. The amount of borrowing costs that the Group capitalizes during a period shall not exceed the amount of borrowing costs incurred during that period.

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to Consolidated financial Statements  
For the years ended December 31, 2019 and 2018

#### 4. Significant Accounting Policies, Continued

##### (11) Government grants

Government grants are not recognized unless there is reasonable assurance that the Group will comply with the grant's conditions and that the grants will be received.

Government grants whose primary condition is that the Group purchase, construct or otherwise acquire long-term assets are deferred and recognized as deduction to depreciation expense over the useful life of the asset.

Government grants which are intended to compensate the Group for expenses incurred are recognized as other income (government grants) in profit or loss over the periods in which the Group recognizes the related costs as expenses.

##### (12) Impairment of non-financial assets

The carrying amounts of the Group's non-financial assets, other than contract assets that are recognized based on revenue from contracts with customers, assets arising from costs incurred to conclude or implement 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. Intangible assets that have indefinite useful lives or that are not yet available for use, irrespective of whether there is any indication of impairment, are tested for impairment annually by comparing their recoverable amount to their carrying amount.

For impairment testing, assets are grouped into the smallest group of assets that generates cash inflows that are largely independent of the cash inflows from other assets or groups of assets ("CGUs"). The recoverable amount of an asset or CGU is the greater of its value in use and its fair value less costs to sell. The value in use is estimated by applying a pre-tax discount rate that reflects current market assessments of the time value of money and the risks specific to the asset or CGU for which estimated future cash flows have not been adjusted, to the estimated future cash flows expected to be generated by the asset or CGU.

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

Any impairment identified at the CGU level will reduce the carrying amount of the assets in the CGU on a pro rata basis. 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.

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to Consolidated financial Statements  
For the years ended December 31, 2019 and 2018

#### 4. Significant Accounting Policies, Continued

##### (13) Contract assets and Contract liabilities

In the event the Group perform the transfer of goods or services to the customer before the customer pays the price or before the due date, we present the contract as a contract asset, except if there is an amount indicated as a receivable. Contract assets are the right to receive consideration for goods or services transferred by the company to the customer.

If the customer pays a consideration or the Group has an unconditional right (receivables) to receive a consideration (amount) before the Group transfer the goods or services to the customer, the Group present the contract as a contract liability either at the time of receipt or at the time of payment (early of both). Contract liabilities are the obligations of the Group to transfer goods or services to the Customer in accordance with the consideration received from the Customer or the amount of consideration entitled to be paid. The Group sets off the contract assets and contract liabilities arising from one contract and presents them in the statement of financial position in net amount.

On the other hand, the expected loss in a contract (loss-bearing contract) that Non-avoidable costs required to fulfill contractual obligations exceeds the economic benefits expected to be received in the contract is recognized as a (liquidity) provision.

##### (14) Non-derivative financial liabilities

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

- (i) Financial liabilities at fair value through profit or loss  
Financial liabilities at fair value through profit or loss include financial liabilities held for trading or designated as such upon initial recognition. Subsequent to initial recognition, financial liabilities at fair value through profit or loss are measured at fair value, and changes therein are recognized in profit or loss. Upon initial recognition, transaction costs that are directly attributable to the acquisition are recognized in profit or loss as incurred.
- (ii) Other financial liabilities  
Non-derivative financial liabilities other than financial liabilities at fair value through profit or loss are classified as other financial liabilities. At the date of initial recognition, other financial liabilities are measured at fair value minus transaction costs that are directly attributable to the acquisition. Subsequent to initial recognition, other financial liabilities are measured at amortized cost using the effective interest method.

The Group derecognizes a financial liability from the consolidated statement of financial position when it is extinguished (i.e. when the obligation specified in the contract is discharged, cancelled or expires).

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to Consolidated financial Statements  
For the years ended December 31, 2019 and 2018

**4. Significant Accounting Policies, Continued**

**(15) Employee benefit**

(i) Short-term employee benefits

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

(ii) Other long-term employee benefits

Other long-term employee benefits include employee benefits that are settled beyond 12 months after the end of the period in which the employees render the related service. The Group's net obligation in respect of long-term employee benefits is the amount of future benefit that employees have earned in return for their service in the current and prior periods. That benefit is discounted to determine its present value. Remeasurements are recognized in profit or loss in the period in which they arise.

(iii) Retirement benefits: defined benefit plans

The Group's net obligation in respect of defined benefit plans is calculated separately for each plan by estimating the amount of future benefit that employees have earned in the current period, discounting that amount and deducting the fair value of any plan assets.

The calculation of defined benefit obligations is performed annually by a qualified actuary using the projected unit credit method. When the calculation results in a potential asset for the Group, the recognized asset is limited to the present value of economic benefits available in the form of any future refunds from the plan or reductions in future contributions to the plan. To calculate the present value of economic benefits, consideration is given to any applicable minimum funding requirements.

Remeasurements of the net defined benefit liability, which comprise actuarial gains and losses, the return on plan assets (excluding interest) and the effect of the asset ceiling (if any, excluding interest), are recognized immediately in OCI. The Group determines the net interest expense (income) on the net defined benefit liability (asset) for the period by applying the discount rate used to measure the defined benefit obligation at the beginning of the annual period to the then-net defined benefit liability (asset), taking into account any changes in the net defined benefit liability (asset) during the period as a result of contributions and benefit payments. Net interest expense and other expenses related to defined benefit plans are recognized in profit or loss.

When the benefits of a plan are changed or when a plan is curtailed, the resulting change in benefit that relates to past service or the gain or loss on curtailment is recognized immediately in profit or loss. The Group recognizes gains and losses on the settlement of a defined benefit plan when the settlement occurs.

(iv) Termination benefits

Termination benefits are expensed at the earlier of when the Group can no longer withdraw the offer of those benefits and when the Group recognizes costs for a restructuring. If benefits are not expected to be settled wholly within 12 months of the end of the reporting period, then they are discounted.

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to Consolidated financial Statements  
For the years ended December 31, 2019 and 2018

#### 4. Significant Accounting Policies, Continued

##### (16) Provisions

Provisions are recognized when the Group has a present legal or constructive obligation as a result of a past event, it is probable that an outflow of resources embodying economic benefits will be required to settle the obligation and a reliable estimate can be made of the amount of the obligation.

The risks and uncertainties that inevitably surround many events and circumstances are taken into account in reaching the best estimate of a provision. Where the effect of the time value of money is material, provisions are determined at the present value of the expected future cash flows.

Where some or all of the expenditures required to settle a provision are expected to be reimbursed by another party, the reimbursement is recognized when, and only when, it is virtually certain that reimbursement will be received if the entity settles the obligation. The reimbursement is treated as a Group asset.

Provisions are reviewed at the end of each reporting period and adjusted to reflect the current best estimates. If it is no longer probable that an outflow of resources embodying economic benefits will be required to settle the obligation, the provision is reversed.

(i) Provision for construction warranty

The Group generally provides a warranty within the contract on rectification of defects after the contract's completion and accrues the rectification expense on defects based on actual claims history as provision for construction warranty.

(ii) Provision for product warranty

The Group generally provides a warranty relating to product defects for a specified period of time after sales and accrues estimated costs as provision for product warranty, which may occur due to product liability suits.

(iii) Provision for construction losses

If the unavoidable costs arising from the contractual obligation exceed the benefits expected to arise from the contract for the reporting year, the Group recognizes provision for construction losses at amount of costs that exceed the benefits.

Costs arising from the contractual obligations include costs directly related to a contract and common costs due to overall contractual activity. The common costs include in the fixed and variable costs assigned by the normal capacity of the production facility.



HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to Consolidated financial Statements  
For the years ended December 31, 2019 and 2018

#### 4. Significant Accounting Policies, Continued

##### (17) Emissions rights

The Group accounts for greenhouse gases emission right and the relevant liability as below pursuant to the Act on Allocation and Trading of Greenhouse Gas Emission.

##### (i) Greenhouse Gases Emission Right

Greenhouse Gases Emission Right consists of emission allowances which are allocated from the government free of charge or purchased from the market. The cost includes any directly attributable costs incurred during the normal course of business.

Emission rights held for the purpose of performing the obligation are classified as an intangible asset and are initially measured at cost and after initial recognition, are carried at cost less accumulated impairment losses. Emission rights held for short-swing profits are classified as current asset and are measured at fair value with any changes in fair value recognized through profit or loss in the respective reporting period.

The Group derecognizes an emission right asset when the emission allowance is unusable, disposed or submitted to government in which the future economic benefits are no longer expected to be probable.

##### (ii) Emission liability

Emission liability is a present obligation of submitting emission rights to the government with regard to emission of greenhouse gas. Emission liability is recognized when there is a high possibility of outflows of resources in performing the obligation and the costs required to perform the obligation are reliably estimable. Emission liability is an amount of estimated obligations for emission rights to be submitted to the government for the performing period. The emission liability is measured based on the expected quantity of emission for the performing period in excess of emission allowance in possession and the unit price for such emission rights in the market at the end of the reporting period.

The Group's existing entity as Korea Shipbuilding & Offshore Engineering Co., Ltd.(formerly, Hyundai Heavy Industries Co., Ltd.) prior to the spin-off, has involved in the allocation of emission and the trading scheme from 2015. From 2018 to 2020 is the one planning period, the quantities of emission rights which are allocated free of charge during the planning period are as follows:

<i>(In ton)</i>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>Total</b>
Allocated emission right free of charge	37,806	37,806	37,806	113,418

As of December 31, 2019, there is no emission rights provided as collateral and the Group did not recognize the emission right and liability because the estimated quantity of emission(34,489 ton) did not exceed allocated emission right free of charge.

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to Consolidated financial Statements  
For the years ended December 31, 2019 and 2018

#### 4. Significant Accounting Policies, Continued

##### (18) Foreign currency

Transactions in foreign currencies are translated to the respective functional currencies of the Group at exchange rates at the dates of the transactions. Monetary assets and liabilities denominated in foreign currencies are retranslated to the functional currency using the reporting date's exchange rate. Non-monetary assets and liabilities denominated in foreign currencies that are measured at fair value are retranslated to the functional currency at the exchange rate at the date that the fair value was determined.

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

##### (19) Lease

The Group has applied K-IFRS No.1116 using the modified retrospective approach and therefore the comparative information has not been restated and continues to be reported under K-IFRS No.1017 and K-IFRS No.2104. The details of accounting policies under K-IFRS No.1017 and K-IFRS No.2104 are disclosed separately.

At inception of a contract, the Group assesses whether a contract is, or contains, a lease. A contract is, or contains, a lease if the contract conveys the right to control the use of an identified asset for a period of time in exchange for consideration. To assess whether a contract conveys the right to control the use of an identified asset, the Company uses the definition of a lease in K-IFRS No.1116.

This accounting policy applies to contracts entered into on January 1, 2019.

##### (i) As a lessee

The Group recognizes a right-of-use asset and a lease liability at the lease commencement date. The right-of-use asset is initially measured at cost, which comprises the initial amount of the lease liability adjusted for any lease payments made at or before the commencement date, plus any initial direct costs incurred and an estimate of costs to dismantle and remove the underlying asset or to restore the underlying asset or the site on which it is located, less any lease incentives received.

The right-of-use asset is subsequently depreciated using the straight-line method from the commencement date to the end of the lease term, unless the lease transfers ownership of the underlying asset to the Group by the end of the lease term or the cost of the right-of-use asset reflects that the Group will exercise a purchase option. In that case the right-of-use asset will be depreciated over the useful life of the underlying asset, which is determined on the same basis as those of property and equipment. In addition, the right-of-use asset is periodically reduced by impairment losses, if any, and adjusted for certain remeasurements of the lease liability.

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
 Notes to Consolidated financial Statements  
 For the years ended December 31, 2019 and 2018

**(19) Lease, Continued**

(i) As a lessee, continued

The lease liability is initially measured at the present value of the lease payments that are not paid at the commencement date, discounted using the interest rate implicit in the lease or, if that rate cannot be readily determined, the Group's incremental borrowing rate. Generally, the Group uses its incremental borrowing rate as the discount rate.

The Group determines its incremental borrowing rate by obtaining interest rates from various external financing sources and makes certain adjustments to reflect the terms of the lease and type of the asset leased.

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

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

The lease liability is measured at amortized cost using the effective interest method. It is remeasured when there is a change in future lease payments arising from a change in an index or rate, if there is a change in the Group's estimate of the amount expected to be payable under a residual value guarantee, if the Group changes its assessment of whether it will exercise a purchase, extension or termination option or if there is a revised in-substance fixed lease payment.

When the lease liability is remeasured in this way, a corresponding adjustment is made to the carrying amount of the right-of-use asset, or is recorded in profit or loss if the carrying amount of the right-of-use asset has been reduced to zero.

In the statement of financial position, the Group has presented right-of-use assets that does not meet the definition of investment property as a 'right-of-use assets' and a lease liabilities as a 'lease liabilities'.

The Group has elected not to recognize right-of-use assets and lease liabilities for leases of low-value assets and short-term leases. The Group recognizes the lease payments associated with these leases as an expense on a straight-line basis over the lease term.

(ii) As a lessor

When the Group acts as a lessor, it determines at lease inception whether each lease is a finance lease or an operating lease.

To classify each lease, the Group makes an overall assessment of whether the lease transfers substantially all of the risks and rewards incidental to ownership of the underlying asset. If this is the case, then the lease is a finance lease; if not, then it is an operating lease. As part of this assessment, the Group considers certain indicators such as whether the lease is for the major part of the economic life of the asset.

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to Consolidated financial Statements  
For the years ended December 31, 2019 and 2018

#### 4. Significant Accounting Policies, Continued

##### (19) Lease, Continued

###### (ii) As a lessor, continued

When the Group is an intermediate lessor, it accounts for its interests in the head lease and the sub-lease separately. It assesses the lease classification of a sub-lease with reference to the right-of-use asset arising from the head lease, not with reference to the underlying asset. If a head lease is a short-term lease to which the Group applies the exemption described above, then it classifies the sub-lease as an operating lease.

The Group recognizes lease payments received under operating leases as income on a straight-line basis over the lease term as part of 'revenue'.

Generally, the accounting policies applicable to the Group as a lessor in the comparative period were not different from K4FRS No.1116.

##### (20) Non-current asset held for sale

If the carrying amount of a non-current asset or disposal group is expected to be recovered mainly through a sale transaction rather than continued use, the asset is classified as asset held for sale. These conditions are deemed to be satisfied only when the asset (or disposal group) is immediately available for sale in its current state and is highly likely to be sold. Immediately before the initial classification of an asset (or disposal group) as held for sale, the asset (or asset and liability) is measured at the lower of its carrying amount and fair value less costs to sell. If the fair value less costs to sell assets recognised for impairment at initial classification decreases, the impairment loss is immediately recognised in profit or loss, and If the fair value less costs to sell increases, the accumulated impairment losses previously recognised are limited to profit or loss.

If a non-current asset is classified as held for sale or is part of a disposal group classified as held for sale, the asset is not amortized.

##### (21) Equity capital

Ordinary shares are classified as equity. Incremental costs directly attributable to the issuance of ordinary shares and share options are recognized as a deduction from equity, net of any tax effects.

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

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to Consolidated financial Statements  
For the years ended December 31, 2019 and 2018

#### 4. Significant Accounting Policies, Continued

##### (22) Revenue

The Group's performance obligations and revenue recognition policies are explained below.

(i) Nature and timing of satisfaction of performance obligation

The Group manufactures and supplies various electric devices and energy solutions for all phases of the power supply process, ranging from power generation→transmission→distribution→consumption. The type of revenue in the segment are three: standard product supply agreement, multiple-element arrangement and Turn-key contract.

While standard product supply agreement consist of one performance obligation, multiple-element arrangement and Turn-key contracts are one contract, but contains in multiple distinctive obligations.

As the Group manufactures and supplies various electric devices and energy solutions for all phases of the power supply process, for a general contract, revenue is recognized as a performance obligation satisfied by at a point in time.

The timing of satisfaction of performance obligations is when the goods are delivered to customers and the customers obtain control of the goods. The determination of the timing when the control is transferred to customer, is based on the entity's right to payment, the legal title, the physical possession, the significant risks and rewards of ownership and the acceptance by the customer. Generally, the performance obligation is satisfied when the terms of trade such as CIF, FOB and DDP are met for transfer of the legal title in exports sales and when the product is delivered physically to customer in domestic sales respectively.

The contract to manufacture a highly customized product for a particular customer is supposed 'not to create an alternative use to the Group'. If the contract describes the Group would be compensated for an amount of recovery of the costs incurred plus a reasonable profit margin when terminated by the customer or another party, revenue from those contracts is recognized over time and is otherwise recognized at a point in time.

If the performance obligation is satisfied over time, the timing of the performance obligation depends on how the Group measures its progress to indicate performance when control of the goods or services is transferred to the customer. If the performance is not measured rationally, the performance is measured within the scope of the incurred cost.

The Group provides design, raw material purchase, production, and trial run, it is difficult to obtain information for applying calculation method without incurring excessive cost due to the wide variety of drying processes. Therefore, it is decided that the timing of the cost injection should be satisfied because the input method that recognizes revenue based on the Group's inputs compared to the total inputs expected to satisfy the performance obligation can faithfully represent the Group's performance.

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to Consolidated financial Statements  
For the years ended December 31, 2019 and 2018

**4. Significant Accounting Policies, Continued**

**(22) Revenue, continued**

(ii) Warranties

The length of the warranties varies across product and contract, generally, 24 to 48 months from delivery.

A specified period described in warranty pasts, then the charge for A/S is not free. The warranties provide the assurance that a product complies with agreed-upon specifications only, and therefore, are not identified as a distinct performance obligation.

(iii) Determination method for transaction price

For the standard supply contract which forms a single performance obligation, the allocation of transaction price is not needed. However, for revenue recognition in the multiple-element arrangement or turn-key contract, the Group needs to allocate the transfer price to each of identified performance obligations.

The Group applies the adjusted market assessment approach which allocates the transaction price based on the estimated stand-alone selling price. If the stand-alone selling price is not directly observable, transaction price is determined by the expected cost-plus-a-margin approach by forecasting expected cost of satisfying a performance obligation and then adding an appropriate margin.

Only if the above-mentioned two approaches are not available, the residual approach, by estimating the total transaction price less the sum of the observable stand-alone prices of other goods or services.

(iv) estimation of variable consideration

The consideration might be variable due to change in design and production, compensation for delay, penalty, discount, incentives, etc. The discount and incentives include 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. If the penalty were occurred, revenue is recognized based on the transaction price less that amount.

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to Consolidated financial Statements  
For the years ended December 31, 2019 and 2018

#### 4. Significant Accounting Policies, Continued

##### (23) Finance income and finance costs

Finance income comprises interest income on funds invested, dividend income, gain or loss on sale of financial assets, changes in the fair value of financial assets at FVTPL.

Interest income recognized in profit or loss using the effective interest method, and dividend income is recognized in profit or loss on the date on which the Group's right to receive payment is established.

Finance costs comprise interest expense on borrowings, changes in the fair value of financial assets at FVTPL. Borrowing costs are recognized in profit or loss using the effective interest method.

##### (24) Income tax

Income tax expense comprises current and deferred tax. Current tax and deferred tax are recognized in profit or loss except to the extent that they relate to a business combination, or items recognized directly in equity or in other comprehensive income.

The Group has determined that interest and penalties related to income taxes, including uncertain tax treatments, do not meet the definition of income taxes, and therefore accounted for them under K-IFRS No.1037 'Provision, Contingent Liabilities and Contingent Assets'

##### (i) Current tax

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

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to Consolidated financial Statements  
For the years ended December 31, 2019 and 2018

#### 4. Significant Accounting Policies, Continued

##### (24) Income tax, continued

###### (ii) Deferred tax

The measurement of deferred tax liabilities and deferred tax assets reflects the tax consequences that would follow from the manner in which the Group expects, at the end of the reporting period to recover or settle the carrying amount of its assets and liabilities.

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

The Group recognizes a deferred tax asset for unused tax loss, tax credit and deductible temporary differences, to the extent that it is probable that taxable profit will be available against which the unused tax loss, tax credit and deductible temporary differences can be utilized. Future taxable profit is determined by the reversal of the related taxable temporary difference. If the taxable temporary difference is not sufficient to fully recognize the deferred tax asset, the reversal of the current temporary differences and the Group's business plan will be considered for future taxable profit.

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

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

Deferred tax assets and liabilities are offset only if there is a legally enforceable right to offset the related current tax liabilities and assets, and they relate to income taxes levied by the same tax authority and they intend to settle current tax liabilities and assets on a net basis.

##### (25) Earnings per share

The Group presents basic earnings per share (EPS) data for its ordinary shares. Basic EPS is calculated by dividing the profit or loss attributable to ordinary stockholders of the Group by the weighted average number of ordinary shares outstanding during the period, adjusted for own shares held.



HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to Consolidated financial Statements  
For the years ended December 31, 2019 and 2018

#### 4. Significant Accounting Policies, Continued

##### (26) New standards and interpretations not yet adopted

A number of new standards are effective for annual periods beginning after 1 January 2019 and earlier application is permitted; however, the Group has not early adopted the new or amended standards in preparing these financial statements

The following amended standards and interpretation are not expected to have a significant impact on the Group's consolidated financial statements:

- Amendments to References to Conceptual Framework in K+FRS standards;
- Definition of a Business (Amendments to K+FRS No.1103 'Business Combination')
- Definition of Material (Amendments to K+FRS No.1001 'Presentation of Financial Statements' and K-IFRS No.1008 'Accounting Policies, Change in Accounting Estimate and Errors'); and
- K+FRS No.1117 'Insurance Contracts'.

#### 5. Risk Management

The Group has exposure to credit risk, liquidity risk and market risk from its use of financial instruments:

- Credit risk
- Liquidity risk
- Market risk

This note presents information about the Group's exposure to each of the above risks, the Group's objectives, policies and processes for measuring and managing risk, and the Group's management of capital. Further quantitative disclosures are included throughout the consolidated statement of financial position.

##### (1) Financial risk management

###### (i) Risk management framework

The Board of Directors has overall responsibility for the establishment and oversight of the Group's risk management framework.

The Group's risk management policies are established to identify and analyze the risks faced by the Group, to set appropriate risk limits and controls, and to monitor risks and adherence to limits. Risk management policies and systems are reviewed regularly to reflect changes in market conditions and the Group's activities. The Group, through its training and management standards and procedures, aims to develop a disciplined and constructive control environment in which all employees understand their roles and obligations.

The Group Audit Committee oversees how management monitors compliance with the Group's risk management policies and procedures, and reviews the adequacy of the risk management framework in relation to the risks faced by the Group. The Group Audit Committee is assisted in its oversight role by Internal Audit. Internal Audit undertakes both regular and ad hoc reviews of risk management controls and procedures, the results of which are reported to the Audit Committee.

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to Consolidated financial Statements  
For the years ended December 31, 2019 and 2018

**5. Risk Management, Continued**

**(1) Financial risk management, continued**

(ii) Credit risk

Credit risk is the risk of financial loss to the Group if a customer or counterparty to a financial instrument fails to meet its contractual obligations, and arises principally from the Group's receivables from customers and investment securities.

(a) Trade and other receivables

The Group recognizes provisions against expected losses on trade and other receivables.

This provisions consist of specific impairment losses for individually significant items and impairment losses that are expected to occur, but have not yet been specifically identified.

Provisions of set of financial instruments are based on historical data on the recovery of financial assets.

(b) Investments

The Group limits its exposure to credit risk by investing only in liquid securities and only with counterparties that have high credit ratings. Management actively monitors credit ratings and given that the Group only has invested in securities with high credit ratings, does not expect a significant risk that any counterparty fails to meet its obligations.

(iii) Liquidity risk

Liquidity risk is the risk that the Group will encounter difficulty in meeting the obligations associated with its financial liabilities that are settled by delivering cash or another financial asset. The Group's approach to managing liquidity is to ensure, as far as possible, that it will always have sufficient liquidity to meet its liabilities when due, under both normal and stressed conditions, without incurring unacceptable losses or risking damage to the Group's reputation.

The Group has historically been able to satisfy its cash requirements from cash flow from operations and debt and equity financing. To the extent that the Group does not generate sufficient cash flow from operations to meet its capital requirements, the Group may rely on other financing activities, such as external long-term borrowings and offerings of debt securities, equity-linked and other debt securities.

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to Consolidated financial Statements  
For the years ended December 31, 2019 and 2018

**5. Risk Management, Continued**

**(1) Financial risk management, continued**

(iv) Market risk

Market risk is the risk that changes in market prices, such as foreign exchange rates, interest rates and equity prices will affect the Group's income or the value of its holdings of financial instruments. The objective of market risk management is to manage and control market risk exposures within acceptable parameters, while optimizing the return.

The Group buys and sells derivatives, and also incurs financial liabilities, in order to manage market risks. All such transactions are carried out within the guidelines set by the Group. Generally the Group seeks to apply hedge accounting in order to manage volatility in profit or loss.

(a) Currency risk

The Group is exposed to currency risk on sales, purchases and borrowings that are denominated in a currency other than the functional currency of the Group, Korean won (KRW). The currencies in which these transactions primarily are denominated are USD, EUR, CNY and JPY.

The Group hedges trade receivables and trade payables denominated in a foreign currency in respect of forecasted sales and purchases. The Group uses forward exchange contracts to hedge its currency risk, most with a maturity of less than three years from the reporting date. When necessary, forward exchange contracts are rolled over at maturity. Trade receivables denominated in a foreign currency have been hedged using forward contracts that mature on the same dates that the receivables are due for collection. In respect of other monetary assets and liabilities denominated in foreign currencies, the Group ensures that its net exposure is kept to an acceptable level by buying or selling foreign currencies at spot rates when necessary to address short-term imbalances.

(b) Other market price risk

The Group is exposed to the risk of price fluctuation arising from financial assets measured at FVOCI (equity instruments).

A change of about 1% stock prices of marketability financial assets measured at FVOCI(listed share) would change total profit or loss about ₩127 thousand each as of December 31, 2019

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to Consolidated financial Statements  
For the years ended December 31, 2019 and 2018

## 5. Risk Management, Continued

### (2) Capital management

The management's policy is to maintain a strong capital base so as to maintain investor, creditor and market confidence and to sustain future development of the business. The Group monitors the liability to equity ratio and net borrowing to equity ratio, which the Group defines as total liabilities divided by total equity and net borrowing divided by total equity.

The Group's liability to equity ratio and net borrowing to equity ratio as of December 31, 2019 and 2018 are as follows:

<i>(In millions of won, except equity ratio)</i>		<b>2019</b>	<b>2018</b>
Total liabilities	₩	1,556,259	1,474,757
Total equity		700,216	851,299
Cash and deposits(*1)		199,733	391,337
Borrowings(*2)		772,689	906,657
Liability to equity ratio		222.25%	173.24%
Net borrowing to equity ratio(*3)		81.83%	60.53%

(\*1) Cash and deposits consist of cash and cash equivalents and short-term and long-term financial assets.

(\*2) Discount on debentures is deducted from the face value of debentures.

(\*3) Net borrowing represents borrowings net of cash and deposits.

The interest coverage ratio and basis of calculation for the year ended December 31, 2019 and 2018 are as follows:

<i>(In millions of won, except ratio)</i>		<b>2019</b>	<b>2018</b>
Operating loss	₩	(156,694)	(100,581)
Interest		33,633	25,714
Interest coverage ratio		(*)	(*)

(\*) Interest coverage ratio is not calculated due to operating loss for the year ended December 31, 2019 and 2018.

## HYUNDAI ELECTRIC &amp; ENERGY SYSTEMS CO., LTD.

## Notes to Consolidated financial Statements

For the years ended December 31, 2019 and 2018

**6. Cash and Cash Equivalents**

Cash and cash equivalents as of December 31, 2019 and 2018 are summarized as follows:

*(In millions of won)*

		<b>2019</b>	<b>2018</b>
Demand deposits	₩	2,253	33,149
MMDA and others		187,471	343,180
	₩	<u>189,724</u>	<u>376,329</u>

**7. Short-term and Long-term Financial Assets**

Short-term and long-term financial assets as of December 31, 2019 and 2018 are summarized as follows:

*(In millions of won)*

		<b>2019</b>		<b>2018</b>	
		<b>Current</b>	<b>Non-current</b>	<b>Current</b>	<b>Non-current</b>
Financial assets measured at amortized cost	₩	10,000	8	15,000	8
Financial assets measured at FVTPL		139,681	2,977	-	3,066
Financial assets measured at FVOCI		-	13	-	24
	₩	<u>149,681</u>	<u>2,998</u>	<u>15,000</u>	<u>3,098</u>

## HYUNDAI ELECTRIC &amp; ENERGY SYSTEMS CO., LTD.

## Notes to Consolidated financial Statements

For the years ended December 31, 2019 and 2018

## 7. Short-term and Long-term Financial Assets, Continued

(1) Financial assets measured at FVTPL as of December 31, 2019 and 2018 are summarized as follows:

(In millions of won)

	2019		2018	
	Acquisition cost	Carrying amount	Acquisition cost	Carrying amount
Current				
Beneficiary Interest in Investment Funds(*1)	₩ 139,484	139,681	-	-
Non-current				
Electric Contractors				
Financial Cooperation	97	97	97	97
Construction				
Financial Cooperation(*2)	656	355	656	521
Fire Guarantee				
Financial Cooperation	20	20	20	20
Information & Communication				
Financial Cooperation	15	15	15	15
Machinery				
Financial Cooperation(*3)	2,039	2,490	2,010	2,413
	<u>2,827</u>	<u>2,977</u>	<u>2,798</u>	<u>3,066</u>
	₩ <u>142,311</u>	<u>142,658</u>	<u>2,798</u>	<u>3,066</u>

(\*1) The fair value was calculated using the expected return rate.

(\*2) For Construction Financial Cooperation, fair value is measured by PBR(Price Book-value Ratio) method.

(\*3) For Machinery Financial Cooperation, fair value is measured by Net asset value method.

(2) Financial assets measured at FVOCI as of December 31, 2019 and 2018 are summarized as follows:

(In millions of won)

	2019		2018	
	Acquisition cost	Carrying amount	Acquisition cost	Carrying amount
<b>Unmarketable equity</b>				
NET Co., Ltd.	₩ 150	-	159	-
<b>Marketable equity securities</b>				
STX Heavy Industries Co., Ltd.	83	13	83	24
	₩ <u>233</u>	<u>13</u>	<u>242</u>	<u>24</u>

## HYUNDAI ELECTRIC &amp; ENERGY SYSTEMS CO., LTD.

## Notes to Consolidated financial Statements

For the years ended December 31, 2019 and 2018

**8. Restricted Financial Instruments**

Financial instruments, which are restricted in use, as of December 31, 2019 and 2018 are summarized as follows:

(In millions of won)

Description	Bank	2019	2018	Restrictions
Long-term financial instruments	KEB			Guarantee deposits for
	Hana Bank	₩ 2	2	checking accounts
Long-term financial instruments	KEB			Deposit pledge for
	Hana Bank	6	6	License registration
Cash and cash equivalents	Bank of China, etc.	2,065	2,432	Bill deposit
		₩ 2,073	2,440	

**9. Trade and Other Receivables and Due from Customers for Contract Work**

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

(In millions of won)

	2019		2018	
	Current	Non-current	Current	Non-current
<b>Trade receivables:</b>				
Trade receivables	₩ 543,787	-	680,536	-
Allowance for doubtful accounts	(73,930)	-	(58,069)	-
	469,857	-	622,467	-
<b>Other receivables:</b>				
Account receivable	65,654	-	73,778	-
Allowance for doubtful accounts	(52,130)	-	(49,819)	-
Accrued income	626	-	698	-
Short-Loans	2,400	13	920	12
Guarantee deposits	1,072	1,149	975	1,183
	17,622	1,162	26,552	1,195
	₩ 487,479	1,162	649,019	1,195

(2) Contract assets as of December 31, 2019 and 2018 are summarized as follows:

(In millions of won)

	2019	2018
Contract assets	₩ 228,205	154,033
Allowance for doubtful accounts	(25,700)	(8,102)
	₩ 202,505	145,931

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to Consolidated financial Statements  
For the years ended December 31, 2019 and 2018

## 10. Inventories

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

(In millions of won)

		2019			2018		
		Acquisition cost	Provision for inventory valuation	Carrying amount	Acquisition cost	Provision for inventory valuation	Carrying amount
Finished goods	₩	26,441	(3,273)	23,168	35,810	(1,360)	34,450
Work-in-progress		289,615	(39,604)	250,011	309,657	(22,262)	287,395
Raw materials		102,625	(4,238)	98,387	90,622	(2,326)	88,296
Supplies		51	-	51	94	-	94
Materials-in-transit		19,154	-	19,154	14,470	-	14,470
	₩	<u>437,886</u>	<u>(47,115)</u>	<u>390,771</u>	<u>450,653</u>	<u>(25,948)</u>	<u>424,705</u>

Losses on valuation of inventory amounting to ₩21,634 million and ₩5,054 million were added the cost of sales for the year ended December 31, 2019 and 2018 respectively.

## 11. Other Assets

Other current assets as of December 31, 2019 and 2018 are summarized as follows:

(In millions of won)

		2019		2018	
		Current	Non-current	Current	Non-current
Advance payments	₩	15,865	-	20,859	-
Prepaid expenses		2,208	3,402	2,544	3,437
Others		55,623	188	75,441	157
Accumulated impairment loss(*)		(50,929)	-	(60,150)	-
	₩	<u>22,767</u>	<u>3,590</u>	<u>38,694</u>	<u>3,594</u>

(\*) Due to sale of part of other current assets, accumulated impairment loss was reduced for the year ended December 31, 2019.



HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to Consolidated financial Statements  
For the years ended December 31, 2019 and 2018

## 12. Property, Plant and Equipment

(1) Changes in property, plant and equipment for the year ended December 31, 2019 and 2018 are as follows:

(In millions of won)

(In millions of won)		2019								
		Machinery and					Tools and		Construction	Total
		Land	Buildings	Structures	equipment	Vehicles	equipment	in-progress	Others	
Beginning balance	₩	216,958	211,477	7,501	43,130	501	26,609	20,096	1,695	527,967
Acquisitions and Replacement(*)		(598)	39,926	136	27,849	99	15,370	47,933	(557)	130,158
Disposals		(38,948)	(19,539)	(72)	(301)	(17)	(170)	—	—	(59,047)
Depreciation		—	(7,716)	(181)	(9,157)	(136)	(10,216)	—	(327)	(27,733)
Impairment		—	(341)	(51)	(6,655)	(41)	(1,871)	(48,435)	—	(57,394)
Effects of movements in exchange rates		58	2,179	(1)	647	8	334	258	(541)	2,942
Ending balance	₩	177,470	225,986	7,332	55,513	414	30,056	19,852	270	516,893
Acquisition cost		178,911	329,698	14,426	349,531	2,740	257,428	68,287	1,739	1,202,760
Government grants		(1,441)	(2,764)	(1,433)	—	—	—	—	—	(5,638)
Accumulated depreciation		—	(96,368)	(4,942)	(247,779)	(2,122)	(205,734)	—	(1,469)	(558,414)
Accumulated impairment		—	(4,580)	(719)	(46,239)	(204)	(21,638)	(48,435)	—	(121,815)

(\*) Acquisitions and Replacement for the current year includes ₩77 million for replacement of non-current asset held for sale of ship control parts sold in the current year and Hyundai Heavy Industries Co. Bulgaria, which is scheduled to be sold, has a replacement amount of ₩5,044 million for non-current asset held for sale and ₩11,586 million for replacement of intangible assets.

## HYUNDAI ELECTRIC &amp; ENERGY SYSTEMS CO., LTD.

## Notes to Consolidated financial Statements

For the years ended December 31, 2019 and 2018

## 12. Property, Plant and Equipment, Continued

- (1) Changes in property, plant and equipment for the year ended December 31, 2019 and 2018 are as follows, continued:

(In millions of won)

		2018								
		Machinery and equipment							Total	
		Land	Buildings	Structures	equipment	Vehicles	Tools and equipment	Construction in-progress	Others	
Beginning balance	₩	216,864	114,797	8,011	64,814	586	41,963	23,080	1,447	471,562
Acquisitions and Replacement (*)		(429)	21,203	(11)	12,929	53	18,713	2,535	484	55,477
Disposals		(1)	(164)	(135)	(936)	(14)	(1,240)	(6,464)	(5)	(8,959)
Depreciation		–	(7,405)	(215)	(16,016)	(178)	(16,106)	–	(836)	(40,756)
Impairment		–	(4,788)	(668)	(39,958)	(164)	(20,353)	–	–	(65,931)
Effects of movements in exchange rates		4	2,698	(2)	463	8	79	32	2	3,284
Changes in scope of consolidation		520	85,136	521	21,834	210	3,553	913	603	113,290
Ending balance	₩	216,958	211,477	7,501	43,130	501	26,609	20,096	1,695	527,967
Acquisition cost		218,393	325,564	14,320	344,270	3,490	249,789	20,096	4,745	1,180,667
Government grants		(1,435)	(2,803)	(1,584)	–	–	–	–	–	(5,822)
Accumulated depreciation		–	(106,496)	(4,567)	(261,250)	(2,825)	(203,361)	–	(3,050)	(581,549)
Accumulated impairment		–	(4,788)	(668)	(39,890)	(164)	(19,819)	–	–	(65,329)

- (\*) As a result of revaluation on land for the year ended December 31, 2018, loss on revaluation of ₩681 million was incurred, which was reflected in the land revaluation of accumulated other comprehensive income or loss of ₩655 million and the revaluation loss on property, plant and equipment of ₩26 million. The reduction in carrying amount of ₩681 million was included in the Acquisitions and other in the table above.

- (2) Impairment loss

For the year ended December 31, 2019, the management determined that the indication of impairment occurred, and as a result of the impairment test of CGUs, the impairment loss of ₩66,917 million was recognized, and ₩57,393 million, ₩1,791 million and ₩7,733 million was allocated to Property, plant and equipment, Right-of-use Assets and Intangible Assets respectively. Further information about impairment loss is described in Note 13 (Intangible assets).

## HYUNDAI ELECTRIC &amp; ENERGY SYSTEMS CO., LTD.

## Notes to Consolidated financial Statements

For the years ended December 31, 2019 and 2018

**12. Property, Plant and Equipment, Continued**

## (3) Revaluation of Land

The Group applied revaluation model on land and revalued land by using the value which independent and expertise appraisal institution appraised as of December 31, 2018.

The appraisal institution valued land price based on the publicly assessed land price with adjustments and reviewed reasonableness of revaluation amount by comparing appraisal results with the estimated price based on recent market transactions among the independent third parties.

Book values of land assessed by revaluation model and cost model as of December 31, 2019 are as follows:

<i>(In millions of won)</i>		<b>Revaluation model</b>	<b>Cost model</b>
Land	₩	178,911	114,233

As a result of revaluation on land, gain on revaluation amounting to ₩50,491 million (net of tax effects) was recognized as other accumulated comprehensive income and losses.

## (4) Measurement of fair value

## (i) Fair value hierarchy

The measured fair value of land is classified into fair value based on the input variables used in the valuation techniques.

## (ii) The valuation method and input variables which were used for measuring fair value of land are as follows:

<b>Valuation method</b>	<b>Significant but unobservable input variables</b>	<b>Correlation between the main unobservable variable and fair value</b>
Publicly assessed land price method	Time adjustment (Rate of changes in land value)	If flexibility of land value increases (decreases), then fair value increases (decreases).
	Regional contribution	If regional contribution increases (decreases), then fair value increases (decreases).
	Individual contribution	If the adjusted value of terms of residential lot and others increases (decreases), then fair value increases (decreases).
	Other contributions	If the adjusted value of the level of land value and others increases (decreases), then fair value increases (decreases).

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to Consolidated financial Statements  
For the years ended December 31, 2019 and 2018

### 13. Intangible Assets

(1) Changes in Intangible Assets for the year ended December 31, 2019 and 2018 are as follows:

(In millions of won)

(In millions of won)		2019				
		Goodwill	Development costs	Patents-Industrial	Other intangible assets	Total
Beginning balance		₩ 811	13,851	–	2,748	17,410
Acquisitions(internal development and Replacement(*))		–	6,553	26,911	10,302	43,766
Amortization		–	(1,592)	(2)	(2,070)	(3,664)
Impairment		–	(2,670)	–	(5,544)	(8,214)
Effects of movements in exchange rates		–	37	–	51	88
Ending balance		₩ 811	16,179	26,909	5,487	49,386
Acquisition cost		811	119,982	26,911	16,371	164,075
Accumulated amortization		–	(58,415)	(2)	(4,840)	(63,257)
Accumulated impairment		–	(45,388)	–	(6,044)	(51,432)

(\*) Acquisition(internal development) and Replacement in the current year includes the replacement amount of ₩11,586 million for property, plant and equipment and Hyundai Heavy Industries Co. Bulgaria, which is scheduled to be sold, has a replacement amount of ₩2,240 million for non-current asset held for sale.

(In millions of won)

(In millions of won)		2018			
		Goodwill(*)	Development costs	Others	Total
Beginning balance	₩	738	52,180	2,545	55,463
Acquisitions and Replacement		–	12,333	(101)	12,232
Amortization		–	(11,841)	(790)	(12,631)
Impairment		–	(41,046)	(500)	(41,546)
Effects of movements in exchange rates		–	6	26	32
Changes in scope of consolidation		73	2,219	1,568	3,860
Ending balance	₩	811	13,851	2,748	17,410
Acquisition cost		811	113,275	6,782	120,868
Accumulated amortization		–	(56,706)	(3,534)	(60,240)
Accumulated impairment		–	(42,718)	(500)	(43,218)

(\*) As of January 8, 2018, the Group acquired 100% stock in Hyundai Heavy Industries (China) Electric Co., Ltd., from HHI China Investment Co., Ltd., recognized ₩73 million of goodwill.

## HYUNDAI ELECTRIC &amp; ENERGY SYSTEMS CO., LTD.

## Notes to Consolidated financial Statements

For the years ended December 31, 2019 and 2018

**13. Intangible Assets, Continued**

## (2) Impairment losses

Impairment loss on development costs for the year ended December 31, 2019 and 2018 were ~~₩~~8,214 million and ~~₩~~41,546 million, respectively.

(i) The details of the impairment loss of ~~₩~~8,214 million recognized for the year ended December 31, 2019 are as follows:

(a) The Group recognized impairment loss for the project carrying amount ~~₩~~481 million because of decrease in demand for the product.

(b) As an indication of an impairment was identified, the Company performed impairment test of CGUs. Result of the impairment test, ~~₩~~2,189 million and ~~₩~~5,544 million allocated to the development costs and software was recognized as an impairment loss.

(ii) Impairment of individual development project

(a) Impairment loss on development costs for the year ended December 31, 2019 is as follows:

(In millions of won)

Description	Project	2019			
		Carrying amount before impairment	Impairment loss(*)	Carrying amount after impairment	Recoverable amount Assessment Methods
Development Costs	Industrial low pressure motor development, etc.	<del>₩</del> 481	(481)	–	Value in use

(\*) The Group recognized impairment loss on development costs because of decrease in demand or forecast of decrease in demand.

(b) Impairment losses on development costs for the year ended December 31, 2018 is as follows:

(In millions of won)

Description	Project	2018			
		Carrying amount before impairment	Impairment loss(*)	Carrying amount after impairment	Recoverable amount Assessment Methods
Development Costs	Composite insulated switchboard development, etc.	<del>₩</del> 30,867	(30,867)	–	Value in use

(\*) The Group recognized impairment loss on development costs because of decrease in demand or forecast of decrease in demand.

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to Consolidated financial Statements  
For the years ended December 31, 2019 and 2018

### 13. Intangible Assets, Continued

(2) Impairment losses, continued

(iii) Impairment assessment due to indication of impairment

The management determined that the indication of impairment occurred due to continued deteriorating business conditions for the year ended December 31, 2019. Accordingly, the Group commissioned an external institution to conduct an assessment of impairment.

The CGUs were identified by product line and the Group recognized the impairment loss by calculation the recoverable amount for each CGUs.

The Comparable carrying amount and recoverable amount as of December 31, 2019 are as follows:

(In millions of won)

		<b>Impairment Target CGUs</b>	<b>Non- impairment Target CGUs</b>	<b>Total</b>
Carrying amount	₩	155,045	621,692	776,737
Recoverable amount		88,128	972,818	1,060,946
Impairment losses(*)	₩	66,917	-	66,917

(\*) Of the impairment loss, the amount reflected in profit or loss was ₩66,917 million.

Impairment loss was allocated proportionately to the individual assets of the comparative carrying amount excluding individually assessed assets and was recognized as other non-operating expenses.

The recoverable amount was estimated based on value in use under the cash flow discount method and fair value after deducting the disposal costs.

Principal assumptions used estimating recoverable amounts are as follows:

Principal assumptions are based on management's assessment of the industry's future trend, internal and external historical data.

(In percentage)

	<b>Rate</b>
Discount rate	10.34
Permanent growth rate	1.00

If the permanent growth rate used by us in our estimation changes to 0%, the additional impairment loss to be recognized is ₩4,005 million.

(3) Research and development costs, ordinary development costs and development costs amortization for the year ended December 31, 2019 and 2018 are as follows:

(In millions of won)

	<b>Cost</b>	<b>2019</b>	<b>2018</b>
Research and development costs	Selling, general and administrative expenses	₩ 243	4,331
Ordinary development costs	Selling, general and administrative expenses	43,986	40,976
Development costs amortization	Manufacturing costs	1,592	11,279
	Selling, general and administrative expenses	-	562
		₩ 45,821	57,148

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to Consolidated financial Statements  
For the years ended December 31, 2019 and 2018

#### 14. Short-term and Long-term Financial Liabilities

- (1) Short-term and long-term financial liabilities as of December 31, 2019 and 2018 are summarized as follows:

(In millions of won)

		2019		2018	
		Current	Non-current	Current	Non-current
Short-term borrowings	₩	279,992	-	356,221	-
Long-term borrowings		52,000	221,156	11,181	40,000
Debentures		75,000	145,000	300,000	200,000
Discount on debentures		(105)	(354)	(48)	(697)
	₩	<u>406,887</u>	<u>365,802</u>	<u>667,354</u>	<u>239,303</u>

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

(In millions of won)

Type of borrowing	Lender	Annual Interest rate	2019	2018
Usance L/C	Shinhan Bank and others	0.33%~3.39%	₩ 9,119	15,370
Invoice loan	Industrial and commercial bank of china and others	1.00%~3.46%	21,316	14,325
General loan (local currency)	Korea Development Bank and others	3.57~3.62%	150,000	90,000
	Bank of China	CD(3M)+1.50%	20,000	-
General loan (foreign currency)	Woori Bank	Libor+1.75%~2.3%	5,789	55,905
	SCB and others	4.35%~4.79%	15,878	23,278
	KEB Hana Bank and others	1M Libor +1.5~2.15%	57,890	57,343
Commercial paper	Kyobo Securities Co., Ltd.	3.00%~3.15%	-	100,000
			₩ <u>279,992</u>	<u>356,221</u>

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

(In millions of won)

Type of borrowing	Lender	Annual Interest rate	2019	2018
General loan (local currency)	Korea Development Bank and others	3.50%~3.65%	₩ 230,000	40,000
General loan (foreign currency)	Daegu Bank	Internal bank base rate +1.76%	20,000	-
	Mizuho Bank	1M Libor +1.95%	-	11,181
	The Export-import bank of Korea	1M Libor +2.26%	23,156	-
			<u>273,156</u>	<u>51,181</u>
Less: current portion of long-term borrowings			<u>(52,000)</u>	<u>(11,181)</u>
			₩ <u>221,156</u>	<u>40,000</u>

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to Consolidated financial Statements  
For the years ended December 31, 2019 and 2018

**14. Short-term and Long-term Financial Liabilities, Continued**

(4) Debentures as of December 31, 2019 and 2018 are summarized as follows:

(In millions of won)

Description	Issue	Maturity	Annual interest rate		2019	2018	Guarantee
1 <sup>st</sup> -1 debenture	2014-02-26	2019-02-26	3.45%	₩	–	300,000	debenture
2 <sup>nd</sup> -1 debenture	2018-09-19	2020-09-18	3.10%		75,000	75,000	debenture
2 <sup>nd</sup> -2 debenture	2018-09-19	2021-09-17	3.35%		45,000	45,000	debenture
2 <sup>nd</sup> -3 debenture	2018-09-19	2021-09-17	CD+1.50%		80,000	80,000	debenture
3 <sup>rd</sup> -1 debenture	2019-03-08	2021-03-08	3.50%		20,000	–	debenture
Discount on debentures					(459)	(745)	
Current portion					(74,895)	(299,952)	
				₩	<u>144,646</u>	<u>199,303</u>	

(5) Aggregate maturities of the Group's borrowings and debentures as of December 31, 2019 are as follows:

(In millions of won)

Periods		2019		
		Borrowings	Bonds	Total
Less than 1 year	₩	331,992	75,000	406,992
1 ~ 5 years		221,156	145,000	366,156
	₩	<u>553,148</u>	<u>220,000</u>	<u>773,148</u>

(6) Proceeds and repayments for the year ended December 31, 2019 and 2018 are as follows:

(In millions of won)

		2019		
		Borrowings	Debentures	Total
Beginning balance	₩	407,402	499,255	906,657
Borrowing		638,052	19,879	657,931
Repayments		(495,071)	(300,000)	(795,071)
The effects of changes in foreign exchange rates		2,765	-	2,765
Amortization of discount on debentures		–	407	407
Ending Balance	₩	<u>553,148</u>	<u>219,541</u>	<u>772,689</u>

(In millions of won)

		2018		
		Borrowings	Debentures	Total
Beginning balance	₩	217,810	299,750	517,560
Borrowing		350,320	199,215	549,535
Repayments		(287,045)	-	(287,045)
The effects of changes in foreign exchange rates		6,388	-	6,388
Amortization of discount on debentures		–	290	290
Effects of changes in scope of consolidation		119,929	-	119,929
Ending Balance	₩	<u>407,402</u>	<u>499,255</u>	<u>906,657</u>



## HYUNDAI ELECTRIC &amp; ENERGY SYSTEMS CO., LTD.

## Notes to Consolidated financial Statements

For the years ended December 31, 2019 and 2018

**15. Trade and Other Payables**

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

*(In millions of won)*

		2019		2018	
		Current	Non-current	Current	Non-current
Trade payables	₩	228,467	-	226,191	-
Non-trade Payables		42,349	-	71,431	-
Accrued expense		146,351	-	47,980	-
Deposits received		-	200	-	490
	₩	<u>417,167</u>	<u>200</u>	<u>345,602</u>	<u>490</u>

**16. Employee Benefits**

- (1) The amounts of expenses recognized in employee benefits for the year ended December 31, 2019 and 2018 are as follows:

*(In millions of won)*

		2019	2018
Salary	₩	219,207	238,941
Expenses related to the defined benefit plans		14,034	14,138
Expenses related to the defined contribution plans		397	428
Retirement bonus		9,566	35,421
	₩	<u>243,204</u>	<u>288,928</u>

- (2) Recognized liabilities for defined benefit obligations as of December 31, 2019 and 2018 are as follows:

*(In millions of won)*

		2019	2018
Present value of defined benefit obligations	₩	97,161	97,268
Fair value of plan assets		(88,609)	(76,297)
	₩	<u>8,552</u>	<u>20,971</u>

- (3) Plans assets as of December 31, 2019 and 2018 are as follows:

*(In millions of won)*

		2019	2018
Retirement pension(*)	₩	88,348	76,034
Transfer to National Pension Fund		261	263
	₩	<u>88,609</u>	<u>76,297</u>

- (\*) The retirement pension is invested in principal and interest guaranteed instrument as of December 31, 2019.

## HYUNDAI ELECTRIC &amp; ENERGY SYSTEMS CO., LTD.

## Notes to Consolidated financial Statements

For the years ended December 31, 2019 and 2018

**16. Employee Benefits, Continued**

- (4) Expenses recognized in profit or loss for the year ended December 31, 2019 and 2018 are as follows:

*(In millions of won)*

	<b>2019</b>	<b>2018</b>
Defined benefit plans		
Current service costs	₩ 13,602	13,763
Settlement profit or loss(*)	-	(451)
Interest expenses on obligations	2,399	2,538
Expected return on plan assets	(1,967)	(2,040)
Past service costs	-	328
	<u>14,034</u>	<u>14,138</u>
Defined contribution plans		
Contribution costs	397	428
Retirement bonus		
Retirement bonus	9,566	35,421
	<u>₩ 23,997</u>	<u>49,987</u>

(\*) For the year ended December 31, 2018, upon voluntary retirement, the defined benefit obligation for retired employees was settled and the settlement profit or loss was recognized.

- (5) Changes in the defined benefit obligations for the year ended December 31, 2019 and 2018 are as follows:

*(In millions of won)*

	<b>2019</b>	<b>2018</b>
Beginning balance	₩ 97,268	89,271
Current service costs	13,602	13,763
Settlement profit or loss	-	(451)
Interest on obligations	2,399	2,538
Past service costs	-	328
Actuarial losses(gains) in other comprehensive income (loss)	678	11,679
Benefits paid(*)	(16,998)	(21,316)
Transfers from related parties	212	1,456
Ending balance	<u>₩ 97,161</u>	<u>97,268</u>

(\*) The amount paid in the current year includes ₩715 million won, which replaces the defined benefit obligation of the ship control department personnel sold in the current year with non-current liabilities held for sale.

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to Consolidated financial Statements  
For the years ended December 31, 2019 and 2018

**16. Employee Benefits, Continued**

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

(In millions of won)

		<b>2019</b>	<b>2018</b>
Beginning balance	₩	76,297	74,622
Benefits paid		(8,324)	(16,498)
Contributions paid into the plan		19,300	17,300
Expected return on plan assets		1,967	2,040
Actuarial losses in other comprehensive income (loss)		(631)	(1,167)
Ending balance	₩	<u>88,609</u>	<u>76,297</u>

The Group are reviewing the level of the fund each year, and taking the policy to preserve fund in the event of a loss to the fund.

As of December 31, 2019, expected contribution payment for the next year is ₩11,605 million.

- (7) Expected payment date of the defined benefit obligations as of December 31, 2019 is as follows:

(In millions of won)

		<b>Less than 1 year</b>	<b>1 ~ 5 years</b>	<b>5 ~ 10 years</b>	<b>More than 10 years</b>	<b>Total</b>
Expected payment	₩	2,717	29,277	68,365	179,667	280,026

- (8) Principal actuarial assumptions as of December 31, 2019 and 2018 are as follows:

(In percentage)

		<b>2019</b>	<b>2018</b>
Discount rate at 31 December		2.28	2.63
Future salary growth rate		1.10~2.26	1.28~2.49
Future mortality (Males, at age 45)		0.20	0.22

- (9) Weighted average durations of defined benefit obligations as of December 31, 2019 and 2018 are as follows:

(In years)

		<b>2019</b>	<b>2018</b>
Weighted average durations		10.10	10.90

- (10) Reasonably possible changes as of December 31, 2019 and 2018 to the relevant actuarial assumption would have affected the defined benefit obligation by the amounts shown below.

(In millions of won)

		<b>2019</b>	
		<b>Increase</b>	<b>Decrease</b>
Discount rate (1% movement)	₩	(83,052)	100,292
Future salary growth (1% movement)		98,969	(84,011)

(In millions of won)

		<b>2018</b>	
		<b>Increase</b>	<b>Decrease</b>
Discount rate (1% movement)	₩	(82,099)	100,047
Future salary growth (1% movement)		98,798	(82,972)

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to Consolidated financial Statements  
For the years ended December 31, 2019 and 2018

## 17. Provisions

Changes in provisions for the year ended December 31, 2019 and 2018 are as follows:

(In millions of won)

	2019						
	Current				Non-current		Total
	Provision for construction loss	Provision for construction warranty	Provision for product warranty	Other provision	Provision for construction warranty	Provision for product warranty	
Beginning balance	₩ 10,575	–	510	31	3,134	82,281	96,531
Liquidity replacement	–	1,396	76,131	–	(1,396)	(76,131)	–
Additions	26,031	–	–	–	1,563	69,980	97,574
Reversals	(202)	–	–	–	–	(21,725)	(21,927)
Utilization	–	–	(547)	(11)	–	(31,129)	(31,687)
Other(*)	(683)	–	(369)	(21)	–	(421)	(1,494)
Effect of movements in exchange rates	–	–	406	1	–	149	556
Ending balance	₩ 35,721	1,396	76,131	–	3,301	23,004	139,553

(\*) The amount of provisions of Hyundai Heavy Industries Co. Bulgaria, which is due for sale has been indicated by replacing the non-current liabilities held for sale.

(In millions of won)

	2018					
	Current			Non-current		Total
	Provision for construction loss	Provision for product warranty	Other provision	Provision for construction warranty	Provision for product warranty	
Beginning balance	₩ –	705	59	2,182	148,360	151,306
Adjustment on initial application of K-IFRS No.1115(*)	3,345	–	–	–	–	3,345
Additions	9,312	66	–	952	53,225	63,555
Reversals	(2,082)	(264)	(29)	–	(59,467)	(61,842)
Utilization	–	–	–	–	(63,093)	(63,093)
Effects of changes in scope of consolidation	–	–	–	–	3,167	3,167
Effect of movements in exchange rates	–	3	1	–	89	93
Ending balance	₩ 10,575	510	31	3,134	82,281	96,531

(\*) The amount reclassified from due from (to) customers for contract work as of December 31, 2017.

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to Consolidated financial Statements  
For the years ended December 31, 2019 and 2018

## 18. Derivative Financial Instruments

The Group has entered into derivative instrument contracts with various banks to hedge the risk related to changes in foreign exchange rates, interest rate on borrowings. Derivatives are measured at fair value by using the forward exchange rate and interest rate presented by contract counterparty and others. The evaluation details as of December 31, 2019, are as follows.

(1) The description of derivative instrument and hedge accounting

Hedge accounting	Type	Description
Cash flow hedge	Foreign currency forward	Hedges the variability in cash flows attributable to foreign currency exposure in respect of forecasted sales and purchases
Cash flow hedge	Interest rate swap	Hedges cash flow risk on interest rate fluctuation

(2) As of December 31, 2019 and 2018, details of the derivatives entered into by the Group

(In millions of won)

		2019					
		Currency		Contract amount	Weighted average exchange rate (in won)	Average maturities	Number of contracts
Description	Type	Sell	Buy				
Cash flow hedge	Foreign currency forward	USD	KRW	₩ 201,955	1,198.82	2020-06-18	20
Cash flow hedge	Interest rate swap	KRW	KRW	80,000	–	2021-09-17	1

- Terms of settlement: Netting the settlement or collecting total
- The contract amount is denominated in selling currency.

(In millions of won)

		2018					
		Currency		Contract amount	Weighted average exchange rate (in won)	Average maturities	Number of contracts
Description	Type	Sell	Buy				
Cash flow hedge	Foreign currency forward	USD	KRW	₩ 119,448	1,126.74	2019-03-16	36
Cash flow hedge	Interest rate swap	KRW	KRW	80,000	–	2021-09-17	1

- Terms of settlement: Netting the settlement or collecting total
- The contract amount is denominated in selling currency.

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to Consolidated financial Statements  
For the years ended December 31, 2019 and 2018

**18. Derivative Financial Instruments, Continued**

(3) Book value related to derivatives as of December 31, 2019 and 2018 are as follows:

(In millions of won)

Description	Type	2019				2018			
		Assets		Liabilities		Assets		Liabilities	
		Current	Non-current	Current	Non-current	Current	Non-current	Current	Non-current
Cash flow hedge	Foreign currency forward	₩ 7,587	–	–	–	1,185	20	–	–
Cash flow hedge	Interest rate swap	–	–	454	418	–	–	92	327
		₩ 7,587	–	454	418	1,185	20	92	327

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

(In millions of won)

Description	Type	2019		2018	
		Revenue/ Interest rate	Accumulated other comprehensive income (loss)	Revenue/ Interest rate	Accumulated other comprehensive income (loss)
Cash flow hedge	Foreign currency forward	₩ (6,452)	6,382	(145)	(2,981)
Cash flow hedge	Interest rate swap	(164)	(453)	(68)	(419)
		₩ (6,616)	5,929	(213)	(3,400)

For the year ended December 31, 2019 the Group applies cash flow hedge accounting, for which the Group accounted for the effective portion of the hedge amounted to ₩5,929 million, net of tax of ₩4,626 million, as gain on valuation of derivatives in accumulated other comprehensive income.

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to Consolidated financial Statements  
For the years ended December 31, 2019 and 2018

## 19. Capital and Capital Surplus

(1) Capital

The Group is authorized to issue 160,000,000 shares of capital stock (par value ₩5,000), and as of December 31, 2019 the number of issued common shares is 36,047,135 shares.

(2) Capital surplus

(i) Capital surplus as of December 31, 2019 and 2018 are summarized as follows:

<i>(In millions of won)</i>		<b>2019</b>	<b>2018</b>
Beginning balance	₩	696,168	696,168
Proceeds from issue of common stock(In November 2017)		257,020	257,020
Proceeds from issue of common stock(In December 2019)		28,870	-
Payment of transaction costs related to establishment and issuing common stock		(4,216)	(2,904)
Increase of share capital without considerations		(76,135)	(76,135)
Ending balance	₩	<u>901,707</u>	<u>874,149</u>

(ii) Changes in capital surplus for the year ended December 31, 2019 and 2018 are as follows:

<i>(In millions of won)</i>		<b>2019</b>	<b>2018</b>
Beginning balance	₩	874,149	925,475
Increase of share capital with new issue		28,870	(50,757)
Cost of issuing common stock		(1,312)	(569)
Ending balance	₩	<u>901,707</u>	<u>874,149</u>

(iii) There are no dividends resolved at the shareholder's meeting for the year ended December 31, 2019 and 2018.

## 20. Capital Adjustments

*(In millions of won, except share data)*

			<b>2019</b>	
	<b>Number of shares</b>		<b>Acquisition cost</b>	<b>Fair value</b>
Treasury stock	54,431	₩	15,241	629

*(In millions of won, except share data)*

			<b>2018</b>	
	<b>Number of shares</b>		<b>Acquisition cost</b>	<b>Fair value</b>
Treasury stock	54,431	₩	15,241	1,208

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to Consolidated financial Statements  
For the years ended December 31, 2019 and 2018

## 21. Accumulated Other Comprehensive Income (loss)

- (1) Accumulating other comprehensive income as of December 31, 2019 and 2018 is summarized as follows:

<i>(In millions of won)</i>		<b>2019</b>	<b>2018</b>
Net changes in fair value of financial assets measured at FVOCI	₩	(172)	(171)
Effective portion of changes in fair value of cash flow hedges		5,239	613
Exchange differences on translating foreign operations		5,597	1,995
Revaluation of property, plant and equipment		50,491	61,188
	₩	<u>61,155</u>	<u>63,625</u>

- (2) Other comprehensive income (loss) for the year ended December 31, 2019 and 2018 are as follows:

<i>(In millions of won)</i>		<b>2019</b>		
		<b>Before tax amount</b>	<b>Tax effect</b>	<b>After tax amount</b>
Net changes in fair value of financial assets measured at FVOCI	₩	(2)	1	(1)
Effective portion of changes in fair value of cash flow hedges		5,929	(1,303)	4,626
Exchange differences on translating foreign operations, net of tax		3,606	–	3,606
Actuarial gains and losses		(1,308)	287	(1,021)
	₩	<u>8,225</u>	<u>(1,015)</u>	<u>7,210</u>

<i>(In millions of won)</i>		<b>2018</b>		
		<b>Before tax amount</b>	<b>Tax effect</b>	<b>After tax amount</b>
Net changes in fair value of financial assets measured at FVOCI	₩	(219)	48	(171)
Effective portion of changes in fair value of cash flow hedges		(3,400)	840	(2,560)
Exchange differences on translating foreign operations, net of tax		2,187	–	2,187
Revaluation of property, plant and equipment		(655)	1,901	1,246
Actuarial gains and losses		(12,846)	2,824	(10,022)
	₩	<u>(14,933)</u>	<u>5,613</u>	<u>(9,320)</u>



HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to Consolidated financial Statements  
For the years ended December 31, 2019 and 2018

## 22. Retained Earnings (Accumulated Deficit)

- (1) Retained earnings (Accumulated Deficit) as of December 31, 2019 and 2018 are summarized as follows:

<i>(In millions of won)</i>		<b>2019</b>	<b>2018</b>
Unappropriated retained earnings (Accumulated Deficit)	₩	(427,893)	(173,308)

- (2) Changes in retained earnings (Accumulated Deficit) for the year ended December 31, 2019 and 2018 are as follows:

<i>(In millions of won)</i>		<b>2019</b>	<b>2018</b>
Beginning balance	₩	(173,308)	15,625
Loss attributable to owners of the Group		(264,262)	(178,910)
Revaluation of property, plant and equipment's surplus replacement		10,698	
Actuarial gains and losses		(1,021)	(10,023)
Ending balance	₩	<u>(427,893)</u>	<u>(173,308)</u>

## 23. Revenue

- (1) Details of revenue  
Revenue for the year ended December 31, 2019 and 2018 are as follows:

<i>(In millions of won)</i>		<b>2019</b>	<b>2018</b>
Construction contracts(*)	₩	10,931	32,048
Goods sold		1,746,498	1,894,572
Others		13,705	13,792
	₩	<u>1,771,134</u>	<u>1,940,412</u>

(\*) Construction contracts sales are generated from performance obligations satisfied over time.

The foreign sales amount to ₩1,054,553 million, and domestic sales amount to ₩716,581 million for the year ended December 31, 2019.

No major customer accounts for more than 10% of sales during the current year. Sales to major customers, which accounting for more than 10% of sales, are ₩235,051 million for the year ended December 31, 2018.

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to Consolidated financial Statements  
For the years ended December 31, 2019 and 2018

### 23. Revenue, Continued

- (2) Changes in outstanding contracts for the year ended December 31, 2019 are as follows:

(In millions of won)

		<b>2019</b>
Beginning balance(*)	₩	37,587
Increase during the year		-
Recognized as revenue		(10,931)
Ending balance	₩	<u>26,656</u>

(\*) The beginning balance includes the impact from translation of the contract balance denominated in foreign currency to Korean Won using on the appropriate exchange rate.

In connection with the construction contract, the Group has provided certain amount of deposits or letters from financial institutions for various guarantees (e.g. bid bond, performance bond, refund guarantee, maintenance bond, etc.).

- (3) Accumulated profit and loss of construction and others connected with construction in progress as of December 31, 2019 are as follows:

(In millions of won)

			<b>2019</b>				
			<b>Billed receivables on construction contracts(*)</b>	<b>Unbilled receivables on construction contracts(*)</b>	<b>Contract liabilities</b>	<b>Provisions for Construction Loss</b>	
<b>Accumulated revenue of construction</b>	<b>Accumulated cost of construction</b>	<b>Accumulated profit (loss) of construction</b>					
₩ 250,173	273,665	(23,492)	10,295	2,854	9,087		13,290

(\*) As of December 31, 2019, the allowance for receivables on construction contracts amounts to ₩650 million.

There is no amount of retentions according to the contract terms among the receivables on construction contracts.

The Group mainly collect the consideration based on the milestone payment method. Therefore, receivables, contract assets and contract liabilities might be changed according to the progress of construction.

- (4) As of December 31, 2019, information about significant construction contracts that the revenue of contract is exceeds 5% or more of the Group's present year total revenue is as follows:

(In millions of won)

				<b>2019</b>			
				<b>Contract assets</b>		<b>Trade receivables</b>	
				<b>Allowance for doubtful accounts</b>	<b>Allowance for doubtful accounts</b>	<b>Allowance for doubtful accounts</b>	<b>Allowance for doubtful accounts</b>
<b>Contract</b>	<b>Date of contract</b>	<b>Construction deadline(*)</b>	<b>Percentage of completion</b>	<b>Total amount</b>	<b>Total amount</b>	<b>Total amount</b>	<b>Total amount</b>
Rabigh 2	2013-11-29	2027-12-31	97.25%	₩ -	-	-	-

(\*) The Group is delivering the object and doing some remaining work, as a result, The Group is discussing with the client about the extension of the construction period.

## HYUNDAI ELECTRIC &amp; ENERGY SYSTEMS CO., LTD.

## Notes to Consolidated financial Statements

For the years ended December 31, 2019 and 2018

**23. Revenue, Continued**

(5) The effect of changes in estimated total contract costs

(i) The effect of changes in estimated total contract costs

For the year ended December 31, 2019, due to the factors causing the change in estimated total contract costs, the estimated total contract costs for contracts in progress have changed. Details of change in profits or loss for the current year and the future period and the impact on contract assets and contract liabilities are as follows:

(In millions of won)

	Changes in total contract revenue(*)	Changes in total estimated contract costs	Effect on profit (loss) of contract			Changes in Contract assets	Changes in Contract liabilities
			Current year	Future period	Total		
₩	4	21,686	(21,768)	86	(21,682)	(119)	698

(\*) Changes in entire contract revenue (including foreign currency fluctuation) were included.

Effect on profit or loss for the current period and future period is calculated based on the total contract costs and total contract revenue estimated on the basis of situations generated in the current period. These estimations could be changed by variation of actual situations in the future.

(ii) Sensitivity analysis based on changes in the estimated total contract costs

The amount of contract assets and contract liabilities affected by the rate of progress which is determined by accumulated cost incurred divided by estimated total contract costs. Estimated total contract costs are calculated based on estimation on the materials cost, labour cost and construction period, and has a variance risk related to the fluctuation of exchange rate, changes in field installation cost, etc.

The Group has entered into foreign currency forward contracts to hedge the risk related to exchange rate fluctuation for reducing the short-term price risk. In the case of performance obligations satisfied over time, there may be work uncertainty at the installation site. The impacts on profit or loss of current period and future periods, contract assets and contract liabilities in case field installation cost changes 10% are as follows:

(In millions of won)

	Effect on profit or loss this year		Effect on profit or loss in the future		Changes in Contract assets		Changes in Contract liabilities	
	10% increase	10% decrease	10% increase	10% decrease	10% increase	10% decrease	10% increase	10% decrease
₩	(2,594)	2,626	(150)	119	(455)	465	661	(455)

## HYUNDAI ELECTRIC &amp; ENERGY SYSTEMS CO., LTD.

## Notes to Consolidated financial Statements

For the years ended December 31, 2019 and 2018

**23. Revenue, Continued**

## (6) Contracts with customers

## (i) Revenue streams

Details of source of revenue for the year ended December 31, 2019 and 2018 are as follow:

<i>(In millions of won)</i>		<b>2019</b>	<b>2018</b>
Revenue from contracts with customers	₩	1,777,586	1,940,557
Gain (loss) on valuation of hedging accounting		(6,452)	(145)
	₩	<u>1,771,134</u>	<u>1,940,412</u>

## (ii) Disaggregation of revenue

The disaggregated revenue for the year ended December 31, 2019 and 2018 is as follow:

<i>(In millions of won)</i>		<b>2019</b>	<b>2018</b>
<b>Region:</b>			
Republic of Korea	₩	716,581	1,094,831
North America		272,013	195,934
Asia (including in Middle East Asia)		192,061	419,020
Europe		148,391	128,036
Others		448,540	102,736
		<u>1,777,586</u>	<u>1,940,557</u>
<b>Revenue recognition method:</b>			
Recognized when the goods are delivered		1,766,655	1,908,509
Recognized over time as services are provided.		10,931	32,048
		<u>1,777,586</u>	<u>1,940,557</u>
<b>Contract period:</b>			
Short-term contract (within 1 year)		1,057,590	1,226,498
Long-term contract (more than 1 year)		719,996	714,059
	₩	<u>1,777,586</u>	<u>1,940,557</u>

## (iii) Contract balances

(a) Trade receivables from contracts with customers as of December 31, 2019 and 2018 is as follows:

<i>(In millions of won)</i>		<b>2019</b>	<b>2018</b>
<b>Receivables:</b>			
receivables	₩	543,787	680,536
Allowance for Doubtful Accounts		(73,930)	(58,069)
		<u>469,857</u>	<u>622,467</u>

Contract assets and contract liabilities from contracts with customers as of December 31, 2019 and 2018 are as follows (exclude allowance):

<i>(In millions of won)</i>		<b>2019</b>	<b>2018</b>
<b>Contract Assets:</b>			
Contract Assets	₩	228,205	154,032
Allowance for Doubtful Accounts		(25,700)	(8,101)
	₩	<u>202,505</u>	<u>145,931</u>

## HYUNDAI ELECTRIC &amp; ENERGY SYSTEMS CO., LTD.

## Notes to Consolidated financial Statements

For the years ended December 31, 2019 and 2018

**23. Revenue, Continued**

(6) Contracts with customers, continued

(iii) Contract balances, continued

(a) Trade receivables from contracts with customers as of December 31, 2019 and 2018 is as follows, continued:

*(In millions of won)*

	<b>2019</b>	<b>2018</b>
<b>Contract Liabilities:</b>		
Current Contract Liabilities	₩ 172,730	95,520
Non-current Contract Liabilities	21,885	-
	<u>₩ 194,615</u>	<u>95,520</u>

(b) Changes in contract assets for the year ended December 31, 2019 and 2018 are as follows:

*(In millions of won)*

	<b>2019</b>	<b>2018</b>
Beginning balance	₩ 145,931	-
Adjustment on initial application of K-IFRS No.1115	-	151,210
Revenue (+)	172,927	79,217
Reclassification as receivables (-)	(98,755)	(82,914)
Impairment (-)	(17,598)	(1,582)
Ending balance	<u>₩ 202,505</u>	<u>145,931</u>

(c) Changes in contract liabilities for the year ended December 31, 2019 and 2018 are as follows:

*(In millions of won)*

	<b>2019</b>	<b>2018</b>
Beginning balance	₩ 95,520	-
Adjustment on initial application of K-IFRS No.1115	-	89,922
Revenue (-)	(73,400)	(57,558)
Advance payment receipt/ Increase due to obligations (+)	172,495	43,974
Increase and decrease due to business combination (+/-)	-	19,182
Ending balance	<u>₩ 194,615</u>	<u>95,520</u>

## HYUNDAI ELECTRIC &amp; ENERGY SYSTEMS CO., LTD.

## Notes to Consolidated financial Statements

For the years ended December 31, 2019 and 2018

**24. Selling, General and Administrative Expenses**

Selling, general and administrative expenses for the years ended December 31, 2019 and 2018 are as follows:

(In millions of won)

		<b>2019</b>	<b>2018</b>
Salaries	₩	41,426	42,049
Bonuses		3,025	4,508
Retirement benefits(*)		12,296	38,288
Employee welfare		12,293	16,410
Depreciation		3,376	3,442
Right-of-use Assets Depreciation		3,030	-
Amortization		1,764	-
Bad debt expense (reversal allowance for bad debts)		37,962	17,060
Ordinary development costs		43,986	40,976
Advertising		2,557	6,028
Printing		163	234
Power cost		1,166	320
Warranty expenses(reversal)		50,886	(4,556)
Insurance		1,410	1,251
Office expenses		662	731
Travel		4,905	5,436
Research		243	4,331
Service fee		12,026	17,836
Transportation		21,345	14,951
Rent		1,562	3,878
Data processing		2,327	934
Entertainment		752	764
Service charges		29,391	17,486
Automobile maintenance		517	662
Sales commissions		12,455	11,143
Others		8,526	9,172
	₩	<u>310,051</u>	<u>253,334</u>

(\*) Retirement benefits for the year ended December 31, 2019 and 2018 includes in retirement bonus due to voluntary retirement.

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to Consolidated financial Statements  
For the years ended December 31, 2019 and 2018

## 25. Nature of Expenses

The classification of expenses by nature for the year ended December 31, 2019 and 2018 are as follows:

<i>(In millions of won)</i>	<b>2019</b>	<b>2018</b>
Changes in inventories	₩ 33,934	(67,090)
Purchase of inventories	1,308,259	1,365,317
Depreciation	27,733	40,756
Right-of-use Assets Depreciation	4,436	-
Amortization	3,664	12,631
Labor cost	243,204	288,928
Other expenses	306,598	400,452
	₩ <u>1,927,828</u>	<u>2,040,994</u>

Total expenses consist of cost of sales and selling, general and administrative expenses.

## 26. Finance Income and Finance Costs

Finance income and finance costs for the year ended December 31, 2019 and 2018 are as follows:

<i>(In millions of won)</i>	<b>2019</b>	<b>2018</b>
<b>Finance income:</b>		
Interest income	₩ 5,929	5,279
Dividend income	38	24
Gain on foreign currency translation	6,398	9,100
Gain on foreign currency transactions	29,686	38,001
Gain on valuation of financial instruments measured at fair value through profit or loss	245	402
	₩ <u>42,296</u>	<u>52,806</u>
<b>Finance costs:</b>		
Interest expense	₩ 33,633	25,714
Loss on foreign currency translation	4,467	5,339
Loss on foreign currency transactions	18,265	26,834
Loss on valuation of financial instruments measured at fair value through profit or loss	166	135
	₩ <u>56,531</u>	<u>58,022</u>

## HYUNDAI ELECTRIC &amp; ENERGY SYSTEMS CO., LTD.

## Notes to Consolidated financial Statements

For the years ended December 31, 2019 and 2018

**27. Other Non-operating Income and Other Non-operating Expenses**

Other non-operating income and other non-operating expenses for the year ended December 31, 2019 and 2018 are as follows:

(In millions of won)

	<b>2019</b>	<b>2018</b>
<b>Other non-operating income:</b>		
Gain on disposal of property, plant and equipment ₩	8,554	1,787
Bargain purchase gain	-	11,413
Miscellaneous income	1,854	6,469
Gain on disposal of other current assets	389	396
Reversal of other allowance doubtful accounts	271	354
₩	<u>11,068</u>	<u>20,419</u>
<b>Other non-operating expenses:</b>		
Service charges ₩	2,369	1,657
Loss on disposal of property, plant, and equipment	7,418	904
Impairment loss on property, plant, and equipment	57,393	65,931
Impairment loss on right-of-use assets	1,791	-
Loss on revaluation of property, plant and equipment	-	26
Impairment loss on intangible assets	8,214	41,546
Loss on disposal of other current assets	2,084	-
Impairment loss on other current assets	421	-
Other bad debt expenses	2,950	-
Donation	1,392	1,546
Miscellaneous expenses	89,741	19,378
₩	<u>173,773</u>	<u>130,988</u>

**28. Income Tax Expense**

- (1) The components of income tax expense (benefit) for the year ended December 31, 2019 and 2018 are as follows:

(In millions of won)

	<b>2019</b>	<b>2018</b>
Current tax expense ₩	2,580	891
Origination and reversal of temporary differences	(70,900)	(43,885)
Income tax recognized in other comprehensive income	(1,015)	5,554
Total income tax expense (benefit) ₩	<u>(69,335)</u>	<u>(37,440)</u>



HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to Consolidated financial Statements  
For the years ended December 31, 2019 and 2018

## 28. Income Tax Expense, Continued

- (2) Income tax recognized directly in other comprehensive income for the years ended December 31, 2019 and 2018 is as follows:

<i>(In millions of won)</i>	<b>2019</b>	<b>2018</b>
Net change in fair value of financial assets measured at FVOCI ₩	1	48
Gains on valuation of derivatives	(1,303)	840
Gains on revaluation of property, plant and equipment	–	1,901
Defined benefit plan actuarial gain	287	2,824
Others	–	(59)
Income tax recognized directly in other comprehensive income	₩ (1,015)	5,554

Income taxes related to net change in fair value of financial assets measured at FVOCI, gains/losses on valuation of derivatives, gains/losses on revaluation of property, plant and equipment and defined benefit plan actuarial gains/losses are recognized in other comprehensive income.

- (3) Reconciliation of effective tax rate for the year ended December 31, 2019 and 2018 are as follows:

<i>(In millions of won)</i>	<b>2019</b>	<b>2018</b>
Profit (Loss) before income tax ₩	(333,636)	(216,366)
Income tax using the Company's statutory tax rate	(70,900)	(55,502)
Adjustment for:		
Change in tax rate(*1)	–	12,930
Effect of non-deductible expenses	451	2,359
Tax credits	(128)	(209)
Others	1,242	2,982
Income tax expense (benefit) ₩	(69,335)	(37,440)
Effective tax rate	(*2)	(*2)

(\*1) Effects of changes in tax rate applied to taxable income in the period in which the temporary difference is expected to be reversed.

(\*2) As income tax benefit is occurred, the Group did not calculate effective tax rate.

- (4) Deferred tax expenses by origination and reversal of deferred tax assets and liabilities and temporary differences for the year ended December 31, 2019 and 2018 are as follows:

<i>(In millions of won)</i>	<b>2019</b>	<b>2018</b>
Deferred tax assets(liabilities) at the end of the period ₩	187,084	116,184
Effects of changes in scope of consolidation	–	(1,042)
Deferred tax assets(liabilities) at the beginning of the period	116,184	73,341
Deferred tax effects by origination and reversal of temporary differences ₩	70,900	43,885

- (5) As of December 31, 2019, the tax effects of temporary difference were calculated using the enacted statutory tax rate for the fiscal period when the temporary differences are expected to be reversed.

## HYUNDAI ELECTRIC &amp; ENERGY SYSTEMS CO., LTD.

## Notes to Consolidated financial Statements

For the years ended December 31, 2019 and 2018

## 28. Income Tax Expense, Continued

- (6) The Group sets off a deferred tax asset against a deferred tax liability only if it relates to income taxes levied by the same taxation authority and has a legally enforceable right to set off current tax assets against current tax liabilities.
- (7) Changes in deferred tax assets (liabilities) for the year ended December 31, 2019 and 2018 are as follows:

*(In millions of won)*

		2019		
		Beginning balance	Change	Ending balance
Allowance for doubtful accounts	₩	22,556	7,671	30,227
Accrued income		(90)	9	(81)
Present value of defined benefit obligations		9,772	1,317	11,089
Fair value of plan assets		(7,856)	(2,706)	(10,562)
Provisions for construction loss		2,531	5,717	8,248
Provisions for construction warranty		17,674	4,226	21,900
Land revaluation		(35,829)	6,466	(29,363)
Depreciation		(7,674)	14,546	6,872
Derivatives		(173)	(1,303)	(1,476)
Loss on foreign currency translations		2,689	(2,736)	(47)
Accrued expenses		2,940	(239)	2,701
Others		49,376	16,679	66,055
		55,916	49,647	105,563
Loss carried forward		57,109	20,363	77,472
Carried forward tax credit		3,159	890	4,049
	₩	116,184	70,900	187,084

*(In millions of won)*

		2018			
		Beginning balance	Change	Changes in scope of consolidation	Ending balance
Allowance for doubtful accounts	₩	19,708	2,848	—	22,556
Accrued income		(8)	(82)	—	(90)
Property, plant and equipment		3	14,355	—	14,358
Intangible assets		781	7,933	—	8,714
Present value of defined benefit obligations		8,141	1,631	—	9,772
Fair value of plan assets		(8,239)	383	—	(7,856)
Provisions for construction loss		810	1,721	—	2,531
Provisions for construction warranty		36,431	(18,757)	—	17,674
Land revaluation		(39,617)	3,788	—	(35,829)
Depreciation		(7,945)	271	—	(7,674)
Derivatives		(1,013)	840	—	(173)
Loss on foreign currency translations		10,987	(8,298)	—	2,689
Accrued expenses		3,995	(1,055)	—	2,940
Others		32,328	(4,982)	(1,042)	26,304
		56,362	596	(1,042)	55,916
Loss carried forward		14,552	42,557	—	57,109
Carried forward tax credit		2,427	732	—	3,159
	₩	73,341	43,885	(1,042)	116,184

## HYUNDAI ELECTRIC &amp; ENERGY SYSTEMS CO., LTD.

## Notes to Consolidated financial Statements

For the years ended December 31, 2019 and 2018

**28. Income Tax Expense, Continued**

- (8) Deferred income tax assets were not recognized for temporary differences of ₩15,241 million related to treasury stock as of December 31, 2019 and 2018.
- (9) The Group decisions that the deferred income tax asset is feasible because the expected average profit exceeds the Accumulated Deficit that expires in each fiscal year.

**29. Lease**

- (1) Leases as lessee

Information about leases for which the Group is a lessee is presented below.

- (i) Right-of-use Assets

(In millions of won)

		2019			
		Lands	Buildings	Vehicles	Total
Beginning balance	₩	243	9,099	881	10,223
Depreciation		(80)	(3,874)	(482)	(4,436)
Additions to right-of-use assets		-	2,411	586	2,997
Impairment loss		(60)	(1,424)	(307)	(1,791)
The Effects of Changes in Foreign Exchange Rates		-	36	10	46
Ending balance	₩	103	6,248	688	7,039

- (ii) Amounts recognized in profit or loss

(In millions of won)

	2019
Interest on lease liabilities	₩ 362
Expenses relating to short-term lease	1,078
Expenses relating to leases of low-value assets, excluding short-term leases of low-value assets	104
	₩ 1,544

The Group did not have a lease that was previously classified as a finance lease under K-IFRS No.1017, and the amount recognized as operating lease expense during the previous period was ₩4,900 million.

- (iii) Amounts recognized in statement of cash flows

(In millions of won)

	2019
Total cash outflow for leases	₩ 5,837

- (2) Leases as lessor

The Group do not have any lease assets provided as a lessor.

## HYUNDAI ELECTRIC &amp; ENERGY SYSTEMS CO., LTD.

## Notes to Consolidated financial Statements

For the years ended December 31, 2019 and 2018

**30. Earnings per Share**

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

<i>(In millions of won, except share data)</i>		2019	2018
Profit (Loss) for the period	₩	(264,261)	(178,910)
Weighted average number of ordinary shares outstanding <i>(In thousands of shares)(*)</i>		20,389	20,303
Earnings (loss) per share <i>(In won)</i>	₩	(12,961)	(8,812)

(\*) Weighted average number of ordinary shares

<i>(In shares)</i>	2019		
	Number of shares outstanding	Weighted average	Weighted average number of shares outstanding
Beginning balance	20,357,135	365/365	20,357,135
Treasury stock	(54,431)	365/365	(54,431)
Increase of share capital without Considerations in 2018	—	—	—
Increase of share capital with new issue in 2019	15,690,000	2/365	85,972
Weighted average number of ordinary shares outstanding	35,992,704		20,388,676

<i>(In shares)</i>	2018		
	Number of shares outstanding	Weighted average	Weighted average number of shares outstanding
Beginning balance	10,205,783	365/365	10,205,783
Treasury stock	(54,431)	365/365	(54,431)
Increase of share capital without Considerations in 2018	10,151,352	365/365	10,151,352
Increase of share capital with new issue in 2019	—	—	—
Weighted average number of ordinary shares outstanding	20,302,704		20,302,704

- (2) As the Group has no dilutive securities as of December 31, 2019 and 2018, diluted earnings per share has not been calculated.

## HYUNDAI ELECTRIC &amp; ENERGY SYSTEMS CO., LTD.

## Notes to Consolidated financial Statements

For the years ended December 31, 2019 and 2018

**31. Cash flow from Operations**

- (1) Cash generated from operations for the year ended December 31, 2019 and 2018 are as follows

(In millions of won)

	<b>2019</b>	<b>2018</b>
<b>Loss for the period</b>	₩ (264,301)	(178,926)
<b>Adjustments for:</b>	349,677	194,111
Post-employment benefit costs	14,034	14,138
Property, plant and equipment depreciation	27,732	40,756
Right-of-use depreciation	4,436	-
Amortization	3,664	12,631
Bad (Reversal) debt expenses	37,962	17,060
Finance income	(12,609)	(14,805)
Finance costs	38,266	31,187
Other non-operating income	(9,214)	(13,653)
Other non-operating expenses	80,271	109,371
Tax expense (income)	(69,335)	(37,440)
<b>Changes in assets and liabilities:</b>		
Trade receivables	137,880	122,603
Other receivables	7,417	(11,568)
Contract assets	(74,316)	3,698
Inventories	9,349	(9,450)
Other current assets	9,034	2,270
Other non-current assets	(24)	(1)
Trade payables	(11,246)	23,781
Other payables	76,457	(17,468)
Contract liabilities	72,019	(22,216)
Other current liabilities	(1)	7,680
Long-term other payables	(290)	(200)
Benefits paid	(16,283)	(21,316)
Succession of benefits	212	1,456
Plan assets	(10,976)	(802)
Provisions	35,238	(43,601)
	₩ 85,376	15,185

- (2) Significant transactions that do not involve cash inflows and outflows operations for the year ended December 31, 2019 and 2018 are as follows:

(In millions of won)

	<b>2019</b>	<b>2018</b>
Reclassification of construction-in-progress	₩ 30,631	17,500
Reclassification of current portion of debentures	75,000	299,750
Reclassification of current portion of long-term borrowings	52,000	-
Aligning Offset with Contract Liabilities, etc. for Acceptance of Trademark Rights	21,416	-
Reclassification of provision	77,527	-
Adjusting the acquisition value of a right-of-use assets	13,220	-
Revaluation of property, plant and equipment	-	681
Changes in fair value of financial assets measured at FVOCI	-	219
Reclassification of trade receivables to contract assets	-	145,207
Accounts receivable related to the disposal of property, plant and equipment	322	632
Adjustment of Accounts Payable for purchase of property, plant and equipment	175	-
Reclassification of intangible assets to Property, plant and equipment	-	1,901

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to Consolidated financial Statements  
For the years ended December 31, 2019 and 2018

**32. Categories of Financial Instruments and Income and Costs by Categories**

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

(In millions of won)

	2019				
	Fair value –hedging instruments	Financial Instruments measured at FVTPL	Financial Instruments measured at FVOCI	Financial Instruments measured at amortized cost	Total
<b>Financial assets:</b>					
Cash and cash equivalents	₩ -	-	-	189,725	189,725
Short-term Financial assets	-	139,680	-	10,000	149,680
Trade and other receivables	-	-	-	487,479	487,479
Contract assets	-	-	-	202,505	202,505
Derivative assets (current)	7,587	-	-	-	7,587
Long-term Financial assets	-	2,977	13	8	2,998
Long-term Trade and other receivables	-	-	-	1,162	1,162
	₩ 7,587	142,657	13	890,879	1,041,136
<b>Financial liabilities:</b>					
Short-term Financial liabilities	₩ -	-	-	406,887	406,887
Trade and other payables	-	-	-	417,167	417,167
Derivative liabilities (current)	454	-	-	-	454
Current lease liabilities	-	-	-	3,751	3,751
Long-term Financial liabilities	-	-	-	365,802	365,802
Long-term Trade and other receivables	-	-	-	200	200
Derivative liabilities (non-current)	418	-	-	-	418
Non-current lease liabilities	-	-	-	5,226	5,226
	₩ 872	-	-	1,199,033	1,199,905

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to Consolidated financial Statements  
For the years ended December 31, 2019 and 2018

**32. Categories of Financial Instruments and Income and Costs by Categories, Continued**

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

(In millions of won)

	2018			
	Fair value -hedging instruments	Financial Instruments measured at FVTPL	Financial Instruments measured at FVOCI	Financial Instruments measured at amortized cost
				Total
<b>Financial assets:</b>				
Cash and cash equivalents	₩ -	-	-	376,329
Short-term Financial assets	-	-	-	15,000
Trade and other receivables	-	-	-	649,019
Contract assets	-	-	-	145,931
Derivative assets (current)	1,185	-	-	1,185
Long-term Financial assets	-	3,066	24	8
Long-term Trade and other receivables	-	-	-	1,195
Derivative receivables (non-current)	20	-	-	20
	₩ 1,205	3,066	24	1,187,482
				1,191,777
<b>Financial liabilities:</b>				
Short-term Financial liabilities	₩ -	-	-	667,354
Trade and other payables	-	-	-	345,602
Derivative liabilities (current)	92	-	-	92
Long-term Financial liabilities	-	-	-	239,303
Long-term Trade and other receivables	-	-	-	490
Derivative liabilities (non-current)	327	-	-	327
	₩ 419	-	-	1,252,749
				1,253,168

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to Consolidated financial Statements  
For the years ended December 31, 2019 and 2018

**32. Categories of Financial Instruments and Income and Costs by Categories, Continued**

(2) Financial instruments income and costs by categories for the year ended December 31, 2019 and 2018 are as follows:

	2019				
	Fair value –hedging instruments	Financial Instruments measured at FVTPL	Financial Instruments measured at FVOCI	Financial assets measured at amortized cost	Financial liabilities measured at amortized cost
<b>Net income (loss):</b>					<b>Total</b>
Interest income(*)	₩ -	-	-	5,929	-
Dividend income	-	38	-	-	38
Gain on valuation of financial instruments measured at FVTPL	-	245	-	-	245
Gain on foreign currency transactions	-	-	-	28,496	1,190
Gain on foreign currency translation	-	-	-	5,991	407
Reversal of allowance for doubtful accounts	-	-	-	271	-
Revenue	(6,452)	-	-	-	(6,452)
Bad debt expense	-	-	-	(37,962)	(37,962)
Interest expense(*)	(164)	-	-	-	(33,633)
Loss on valuation of financial instruments measured at FVTPL	-	(166)	-	-	(166)
Loss on foreign currency transaction	-	-	-	(16,219)	(2,046)
Loss on foreign exchange translation	-	-	-	(3,476)	(992)
Other Bad Debt Expenses	-	-	-	(2,950)	(2,950)
	(6,616)	117	-	(19,920)	(61,329)
<b>Other comprehensive income (loss)</b>					
Effective portion of changes in fair value of cash flow hedges	4,626	-	-	-	4,626
Losses on valuation of financial instruments at FVOCI	-	-	(1)	-	(1)
	4,626	-	(1)	-	4,625
₩	(1,990)	117	(1)	(19,920)	(56,704)

(\*) Interest income and interest expense arising from effective interest rate amortization are included.



HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to Consolidated financial Statements  
For the years ended December 31, 2019 and 2018

**32. Categories of Financial Instruments and Income and Costs by Categories, Continued**

(2) Financial instruments income and costs by categories for the year ended December 31, 2019 and 2018 are as follows, continued:

	2018				
	Fair value –hedging instruments	Financial Instruments measured at FVTPL	Financial Instruments measured at FVOCI	Financial assets measured at amortized cost	Financial liabilities measured at amortized cost
<b>Net income (loss):</b>					<b>Total</b>
₩ Interest income(*)	-	-	-	5,279	-
Dividend income	-	24	-	-	24
Gain on valuation of financial instruments measured at FVTPL	-	402	-	-	402
Gain on foreign currency transactions	-	-	-	36,549	1,452
Gain on foreign currency translation	-	-	-	8,335	765
Reversal of allowance for doubtful accounts	-	-	-	354	-
Revenue	(145)	-	-	-	(145)
Bad debt expense	-	-	-	(17,060)	(17,060)
Interest expense(*)	(68)	-	-	-	(25,646)
Loss on valuation of financial instruments measured at FVTPL	-	(135)	-	-	(135)
Loss on foreign currency transaction	-	-	-	(25,137)	(26,834)
Loss on foreign exchange translation	-	-	-	(2,407)	(5,339)
	(213)	291	-	5,913	(22,067)
<b>Other comprehensive income (loss)</b>					
Effective portion of changes in fair value of cash flow hedges	(2,560)	-	-	-	(2,560)
Losses on valuation of financial instruments at FVOCI	-	-	(171)	-	(171)
	(2,560)	-	(171)	-	(2,731)
₩	(2,773)	291	(171)	5,913	(24,798)

(\*) Interest income and interest expense arising from effective interest rate amortization are included.

## HYUNDAI ELECTRIC &amp; ENERGY SYSTEMS CO., LTD.

## Notes to Consolidated financial Statements

For the years ended December 31, 2019 and 2018

**33. Risk of Financial Instruments**

## (1) Credit risk

## (i) Exposure to credit risk

The carrying amount of financial assets and contract assets represents the maximum credit exposure. The maximum exposure to credit risk as of December 31, 2019 and 2018 are as follows:

<i>(In millions of won)</i>		<b>2019</b>	<b>2018</b>
Cash and cash equivalents	₩	189,725	376,329
Short-term financial instruments		10,000	15,000
Financial assets measured at FVTPL(current)		139,680	-
Long-term financial instruments		8	8
Financial assets measured at FVTPL (non-current)		2,977	3,066
Financial assets measured at FVOCI		13	24
Trade receivables and other receivables		487,479	649,019
Long-term trade receivables and other receivables		1,162	1,195
Contract asset		202,505	145,931
Derivative assets(current)		7,587	1,185
Derivative assets(non-current)		-	20
	₩	<u>1,041,136</u>	<u>1,191,777</u>

The maximum exposure to risk for debt guarantee for the loan for treasury stock of employee stock ownership is ₩50,931 million (See Note 34).

The maximum exposure to credit risk for trade and other receivables by geographic region as of December 31, 2019 and 2018 is as follows:

<i>(In millions of won)</i>		<b>2019</b>	<b>2018</b>
Korea	₩	212,902	459,978
North America		121,986	80,145
Asia		288,075	197,412
Europe		28,672	43,992
Others		39,511	14,618
	₩	<u>691,146</u>	<u>796,145</u>

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to Consolidated financial Statements  
For the years ended December 31, 2019 and 2018

### 33. Risk of Financial Instruments, Continued

(1) Credit risk, continued

(ii) Impairment losses

(a) The aging of short- and long-term financial instruments and Trade receivables and other receivables and contract assets and the related allowance for impairment as of December 31, 2019 and 2018 are as follows:

(In millions of won)

		2019		2018	
		Gross	Impairment	Gross	Impairment
Not past due	₩	366,025	(26,192)	380,287	(12,151)
Past due up to 6 months		252,547	(3,112)	265,758	(1,316)
Past due 6~12 months		56,515	(4,624)	61,689	(3,983)
Past due 1~3 years		63,018	(20,404)	127,007	(19,662)
More than three years		114,809	(97,429)	92,402	(78,878)
	₩	<u>852,914</u>	<u>(151,761)</u>	<u>927,143</u>	<u>(115,990)</u>

(b) The movement in the allowance for impairment in respect of trade receivables, other receivables and contract assets for the year ended December 31, 2019 and 2018 are as follows:

		2019	
		Trade receivables and Other receivables	Contract assets
(In millions of won)			
Beginning balance	₩	107,888	8,102
Adjustment on initial application of K-IFRS No.1115(*)		-	-
Impairment loss recognized		23,314	17,598
Reversal of allowance accounts		(271)	-
Write-offs		(4,871)	-
Effects of changes in scope of consolidation		-	-
Ending balance	₩	<u>126,060</u>	<u>25,700</u>

		2018	
		Trade receivables and Other receivables	Contract assets
(In millions of won)			
Beginning balance	₩	94,980	-
Adjustment on initial application of K-IFRS No.1115(*)		(6,520)	6,520
Impairment loss recognized		18,443	1,582
Reversal of allowance accounts		(3,343)	-
Write-offs		(8,630)	-
Effects of changes in scope of consolidation		12,958	-
Ending balance	₩	<u>107,888</u>	<u>8,102</u>

(\*) Adjustment amount under K-IFRS No.1115 was the amount of receivables included in trade and other receivables as of December 31, 2017 that have been reclassified into accounts that the Group has not charged to the customer.

## HYUNDAI ELECTRIC &amp; ENERGY SYSTEMS CO., LTD.

## Notes to Consolidated financial Statements

For the years ended December 31, 2019 and 2018

**33. Risk of Financial Instruments, Continued**

## (1) Credit risk, continued

## (ii) Impairment losses, continued

The allowance accounts in respect of loans and receivables is used to record impairment losses unless the Group is satisfied that all collection measures have been exhausted. At that point, the amounts are considered irrecoverable and are written off against the financial asset directly.

- (c) For the years ended December 31, 2019 and 2018, impairment losses and impairment reversals that occur in other receivables is recorded as other non-operating income and detail of this is as follows:

*(In millions of won)*

		<b>2019</b>	<b>2018</b>
Other bad debt expense	₩	2,950	-
Reversal of other allowance doubtful accounts	₩	(271)	(354)

- (iii) The analysis of the aging of financial assets that are past due as of December 31, 2019 and 2018, but not impaired are summarized as follows:

*(In millions of won)*

			<b>2019</b>		
		<b>Carrying amount</b>	<b>Less than 6 months</b>	<b>6 to 12 months</b>	<b>1 to 3 years</b>
			<b>More than 3 years</b>		
Trade and other receivables	₩	361,320	249,435	51,891	42,614
					17,380

*(In millions of won)*

			<b>2018</b>		
		<b>Carrying amount</b>	<b>Less than 6 months</b>	<b>6 to 12 months</b>	<b>1 to 3 years</b>
			<b>More than 3 years</b>		
Loans and receivables	₩	443,017	264,443	57,705	107,345
					13,524

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to Consolidated financial Statements  
For the years ended December 31, 2019 and 2018

### 33. Risk of Financial Instruments, Continued

(2) Liquidity risk

(i) Liquidity risk

The contractual maturities of financial liabilities, including estimated interest payments and excluding the impact of netting agreements as of December 31, 2019 and 2018 are summarized as follows:

(In millions of won)

		2019					
	Carrying amount	Contractual cash flow	Less than 6 months	6 to 12 months	1 to 3 years	More than 3 years	
<b>Non-derivative financial liabilities:</b>							
Short-term borrowings	₩ 279,992	283,980	239,833	44,147	—	—	
Current portion of Debentures	74,895	76,744	1,163	75,581	—	—	
Current Portion of Long-term Borrowings	52,000	52,987	40,935	12,052	—	—	
Current lease liabilities	3,752	3,840	2,054	1,786	—	—	
Trade and other payables	417,167	417,167	303,854	113,313	—	—	
Long-term borrowings	221,156	229,200	3,550	3,311	222,339	—	
Debentures	144,646	153,384	2,499	2,499	148,386	—	
Long-term trade and other payables	200	200	—	—	200	—	
Non-current lease liabilities	5,226	5,517	—	—	5,025	492	
	₩ 1,199,034	1,223,019	593,888	252,689	375,950	492	

(In millions of won)

		2018				
	Carrying amount	Contractual cash flow	Less than 6 months	6 to 12 months	1 to 3 years	
<b>Non-derivative financial liabilities:</b>						
Short-term borrowings	₩ 356,221	358,982	227,555	131,427	—	
Current portion of long-term borrowings	11,181	11,673	246	11,427	—	
Current portion of debentures	299,951	302,590	302,590	—	—	
Long-term borrowings	40,000	43,646	728	728	42,190	
Debentures	199,303	217,543	3,311	3,311	210,921	
Trade and other payables	346,092	346,092	339,999	5,603	490	
	₩ 1,252,748	1,280,526	874,429	152,496	253,601	

It is not expected that the cash flows included in the maturity analysis could occur significantly earlier, or at significantly different amounts.

## HYUNDAI ELECTRIC &amp; ENERGY SYSTEMS CO., LTD.

## Notes to Consolidated financial Statements

For the years ended December 31, 2019 and 2018

**33. Risk of Financial Instruments, Continued**

(2) Liquidity risk, continued

(ii) The periods in which the cash flows associated with cash flow hedges are expected to occur as of December 31, 2019 and 2018 are summarised as follows:

*(In millions of won)*

(In millions of won)		2019					
		Carrying amount	Expected cash flows	Less than 6 months	6 to 12 months	1 to 3 years	More than 3 years
Interest rate swaps							
Liabilities	₩	(872)	(884)	(201)	(257)	(426)	—
Forward exchange contracts							
Assets		7,587	7,746	4,931	2,815	-	-

*(In millions of won)*

(In millions of won)		2018					
		Carrying amount	Expected cash flows	Less than 6 months	6 to 12 months	1 to 3 years	More than 3 years
<b>Interest rate swaps</b>							
Liabilities	₩	(419)	(433)	(35)	(58)	(340)	—
<b>Forward exchange contracts</b>							
Assets		1,205	1,221	1,002	197	22	—

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to Consolidated financial Statements  
For the years ended December 31, 2019 and 2018

**33. Risk of Financial Instruments, Continued**

(3) Currency risk

(i) Exposure to currency risk

The Group's exposure to foreign currency risk based on notional amounts as of December 31, 2019 and 2018 are as follows:

(In millions of won)

		2019					
		USD	EUR	CNY	JPY	Others	Total
Cash and cash equivalents	₩	84,893	113	–	47	1,682	86,735
Trade and other receivables		260,739	14,281	272	21	21,244	296,557
Contract assets		140,408	1,050	–	–	26,342	167,800
Financial assets total	₩	486,040	15,444	272	68	49,268	551,092
Trade and other payables	₩	(98,286)	(3,686)	(1,487)	(575)	(4,143)	(108,177)
Borrowings and debentures		(93,360)	(10,746)	–	(105)	–	(104,211)
Financial liabilities total	₩	(191,646)	(14,432)	(1,487)	(680)	(4,143)	(212,388)
Gross statement of financial position exposure	₩	294,394	1,012	(1,215)	(612)	45,125	338,704
Derivative contracts		(195,044)	–	–	–	–	(195,044)
Net exposure	₩	99,350	1,012	(1,215)	(612)	45,125	143,660

(In millions of won)

		2018					
		USD	EUR	CNY	JPY	Others	Total
Cash and cash equivalents	₩	77,502	1,025	–	35	1,241	79,803
Trade and other receivables		213,798	43,658	–	88	37,325	294,869
Contract assets		96,819	580	–	–	7,952	105,351
Financial assets total	₩	388,119	45,263	–	123	46,518	480,023
Trade and other payables	₩	(14,052)	(14,821)	(1,392)	(418)	(4,753)	(35,436)
Borrowings and debentures		(140,393)	(11,706)	(23,278)	(747)	(1,279)	(177,403)
Financial liabilities total	₩	(154,445)	(26,527)	(24,670)	(1,165)	(6,032)	(212,839)
Gross statement of financial position exposure	₩	233,674	18,736	(24,670)	(1,042)	40,486	267,184
Derivative contracts		1,205	–	–	–	–	1,205
Net exposure	₩	234,879	18,736	(24,670)	(1,042)	40,486	268,389

Significant exchange rates applied for the year ended December 31, 2019 and 2018 are as follows:

(In won)

		Average rate		Spot rate	
		2019	2018	2019	2018
USD	₩	1,166	1,100	1,158	1,118
EUR		1,305	1,299	1,297	1,279
CNY		169	166	166	163
JPY(100)		1,070	996	1,063	1,013

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to Consolidated financial Statements  
For the years ended December 31, 2019 and 2018

### 33. Risk of Financial Instruments, Continued

#### (3) Currency risk, continued

##### (ii) Sensitivity analysis

A weakening of the won, as indicated below, against the USD, EUR, CNY, JPY and others as of December 31, 2019 would have increased (decreased) profit or loss by the amounts shown below. This analysis is based on foreign currency exchange rate variances that the Group considered to be reasonably possible at the reporting date. The analysis assumes that all other variables, in particular interest rates, remain constant. The changes in profit or loss as of December 31, 2019 and 2018 are as follows:

		Profit or loss	
		2019	2018
<i>(In millions of won)</i>			
USD (3 percent strengthening)	₩	2,981	7,046
EUR (3 percent strengthening)		30	562
CNY (3 percent strengthening)		(36)	(740)
JPY (3 percent strengthening)		(18)	(31)

A strengthening of the won against the above currencies as of December 31, 2019 would have had the equal but opposite effect on the above currencies to the amounts shown above assuming all other variables remain constant.

#### (4) Interest rate risk

- (i) The interest rate profile of the Group's interest-bearing financial instruments as of December 31, 2019 and 2018 are as follows:

		2019	2018
<i>(In millions of won)</i>			
<b>Fixed rate instruments:</b>			
Financial assets	₩	20,432	19,627
Financial liabilities		(566,313)	(702,973)
	₩	<u>(545,881)</u>	<u>(683,346)</u>
<b>Variable rate instruments:</b>			
Financial assets(*)	₩	187,684	360,394
Financial liabilities		(206,835)	(204,429)
	₩	<u>(19,151)</u>	<u>155,965</u>

(\*) Included in trade receivables related to related party receivables that receive overdue interest due to collection delay.

##### (ii) Fair value sensitivity analysis for fixed rate instruments

The risk of change in the company's interest rates usually arises from variable-rate borrowing contracts. The Group appropriately manages the risk of interest rate changes in the variable interest rate borrowings through the interest rate swap in order to avoid risks arising from changes in interest rates. The details of the interest rate swap agreement as of December 31, 2019 are as follows:

		2019		
		Amount	Agreement interest rate	expiration date
KEB Hana bank	₩	80,000	Variable rate	CD(3M) +
			receipt	1.50%
			Fixed rate	
			payment	3.49%



HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to Consolidated financial Statements  
For the years ended December 31, 2019 and 2018

**33. Risk of Financial Instruments, Continued**

(4) Interest rate risk, continued

(iii) Cash flow sensitivity analysis for variable rate instruments

A change of 100 basis points in interest rates as of December 31, 2019 and 2018 would have increased (decreased) profit or loss by the amounts shown below. This analysis assumes that all other variables, in particular foreign currency rates, remain constant. The changes in profit or loss are as follows:

*(In millions of won)*

		<b>Profit or loss</b>	
		<b>100 bp increase</b>	<b>100 bp decrease</b>
<b>2019</b>			
Variable rate instruments	₩	(192)	192
Interest rate swap		800	(800)
Cash flow sensitivity (net amount)		608	(608)
<b>2018</b>			
Variable rate instruments	₩	1,560	(1,560)
Interest rate swap		800	(800)
Cash flow sensitivity (net amount)		2,360	(2,360)

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to Consolidated financial Statements  
For the years ended December 31, 2019 and 2018

### 33. Risk of Financial Instruments, Continued

(5) Fair values

(i) Fair values versus carrying amounts

The fair values of financial assets and liabilities, together with the carrying amounts shown in the statement of financial position as of December 31 2019 and 2018, are as follows:

(In millions of won)

		2019				
		Carrying amounts				Fair values
		Fair value hedging instruments	Financial instruments measured at FVTPL	Equity investments measured at FVOCI	Financial instruments measured at amortized cost	
<b>Assets carried at fair value:</b>						
Derivative assets(current)	₩	7,587	–	–	–	7,587
Financial assets measured at FVTPL(current)		–	139,680	–	–	139,680
Financial assets measured at FVTPL(non-current)		–	2,977	13	–	2,990
		7,587	142,657	13	–	150,257
<b>Assets not carried at fair value:</b>						
Cash and cash equivalents		–	–	–	189,725	189,725
Short-term financial assets		–	–	–	149,680	149,680
Trade and other receivables		–	–	–	487,479	487,479
Contract assets		–	–	–	202,505	202,505
Long-term financial instruments		–	–	–	8	8
Long-term Trade and other receivables		–	–	–	1,162	1,162
		–	–	–	1,030,559	1,030,559
<b>Total financial assets</b>	₩	7,587	142,657	13	1,030,559	1,180,816
<b>Liabilities carried at fair value:</b>						
Derivative liabilities(current)	₩	454	–	–	–	454
Derivative liabilities(non-current)		418	–	–	–	418
		872	–	–	–	872
<b>Liabilities not carried at fair value:</b>						
Short-term borrowings		–	–	–	279,992	279,992
Current portion of debentures		–	–	–	74,895	74,895
Current portion of Long-term borrowings		–	–	–	52,000	52,000
Trade and other payables		–	–	–	417,167	417,167
Current lease liabilities		–	–	–	3,752	3,752
Long-term borrowings		–	–	–	221,156	221,156
Debentures		–	–	–	144,646	144,646
Long-term Trade and other payables		–	–	–	200	200
Non-current lease liabilities		–	–	–	5,226	5,226
		–	–	–	1,199,034	1,199,034
<b>Total financial liabilities</b>	₩	872	–	–	1,199,034	1,199,906

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to Consolidated financial Statements  
For the years ended December 31, 2019 and 2018

### 33. Risk of Financial Instruments, Continued

(5) Fair values, continued

(i) Fair values versus carrying amounts, continued

(In millions of won)

		2018				
		Carrying amounts				Fair values
		Fair value- hedging instruments	Financial instruments measured at FVTPL	Equity investments measured at FVOCI	Financial instruments measured at amortized cost	
<b>Assets carried at fair value:</b>						
Derivative assets	₩	1,205	–	–	–	1,205
Long-term financial instruments		–	3,066	24	–	3,090
		1,205	3,066	24	–	4,295
<b>Assets not carried at fair value:</b>						
Cash and cash equivalents		–	–	–	376,329	376,329
Short-term financial assets		–	–	–	15,000	15,000
Trade and other receivables		–	–	–	650,214	650,214
Contract assets		–	–	–	145,931	145,931
Long-term financial instruments		–	–	–	8	8
		–	–	–	1,187,482	1,187,482
<b>Total financial assets</b>	₩	1,205	3,066	24	1,187,482	1,191,777
<b>Liabilities carried at fair value:</b>						
Derivative liabilities	₩	419	–	–	–	419
<b>Liabilities not carried at fair value:</b>						
borrowings		–	–	–	407,402	407,402
Debentures		–	–	–	499,255	499,255
Trade and other payables		–	–	–	346,092	346,092
		–	–	–	1,252,749	1,252,749
<b>Total financial liabilities</b>	₩	419	–	–	1,252,749	1,253,168

(ii) Interest rates used for determining fair value

The interest rates used to discount estimated cash flows, when applicable, are based on the government yield curve at the reporting date plus an adequate credit spread. The interest rates applied as of December 31, 2019 and 2018 are as follows:

(In percentage)

		2019	2018
Derivatives	%	4.567	4.677

(iii) Fair value hierarchy

The different levels have been defined as follows:

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

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to Consolidated financial Statements  
For the years ended December 31, 2019 and 2018

### 33. Risk of Financial Instruments, Continued

(5) Fair values, continued

(iii) Fair value hierarchy, continued

The financial instruments carried at fair value, by fair value hierarchy as of December 31, 2019 and 2018 are as follows:

(In millions of won)

		Level 1	Level 2	Level 3	Total
<b>2019:</b>					
Derivative assets	₩	-	7,587	-	7,587
Financial assets measured at FVTPL		-	139,680	2,977	142,657
Financial assets measured at FVOCI		13	-	-	13
Derivative liabilities		-	872	-	872
<b>2018:</b>					
Derivative assets	₩	-	1,205	-	1,205
Financial assets measured at FVTPL		-	-	3,066	3,066
Financial assets measured at FVOCI		24	-	-	24
Derivative liabilities		-	419	-	419

The fair value of financial instruments traded in active markets is based on quoted market prices at the end of reporting period. A market is regarded as active if quoted prices are readily and regularly available from an exchange, dealer, broker, industry group, pricing service, or regulatory agency, and those prices represent actual and regularly occurring market transactions on an arm's length basis. The quoted market price used for financial assets held by the Group is the current bid price. These instruments are included in level 1. Instruments included in level 1 are comprised primarily of listed equity investments.

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 fairly value an instrument are observable, the instrument is included in level 2.

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

Specific valuation techniques used to value financial instruments include:

- Quoted market prices or dealer quotes for similar instruments.
- The fair value of forward foreign exchange contracts is determined using forward exchange rates at the end of reporting period, with the resulting value discounted back to present value.
- Other techniques, such as discounted cash flow analysis, are used to determine fair value for the remaining financial instruments.

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to Consolidated financial Statements  
For the years ended December 31, 2019 and 2018

### 33. Risk of Financial Instruments, Continued

(5) Fair values, continued

(iv) Valuation techniques and input variables of Level 2 fair values

The valuation techniques and input variables used in measuring Level 2 fair values as of December 31, 2019 and 2018 are as follows:

(In millions of won)

Derivatives	2019	2018	Valuation techniques	Input variables
<b>Short-term financial assets</b>				
Financial assets measured at FVTPL(current)	₩ 139,680	–	Cash flow discount model	Interest rate and others
<b>Derivative</b>				
Derivative assets (Foreign currency forward)	₩ 7,587	1,205	Cash flow discount model	Currency forward price, discount rate and others
Derivative liabilities (interest rate swap)	₩ 872	419	Cash flow discount model	Interest rate and others

(v) Level 3 fair values

(a) Changes in financial asset classified as Level 3 in the fair value hierarchy of assets and liabilities measured at fair value as of December 31, 2019 and 2018 are as follows:

(In millions of won)

	Financial assets measured at FVTPL	
	2019	2018
<b>Financial assets at FVTPL:</b>		
Beginning balance	₩ 3,066	–
Acquisition	36	1,010
Disposition	(8)	–
Transfer to Level 3 fair values	–	1,788
Profit and loss included in net income	(117)	268
Ending balance	₩ 2,977	3,066

(b) The valuation technique and inputs of assets and liabilities classified as level 3 in the fair value hierarchy of assets and liabilities measured at fair value as of December 31, 2019 and 2018 are as follows:

(In millions of won)

	2019				
	Amount	Valuation technique	Input valuables	Significant unobservable inputs	Range of significant unobservable inputs
<b>Financial assets measured at FVTPL:</b>					
Construction Guarantee Cooperation	₩ 356	Market comparison on technique	PBR	PBR	0.51
Machinery Financial Cooperation	2,489	Net asset value method	–	–	–
Others(*)	132	–	–	–	–
	₩ 2,977				

(\*)The carrying amount was used as there would be no significant difference between the carrying amount and the fair value.

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to Consolidated financial Statements  
For the years ended December 31, 2019 and 2018

### 33. Risk of Financial Instruments, Continued

(5) Fair values, continued

(v) Level 3 fair values, continued

(In millions of won)

		2018			
	Amount	Valuation technique	Input valuables	Significant unobservable inputs	Range of significant unobservable inputs
<b>Financial assets measured at FVTPL:</b>					
Construction Guarantee Cooperation	₩ 521	Market comparison on technique	PBR	PBR	0.76
Machinery Financial Cooperation	2,413	Net asset value method	—	—	—
Others(*)	132	—	—	—	—
	<u>₩ 3,066</u>				

(\*) The carrying amount was used as there would be no significant difference between the carrying amount and the fair value.

(c) The effect of changes in unobservable inputs as of December 31, 2019 and 2018 on the fair value measurement of financial assets and financial liabilities is as follows:

(In millions of won)

		2019			
				Variation effects of fair value	
				Net income	
	Unobservable inputs	Effects of unobservable inputs on the measurement of fair value	Calculating the effects of variation	Favorable change	Unfavorable change
<b>Financial assets measured at FVTPL:</b>					
Construction Guarantee Cooperation	PBR	Fair value change as increase(decrease) of price- to-book ratio	Fair value change as increase(decrease) of 1P (price-to-book ratio)	₩ 7	(7)

(In millions of won)

		2018			
				Variation effects of fair value	
				Net income	
	Unobservable inputs	Effects of unobservable inputs on the measurement of fair value	Calculating the effects of variation	Favorable change	Unfavorable change
<b>Financial assets measured at FVTPL:</b>					
Construction Guarantee Cooperation	PBR	Fair value change as increase(decrease) of price- to-book ratio	Fair value change as increase(decrease) of 1P (price-to-book ratio)	₩ 7	(7)

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to Consolidated financial Statements  
For the years ended December 31, 2019 and 2018

**33. Risk of Financial Instruments, Continued**

- (6) Offsetting of financial assets and financial liabilities

The details of financial assets or financial liabilities netting arrangements as of December 31, 2019 and 2018 are as follows:

	2019				
	Total recognized financial assets	Total recognized financial assets that will be setoff	Net financial assets presented in the Statement of Financial Position	Related amount: won't be setoff in the Statement of Financial Position	
				Financial instruments	Received cash security
<b>Financial assets</b>					<b>Net amount</b>
Trade and other receivables	₩ 14,212	(9,487)	4,725	-	4,725
<b>Financial liabilities</b>					
Trade and other payables	23,727	(9,487)	14,240	-	14,240
<i>(In millions of won)</i>					
	2018				
	Total recognized financial assets	Total recognized financial assets that will be setoff	Net financial assets presented in the Statement of Financial Position	Related amount: won't be setoff in the Statement of Financial Position	
				Financial instruments	Received cash security
<b>Financial assets</b>					<b>Net amount</b>
Trade and other receivables	₩ 5,853	(1,941)	3,912	-	3,912
<b>Financial liabilities</b>					
Trade and other payables	9,820	(1,941)	7,879	-	7,879

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to Consolidated financial Statements  
For the years ended December 31, 2019 and 2018.

### 34. Commitments and Contingencies

- (1) As of December 31, 2019, the Group has entered into general loan agreements with the Korea Development Bank and SC Bank and others amounting to ~~₩~~230,000 million, USD 141,000 thousand and CNY 100,000 thousand respectively.
- (2) As of December 31, 2019, the Group has entered into a loan agreement of accounts receivable collateral with KEB Hana Bank for a total limit of ~~₩~~30,000 million.
- (3) As of December 31, 2019, the Group has entered into promissory note issuance agreements amounting to CNY 80,000 thousand from financial institutions.
- (4) In connection with the Group's contract performance guarantees, the Group has been provided with guarantees amounting to ~~₩~~457,048 million, USD 446,838 thousand and CNY 230,000 thousand by various banking facilities respectively.
- (5) As of December 31, 2019, the Group has entered into trade and credit limit agreements amounting to ~~₩~~3,500 million and USD 90,000 thousand from financial institutions.
- (6) As of December 31, 2019, the Group has granted a debt guarantee amounting to ~~₩~~44,973 million for the loan for treasury stock of employee stock ownership association based on the board of directors' decision on October 31, 2017. The amount of debt is ~~₩~~37,477 million at the time of guarantee and the amount of debt guarantee is based on 120% of the debt. Due to the repayment of debt from certain employees' stock ownership association, the remaining balance of debt is ~~₩~~20,376 million and debt guarantee is ~~₩~~32,683 million as of December 31, 2019.
- (7) As of December 31, 2019, the Group has granted a debt guarantee amounting to ~~₩~~18,248 million for the loan for treasury stock of employee stock ownership association based on the board of directors' decision on September 16, 2019. The amount of debt is ~~₩~~15,207 million at the time of guarantee and the amount of debt guarantee is based on 120% of the debt. Due to the repayment of debt from certain employees' stock ownership association, the remaining balance of debt is ~~₩~~14,382 million as of December 31, 2019.
- (8) As of December 31, 2019, the Group provides a joint guarantee for the interest payment of ~~₩~~9,900 million in loans made by the fund management agency for the business start-up event.
- (9) The Group was incorporated on April 1, 2017 through the spin-off the Hyundai Heavy Industries Co., Ltd., And in accordance with Article 530, paragraph 9.1 of the Commercial law, the Group is jointly liable for the liability of Hyundai Heavy Industries Co., Ltd. before the spin-off.



HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to Consolidated financial Statements  
For the years ended December 31, 2019 and 2018.

### 35. Litigations

(1) Ordinary wage lawsuit (Supreme Court 2016da7975)

Date of filing	December 28, 2012.
Litigant	Plaintiff: Kyung-Hwan Jeong and nine others, Defendant: Korea Shipbuilding & Offshore Engineering Co., Ltd.(formerly, Hyundai Heavy Industries Co., Ltd.)
Litigation content	Plaintiff filed a suit claiming that total bonuses should be included in the ordinary wage category and recalculated.
Litigation value	₩630 million
The progress of litigation	Defendant partially lost the first trial (Ulsan District Court 2012 gahap 10108) on February 12, 2015. Defendant won the second trial (Busan High Court 2015 na 1888) on January 13, 2016. Plaintiff filled appeals and the third trial is in progress (Supreme Court 2016 da 7975) on January 28, 2016.
Future litigation schedule and countermeasures	Currently, the 3rd trial at the supreme court is in progress and the Supreme Court examines a principal law.
The effect on the Group as a result of litigation	If Korea Shipbuilding & Offshore Engineering Co., Ltd.(formerly, Hyundai Heavy Industries Co., Ltd.) loses the case, it is expected to make an additional loss from compensation. Currently, the impact on the Company's financial statements, if any, cannot be reliably estimated.

(2) Ordinary wage lawsuits (Busan district court 2018na54524)

Date of filing	July 9, 2015
Litigant	Plaintiff: Dong-guk, Kim and 12,514 others, Defendant: Korea Shipbuilding & Offshore Engineering Co., Ltd.(formerly, Hyundai Heavy Industries Co., Ltd.)
Litigation content	Plaintiff filed a suit claiming that total bonuses should be included in the ordinary wage category and recalculated
Litigation value	₩1,250 million
The progress of litigation	Filed a lawsuit on July 9, 2015 Defendant won the first trials (Ulsan district court 2015 gahapna 2351) on May 30, 2018 Plaintiff filled appeals and the second trial is in progress (Busan district Court 2018 na 54524) on July 4, 2018 First date of a sentence on November 7, 2018
Future litigation schedule and countermeasures	Currently, appeal process is in progress.
The effect on the Group as a result of litigation	If Korea Shipbuilding & Offshore Engineering Co., Ltd.(formerly, Hyundai Heavy Industries Co., Ltd.) loses the case, it is expected to make an additional loss from compensation. Currently, the impact on the Group's financial statements, if any, cannot be reliably estimated.

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to Consolidated financial Statements  
For the years ended December 31, 2019 and 2018.

### 35. Litigations, Continued

- (3) Claim for defect in KWI/IWI wind-power turbine product (American Arbitration Association/International Centre for dispute Resolution)

Date of filing	April 11, 2017
Litigant	Claimant: Kingston Wind, Ipswich Wind, D&C Construction Defendant: Korea Shipbuilding & Offshore Engineering Co., Ltd.(formerly, Hyundai Heavy Industries Co., Ltd.), Hyundai Corporation
Litigation content	Plaintiff filed an arbitration claiming that Hyundai Heavy Industries Co., Ltd. has made a false representation of the product and has willfully breached the express warranty.
Litigation value	USD 79 million
The progress of litigation	Confirmation of ICDR arbitration application on April 11, 2017. Response submitted on June 2, 2017. Settlement discussion on October 13, 2017. Appointed the Arbitration Tribunal (appointed a chairman) on January 29, 2018 Submitted documents for evidence on July 19, 2018. Plaintiff submitted statement of claim (value of claim USD 424 million → USD 62 million) on October 17, 2018. Plaintiff's submitted an additional claim (value of claim USD 62 million → USD 79 million) on January 15, 2019. Submit our Statement of Defense on February 1, 2019. Submit our Supplemental statement of Defense on March 28, 2019. Obtain a relative's Statement of Reply on June 11, 2019. Submit our Rejoinder on September 6, 2019. Send the settlement proposal of USD 5.5Million to the other company September 19, 2019. Intermediation Hearings(In the first week, both companies have a statement and a factual examination, in the second week of expert examination) on November 1, 2019.
Future litigation schedule and countermeasures	Procedures for investigation of evidence are scheduled.
The effect on the Group as a result of litigation	If Korea Shipbuilding & Offshore Engineering Co., Ltd.(formerly, Hyundai Heavy Industries Co., Ltd. loses the case, it is expected to pay an additional compensation for damages. Currently, the impact on the Group's financial statements, if any, cannot be reasonably estimated. However, since the wind power business has been transferred to run by Hyundai Electric & Energy Systems Co., Ltd., the Group will settle any expenses resulting from the arbitration.

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to Consolidated financial Statements  
For the years ended December 31, 2019 and 2018.

### 35. Litigations, Continued

- (4) Claim for damages of PT Hanbit Unit 2 (Seoul Central District Court, 2017 gahap 516266)

Date of filing	March 9, 2017.
Litigant	Plaintiff: Korea Hydro & Nuclear Power Co., Ltd. Defendant: Hyundai Electric & Energy Systems Co., Ltd.
Litigation content	Damage of PT (instrument transformer) Hanbit unit 2, which the subsidiary supplied to KHNP and installed, caused power supply to stop. Plaintiff filed a suit against the subsidiary claiming compensation amounting to <del>₩</del> 300 million (total <del>₩</del> 29.2 billion of part claim) for the loss of power sales.
Litigation value	<del>₩</del> 300 million (partial value of claim amounting to <del>₩</del> 33.1 billion)
The progress of litigation	First trial the Company all win on June 26, 2019 Appeals for appeal the Company all win on November 14, 2019 Korea Hydro & Nuclear Power Co., Ltd., submission of an appeal on December 6, 2019
Future litigation schedule and countermeasures	Procedures for investigation of evidence are scheduled.
The effect on the Group as a result of litigation	If Hyundai Electric & Energy Systems Co., Ltd. loses the case, it is expected to make an additional loss from Compensation. Currently, the impact on the Company's financial statements, if any, cannot be reliably estimated.

- (5) The Transformer's antidumping

- (i) The Transformer's second annual antidumping appeal (US Court of International Trade)

Date of filing	March 2016.
Litigant	Plaintiff: ABB, INC., Defendant: United States
Litigation content	In March 2016, ABB, INC., appealed the US Department of Commerce's antidumping duties determination rate of 4.07% in the second annual review to the United States Court of International Trade (CIT).
The progress of litigation	Litigation process is in progress.
Future litigation schedule and countermeasures	US International Trade Court (CIT) final judgment expected in the first half of 2020.
The effect on the Group as a result of litigation	The Group will reflect impact of CIT Final judgment on consolidated financial statements. Currently, the impact on the Group's financial statements, if any, cannot be reliably estimated.

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to Consolidated financial Statements  
For the years ended December 31, 2019 and 2018.

### 35. Litigations, Continued

(5) The Transformer's antidumping, continued

(ii) The Transformer's third annual antidumping appeal (US Federal Circuit Court of Appeals)

Date of filing	March 30, 2017.
Litigant	Plaintiff: Korea Shipbuilding & Offshore Engineering Co., Ltd.(formerly, Hyundai Heavy Industries Co., Ltd.) Defendant: United States
Litigation content	Before spin-off, March 14, 2017, Korea Shipbuilding & Offshore Engineering Co., Ltd.(formerly, Hyundai Heavy Industries Co., Ltd.) appealed the US Department of Commerce's antidumping duties determination rate of 60.81% about transformer that electro electronic segment of Hyundai Heavy INDUSTRIES Co., Ltd. exported in the second annual review to the United States Court of International Trade (CIT).
The progress of litigation	The International Trade Court decided that the U.S. Department of Commerce would accept a tariff rate of 60.81% on August 2, 2019. Appeals to the Federal Circuit Court of Appeals (CAFC) on October 1, 2019.
Future litigation schedule and countermeasures	Submission of objections and oral representation according to litigation procedures.
The effect on the Group as a result of litigation	Since the electric and electronic business is under the jurisdiction of the Group before the division, the Group have completed the additional payment estimate (USD 27,764 thousand) in our financial statements, excluding the deposit due according to the results of the judgment (60.81%) by the U.S. International Trade Court (CIT).

(iii) The Transformer's fourth annual antidumping appeal (US Court of International Trade)

Date of filing	March 30, 2018.
Litigant	Plaintiff: Korea Shipbuilding & Offshore Engineering Co., Ltd.(formerly, Hyundai Heavy Industries Co., Ltd.) Defendant: United States
Litigation content	March 12, 2018, Korea Shipbuilding & Offshore Engineering Co., Ltd.(formerly, Hyundai Heavy Industries Co., Ltd.) appealed the US Department of Commerce's antidumping duties determination rate of 60.81% about transformer that electro electronic segment of Hyundai Heavy INDUSTRIES Co., Ltd. exported in the second annual review to the United States Court of International Trade (CIT).
The progress of litigation	Litigation process is in progress.
Future litigation schedule and countermeasures	Procedures for investigation of evidence are scheduled.
The effect on the Group as a result of litigation	The Group will reflect impact of CIT Final judgment on consolidated financial statements. Currently, the impact on the Group's financial statements, if any, expected to be maximum USD 55,931 thousand but cannot be reliably estimated.

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to Consolidated financial Statements  
For the years ended December 31, 2019 and 2018.

**35. Litigations, Continued**

(5) The Transformer's antidumping, continued

(iv) The Transformer's fourth annual antidumping appeal (US Court of International Trade)

Date of filing	May 8, 2019.
Litigant	Plaintiff: Korea Shipbuilding & Offshore Engineering Co., Ltd.(formerly, Hyundai Heavy Industries Co., Ltd.,) Defendant: United States
Litigation content	April 4, 2019, Korea Shipbuilding & Offshore Engineering Co., Ltd.(formerly, Hyundai Heavy Industries Co., Ltd.) appealed the US Department of Commerce's antidumping duties determination rate of 60.81% about transformer that electro electronic segment of Hyundai Heavy INDUSTRIES Co., Ltd. exported in the second annual review to the United States Court of International Trade (CIT).
The progress of litigation	Litigation process is in progress.
Future litigation schedule and countermeasures	Procedures for investigation of evidence are scheduled.
The effect on the Group as a result of litigation	The Group will reflect impact of CIT Final judgment on consolidated financial statements. Currently, the impact on the Group's financial statements, if any, expected to be maximum USD 37,534 thousand but cannot be reliably estimated.

(6) In addition to the cases mentioned above, the Group has filed various lawsuits pending. Currently, the impact on the Group's consolidated financial statements, if any, cannot be reliably estimated. However, management of the Group believes that the ultimate outcomes will not have a significant impact on the Group's consolidated financial statements.

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to Consolidated financial Statements  
For the years ended December 31, 2019 and 2018.

### 36. Related Parties

(1) As of December 31, 2019, related parties with the Group are as follows:

<b>The parent company</b>	<b>Main business</b>
Hyundai Heavy Industries Holdings Co., Ltd.	Manufacturing of robot and Holding company
<b>Others (large-scale corporate conglomerate)</b>	<b>Main business</b>
Korea Shipbuilding & Offshore Engineering Co., Ltd.(formerly, Hyundai Heavy Industries Co., Ltd.)(* )	Non-financial holding company
Hyundai Heavy Industries Co., Ltd.(a new split corporation)(*)	Shipbuilding
Hyundai Construction Equipment Co., Ltd.	Sale and manufacture of machinery equipment for construction
Hyundai Oilbank Co., Ltd.	Manufacturing of petroleum products Oil storage business
Hyundai Oil Terminal Co., Ltd.	Oil storage business
Hyundai and Shell Base Oil Co., Ltd.	Manufacturing of base oil
Hyundai Chemical Co., Ltd.	Crude oil refining business
MS Dandy Ltd.	Ship rental service
Grande Ltd.	Ship rental service
Hyundai OCI Co., Ltd.	Manufacturing of other basic chemicals
Hyundai Global Service	Engineering services
Hyundai Samho Heavy Industries Co., Ltd.	Shipbuilding
Hyundai Mipo Dockyard Co., Ltd.	Shipbuilding
KOMAS Corporation	Shipping
Hyundai E&T Co., Ltd.	Other engineering services
Ulsan Hyundai Football Club Co., Ltd.	Football club
Hyundai Heavy Industries Mos Co., Ltd.	Maintenance services of Business facilities
Hyundai Energy Solutions Co.,Ltd..(formerly, Hyundai Heavy Industries Green Energy Co., Ltd.)	Solar photovoltaic and renewable energy
Hyundai Heavy Industries Power Systems Co., Ltd..	Power generation / industrial boiler sales
Hyundai (Jiangsu) Construction Machinery Co., Ltd.	Sale and manufacture of machinery equipment for construction
Beijing Hyundai Jingcheng Construction Machinery Co., Ltd.	Sale and manufacture of machinery equipment for construction
HHI China Investment Co., Ltd.	Holding company
Other Affiliates	Others

(\*) Korea Shipbuilding & Offshore Engineering Co., Ltd.(formerly, Hyundai Heavy Industries Co., Ltd.) was divided into Korea Shipbuilding & Offshore Engineering Co., Ltd.(split-subsidary corporation) and Hyundai Heavy Industries Co., Ltd.(a new split corporation) as of June 1, 2019.

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to Consolidated financial Statements  
For the years ended December 31, 2019 and 2018.

**36. Related Parties, Continued**

(2) Transactions with related parties

(i) Significant transactions for the year ended December 31, 2019 and 2018 with related parties are as follows:

(In millions of won)

	2019			
	Sales and others		Purchase and others	
	Sales(*1)	Other(*2)	Purchase of Raw material	Purchase of others(*3)
<b>The parent company</b>				
Hyundai Heavy Industries Holdings Co., Ltd. ₩	530	–	–	38
<b>Others related parties</b>				
Korea Shipbuilding & Offshore Engineering Co., Ltd.(formerly, Hyundai Heavy Industries Co., Ltd.)	33,398	–	6,036	10,948
Hyundai Heavy Industries Co., Ltd. (a new split corporation)	35,370	18,934	6,941	5,967
Hyundai Construction Equipment Co., Ltd.	449	3,712	–	543
Hyundai Samho Heavy Industries Co., Ltd.	34,358	–	–	–
Hyundai Mipo Dockyard Co., Ltd.	30,214	–	–	–
Hyundai E&T Co., Ltd.	414	–	7,613	–
Hyundai Oilbank Co., Ltd.	5,396	56,017	2,236	436
Hyundai Heavy Industries Turbomachinery Co., Ltd.(*4)	5,971	–	–	–
Hyundai Heavy Industries Mos Co., Ltd.	16	–	4,417	41
Hyundai Global Service	7,954	–	–	1,831
Hyundai Heavy Industries Power Systems Co., Ltd	5,278	–	–	–
HHI China Investment Co., Ltd.	33	–	–	1,485
Others	10,129	9,397	–	465
	<u>168,980</u>	<u>88,060</u>	<u>27,243</u>	<u>21,716</u>
₩	<u>169,510</u>	<u>88,060</u>	<u>27,243</u>	<u>21,754</u>

(\*1) Including interest income.

(\*2) It consists of the ship control parts sold to Hyundai Heavy Industries Co., Ltd.(a new split corporation) and transaction amount such as property, plant and equipment between related parties is included.

(\*3) Transaction amount of Property, Plant and Equipment between related parties is included.

(\*4) Due to the sale of the shares of the parent company, it was excluded from the large-scale corporate conglomerate on July 24, 2019, and it includes the transaction history until it was excluded.

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to Consolidated financial Statements  
For the years ended December 31, 2019 and 2018.

### 36. Related Parties, Continued

(2) Transactions with related parties, continued

(i) Significant transactions for the year ended December 31, 2019 and 2018 with related parties are as follows, continued:

(In millions of won)

(In millions of won)

		2018		
		Sales and other	Purchases and other	
			Purchase of raw	
		Sales(*1)	materials	Purchase of others
<b>The parent Group</b>				
Hyundai Heavy Industries Holdings Co., Ltd	₩	805	980	—
<b>Others related parties</b>				
Hyundai Heavy Industries Co., Ltd.		102,585	19,012	15,343
Hyundai Construction Equipment Co., Ltd.		1,291	—	332
Hyundai Samho Heavy Industries Co., Ltd.		22,803	—	—
Hyundai Mipo Dockyard Co., Ltd.		26,885	—	17
Hyundai E&T Co., Ltd.		443	8,124	—
Hyundai Oilbank Co., Ltd.		6,115	2,154	119
Ulsan Hyundai Football Club Co., Ltd.		—	—	1,500
Hyundai Heavy Industries Turbomachinery Co., Ltd.		6,707	—	—
Hyundai Heavy Industries Mos Co., Ltd.		6	5,636	166
Hyundai Global Service		1,876	585	2,826
HHI China Investment Co., Ltd.		5	17	2,747
Hyundai Power Transformers USA Inc.(*2)		4,712	—	103
Others		3,588	1,522	618
		177,016	37,050	23,771
₩		177,821	38,030	23,771

(\*1) Including interest income.

(\*2) Including transactions up to the date of reclassification, April 1, 2018.



HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to Consolidated financial Statements  
For the years ended December 31, 2019 and 2018.

**36. Related Parties, Continued**

(2) Transactions with related parties, continued

(ii) Outstanding balances as of December 31, 2019 and 2018 with related parties are as follows:

(In millions of won)

	2019			
	Trade receivables and other receivables		Trade payables and other payables	
	Trade receivables	Other receivables	Trade payables	Other payables
<b>The parent company</b>				
Hyundai Heavy Industries Holdings Co., Ltd. ₩	—	—	—	73
<b>Other related companies:</b>				
Korea Shipbuilding & Offshore Engineering Co., Ltd.(formerly, Hyundai Heavy Industries Co., Ltd.)(* )	1,985	—	3,937	145
Hyundai Heavy Industries Co., Ltd. (a new split corporation) (*)	21,512	—	4,977	583
Hyundai Construction Equipment Co., Ltd.	17	—	588	294
Hyundai Samho Heavy Industries Co., Ltd.	15,546	—	—	—
Hyundai Mipo Dockyard Co., Ltd.	7,366	—	—	—
Hyundai E&T Co., Ltd.	—	—	607	—
Hyundai Oilbank Co., Ltd.	1,390	—	392	—
Hyundai Heavy Industries Mos Co., Ltd.	1	—	717	—
Hyundai Global Service	3,978	—	187	—
Hyundai Heavy Industries Power Systems Co., Ltd	86	—	—	22
HHI China Investment Co., Ltd.	1,750	—	183	—
Others	1,042	—	52	3,598
	54,673	—	11,640	4,642
₩	54,673	—	11,640	4,715

(\*) The amount of bonds and debts to Hyundai Heavy Industries Co., Ltd., a new split corporation, and Korea Shipbuilding & Offshore Engineering Co., Ltd., which is a split-subsidary corporation, includes the amount distributed during the physical division of Korea Shipbuilding & Offshore Engineering Co., Ltd. (formerly Hyundai Heavy Industries Co., Ltd.).

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to Consolidated financial Statements  
For the years ended December 31, 2019 and 2018.

### 36. Related Parties, Continued

(2) Transactions with related parties, continued

(ii) Outstanding balances as of December 31, 2019 and 2018 with related parties are as follows, continued:

(In millions of won)

	2018			
	Trade receivables and other receivables		Trade payables and other payables	
	Trade receivables	Other receivables	Trade payables	Other payables
<b>The parent Group</b>				
Hyundai Heavy Industries Holdings Co., Ltd. ₩	–	–	994	–
<b>Other related companies:</b>				
Hyundai Heavy Industries Co., Ltd.	27,601	1,406	6,251	–
Hyundai Construction Equipment Co., Ltd.	26	–	248	–
Hyundai Samho Heavy Industries Co., Ltd.	14,893	–	–	–
Hyundai Mipo Dockyard Co., Ltd.	7,135	–	–	–
Hyundai E&T Co., Ltd.	–	–	669	–
Hyundai Oilbank Co., Ltd.	3,176	–	321	–
Hyundai Heavy Industries Turbomachinery Co., Ltd.	5,218	–	–	–
Hyundai Heavy Industries Mos Co., Ltd.	1	–	812	–
Hyundai Global Service	1,012	–	469	–
HHI China Investment Co., Ltd.	883	–	2,228	–
Others	2,194	–	4,457	–
	62,139	1,406	15,455	–
₩	62,139	1,406	16,449	–

- (3) The Group was provided guarantee of CNY 310 million from related parties, HHI China Investment Co., Ltd., in relation to payment and performance as of December 31, 2019.
- (4) There is no collateral provided to related parties as of December 31, 2019.
- (5) Compensation for key management of the Group for the year ended December 31, 2019 and 2018 are as follows:

(In millions of won)

	2019	2018
Short-term employee benefits ₩	2,350	2,511
Post-employment benefits	147	168
₩	2,497	2,679

Key management is defined as the directors (Including unregistered directors) and internal auditors who have important roles and responsibilities involving the planning, operation and control of the Group.

(6) Other

In addition to the above transaction, as of December 31, 2019, the Group has granted a debt guarantee for the loan for treasury stock of employee stock ownership association based on the board of directors' decision. Details of the guarantee could be found in Note 34.

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to Consolidated financial Statements  
For the years ended December 31, 2019 and 2018.

**37. Non-current asset held for sale**

In order to improve management efficiency and improve the financial structure due to business reorganization, the Group have transferred the ship control parts and sale of all Hyundai Heavy Industries Co. Bulgaria was decided by the resolutions of the board of directors on June 20 and November 29, 2019, respectively. As a result, the assets and liabilities held in the ship control business and Hyundai Heavy Industries Co. Bulgaria were replaced with non-current assets and liabilities held for sale. The composition of the non-current assets and liabilities held for sale is as follows, and the non-current assets and liabilities held for sale in the ship control business have been sold during the current year

(1) Ship Control Business

(In millions of won)

		<b>2019</b>
		<b>Book value</b>
<b>Non-current assets held for sale</b>		
Trade and other receivables	₩	13,155
Contract Assets		28
Inventories		13,537
Provision for inventory valuation		(467)
Other Current Assets		191
Property, Plant and Equipment		77
		<u>26,521</u>
<b>Non-current liabilities held for sale</b>		
Trade and other payables		4,410
Contract liabilities		156
Provision		1,104
Defined benefit obligations		715
	₩	<u>6,385</u>

(2) Hyundai Heavy Industries Co. Bulgaria

(In millions of won)

		<b>2019</b>
		<b>Book value</b>
<b>Non-current assets held for sale</b>		
Cash and cash equivalents	₩	3,234
Trade and other receivables		9,645
Inventories		13,098
Property, Plant and Equipment		5,044
Others		2,608
		<u>33,629</u>
<b>Non-current liabilities held for sale</b>		
Trade and other payables		2,591
Contract liabilities		2,934
Provision		390
Others		10
	₩	<u>5,925</u>

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to Consolidated financial Statements  
For the years ended December 31, 2019 and 2018.

**38. Subsequent Events**

- (1) Sale of Investments in Subsidiaries  
On November 29, 2019, the board of directors decided to sell all of our " Hyundai Heavy Industries Co. Bulgaria " shares, On January 13, 2020, a sale contract was signed. The sale price is USD 24,500,000.
- (2) New establishment of subsidiaries  
On February 21, 2020, through the board of directors, the Group decided to establish a U.S. corporation("Hyundai Electirc America Corporation") for the purpose of operating in the American market and invested USD 2,000,000 in March 2020.

## **ATTACHMENT 4**

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HD Hyundai Financial Statements 2021

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
AND SUBSIDIARIES

Consolidated Financial Statements

**December 31, 2021 and 2020**

(With Independent Auditors' Report Thereon)

## Contents

	<b>Page</b>
<b>Independent Auditors' Report</b>	2
Consolidated Statements of Financial Position	5
Consolidated Statements of Comprehensive Loss	7
Consolidated Statements of Changes in Equity	8
Consolidated Statements of Cash Flows	10
Notes to the Consolidated Financial Statements	11

## Independent Auditors' Report

Based on a report originally issued in Korean

To the Shareholders and Board of Directors of  
Hyundai Electric & Energy Systems Co., Ltd.

### Opinion

We have audited the consolidated financial statements of Hyundai Electric & Energy Systems Co., Ltd. and its subsidiaries (the "Group"), which comprise the consolidated statements of financial position as of December 31, 2021 and 2020, the consolidated statements of 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 consolidated financial statements present fairly, in all material respects, the consolidated financial position of the Group as of December 31, 2021 and 2020, and its consolidated financial performance and its consolidated cash flows for the years then ended in accordance with Korean International Finance Reporting Standards ("K-IFRS").

### Basis for Opinion

We conducted our audits in accordance with Korean Standards on Auditing ("KSAs"). Our responsibilities under those standards are further described in the *Auditors' Responsibilities for the Audit of the Consolidated Financial Statements* section of our report. We are independent of the Group in accordance with the ethical requirements that are relevant to our audit of the consolidated financial statements in 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.

### Key Audit Matter

Key audit matter is that matter that, in our professional judgment, was of most significance in our audit of the consolidated financial statements as of and for the year ended December 31, 2021. This matter was addressed in the context of our audit of the consolidated financial statements as a whole, and in forming our opinion thereon, and we do not provide a separate opinion on this matter.

#### Assessment of recoverability of deferred tax assets

As described in Note 4(24) to the consolidated financial statements, the Group recognizes a deferred tax assets for unused tax losses, tax credit carryforwards and deductible temporary differences, to the extent that it is probable that the temporary difference will reverse in the foreseeable future and taxable profit will be available against which the temporary difference can be utilized. The carrying amount of a deferred tax assets is reviewed at the end of each reporting period and reduces the carrying amount to the extent that it is no longer probable that sufficient taxable profit will be available to allow the benefit of part or all of that deferred tax assets to be utilized.

The Group's tax losses are carried forward due to accumulated operating losses from worsening past business conditions, and the proportion of deferred tax assets (₩218.6 billion) to total assets is material in the consolidated financial statements. Deferred tax assets are impacted by the probability of future taxable profit that can be used for deductible temporary difference, and future taxable profit is impacted by the possibility of realization of the Group's business plan. The Group's business plan is impacted by raw material prices, exchange rates, and energy policies of major countries, and there are significant uncertainties in the Group's business environment due to recent fluctuations in international raw material prices and exchange rates and crisis of the international political situation. Considering the reasons described above, we identified the assessment of recoverability of deferred tax assets as a key audit matter.





The primary procedures we performed to address this key audit matter include the following.

- Testing the effectiveness of design and operation of management review control related to the assessment of deferred tax assets.
- Assessing the competency and independence of external experts engaged by the Group
- Engaging our valuation specialists to assist us in assessing the reliability of business plan and evaluating key assumptions used in estimating future taxable profit.
- Comparing the financial data used in estimating future taxable profit and management mid-long term business plans.
- Performing retrospective review of the business plan estimated in the prior year with the current year's performance.

#### ***Other matter***

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

#### ***Responsibilities of Management and Those Charged with Governance for the consolidated financial Statements***

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

In preparing the financial statements, management is responsible for assessing the Group's ability to continue as going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless management either intends to liquidate the Group or the cease operations, or has no realistic alternative but to do so.

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

#### ***Auditors' Responsibility for the Audit of the Consolidated Financial Statements***

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

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

- Identify and assess the risks of material misstatement of the consolidated financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations or the override of internal control.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Group's internal control.
- Evaluate the appropriateness of accounting policies used in the preparation of the consolidated financial statements and the reasonableness of accounting estimates and related disclosures made by management.



- Conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Group's ability to continue as a going concern. If we conclude that a material uncertainty exists, then we are required to draw attention in our auditors' report to the related disclosures in the consolidated financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditors' report. However, future events or conditions may cause the Group to cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the consolidated financial statements, including the disclosures, and whether the consolidated financial statements represent the underlying transactions and events in a manner that achieves fair presentation.
- Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the Group to express an opinion on the consolidated financial statements. We are responsible for the direction, supervision and performance of the group audit. We remain solely responsible for our audit opinion.

We communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

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 consolidated 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 audit resulting in this independent auditors' report is Won-Pyo Jeon.

*KPMG Samjong Accounting Corp.*

Seoul, Korea  
March 11, 2022

This report is effective as of March 11, 2022, the audit report date. Certain subsequent events or circumstances, which may occur between the audit report date and the time of reading this report, could have a material impact on the accompanying consolidated financial statements and notes thereto. Accordingly, the readers of the audit report should understand that the above audit report has not been updated to reflect the impact of such subsequent events or circumstances, if any.

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Consolidated Statements of Financial Position  
As of December 31, 2021 and 2020

<i>(In won)</i>	<i>Note</i>	<b>2021</b>	<b>2020</b>
<b>Assets</b>			
Cash and cash equivalents	6,8,32,33	₩ 354,808,620,188	524,256,768,315
Short-term financial assets	7,32,33	21,057,325,427	10,511,095,109
Trade and other receivables	9,23,32,33	456,484,450,183	385,082,327,598
Contract assets	9,23,32,33	190,700,008,599	173,161,241,164
Inventories	10	357,079,097,027	358,593,899,339
Derivative assets	18,32,33	754,545,887	4,715,906,766
Other current assets	11	17,453,874,405	18,016,367,303
Current tax assets	28	-	37,320,590
<b>Total Current assets</b>		<u>1,398,337,921,716</u>	<u>1,474,374,926,184</u>
Long-term financial assets	7,32,33	6,169,593,277	6,664,852,802
Long-term trade and other receivables	9,32,33	3,473,472,227	3,405,356,217
Property, plant and equipment	12	516,254,305,308	510,469,690,559
Right-of-use assets	29	7,818,436,242	10,590,208,366
Intangible assets	13	52,678,425,558	51,118,505,527
Defined benefit assets	16	7,756,306,910	4,431,887,706
Deferred tax assets	28	218,613,598,432	208,061,545,505
Other non-current assets	11	3,868,190,078	3,503,366,733
<b>Total Non-current assets</b>		<u>816,632,328,032</u>	<u>798,245,413,415</u>
<b>Total assets</b>		<u>₩ 2,214,970,249,748</u>	<u>2,272,620,339,599</u>

See accompanying notes to the consolidated financial statements.

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Consolidated Statements of Financial Position, Continued  
As of December 31, 2021 and 2020

(In won)	Note	2021	2020
<b>Liabilities</b>			
Short-term financial liabilities	14,32,33	₩ 290,801,539,771	508,960,006,593
Trade and other payables	15,32,33	479,633,896,400	433,257,174,292
Short-term Contract liabilities	23	219,953,540,127	188,332,907,587
Short-term Lease liabilities	29,32,33	3,497,783,538	6,244,166,992
Short-term Provisions	17	248,289,493,997	133,269,258,713
Derivative liabilities	18,32,33	4,742,217,366	765,651,723
Income tax payable	28	438,636,620	655,706,488
Other current liabilities		5,138,735,554	3,843,998,215
<b>Total Current liabilities</b>		<u>1,252,495,843,373</u>	<u>1,275,328,870,603</u>
Long-term financial liabilities	14,32,33	255,060,131,633	258,963,458,807
Long-term Trade and other payables	15,32,33	200,000,000	350,000,000
Long-term contract liabilities	23	21,615,940,946	22,133,880,165
Long-term lease liabilities	29,32,33	5,276,468,723	6,371,197,874
Defined benefit liabilities	16	5,634,652,711	5,885,891,606
Long-term provisions	17	26,131,542,888	21,029,021,281
Deferred tax liabilities	28	2,333,554,861	3,384,480,192
<b>Total Non-current liabilities</b>		<u>316,252,291,762</u>	<u>318,117,929,925</u>
<b>Total liabilities</b>		<u>1,568,748,135,135</u>	<u>1,593,446,800,528</u>
<b>Equity</b>			
Common stock	19	180,235,675,000	180,235,675,000
Capital surplus	19	901,707,052,055	901,707,052,055
Capital adjustments	20	(15,240,682,452)	(15,240,682,452)
Accumulated other comprehensive income	21	79,333,997,112	73,951,000,439
Accumulated deficit	22	(499,813,927,102)	(461,479,505,971)
<b>Equity attributable to owners of the Group</b>		<u>646,222,114,613</u>	<u>679,173,539,071</u>
<b>Non-controlling interests</b>		-	-
<b>Total Equity</b>		<u>646,222,114,613</u>	<u>679,173,539,071</u>
<b>Total liabilities and equity</b>		<u>₩ 2,214,970,249,748</u>	<u>2,272,620,339,599</u>

See accompanying notes to the consolidated financial statement.

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Consolidated Statements of Comprehensive Loss  
For the years ended December 31, 2021 and 2020

(In won)	Note	2021	2020
Sales	23 ₩	1,805,991,746,883	1,811,344,734,384
Cost of sales	25	1,570,865,258,704	1,501,167,513,697
<b>Gross profit</b>		<u>235,126,488,179</u>	<u>310,177,220,687</u>
Selling, general and administrative expenses	24,25	225,390,128,124	237,478,128,471
<b>Operating profit</b>		<u>9,736,360,055</u>	<u>72,699,092,216</u>
Finance income	26,32	45,577,458,892	52,329,250,250
Finance costs	26,32	52,126,190,509	97,090,188,734
Other non-operating income	27	3,318,845,155	7,975,432,246
Other non-operating expenses	27	46,927,962,039	89,412,285,926
<b>Profit (loss) before income tax</b>		<u>(40,421,488,446)</u>	<u>(53,498,699,948)</u>
Income tax expense(benefit)	28	(6,734,749,072)	(13,252,353,519)
<b>Profit (loss) for the year</b>		<u>(33,686,739,374)</u>	<u>(40,246,346,429)</u>
<b>Other comprehensive income (loss)</b>			
<b>Items that are or may be classified subsequently to profit or loss:</b>			
Effective portion of changes in fair value of cash flow hedges		(6,193,329,031)	(2,156,884,702)
Exchange differences on translating foreign operations		11,573,472,221	(3,935,884,291)
<b>Total items that are or may be reclassified subsequently to profit or loss</b>		<u>5,380,143,190</u>	<u>(6,092,768,993)</u>
<b>Items that will not be reclassified to profit or loss:</b>			
Revaluation of property, plant and equipment		-	27,096,135,209
Profit (loss) on financial assets measured at fair value through other comprehensive income		2,853,483	(1,173,122,440)
Actuarial gains and losses		(4,647,681,757)	124,012,122
<b>Total items that will not be reclassified to profit or loss</b>		<u>(4,644,828,274)</u>	<u>26,047,024,891</u>
<b>Other comprehensive income (loss) for the period, net of income tax</b>		<u>735,314,916</u>	<u>19,954,255,898</u>
<b>Total comprehensive income(loss)</b>		<u>(32,951,424,458)</u>	<u>(20,292,090,531)</u>
<b>Loss attributable to:</b>			
Owners of the Group		(33,686,739,374)	(40,247,180,807)
Non-controlling interests		-	834,378
		<u>(33,686,739,374)</u>	<u>(40,246,346,429)</u>
<b>Total comprehensive loss attributable to:</b>			
Owners of the Group		(32,951,424,458)	(20,292,924,909)
Non-controlling interests		-	834,378
	₩	<u>(32,951,424,458)</u>	<u>(20,292,090,531)</u>
<b>Loss per share</b>			
Basic loss per share	30 ₩	(936)	(1,118)

See accompanying notes to the consolidated financial statements.

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Consolidated Statements of Changes in Equity  
For the years ended December 31, 2021 and 2020

(In won)

(in won)

	Attributable to owners of the Group							
	Common stock	Capital surplus	Capital adjustments	Accumulated other comprehensive income	Retained Earnings (Accumulated deficit)	Non-controlling interests	Total equity	
Balance at January 1, 2020	₩	180,235,675,000	901,707,052,055	(15,240,682,452)	61,154,638,474	(427,892,647,018)	251,895,447	700,215,931,506
Total comprehensive income (loss) for the year								
Profit (loss) for the year		-	-	-	-	(40,247,180,807)	834,378	(40,246,346,429)
Profit or loss on valuation of financial assets at fair value through other comprehensive income		-	-	-	(1,173,122,440)	-	-	(1,173,122,440)
Effective portion of changes in fair value of cash flow hedges		-	-	-	(2,156,884,702)	-	-	(2,156,884,702)
Exchange differences on translating foreign operations		-	-	-	(3,935,884,291)	-	-	(3,935,884,291)
Actuarial gains		-	-	-	-	124,012,122	-	124,012,122
Revaluation of property, plant and equipment		-	-	-	27,096,135,209	-	-	27,096,135,209
Transactions with owners of the Group, recognized directly in equity								
Reclassification adjustments on financial assets measured at fair value through other comprehensive income		-	-	-	1,175,732,728	(1,175,732,728)	-	-
Revaluation surplus reclassification		-	-	-	(7,712,042,460)	7,712,042,460	-	-
Changes in scope of consolidation		-	-	-	(497,572,079)	-	(252,729,825)	(750,301,904)
Balance at December 31, 2020	₩	180,235,675,000	901,707,052,055	(15,240,682,452)	73,951,000,439	(461,479,505,971)	-	679,173,539,071

See accompanying notes to the consolidated financial statements.

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Consolidated Statements of Changes in Equity, Continued  
For the years ended December 31, 2021 and 2020

(In won)

	Attributable to owners of the Group					Non-controlling interests	Total equity
	Common stock	Capital surplus	Capital adjustments	Accumulated other comprehensive income	Retained Earnings (Accumulated deficit)		
<b>Balance at January 1, 2021</b>	₩ 180,235,675,000	901,707,052,055	(15,240,682,452)	73,951,000,439	(461,479,505,971)	-	679,173,539,071
<b>Total comprehensive income (loss) for the period</b>							
Profit (loss) for the year	-	-	-	-	(33,686,739,374)	-	(33,686,739,374)
Profit or loss on valuation of financial assets at fair value through other comprehensive income	-	-	-	2,853,483	-	-	2,853,483
Effective portion of changes in fair value of cash flow hedges	-	-	-	(6,193,329,031)	-	-	(6,193,329,031)
Exchange differences on translating foreign operations	-	-	-	11,573,472,221	-	-	11,573,472,221
Actuarial gains and losses	-	-	-	-	(4,647,681,757)	-	(4,647,681,757)
<b>Balance at December 31, 2021</b>	₩ 180,235,675,000	901,707,052,055	(15,240,682,452)	79,333,997,112	(499,813,927,102)	-	646,222,114,613

See accompanying notes to the consolidated financial statements.

## HYUNDAI ELECTRIC &amp; ENERGY SYSTEMS CO., LTD.

## Consolidated Statements of Cash Flows

For the years ended December 31, 2021 and 2020

(In won)	Note	2021	2020
<b>Cash flows from operating activities</b>			
Profit (loss) for the year	₩	(33,686,739,374)	(40,246,346,429)
Adjustments		164,763,352,961	277,798,633,407
<b>Cash generated from operations</b>	31	131,076,613,587	237,552,286,978
Interest received		3,266,758,328	4,603,192,701
Interest paid		(22,994,046,636)	(27,214,826,450)
Dividends received		9,000,000	9,000,000
Income taxes received (paid)		(1,580,909,230)	(10,423,264,922)
<b>Net cash provided by operating activities</b>		109,777,416,049	204,526,388,307
<b>Cash flows from investing activities</b>			
Decrease in short-term loans		3,693,306,908	1,890,648,820
Decrease of short-term financial assets		1,198,581,005	139,680,501,568
Decrease of long-term financial assets		1,042,554,945	18,661,625
Decrease of long-term other receivables		21,409,283	16,855,622
Proceeds from sales of other current assets		3,721,995	4,914,379,000
Proceeds from sale of property, plant and equipment		461,819,729	1,037,714,797
Proceeds from intangible assets		-	82,893,888
Proceeds from sale of non-current assets held for sale		-	58,917,373,642
Increase in short-term financial assets		(11,662,636,269)	-
Increase in short-term loans		(3,484,577,243)	-
Increase in long-term financial assets		(429,174,472)	(2,378,135,000)
Increase in long-term other receivables		(48,825,473)	(2,264,594,749)
Acquisition of property, plant and equipment		(27,704,772,766)	(56,811,145,006)
Acquisition of intangible assets		(5,484,590,702)	(6,114,340,508)
<b>Net cash provided by (used in) investing activities</b>		(42,393,183,060)	138,990,813,699
<b>Cash flows from financing activities</b>			
Repayment of short-term borrowings		(272,967,666,041)	(380,871,072,156)
Repayment of current portion of long-term borrowings		(92,000,000,000)	(52,000,000,000)
Repayment of current portion of debentures		(145,000,000,000)	(75,000,000,000)
Repayment of long-term debentures		(51,374,657,534)	-
Repayment of long-term borrowings		-	(92,000,000,000)
Decrease of Lease liabilities		(8,610,190,321)	(6,992,189,601)
Proceeds from short-term borrowings		199,310,171,620	354,573,544,906
Proceeds from long-term borrowings		80,000,000,000	70,440,000,000
Proceeds from Issuance of debentures		50,000,000,000	175,000,000,000
Payment of debentures issue expenses		(229,520,000)	(459,410,000)
<b>Net cash used in financing activities</b>		(240,871,862,276)	(7,309,126,851)
<b>Effects of exchange rate changes on cash and cash equivalents</b>		4,039,481,160	(1,675,918,733)
<b>Net increase (decrease) in cash and cash equivalents</b>		(169,448,148,127)	334,532,156,422
<b>Cash and cash equivalents at January 1, 2021</b>		524,256,768,315	189,724,611,893
<b>Cash and cash equivalents at December 31, 2021</b>	₩	354,808,620,188	524,256,768,315

See accompanying notes to the consolidated financial statements.



HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to the Consolidated Financial Statements  
For the years ended December 31, 2021 and 2020

## 1. Reporting Entity

### (1) Description of the controlling company

Hyundai Electric & Energy Systems Co., Ltd. (the "Company") was incorporated on April 1, 2017 through the spin-off of the electro and electric systems segment of Korea Shipbuilding & Offshore Engineering Co., Ltd., and is engaged in the manufacture and sale of transformers, high-voltage circuit breakers, rotating machines, low-voltage electric motors, switchboards, medium-low voltage circuit breakers, power conversion and energy storage devices, etc. The head office of the Company is located in Seoul, Republic of Korea.

As of December 31, 2021, the Company's major stockholders consist of Hyundai Heavy Industries Holdings Co., Ltd. (37.22%), National Pension Service (6.15%) etc.

### (2) Consolidated subsidiaries

Subsidiaries as of December 31, 2021 and 2020 are summarized as follows:

Company	Main business	Location	Closing month	Ownership (%)
Hyundai Technologies Center Hungary kft.	Research and development of technology	Hungary	December	100.00
Hyundai Electric Switzerland AG	Research and development of technology	Switzerland	December	100.00
HDENE Power Solution India Private Ltd.	Electric construction and power equipment manufacturing	India	March	100.00
Hyundai Heavy Industries (China) Electric Co., Ltd.	Manufacture and sale of voltage switchboard	China	December	100.00
Hyundai Heavy Industries (Shanghai) R&D Co., Ltd.	Research and development of technology	China	December	100.00
Hyundai Power Transformers USA, Inc.	Manufacture and sale of electronic and electric products	USA	December	100.00
Hyundai Electric Arabia L.L.C	Customer support services	Saudi Arabia	December	100.00
Hyundai Electric America Corporation	Transformer sales	USA	December	100.00

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to the Consolidated Financial Statements  
For the years ended December 31, 2021 and 2020

# 1. Reporting Entity, Continued

## (3) Changes in scope of consolidation

The changes in the scope of consolidation as of December 2021 and 2020 are as follows:

- (i) There is no change in the scope of consolidation for the year ended December 2021.
- (ii) Subsidiary included in and excluded from consolidation for the year ended December 31, 2020 is as follows:

Change	Company	Reason
Included	Hyundai Electric America Corporation	Established
Excluded	Hyundai Heavy Industries Co. Bulgaria	Sold

## (4) Condensed financial information of Consolidated Subsidiaries

Condensed financial information of consolidated subsidiaries as of and for the years ended December 31, 2021 and 2020 is summarized as follows:

(In millions of won)

Company	2021					Net income (loss)
	Assets	Liabilities	Equity	Sales		
Hyundai Technologies Center Hungary kt.	₩ 7,385	220	7,165	3,136		(362)
Hyundai Electric Switzerland AG	1,848	1,227	621	3,455		24
HDENE Power Solution India Private Ltd.	270	-	270	-		-
Hyundai Heavy Industries (China) Electric Co., Ltd.	145,981	89,855	56,126	90,985		1,206
Hyundai Heavy Industries (Shanghai) R&D Co., Ltd.	4,947	235	4,712	1,525		6
Hyundai Power Transformers USA, Inc.	238,731	171,288	67,443	209,191		8,675
Hyundai Electric America Corporation	148,344	143,497	4,847	106,227		(7,611)
Hyundai Electric Arabia L.L.C	1,308	237	1,071	1,661		194

(In millions of won)

Company	2020					Net income (loss)
	Assets	Liabilities	Equity	Sales		
Hyundai Technologies Center Hungary kt.	₩ 7,853	276	7,577	2,965		(502)
Hyundai Electric Switzerland AG	2,097	1,530	567	4,536		(29)
HDENE Power Solution India Private Ltd.	252	-	252	-		-
Hyundai Heavy Industries (China) Electric Co., Ltd.	124,017	74,668	49,349	103,592		2,923
Hyundai Heavy Industries (Shanghai) R&D Co., Ltd.	4,598	380	4,218	1,627		(83)
Hyundai Power Transformers USA, Inc.	196,921	143,271	53,650	186,241		1,805
Hyundai Electric America Corporation	24,147	22,799	1,348	24,074		(5,618)
Hyundai Electric Arabia L.L.C	868	69	799	1,590		336

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to the Consolidated Financial Statements  
For the years ended December 31, 2021 and 2020

## 2. Basis of Preparation

The consolidated financial statements of Hyundai Electric & Energy Systems Co., Ltd. and its subsidiaries (the "Group") have been prepared in accordance with Korean International Financial Reporting Standards ("K-IFRS"), as prescribed in Article 5, Clause 1 of the Act on External Audits of Corporations in the Republic of Korea.

The consolidated financial statements were authorized for issue by the Board of Directors on February 4, 2022 and submitted for approval to the stockholders' meeting to be held on March 21, 2022.

### (1) Basis of measurement

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

- Property, plant and equipment measured at fair value
- Derivative financial instruments measured at fair value
- Financial assets measured at fair value through profit or loss ("FVTPL")
- Financial assets measured at fair value through other comprehensive income ("FVOCI")
- Liabilities for defined benefit plans are recognized at the net of the total present value of defined benefit obligations less the fair value of plan assets

### (2) Functional and presentation currency

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

### (3) Use of estimates and judgements

#### (i) Assumptions and estimation uncertainties

The preparation of the financial statements in conformity with K-IFRS requires management to make judgments, estimates and assumptions that affect the application of accounting policies and the reported amounts of assets, liabilities, income and expenses. Actual results may differ from these estimates.

Estimates and underlying assumptions are reviewed consistently. Revisions to accounting estimates are recognized in the period in which the estimates are revised and in any future periods affected.

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

- Notes 12 and 13 – Impairment test: key assumptions underlying recoverable amounts, including the recoverability of property and intangible assets;
- Note 16 – Measurement of defined benefit obligations: key actual assumptions;
- Notes 17 and 34 – Recognition and measurement of provisions and contingencies: key assumptions about the likelihood and magnitude of an outflow of resources;
- Note 23 – Revenue recognition in proportion to the stage of completion, the estimates of total contract costs;
- Note 28 – Measurement of deferred tax
- Note 33 – Measurement of expected credit losses for accounts receivable and other receivables: Key assumptions for determining the weighted average loss rate

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to the Consolidated Financial Statements  
For the years ended December 31, 2021 and 2020

**2. Basis of Preparation, Continued**

**(3) Use of estimates and judgements, Continued**

(ii) Measurement of fair value

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

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

Significant valuation issues are reported to the Group's Audit Committee.

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

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

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

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

- Note 7 : Financial assets measured at fair value through profit or loss
- Note 12 : Property, plant and equipment
- Note 18 : Derivative financial instruments
- Note 33 : Financial instruments

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to the Consolidated Financial Statements  
For the years ended December 31, 2021 and 2020

### 3. Changes in Accounting policies

Except as described below, the Group applies the same accounting policies that were applied when preparing the annual financial statements for the fiscal year ending December 31, 2020.

Several amendments and interpretations below *are effective from 1 January 2021 but do not have a material effect on the Group's financial statements.*

- COVID-19-related rent exemption, discount, and suspension (Revision of Corporate Accounting Standards No.1116 'Lease')
- 'Second stage impact' on financial reporting followed by the reform of 'interbank lending rate (IBOR)' (IFRS 1109 'Financial Instruments', IFRS 1038 'Financial Instruments Recognition and Measurement', IFRS 1107 'Disclosure of Financial Instruments', IFRS 1104 'Insurance Contracts', IFRS 1116 'Lease')

### 4. Significant Accounting Policies

The significant accounting policies applied by the Group in the preparation of its consolidated statements of its consolidated financial statements are include below and the Group has consistently applied the accounting policies to all period presented in these consolidated financial statements, changes in accounting policies described in Note 3.

The significant accounting policies applied by the Group in the preparation of its consolidated financial statements are included below.

#### (1) Operating Segments

The Group did not disclose separate business segment information because the reporting segment under K-IFRS No.1108 'Operating Segments' is a single segment.

#### (2) Basis of consolidation

##### (i) Business combinations

The Group accounts for business combinations using the acquisition method when control is transferred to the Group.

The consideration transferred in the acquisition is generally measured at fair value, as are the identifiable net assets acquired. Any goodwill that arises is tested annually for impairment. Any gain on a bargain purchase is recognized in profit or loss immediately. Transaction costs are expensed as incurred, except if related to the issue of debt or equity securities. The costs to issue debt or equity securities are recognized in accordance with K-IFRS No.1032, 'Financial Instruments: Presentation' and K-IFRS No.1109, 'Financial Instruments: Recognition and Measurement'.

The consideration transferred does not include amounts related to the settlement of pre-existing relationships. Such amounts are generally recognized in profit or loss.

Any contingent consideration is measured at fair value at the date of acquisition. If an obligation to pay contingent consideration that meets the definition of a financial instrument is classified as equity, then it is not remeasured and settlement is accounted for within equity. Otherwise, subsequent changes in the fair value of the contingent consideration are recognized in profit or loss.

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to the Consolidated Financial Statements  
For the years ended December 31, 2021 and 2020

#### 4. Significant Accounting Policies, Continued

##### (2) Basis of consolidation, continued

###### (ii) Subsidiaries

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

###### (iii) Non-controlling interests

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

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

###### (iv) Non-controlling interests

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

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

###### (v) Transactions eliminated on consolidation

Intra-group balances and transactions, and any unrealized income and expenses arising from intra-group transactions, are eliminated.

##### (3) Cash and cash equivalents

Cash and cash equivalents comprise cash balances and call deposits with maturities of three months or less from the acquisition date that are subject to an insignificant risk of changes in their fair value, and are used by the Group in the management of its short-term commitments. Equity investments are excluded from cash equivalents unless they are, in substance, cash equivalents, for example in the case of preferred shares when it has a short maturity with a specified redemption date.

##### (4) Inventories

The unit cost of inventories is determined by the specific identification *of costs* in the case of a specific project or materials-in-transit, or the total average *cost formula* otherwise, and the acquisition cost includes purchase cost, conversion cost, and other costs necessary to prepare the inventory in a usable state.

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

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to the Consolidated Financial Statements  
For the years ended December 31, 2021 and 2020

**4. Significant Accounting Policies, Continued**

**(5) Non-derivative financial assets**

(i) Recognition and initial measurement

Trade receivables and debt securities issued are initially recognized when they are originated. All other financial assets and financial liabilities are initially recognized when the Group becomes a party to the contractual provisions of the instrument.

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

(ii) Classification and subsequent measurement

(a) Financial assets

On initial recognition, a financial asset is classified as measured at: amortized cost; FVOCI-debt investment; FVOCI – equity investment; or FVTPL.

Financial assets are not reclassified subsequent to their initial recognition unless the Group changes its business model for managing financial assets, in which case all affected financial assets are reclassified on the first day of the first reporting period following the change in the business model.

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

- 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 payment of principal and interest on the principal amount outstanding.

On initial recognition of an equity investment that is not held for trading, the Group may irrevocably elect to present subsequent changes in the investment's fair value in OCI. This election is made on an investment-by-investment basis.

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

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to the Consolidated Financial Statements  
For the years ended December 31, 2021 and 2020

**4. Significant Accounting Policies, Continued**

**(5) Non-derivative financial assets, continued**

(ii) Classification and subsequent measurement, continued

(b) Financial assets – Business model assessment

The Group makes an assessment of the objective of the business model in which a financial asset is held at portfolio level because this best reflects the way the business is managed and information is provided to management.

The information considered includes:

- The stated policies and objectives for the portfolio and the operation of those policies in practice. These include whether management's strategy focuses on earning contractual interest income, maintaining a particular interest rate profile, matching the duration of the financial assets to the duration of any related liabilities or expected cash outflows or realizing cash flows through the sale of the assets;
- How the performance of the portfolio is evaluated and reported to the Group's management;
- The risks that affect the performance of business model (and the financial assets held within that business model) and how those risks are managed;
- How managers of the business are compensated – e.g. whether compensation is based on the fair value of the assets managed or the contractual cash flows collected; and
- The frequency, volume and timing of sales of financial assets in prior periods, the reasons for such sales and expectations about future sales activity.

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 Group's continuing recognition of the assets.

Financial assets that are held for trading or are managed and whose performance is evaluated on a fair value are measured at FVTPL.

(c) Financial assets – Assessment whether contractual cash flows are solely payments of principal and interest: For the purposes of this assessment, 'principal' is defined as the fair value of the financial asset on initial recognition. 'Interest' is defined as consideration for the time value of money and for the credit risk associated with the principal amount outstanding during a particular period of time and for other basic lending risks and cost (e.g. liquidity risk and administrative costs), as well as a profit margin.

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

In making this assessment, the Group considers:

- Contingent events that would change the amount or timing of cash flow;
- Terms that may adjust the contractual coupon rate, including variable-rate features;
- Prepayment and extension features; and
- Terms that limit the Group's claim to cash flows from specified assets

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.



HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to the Consolidated Financial Statements  
For the years ended December 31, 2021 and 2020

**4. Significant Accounting Policies, Continued**

**(5) Non-derivative financial assets, continued**

(ii) Classification and subsequent measurement, continued

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.

(d) Financial assets: Subsequent measurement and gains and losses:

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 and 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 and loss. Other net gain and losses are recognized in OCI. On derecognition, gains and losses accumulated in OCI are reclassified to profit or loss.
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.

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to the Consolidated Financial Statements  
For the years ended December 31, 2021 and 2020

**4. Significant Accounting Policies, Continued**

**(5) Non-derivative financial assets, continued**

(iii) Derecognition

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

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

(iv) Offsetting

Financial assets and financial liabilities are offset and the net amount presented in the statement of financial position when, and only when, the Group currently has a legally enforceable right to set off the amounts and it intends either to settle them on a net basis or to realize the asset and settle the liability simultaneously.

**(6) Derivative financial instruments**

Derivatives are initially recognized at fair value. Subsequent to initial recognition, derivatives are measured at fair value, and changes therein are accounted for as described below.

(i) Hedge accounting

The Group holds forward exchange and interest rate swap contracts to manage foreign exchange risk and interest rate risk. The Group designated derivatives as hedging instruments to hedge the risk of changes in the fair value of assets, liabilities or firm commitments (a fair value hedge) and foreign currency risk of highly probable forecasted transactions or firm commitments (a cash flow hedge).

On initial designation of the hedge, the Group formally documents the relationship between the hedging instrument(s) and hedged item(s), including the risk management objectives and strategy in undertaking the hedge transaction, together with the methods that will be used to assess the effectiveness of the hedging relationship.

Hedge is directly impacted by interest rate indicator reform.

In order to evaluate the economic relationship between the hedged item and the hedging instrument, the Group assumes that the interest rate indicator does not change as a result of the interest rate indicator reform.

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to the Consolidated Financial Statements  
For the years ended December 31, 2021 and 2020

**4. Significant Accounting Policies, Continued**

**(6) Derivative financial instruments. continued**

(ii) Cash flow hedge

When a derivative is designated to hedge the variability in cash flows attributable to a particular risk associated with a recognized asset or liability or a highly probable forecasted transaction that could affect profit or loss, the effective portion of changes in the fair value of the derivative is recognized in other comprehensive income, net of tax, and presented in the hedging reserve in equity. Any ineffective portion of changes in the fair value of the derivative is recognized immediately in profit or loss.

If the hedging instrument no longer meets the criteria for hedge accounting, expires or is sold, terminated, exercised, or the designation is revoked, then hedge accounting is discontinued prospectively. The cumulative gain or loss on the hedging instrument that has been recognized in other comprehensive income is reclassified to profit or loss in the periods during which the forecasted transaction occurs. If the forecasted transaction is no longer expected to occur, then the balance in other comprehensive income is recognized immediately in profit or loss.

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to the Consolidated Financial Statements  
For the years ended December 31, 2021 and 2020

#### 4. Significant Accounting Policies, Continued

##### (7) Impairment of financial assets

###### (i) Financial instruments and contract assets

The Group recognized loss allowances for expected credit losses ("ECL") on;

- Financial assets measured at amortized cost;
- Contract assets defined in K-IFRS No.1115; and
- Debt investments measured at FVOCI

The Group measures loss allowances at an amount equal to lifetime ECLs, except for the following, which are measured at 12-month ECLs;

- Debt securities that are determined to have low credit risk at the reporting date; and
- Other debt securities and bank balances for which credit risk (i.e. the risk of default occurring over the expected life of the financial instrument) has not increased significantly since initial recognition

Loss allowances for trade receivables and contract assets are always measured at an amount equal to lifetime ECLs.

When determining whether the credit risk of a financial asset has increased significantly since initial recognition and when estimating ECLs, the Group considers reasonable and supportable information that is relevant and available without undue cost or effort. This includes both quantitative and qualitative information and analysis, based on the Group's historical experience and informed credit assessment and including forward-looking information.

The Group considers a financial asset to be in default when:

- The borrower is unlikely to pay its credit obligations to the Group in full, without recourse by the Group to actions such as realizing security (if an is held); or
- Past due of the financial asset is significantly increased

Lifetime ECLs are the ECLs that result from all possible default events over the expected life of a financial instrument.

12-month ECLs are the portion of ECLs that result from default events that are possible within the 12 months after the reporting date (or a shorter period if the expected life of the instrument is less than 12 months).

###### (ii) Measurement of ECLs

ECLs are 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 Group expects to receive). ECLs are discounted at the effective interest rate of financial assets.

The longest period considered in measuring ECLs is the maximum contract period during which the Group is exposed to credit risk.

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to the Consolidated Financial Statements  
For the years ended December 31, 2021 and 2020

**4. Significant Accounting Policies, Continued**

**(7) Impairment of financial assets, continued**

(iii) Credit-impaired financial assets

At each reporting date, the Group assesses whether financial assets carried at amortized cost and debt securities at FVOCI are credit-impaired. A financial asset is 'credit-impaired' when one or more events that have a detrimental impact on the estimated future cash flows of the financial asset have occurred.

Evidence that a financial asset is credit-impaired includes the following observable data:

- Significant financial difficulty of the borrower or issuer;
- A breach of contract such as a default or being more than 90 days past due;
- The restructuring of a loan or advance by the Group on terms that the Group would not consider otherwise;
- It is probable that the borrower will enter bankruptcy or other financial reorganization; or
- The disappearance of an active market for a security because of financial difficulties.

(iv) Presentation of allowance for ECL in the statement of financial position

Loss allowance for financial assets measured at amortized cost and contract assets are deducted from the gross carrying amount of the assets and presented separately using an allowance account. Impairment losses related to trade and other receivables and contract assets, from the materiality perspective, were included in 'Selling, general and administration expenses' or 'Other non-operating expenses' in the consolidated statements of comprehensive income instead of being presented as a separate account. Also, impairment losses on other financial assets are included in 'Finance costs' and not presented as a separate account.

(v) Write-off

The gross carrying amount of a financial asset is written off when the Group has no reasonable expectation of recovering a financial asset in its entirety or a portion thereof. The Group expects no significant recovery from the amount written off. However, financial assets that are written off could still be subject to enforcement activities in order to comply with the Group's procedures for recovery of amounts due.

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to the Consolidated Financial Statements  
For the years ended December 31, 2021 and 2020

#### 4. Significant Accounting Policies, Continued

##### (8) Property, plant and equipment

Property, plant and equipment are initially measured at cost and after initial recognition, are carried at cost less accumulated depreciation and accumulated impairment losses. The cost of property, plant and equipment includes expenditures arising directly from the construction or acquisition of the asset, any costs directly attributable to bringing the asset to the location and condition necessary for it to be capable of operating in the manner intended by management and the initial estimate of the costs of dismantling and removing the item and restoring the site on which it is located.

Subsequent to initial recognition, an item of property, plant and equipment excluding land shall be carried at its cost less any accumulated depreciation and any accumulated impairment losses.

Subsequent to initial recognition land whose fair value can be measured reliably are carried at revalued amount, being its fair value at the date of the revaluation less subsequent accumulated impairment losses. Revaluations shall be made with sufficient regularity to ensure that the carrying amount does not differ materially from that which would be determined using fair value at the end of the reporting period.

Property, plant and equipment, except for land, are depreciated on a straight-line basis over estimated useful lives that appropriately reflect the pattern in which the asset's future economic benefits are expected to be consumed.

A component that is significant compared to the total cost of property, plant and equipment is depreciated over its Group useful life.

Gains and losses on disposal of an item of property, plant and equipment are determined by comparing the proceeds from disposal with the carrying amount of property, plant and equipment and are recognized in profit or loss.

The useful lives of property, plant and equipment are as follows:

	Useful lives (years)
Buildings	25~50
Structures	20~45
Machinery	5~42
Vehicles	5~14
Tools, furniture and fixtures	3~20

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

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to the Consolidated Financial Statements  
For the years ended December 31, 2021 and 2020

#### 4. Significant Accounting Policies, Continued

##### (9) Intangible assets

Intangible assets are measured initially at cost and, subsequently, are carried at cost less accumulated amortization and accumulated impairment losses.

Amortization of intangible assets is calculated on a straight-line basis over the estimated useful lives of intangible assets from the date that they are available for use. The residual value of intangible assets is zero.

	Useful lives (years)
software	5
Capitalized development costs, Patents	5, 7
Other intangible assets	Indefinite
Trademarks	Indefinite

Useful lives and the amortization methods for intangible assets with finite useful lives are reviewed at the end of each reporting period. Changes are accounted for as changes in accounting estimates.

##### (i) Research and development

Expenditures on research activities, undertaken with the prospect of gaining new scientific or technical knowledge and understanding, are recognized in profit or loss as incurred. Development expenditures are capitalized only if development costs can be measured reliably, the product or process is technically and commercially feasible, future economic benefits are probable, and the Group intends to and has sufficient resources to complete development and to use or sell the asset. Other development expenditures are recognized in profit or loss as incurred.

##### (ii) Subsequent expenditures

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

##### (10) Borrowing costs

The Group capitalizes borrowing costs directly attributable to the acquisition, construction or production of a qualifying asset as part of the cost of that asset. Other borrowing costs are recognized in expense as incurred. A qualifying asset is an asset that requires a substantial period of time to get ready for its intended use or sale. Financial assets and inventories that are manufactured or otherwise produced over a short period of time are not qualifying assets. Assets that are ready for their intended use or sale when acquired are not qualifying assets.

To the extent that the Group borrows funds specifically for the purpose of obtaining a qualifying asset, the Group determines the amount of borrowing costs eligible for capitalization as the actual borrowing costs incurred on that borrowing during the period less any investment income on the temporary investment of those borrowings. The Group immediately recognizes other borrowing costs as an expense. To the extent that the Group borrows funds generally and uses them for the purpose of obtaining a qualifying asset, the Group shall determine the amount of borrowing costs eligible for capitalization by applying a capitalization rate to the expenditures on that asset. The capitalization rate shall be the weighted average of the borrowing costs applicable to the borrowings of the Group that are outstanding during the period, other than borrowings made specifically for the purpose of obtaining a qualifying asset. The amount of borrowing costs that the Group capitalizes during a period shall not exceed the amount of borrowing costs incurred during that period.

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to the Consolidated Financial Statements  
For the years ended December 31, 2021 and 2020

#### 4. Significant Accounting Policies, Continued

##### (11) Government grants

Government grants are not recognized unless there is reasonable assurance that the Group will comply with the grant's conditions and that the grants will be received.

Government grants whose primary condition is that the Group purchase, construct or otherwise acquire long-term assets are deferred and recognized as deduction to depreciation expense over the useful life of the asset.

Government grants which are intended to compensate the Group for expenses incurred are recognized as other income (government grants) in profit or loss over the periods in which the Group recognizes the related costs as expenses.

##### (12) Impairment of non-financial assets

The carrying amounts of the Group's non-financial assets, other than contract assets that are recognized based on revenue from contracts with customers, assets arising from costs incurred to conclude or implement 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. Intangible assets that have indefinite useful lives or that are not yet available for use, irrespective of whether there is any indication of impairment, are tested for impairment annually by comparing their recoverable amount to their carrying amount.

For impairment testing, assets are grouped into the smallest group of assets that generates cash inflows that are largely independent of the cash inflows from other assets or groups of assets ("CGUs"). The recoverable amount of an asset or CGU is the greater of its value in use and its fair value less costs to sell. The value in use is estimated by applying a pre-tax discount rate that reflects current market assessments of the time value of money and the risks specific to the asset or CGU for which estimated future cash flows have not been adjusted, to the estimated future cash flows expected to be generated by the asset or CGU.

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

Any impairment identified at the CGU level will reduce the carrying amount of the assets in the CGU on a pro rata basis. 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.



HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to the Consolidated Financial Statements  
For the years ended December 31, 2021 and 2020

#### 4. Significant Accounting Policies, Continued

##### (13) Contract assets and Contract liabilities

In the event the Group perform the transfer of goods or services to the customer before the customer pays the price or before the due date, we present the contract as a contract asset, except if there is an amount indicated as a receivable. Contract assets are the right to receive consideration for goods or services transferred by the company to the customer.

If the customer pays a consideration or the Group has an unconditional right (receivables) to receive a consideration (amount) before the Group transfer the goods or services to the customer, the Group present the contract as a contract liability either at the time of receipt or at the time of payment (early of both). Contract liabilities are the obligations of the Group to transfer goods or services to the Customer in accordance with the consideration received from the Customer or the amount of consideration entitled to be paid. The Group sets off the contract assets and contract liabilities arising from one contract and presents them in the statement of financial position in net amount.

On the other hand, the expected loss in a contract (loss-bearing contract) that Non-avoidable costs required to fulfill contractual obligations exceeds the economic benefits expected to be received in the contract is recognized as a (liquidity) provision.

##### (14) Non-derivative financial liabilities

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

- (i) Financial liabilities at fair value through profit or loss  
Financial liabilities at fair value through profit or loss include financial liabilities held for trading or designated as such upon initial recognition. Subsequent to initial recognition, financial liabilities at fair value through profit or loss are measured at fair value, and changes therein are recognized in profit or loss. Upon initial recognition, transaction costs that are directly attributable to the acquisition are recognized in profit or loss as incurred.
- (ii) Other financial liabilities  
Non-derivative financial liabilities other than financial liabilities at fair value through profit or loss are classified as other financial liabilities. At the date of initial recognition, other financial liabilities are measured at fair value minus transaction costs that are directly attributable to the acquisition. Subsequent to initial recognition, other financial liabilities are measured at amortized cost using the effective interest method.

The Group derecognizes a financial liability from the consolidated statement of financial position when it is extinguished (i.e. when the obligation specified in the contract is discharged, cancelled or expires).

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to the Consolidated Financial Statements  
For the years ended December 31, 2021 and 2020

**4. Significant Accounting Policies, Continued**

**(15) Employee benefit**

(i) Short-term employee benefits

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

(ii) Other long-term employee benefits

Other long-term employee benefits include employee benefits that are settled beyond 12 months after the end of the period in which the employees render the related service. The Group's net obligation in respect of long-term employee benefits is the amount of future benefit that employees have earned in return for their service in the current and prior periods. That benefit is discounted to determine its present value. Remeasurements are recognized in profit or loss in the period in which they arise.

(iii) Retirement benefits: defined benefit plans

The Group's net obligation in respect of defined benefit plans is calculated separately for each plan by estimating the amount of future benefit that employees have earned in the current period, discounting that amount and deducting the fair value of any plan assets.

The calculation of defined benefit obligations is performed annually by a qualified actuary using the projected unit credit method. When the calculation results in a potential asset for the Group, the recognized asset is limited to the present value of economic benefits available in the form of any future refunds from the plan or reductions in future contributions to the plan. To calculate the present value of economic benefits, consideration is given to any applicable minimum funding requirements.

Remeasurements of the net defined benefit liability, which comprise actuarial gains and losses, the return on plan assets (excluding interest) and the effect of the asset ceiling (if any, excluding interest), are recognized immediately in OCI. The Group determines the net interest expense (income) on the net defined benefit liability (asset) for the period by applying the discount rate used to measure the defined benefit obligation at the beginning of the annual period to the then-net defined benefit liability (asset), taking into account any changes in the net defined benefit liability (asset) during the period as a result of contributions and benefit payments. Net interest expense and other expenses related to defined benefit plans are recognized in profit or loss.

When the benefits of a plan are changed or when a plan is curtailed, the resulting change in benefit that relates to past service or the gain or loss on curtailment is recognized immediately in profit or loss. The Group recognizes gains and losses on the settlement of a defined benefit plan when the settlement occurs.

(iv) Termination benefits

Termination benefits are expensed at the earlier of when the Group can no longer withdraw the offer of those benefits and when the Group recognizes costs for a restructuring. If benefits are not expected to be settled wholly within 12 months of the end of the reporting period, then they are discounted.

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to the Consolidated Financial Statements  
For the years ended December 31, 2021 and 2020

#### 4. Significant Accounting Policies, Continued

##### (16) Provisions

Provisions are recognized when the Group has a present legal or constructive obligation as a result of a past event, it is probable that an outflow of resources embodying economic benefits will be required to settle the obligation and a reliable estimate can be made of the amount of the obligation.

The risks and uncertainties that inevitably surround many events and circumstances are taken into account in reaching the best estimate of a provision. Where the effect of the time value of money is material, provisions are determined at the present value of the expected future cash flows.

Where some or all of the expenditures required to settle a provision are expected to be reimbursed by another party, the reimbursement is recognized when, and only when, it is virtually certain that reimbursement will be received if the entity settles the obligation. The reimbursement is treated as a Group asset.

Provisions are reviewed at the end of each reporting period and adjusted to reflect the current best estimates. If it is no longer probable that an outflow of resources embodying economic benefits will be required to settle the obligation, the provision is reversed.

(i) Provision for construction warranty

The Group generally provides a warranty within the contract on rectification of defects after the contract's completion and accrues the rectification expense on defects based on actual claims history as provision for construction warranty.

(ii) Provision for product warranty

The Group generally provides a warranty relating to product defects for a specified period of time after sales and accrues estimated costs as provision for product warranty, which may occur due to product liability suits.

(iii) Provision for construction losses

If the unavoidable costs arising from the contractual obligation exceed the benefits expected to arise from the contract for the reporting year, the Group recognizes provision for construction losses at amount of costs that exceed the benefits.

Costs arising from the contractual obligations include costs directly related to a contract and common costs due to overall contractual activity. The common costs include in the fixed and variable costs assigned by the normal capacity of the production facility.

Provisions are used only for expenditures related to initial recognition.

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to the Consolidated Financial Statements  
For the years ended December 31, 2021 and 2020

**4. Significant Accounting Policies, Continued**

**(17) Emissions rights**

The Group accounts for greenhouse gases emission right and the relevant liability as below pursuant to the Act on Allocation and Trading of Greenhouse Gas Emission.

(i) Greenhouse Gases Emission Right

Greenhouse Gases Emission Right consists of emission allowances which are allocated from the government free of charge or purchased from the market. The cost includes any directly attributable costs incurred during the normal course of business.

Emission rights held for the purpose of performing the obligation are classified as an intangible asset and are initially measured at cost and after initial recognition, are carried at cost less accumulated impairment losses. Emission rights held for short-swing profits are classified as current asset and are measured at fair value with any changes in fair value recognized through profit or loss in the respective reporting period.

The Group derecognizes an emission right asset when the emission allowance is unusable, disposed or submitted to government in which the future economic benefits are no longer expected to be probable.

(ii) Emission liability

Emission liability is a present obligation of submitting emission rights to the government with regard to emission of greenhouse gas. Emission liability is recognized when there is a high possibility of outflows of resources in performing the obligation and the costs required to perform the obligation are reliably estimable. Emission liability is an amount of estimated obligations for emission rights to be submitted to the government for the performing period. The emission liability is measured based on the expected quantity of emission for the performing period in excess of emission allowance in possession and the unit price for such emission rights in the market at of the end of the reporting period.

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to the Consolidated Financial Statements  
For the years ended December 31, 2021 and 2020

#### 4. Significant Accounting Policies, Continued

##### (18) Foreign currency

Transactions in foreign currencies are translated to the respective functional currencies of the Group at exchange rates at the dates of the transactions. Monetary assets and liabilities denominated in foreign currencies are retranslated to the functional currency using the reporting date's exchange rate. Non-monetary assets and liabilities denominated in foreign currencies that are measured at fair value are retranslated to the functional currency at the exchange rate at the date that the fair value was determined.

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

##### (19) Lease

If, in exchange for consideration in a contract, the right to control the use of the identified asset is transferred for a period of time, the contract is a lease or includes a lease

###### (i) As a lessee

The Group recognizes a right-of-use asset and a lease liability at the lease commencement date. The right-of-use asset is initially measured at cost, which comprises the initial amount of the lease liability adjusted for any lease payments made at or before the commencement date, plus any initial direct costs incurred and an estimate of costs to dismantle and remove the underlying asset or to restore the underlying asset or the site on which it is located, less any lease incentives received.

The right-of-use asset is subsequently depreciated using the straight-line method from the commencement date to the end of the lease term, unless the lease transfers ownership of the underlying asset to the Group by the end of the lease term or the cost of the right-of-use asset reflects that the Group will exercise a purchase option. In that case the right-of-use asset will be depreciated over the useful life of the underlying asset, which is determined on the same basis as those of property and equipment. In addition, the right-of-use asset is periodically reduced by impairment losses, if any, and adjusted for certain remeasurements of the lease liability.

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to the Consolidated Financial Statements  
For the years ended December 31, 2021 and 2020

#### 4. Significant Accounting Policies, Continued

##### (19) Lease, Continued

###### (i) As a lessee, continued

The lease liability is initially measured at the present value of the lease payments that are not paid at the commencement date, discounted using the interest rate implicit in the lease or, if that rate cannot be readily determined, the Group's incremental borrowing rate. Generally, the Group uses its incremental borrowing rate as the discount rate.

The Group determines its incremental borrowing rate by obtaining interest rates from various external financing sources and makes certain adjustments to reflect the terms of the lease and type of the asset leased.

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

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

The lease liability is measured at amortized cost using the effective interest method. It is remeasured when there is a change in future lease payments arising from a change in an index or rate, if there is a change in the Group's estimate of the amount expected to be payable under a residual value guarantee, if the Group changes its assessment of whether it will exercise a purchase, extension or termination option or if there is a revised in-substance fixed lease payment.

When the lease liability is remeasured in this way, a corresponding adjustment is made to the carrying amount of the right-of-use asset, or is recorded in profit or loss if the carrying amount of the right-of-use asset has been reduced to zero.

In the statement of financial position, the Group has presented right-of-use assets that does not meet the definition of investment property as a 'right-of-use assets' and a lease liabilities as a 'lease liabilities'.

The Group has elected not to recognize right-of-use assets and lease liabilities for leases of low-value assets and short-term leases. The Group recognizes the lease payments associated with these leases as an expense on a straight-line basis over the lease term.

###### (ii) As a lessor

When the Group acts as a lessor, it determines at lease inception whether each lease is a finance lease or an operating lease.

To classify each lease, the Group makes an overall assessment of whether the lease transfers substantially all of the risks and rewards incidental to ownership of the underlying asset. If this is the case, then the lease is a finance lease; if not, then it is an operating lease. As part of this assessment, the Group considers certain indicators such as whether the lease is for the major part of the economic life of the asset.

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to the Consolidated Financial Statements  
For the years ended December 31, 2021 and 2020

#### 4. Significant Accounting Policies, Continued

##### (19) Lease, Continued

###### (ii) As a lessor, continued

When the Group is an intermediate lessor, it accounts for its interests in the head lease and the sub-lease separately. It assesses the lease classification of a sub-lease with reference to the right-of-use asset arising from the head lease, not with reference to the underlying asset. If a head lease is a short-term lease to which the Group applies the exemption described above, then it classifies the sub-lease as an operating lease.

The Group recognizes lease payments received under operating leases as income on a straight-line basis over the lease term as part of 'revenue'.

##### (20) Non-current asset held for sale

If the carrying amount of a non-current asset or disposal group is expected to be recovered mainly through a sale transaction rather than continued use, the asset is classified as asset held for sale. These conditions are deemed to be satisfied only when the asset (or disposal group) is immediately available for sale in its current state and is highly likely to be sold. Immediately before the initial classification of an asset (or disposal group) as held for sale, the asset (or asset and liability) is measured at the lower of its carrying amount and fair value less costs to sell. If the fair value less costs to sell assets recognised for impairment at initial classification decreases, the impairment loss is immediately recognised in profit or loss, and If the fair value less costs to sell increases, the accumulated impairment losses previously recognised are limited to profit or loss.

If a non-current asset is classified as held for sale or is part of a disposal group classified as held for sale, the asset is not amortized.

##### (21) Equity capital

Ordinary shares are classified as equity. Incremental costs directly attributable to the issuance of ordinary shares and share options are recognized as a deduction from equity, net of any tax effects.

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

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to the Consolidated Financial Statements  
For the years ended December 31, 2021 and 2020

#### 4. Significant Accounting Policies, Continued

##### (22) Revenue

The Group's performance obligations and revenue recognition policies are explained below.

##### (i) Nature and timing of satisfaction of performance obligation

The Group manufactures and supplies various electric devices and energy solutions for all phases of the power supply process, ranging from power generation→transmission→distribution→consumption. The type of revenue in the segment are three: standard product supply agreement, multiple-element arrangement and Turn-key contract.

While standard product supply agreement consist of one performance obligation, multiple-element arrangement and Turn-key contracts are one contract, but contains in multiple distinctive obligations.

As the Group manufactures and supplies various electric devices and energy solutions for all phases of the power supply process, for a general contract, revenue is recognized as a performance obligation satisfied by at a point in time.

The timing of satisfaction of performance obligations is when the goods are delivered to customers and the customers obtain control of the goods. The determination of the timing when the control is transferred to customer, is based on the entity's right to payment, the legal title, the physical possession, the significant risks and rewards of ownership and the acceptance by the customer. Generally, the performance obligation is satisfied when the terms of trade such as CIF, FOB and DDP are met for transfer of the legal title in exports sales and when the product is delivered physically to customer in domestic sales respectively.

The contract to manufacture a highly customized product for a particular customer is supposed 'not to create an alternative use to the Group'. If the contract describes the Group would be compensated for an amount of recovery of the costs incurred plus a reasonable profit margin when terminated by the customer or another party, revenue from those contracts is recognized over time and is otherwise recognized at a point in time.

If the performance obligation is satisfied over time, the timing of the performance obligation depends on how the Group measures its progress to indicate performance when control of the goods or services is transferred to the customer. If the performance is not measured rationally, the performance is measured within the scope of the incurred cost.

The Group provides design, raw material purchase, production, and trial run, it is difficult to obtain information for applying calculation method without incurring excessive cost due to the wide variety of drying processes. Therefore, it is decided that the timing of the cost injection should be satisfied because the input method that recognizes revenue based on the Group's inputs compared to the total inputs expected to satisfy the performance obligation can faithfully represent the Group's performance.



HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to the Consolidated Financial Statements  
For the years ended December 31, 2021 and 2020

#### 4. Significant Accounting Policies, Continued

##### (22) Revenue, continued

###### (ii) Warranties

The length of the warranties varies across product and contract, generally, 24 to 48 months from delivery.

A specified period described in warranty lasts, then the charge for A/S is not free. The warranties provide the assurance that a product complies with agreed-upon specifications only, and therefore, are not identified as a distinct performance obligation.

###### (iii) Determination method for transaction price

For the standard supply contract which forms a single performance obligation, the allocation of transaction price is not needed. However, for revenue recognition in the multiple-element arrangement or turn-key contract, the Group needs to allocate the transfer price to each of identified performance obligations.

The Group applies the adjusted market assessment approach which allocates the transaction price based on the estimated stand-alone selling price. If the stand-alone selling price is not directly observable, transaction price is determined by the expected cost-plus-a-margin approach by forecasting expected cost of satisfying a performance obligation and then adding an appropriate margin.

Only if the above-mentioned two approaches are not available, the residual approach, by estimating the total transaction price less the sum of the observable stand-alone prices of other goods or services.

###### (iv) estimation of variable consideration

The consideration might be variable due to change in design and production, compensation for delay, penalty, discount, incentives, etc. The discount and incentives include 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. If the penalty were occurred, revenue is recognized based on the transaction price less that amount.

##### (23) Finance income and finance costs

Finance income comprises interest income on funds invested, dividend income, gain or loss on sale of financial assets, changes in the fair value of financial assets at FVTPL.

Interest income recognized in profit or loss using the effective interest method, and dividend income is recognized in profit or loss on the date on which the Group's right to receive payment is established.

Finance costs comprise interest expense on borrowings, changes in the fair value of financial assets at FVTPL. Borrowing costs are recognized in profit or loss using the effective interest method.

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to the Consolidated Financial Statements  
For the years ended December 31, 2021 and 2020

#### 4. Significant Accounting Policies, Continued

##### (24) Income tax

Income tax expense comprises current and deferred tax. Current tax and deferred tax are recognized in profit or loss except to the extent that they relate to a business combination, or items recognized directly in equity or in other comprehensive income.

The Group has determined that interest and penalties related to income taxes, including uncertain tax treatments, do not meet the definition of income taxes, and therefore accounted for them under K-IFRS No.1037 'Provision, Contingent Liabilities and Contingent Assets'

##### (i) Current tax

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

##### (ii) Deferred tax

The measurement of deferred tax liabilities and deferred tax assets reflects the tax consequences that would follow from the manner in which the Group expects, at the end of the reporting period to recover or settle the carrying amount of its assets and liabilities.

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

The Group recognizes a deferred tax asset for unused tax loss, tax credit and deductible temporary differences, to the extent that it is probable that taxable profit will be available against which the unused tax loss, tax credit and deductible temporary differences can be utilized. Future taxable profit is determined by the reversal of the related taxable temporary difference. If the taxable temporary difference is not sufficient to fully recognize the deferred tax asset, the reversal of the current temporary differences and the Group's business plan will be considered for future taxable profit.

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

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

Deferred tax assets and liabilities are offset only if there is a legally enforceable right to offset the related current tax liabilities and assets, and they relate to income taxes levied by the same tax authority and they intend to settle current tax liabilities and assets on a net basis.

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to the Consolidated Financial Statements  
For the years ended December 31, 2021 and 2020

#### 4. Significant Accounting Policies, Continued

##### (25) Earnings per share

The Group presents basic earnings per share (EPS) data for its ordinary shares. Basic EPS is calculated by dividing the profit or loss attributable to ordinary stockholders of the Group by the weighted average number of ordinary shares outstanding during the period, adjusted for own shares held.

##### (26) New standards and interpretations not yet adopted

A number of new standards are effective for annual periods beginning after January 1, 2021 and earlier application is permitted; however, the Group has not early adopted the new or amended standards in preparing these financial statements

The following amended standards and interpretation are not expected to have a significant impact on the Group's consolidated financial statements:

- Amount of sale before intended use (K-IFRS 1016, 'Property, Plant and Equipment')
- Refer to the conceptual system (K-IFRS 1103 'Business Combinations')
- Current/non-current classification of liabilities (K-IFRS 1001 'Presentation of Financial Statements')
- Public announcement of effective accounting policies (K-IFRS 1001 'Presentation of Financial Statements')
- Justification on accounting estimates (K-IFRS 1008 'Accounting Policies Changes in Accounting Estimates and Errors')
- Deferred tax assets related to assets and debts occurred from short-term transactions (K-IFRS 1012 'Income Taxes')

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to the Consolidated Financial Statements  
For the years ended December 31, 2021 and 2020

## 5. Risk Management

The Group has exposure to credit risk, liquidity risk and market risk from its use of financial instruments:

- Credit risk
- Liquidity risk
- Market risk

This note presents information about the Group's exposure to each of the above risks, the Group's objectives, policies and processes for measuring and managing risk, and the Group's management of capital. Further quantitative disclosures are included throughout the consolidated statement of financial position.

### (1) Financial risk management

#### (i) Risk management framework

The Board of Directors has overall responsibility for the establishment and oversight of the Group's risk management framework.

The Group's risk management policies are established to identify and analyze the risks faced by the Group, to set appropriate risk limits and controls, and to monitor risks and adherence to limits. Risk management policies and systems are reviewed regularly to reflect changes in market conditions and the Group's activities. The Group, through its training and management standards and procedures, aims to develop a disciplined and constructive control environment in which all employees understand their roles and obligations.

The Group Audit Committee oversees how management monitors compliance with the Group's risk management policies and procedures, and reviews the adequacy of the risk management framework in relation to the risks faced by the Group. The Group Audit Committee is assisted in its oversight role by Internal Audit. Internal Audit undertakes both regular and ad hoc reviews of risk management controls and procedures, the results of which are reported to the Audit Committee.

#### (ii) Credit risk

Credit risk is the risk of financial loss to the Group if a customer or counterparty to a financial instrument fails to meet its contractual obligations, and arises principally from the Group's receivables from customers and investment securities.

##### (a) Trade and other receivables

The Group recognizes provisions against expected losses on trade and other receivables.

These provisions consist of specific impairment losses for individually significant items and impairment losses that are expected to occur, but have not yet been specifically identified.

Provisions of set of financial instruments are based on historical data on the recovery of financial assets.

##### (b) Investments

The Group limits its exposure to credit risk by investing only in liquid securities and only with counterparties that have high credit ratings. Management actively monitors credit ratings and given that the Group only has invested in securities with high credit ratings, does not expect a significant risk that any counterparty fails to meet its obligations.

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to the Consolidated Financial Statements  
For the years ended December 31, 2021 and 2020

**5. Risk Management, Continued**

**(1) Financial risk management, continued**

(iii) Liquidity risk

Liquidity risk is the risk that the Group will encounter difficulty in meeting the obligations associated with its financial liabilities that are settled by delivering cash or another financial asset. The Group's approach to managing liquidity is to ensure, as far as possible, that it will always have sufficient liquidity to meet its liabilities when due, under both normal and stressed conditions, without incurring unacceptable losses or risking damage to the Group's reputation.

The Group has historically been able to satisfy its cash requirements from cash flow from operations and debt and equity financing. To the extent that the Group does not generate sufficient cash flow from operations to meet its capital requirements, the Group may rely on other financing activities, such as external long-term borrowings and offerings of debt securities, equity-linked and other debt securities.

(iv) Market risk

Market risk is the risk that changes in market prices, such as foreign exchange rates, interest rates and equity prices will affect the Group's income or the value of its holdings of financial instruments. The objective of market risk management is to manage and control market risk exposures within acceptable parameters, while optimizing the return.

The Group buys and sells derivatives, and also incurs financial liabilities, in order to manage market risks. All such transactions are carried out within the guidelines set by the Group. Generally the Group seeks to apply hedge accounting in order to manage volatility in profit or loss.

(a) Currency risk

The Group is exposed to currency risk on sales, purchases and borrowings that are denominated in a currency other than the functional currency of the Group, Korean won (KRW). The currencies in which these transactions primarily are denominated are USD, EUR, CNY and JPY.

The Group hedges trade receivables and trade payables denominated in a foreign currency in respect of forecasted sales and purchases. The Group uses forward exchange contracts to hedge its currency risk, most with a maturity of less than three years from the reporting date. When necessary, forward exchange contracts are rolled over at maturity. Trade receivables denominated in a foreign currency have been hedged using forward contracts that mature on the same dates that the receivables are due for collection. In respect of other monetary assets and liabilities denominated in foreign currencies, the Group ensures that its net exposure is kept to an acceptable level by buying or selling foreign currencies at spot rates when necessary to address short-term imbalances.

(b) Other market price risk

The Group is exposed to the risk of price fluctuation arising from financial assets measured at FVOCI (equity instruments).

A change of about 1% stock prices of marketability financial assets measured at FVOCI(listed share) would change total profit or loss about ₩154 thousand each as of December 31, 2021.

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to the Consolidated Financial Statements  
For the years ended December 31, 2021 and 2020

## 5. Risk Management, Continued

### (2) Capital management

The management's policy is to maintain a strong capital base so as to maintain investor, creditor and market confidence and to sustain future development of the business. The Group monitors the liability to equity ratio and net borrowing to equity ratio, which the Group defines as total liabilities divided by total equity and net borrowing divided by total equity.

The Group's liability to equity ratio and net borrowing to equity ratio as of December 31, 2021 and 2020 are as follows:

<i>(In millions of won, except equity ratio)</i>		<b>2021</b>	<b>2020</b>
Total liabilities	₩	1,568,748	1,593,447
Total equity		646,222	679,174
Cash and deposits(*1)		376,705	536,098
Borrowings(*2)		545,862	767,923
Liability to equity ratio		242.76%	234.62%
Net borrowing to equity ratio(*3)		26.18%	34.13%

(\*1) Cash and deposits consist of cash and cash equivalents and short-term and long-term financial assets.

(\*2) Discount on debentures is deducted from the face value of debentures.

(\*3) Net borrowing represents borrowings net of cash and deposits.

The interest coverage ratio and basis of calculation for the years ended December 31, 2021 and 2020 are as follows:

<i>(In millions of won, except ratio)</i>		<b>2021</b>	<b>2020</b>
Operating loss	₩	9,736	72,699
Interest		24,716	30,128
Interest coverage ratio		0.39	2.41

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to the Consolidated Financial Statements  
For the years ended December 31, 2021 and 2020

## 6. Cash and Cash Equivalents

Cash and cash equivalents as of December 31, 2021 and 2020 are summarized as follows:

<i>(In millions of won)</i>		<b>2021</b>	<b>2020</b>
Demand deposits	₩	87,280	14,598
MMDA and others		267,529	509,659
	₩	<u>354,809</u>	<u>524,257</u>

## 7. Short-term and Long-term Financial Assets

(1) Short-term and long-term financial assets as of December 31, 2021 and 2020 are summarized as follows

<i>(In millions of won)</i>		<b>2021</b>		<b>2020</b>	
		<b>Current</b>	<b>Non-current</b>	<b>Current</b>	<b>Non-current</b>
Financial assets measured at amortized cost	₩	21,057	839	10,511	1,331
Financial assets measured at FVTPL		-	5,202	-	5,209
Financial assets measured at FVOCI		-	129	-	125
	₩	<u>21,057</u>	<u>6,170</u>	<u>10,511</u>	<u>6,665</u>

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to the Consolidated Financial Statements  
For the years ended December 31, 2021 and 2020

**7. Short-term and Long-term Financial Assets, Continued**

(2) Financial assets measured at FVTPL as of December 31, 2021 and 2020 are summarized as follows:

(In millions of won)

	2021		2020	
	Acquisition cost	Carrying amount	Acquisition cost	Carrying amount
Electric Contractors				
Financial Cooperation	₩ 97	97	97	97
Construction				
Financial Cooperation(*1)	656	289	656	275
Fire Guarantee				
Financial Cooperation	20	20	20	20
Information & Communication				
Financial Cooperation	15	15	15	15
Machinery				
Financial Cooperation(*2)	2,039	2,531	2,039	2,552
Subordinated bond	2,250	2,250	2,250	2,250
	₩ 5,077	5,202	5,077	5,209

(\*1) Fair value is measured by PBR(Price Book-value Ratio) method.

(\*2) Fair value is measured by Net asset value method.

(3) Financial assets measured at FVOCI as of December 31, 2021 and 2020 are summarized as follows:

(In millions of won)

	2021		2020	
	Acquisition cost	Carrying amount	Acquisition cost	Carrying amount
<b>Unmarketable equity</b>				
NET Co., Ltd.	₩ 150	-	150	-
Co. Busan sandan Solar	109	109	109	109
<b>Marketable equity securities</b>				
STX Heavy Industries Co., Ltd.	83	20	83	16
	₩ 342	129	342	125



HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to the Consolidated Financial Statements  
For the years ended December 31, 2021 and 2020

## 8. Restricted Financial Instruments

Financial instruments, which are restricted in use, as of December 31, 2021 and 2020 are summarized as follows:

(In millions of won)

Description	Bank	2021	2020	Restrictions
Long-term financial instruments	KEB Hana Bank	₩ 2	2	Guarantee deposits for checking accounts
Long-term financial instruments	KEB Hana Bank	6	6	Deposit pledge for License registration
Long-term financial instruments	11th Securitization Specialty Co., Ltd SINBO2020	1,500	1,500	Establishment of the right of pledge
Long-term financial instruments	18th Securitization Specialty Co., Ltd	750	750	Establishment of the right of pledge
Short/Long-term financial instruments	Bank of China, etc.	1,888	1,833	Bill deposit
Other deposit	Industrial and Commercial Bank of China	-	206	Deposit for letter of guarantee
		₩ 4,146	4,297	

Separate to the above, ₩10,000 million deposits are made to financial institutions as of December 31, 2021, for the purpose of financial support to the partner companies.

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to the Consolidated Financial Statements  
For the years ended December 31, 2021 and 2020

## 9. Trade and Other Receivables and Due from Customers for Contract Work

(1) Trade and other receivables as of December 31, 2021 and 2020 are summarized as follows:

(In millions of won)

		2021		2020	
		Current	Non-current	Current	Non-current
<b>Trade receivables:</b>					
Trade receivables	₩	499,099	-	448,052	-
Allowance for doubtful accounts		(55,856)	-	(71,760)	-
		443,243	-	376,292	-
<b>Other receivables:</b>					
Account receivable		60,287	-	57,544	-
Allowance for doubtful accounts		(50,965)	-	(51,185)	-
Accrued income		1,759	-	578	-
Short-Loans		409	-	551	13
Guarantee deposits		1,751	3,473	1,302	3,392
		13,241	3,473	8,790	3,405
	₩	456,484	3,473	385,082	3,405

(2) Contract assets as of December 31, 2021 and 2020 are summarized as follows:

(In millions of won)

		2021	2020
Contract assets	₩	221,536	197,868
Allowance for doubtful accounts		(30,836)	(24,707)
	₩	190,700	173,161

## 10. Inventories

Inventories as of December 31, 2021 and 2020 are summarized as follows:

(In millions of won)

		2021			2020		
		Acquisition cost	Provision for inventory valuation	Carrying amount	Acquisition cost	Provision for inventory valuation	Carrying amount
Merchandise	₩	789	-	789	-	-	-
Finished goods		17,952	(3,246)	14,706	21,967	(7,847)	14,120
Work-in-progress		219,713	(17,394)	202,319	271,236	(26,941)	244,295
Raw materials		115,234	(6,165)	109,069	91,774	(5,462)	86,312
Supplies		-	-	-	46	(23)	23
Materials-in-transit		30,196	-	30,196	13,844	-	13,844
	₩	383,884	(26,805)	357,079	398,867	(40,273)	358,594

Reversal of provision for inventory valuation, which is deducted from the cost of sales for the years ended December 31, 2021 and 2020, were ₩13,468 million and ₩6,842 million accordingly.

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to the Consolidated Financial Statements  
For the years ended December 31, 2021 and 2020

**11. Other Assets**

Other current assets as of December 31, 2021 and 2020 are summarized as follows:

(In millions of won)

		2021		2020	
		Current	Non-current	Current	Non-current
Advance payments	₩	16,086	-	16,054	-
Prepaid expenses		1,351	3,604	1,945	3,329
Others		31,071	264	44,525	174
Accumulated impairment loss(*)		(31,054)	-	(44,507)	-
	₩	<u>17,454</u>	<u>3,868</u>	<u>18,017</u>	<u>3,503</u>

(\*) Due to sale of part of other current assets, accumulated impairment loss was reduced for the years ended December 31, 2021 and 2020.

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to the Consolidated financial Statements  
For the years ended December 31, 2021 and 2020

## 12. Property, Plant and Equipment

(1) Changes in property, plant and equipment for the years ended December 31, 2021 and 2020 are as follows:

(In millions of won)

		2021								
		Buildings		Machinery and		Tools and		Construction		
		Land(*2)	(*2)	Structures	equipment	Vehicles	equipment	in-progress	Others	Total
Beginning balance	₩	185,764	214,233	7,241	62,845	422	32,567	7,080	318	510,470
Acquisitions and Replacement(*1)		45	4,286	407	11,013	52	10,240	136	11	26,190
Disposals		-	(116)	(66)	(162)	(18)	(152)	-	(1)	(515)
Depreciation		-	(7,712)	(194)	(12,066)	(122)	(11,261)	-	(44)	(31,399)
Effects of movements in exchange rates		21	8,591	17	2,389	25	382	48	35	11,508
Ending balance	₩	185,830	219,282	7,405	64,019	359	31,776	7,264	319	516,254
Acquisition cost		187,212	367,024	15,464	378,537	2,663	276,831	8,490	1,983	1,238,204
Government grants		(1,382)	(2,710)	(1,043)	-	-	-	-	-	(5,135)
Accumulated depreciation		-	(107,167)	(5,748)	(260,963)	(2,120)	(219,019)	-	(1,664)	(596,681)
Accumulated impairment		-	(37,865)	(1,268)	(53,555)	(184)	(26,036)	(1,226)	-	(120,134)

(\*1) Acquisitions and Replacement includes ₩484 million for replacement of intangible assets.

(\*2) Land and buildings amounting to ₩35,761 million are still included which were transferred through sales & Leaseback but failed to meet requirements for sale.

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to the Consolidated financial Statements  
For the years ended December 31, 2021 and 2020

## 12. Property, Plant and Equipment, Continued

- (1) Changes in property, plant and equipment for the years ended December 31, 2021 and 2020 are as follows, continued:

(In millions of won)

		2020								
		Land	Buildings	Machinery		Tools and	Construction			Total
		(*2)	(*2)	Structures	and equipment	equipment	in-progress	Others		
Beginning balance	₩	177,470	225,986	7,332	55,513	414	30,056	19,852	270	516,893
Acquisitions and										
Replacement(*1)		8,309	2,115	106	20,659	150	13,171	(12,789)	88	31,809
Disposals		-	(435)	(5)	(29)	(15)	(26)	-	(6)	(516)
Depreciation		-	(7,727)	(180)	(11,887)	(114)	(10,493)	-	(36)	(30,437)
Effects of										
movements in										
exchange rates		(15)	(5,706)	(12)	(1,411)	(13)	(141)	17	2	(7,279)
Ending balance	₩	185,764	214,233	7,241	62,845	422	32,567	7,080	318	510,470
Acquisition cost		187,075	350,993	14,891	365,819	2,592	269,727	8,312	1,783	1,201,192
Government grants		(1,311)	(2,572)	(1,152)	-	-	-	-	-	(5,035)
Accumulated										
depreciation		-	(96,323)	(5,230)	(249,219)	(1,976)	(210,915)	-	(1,465)	(565,128)
Accumulated										
impairment		-	(37,865)	(1,268)	(53,755)	(194)	(26,245)	(1,232)	-	(120,559)

(\*1) Acquisitions and Replacement for the current year includes ₩32,481 million for replacement of non-current asset held for sale, ₩7,505 million for replacement of intangible assets and ₩34,753 million for revaluation profit of land.

(\*2) Land and buildings amounting to ₩36,318 million are still included which were transferred through sales & Leaseback but failed to meet requirements for sale.

- (2) Impairment loss

For the year ended December 31, 2021, the group management reviewed whether there is any indication of impairment occurred, and there was no impairment required to be recognised. And there was no amount of impairment recognized in for the year ended December 31, 2020.

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to the Consolidated financial Statements  
For the years ended December 31, 2021 and 2020

## 12. Property, Plant and Equipment, Continued

### (3) Revaluation of Land

The Group applied revaluation model on land and revalued land by using the value which independent and expertise appraisal institution appraised as of December 31, 2020.

The appraisal institution valued land price based on the publicly assessed land price with adjustments and reviewed reasonableness of revaluation amount by comparing appraisal results with the estimated price based on recent market transactions among the independent third parties.

Book values of land assessed by revaluation model and cost model as of December 31, 2021 are as follows:

<i>(In millions of won)</i>		<b>Revaluation model</b>	<b>Cost model</b>
Land	₩	187,212	97,665

As a result of revaluation on land, gain on revaluation amounting to ₩69,875 million (net of tax effects) was recognized as other accumulated comprehensive income and losses.

### (4) Measurement of fair value

#### (i) Fair value hierarchy

The measured fair value of land is classified into fair value based on the input variables used in the valuation techniques.

#### (ii) The valuation method and input variables which were used for measuring fair value of land are as follows:

<b>Valuation method</b>	<b>Significant but unobservable input variables</b>	<b>Correlation between the main unobservable variable and fair value</b>
Publicly assessed land price method	Time adjustment (Rate of changes in land value)	If flexibility of land value increases (decreases), then fair value increases (decreases).
	Regional contribution	If regional contribution increases (decreases), then fair value increases (decreases).
	Individual contribution	If the adjusted value of terms of residential lot and others increases (decreases), then fair value increases (decreases).
	Other contributions	If the adjusted value of the level of land value and others increases (decreases), then fair value increases (decreases).

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to the Consolidated financial Statements  
For the years ended December 31, 2021 and 2020

### 13. Intangible Assets

(1) Changes in Intangible Assets for the years ended December 31, 2021 and 2020 are as follows:

(In millions of won)

(In millions of won)		2021				
		Goodwill	Development costs	Patents-Industrial	Other intangible assets	Total
Beginning balance	₩	74	14,812	26,905	9,328	51,119
Acquisitions(internal development and Replacement(*))		-	5,137	-	864	6,001
Amortization		-	(2,267)	(4)	(2,553)	(4,824)
Effects of movements in exchange rates		-	355	-	27	382
Ending balance	₩	74	18,037	26,901	7,666	52,678
Acquisition cost		74	133,692	26,911	24,356	185,033
Accumulated amortization		-	(64,052)	(10)	(10,646)	(74,708)
Accumulated impairment		-	(51,603)	-	(6,044)	(57,647)

(\*) Acquisition (internal development) and Replacement includes the replacement amount of ₩484 million for property, plant and equipment for the years ended December 31, 2021.

(In millions of won)

(In millions of won)		2020				
		Goodwill	Development costs	Patents-Industrial	Other intangible assets	Total
Beginning balance	₩	811	16,179	26,909	5,487	49,386
Acquisitions(internal development) and Replacement(*)		-	7,239	-	6,381	13,620
Disposals		-	-	-	(83)	(83)
Amortization		-	(2,346)	(4)	(2,455)	(4,805)
Impairment		-	(6,216)	-	-	(6,216)
Changes in scope of consolidation		(737)	-	-	-	(737)
Effects of movements in exchange rates		-	(44)	-	(2)	(46)
Ending balance	₩	74	14,812	26,905	9,328	51,119
Acquisition cost		74	127,222	26,911	23,030	177,237
Accumulated amortization		-	(60,807)	(6)	(7,658)	(68,471)
Accumulated impairment		-	(51,603)	-	(6,044)	(57,647)

(\*) Acquisition (internal development) and Replacement includes the replacement amount of ₩7,505 million for property, plant and equipment for the year ended December 31, 2020.

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to the Consolidated financial Statements  
For the years ended December 31, 2021 and 2020

### 13. Intangible Assets, Continued

#### (2) Impairment losses

There was no impairment to intangible assets for the year ended December 31, 2021, and the amount of impairment loss recognized by intangible assets for the year ended December 31, 2020 is ~~₩~~6,216 million.

- (i) The Group recognised impairment loss for the project carrying amount ~~₩~~6,216 million because of the decrease in demand for the product for the year ended December 31, 2020.

- (ii) Impairment of individual development project

Impairment loss on development costs for the year ended December 31, 2020 is as follows:

(In millions of won)

Description	Project	2020				Recoverable amount Assessment Methods
		Carrying amount before impairment	Impairment loss(*)	Carrying amount after impairment		
Development Costs	Low pressure explosion-proof motor development, etc.	₩ 9,471	(6,216)	3,255		Value in use



HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to the Consolidated financial Statements  
For the years ended December 31, 2021 and 2020

### 13. Intangible Assets, Continued

(2) Impairment losses, continued

(iii) Impairment assessment due to indication of impairment

In the current period, impairment assessment was not conducted because there were no signs of impairment to the assets of the Group.

The CGUs were identified by product line and the Group recognized the impairment loss by calculation the recoverable amount for each CGUs for the years ended December 31, 2020

The Comparable carrying amount and recoverable amount as of December 31, 2020 are as follows:

<i>(In millions of won)</i>		<b>2020</b>
Carrying amount	₩	508,325
Recoverable amount		927,136
Impairment losses	₩	-

The recoverable amount was estimated based on value in use under the cash flow discount

Principal assumptions used for estimating recoverable amounts are as follows:

Principal assumptions are based on management's assessment of the industry's future trend, internal and external historical data.

<i>(In percentage)</i>		<b>Rate</b>
		<b>2020</b>
Discount rate		10.75
Permanent growth rate		1.00

(3) Research and development costs, ordinary development costs and development costs amortization for the years ended December 31, 2021 and 2020 are as follows:

<i>(In millions of won)</i>		<b>Cost</b>	<b>2021</b>	<b>2020</b>
Research and development costs	Selling, general and administrative expenses	₩	326	158
Ordinary development costs	Selling, general and administrative expenses		38,469	32,499
Development costs amortization	Manufacturing costs		2,267	2,346
		₩	41,062	35,003

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to the Consolidated financial Statements  
For the years ended December 31, 2021 and 2020

#### 14. Short-term and Long-term Financial Liabilities

- (1) Short-term and long-term financial liabilities as of December 31, 2021 and 2020 are summarized as follows:

(In millions of won)

		2021		2020	
		Current	Non-current	Current	Non-current
Short-term borrowings	₩	206,842	-	250,328	-
Long-term borrowings		54,000	110,440	113,760	84,440
Debentures		30,000	145,000	145,000	175,000
Discount on debentures		(40)	(380)	(128)	(477)
	₩	<u>290,802</u>	<u>255,060</u>	<u>508,960</u>	<u>258,963</u>

- (2) Short-term borrowings as of December 31, 2021 and 2020 are summarized as follows:

(In millions of won)

Type of borrowing	Lender	Annual Interest rate	2021	2020
Usance L/C	Industrial Bank of Korea	0.30%	₩ 178	1,057
Commercial paper	Korea Investment & Securities Co., Ltd.	3.98%	-	30,000
General loan (local currency)	Korea Development Bank and others	2.88%	60,000	130,000
General loan (local currency)	Korea Development Bank and others	CD(3M)+2.04%	30,000	-
General loan (local currency)	Bank of China	CD(3M)+1.60%	20,000	20,000
General loan (foreign currency)	Mizuho bank and others	1M Libor+2.15%~2.35% 3M Libor+2.15%	80,614	56,576
General loan (foreign currency)	SCB	4.20%	16,050	12,695
			₩ <u>206,842</u>	<u>250,328</u>

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to the Consolidated financial Statements  
For the years ended December 31, 2021 and 2020

14. Short-term and Long-term Financial Liabilities, Continued

(3) Long-term borrowings as of December 31, 2021 and 2020 are summarized as follows:

(In millions of won)

Type of borrowing	Lender	Annual Interest rate	2021	2020
General loan (local currency)	Samsung Securities and others	3.06%~3.50%	₩ 114,000	126,000
General loan (local currency)	Daegu Bank	Internal bank base rate+2.09%	20,000	20,000
General loan (foreign currency)	Korea Exim	1M LIBOR + 2.26%	-	21,760
Sales & leaseback(*)	Korea Asset Management Corporation	4.23%	30,440	30,440
			164,440	198,200
Less: current portion of long-term borrowings			(54,000)	(113,760)
			₩ 110,440	84,440

(\*) The transfer consideration was recognised as a borrowing because the assets were transferred through a sales & leaseback transaction but failed to meet the requirements for the sale the asset.

(4) Debentures as of December 31, 2021 and 2020 are summarized as follows:

(In millions of won)

Description	Issue	Maturity	Annual interest rate	2021	2020	Guarantee
2 <sup>nd</sup> -2 debenture	2018-09-19	2021-09-17	3.35%	₩ -	45,000	debenture
2 <sup>nd</sup> -3 debenture	2018-09-19	2021-09-17	CD(3M)+1.50%	-	80,000	debenture
3 <sup>rd</sup> -1 debenture	2019-03-08	2021-03-08	3.50%	-	20,000	debenture
4 <sup>th</sup> -1 debenture	2020-07-20	2022-07-20	3.80%	30,000	30,000	debenture
4 <sup>th</sup> -2 debenture	2020-07-20	2023-07-20	4.00%	45,000	45,000	debenture
5 <sup>th</sup> -1 debenture	2020-07-23	2023-07-23	3.56%	50,000	50,000	debenture
6 <sup>th</sup> -1 debenture(*)	2020-10-28	2023-10-28	3.83%	-	50,000	debenture
7 <sup>th</sup> debenture	2021-10-18	2024-10-18	3.34%	50,000	-	debenture
Discount on debentures				(420)	(605)	
				174,580	319,395	
Current portion				(29,960)	(144,872)	
				₩ 144,620	174,523	

(\*) In the case of the 6<sup>th</sup>-1 debenture, 50 billion won was repaid early before the expiration date.

(5) Aggregate maturities of the Group's borrowings and debentures as of December 31, 2021 are as follows:

(In millions of won)

Periods		2021		
		Borrowings	Bonds	Total
Less than 1 year	₩	260,842	30,000	290,842
1 ~ 5 years		110,440	145,000	255,440
	₩	371,282	175,000	546,282

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to the Consolidated financial Statements  
For the years ended December 31, 2021 and 2020

#### 14. Short-term and Long-term Financial Liabilities, Continued

(6) Proceeds and repayments for the years ended December 31, 2021 and 2020 are as follows:

(In millions of won)

		2021		
		Borrowings	Debentures	Total
Beginning balance	₩	448,528	319,395	767,923
Borrowing		279,310	50,000	329,310
Repayments		(364,968)	(195,000)	(559,968)
The effects of changes in foreign exchange rates		8,412	-	8,412
Amortization of discount on debentures		-	185	185
Ending Balance	₩	371,282	174,580	545,862

(In millions of won)

		2020		
		Borrowings	Debentures	Total
Beginning balance	₩	553,148	219,541	772,689
Borrowing		425,013	175,000	600,013
Repayments		(524,871)	(75,000)	(599,871)
The effects of changes in foreign exchange rates		(4,762)	-	(4,762)
Amortization of discount on debentures		-	(146)	(146)
Ending Balance	₩	448,528	319,395	767,923

#### 15. Trade and Other Payables

Trade and other payables as of December 31, 2021 and 2020 are summarized as follows:

(In millions of won)

		2021		2020	
		Current	Non-current	Current	Non-current
Trade payables	₩	192,717	-	155,956	-
Non-trade Payables		38,688	-	42,243	-
Accrued expense		248,229	-	235,058	-
Deposits received		-	200	-	350
	₩	479,634	200	433,257	350

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to the Consolidated financial Statements  
For the years ended December 31, 2021 and 2020

# 16. Employee Benefits

- (1) The amounts of expenses recognized in employee benefits for the years ended December 31, 2021 and 2020 are as follows:

<i>(In millions of won)</i>		<b>2021</b>	<b>2020</b>
Salary(*)	₩	281,489	202,512
Expenses related to the defined benefit plans		10,684	11,902
Expenses related to the defined contribution plans		850	398
Retirement bonus		1,001	1,063
	₩	<u>294,024</u>	<u>215,875</u>

(\*) Additional charges due to the loss of the ordinary wage lawsuit are included for the year ended December 31, 2021.

- (2) Recognized liabilities for defined benefit obligations as of December 31, 2021 and 2020 are as follows:

<i>(In millions of won)</i>		<b>2021</b>	<b>2020</b>
Present value of defined benefit obligations(*1)	₩	109,838	100,344
Fair value of plan assets(*2)		(111,959)	(98,890)
	₩	<u>(2,121)</u>	<u>1,454</u>

(\*1) Other long-term employee benefits amounting to ₩5,635 million and 5,886 million are included for the years ended in December 31, 2021 and 2020, respectively.

(\*2) ₩7,756 million of plan asset that exceeds total value of defined benefit obligations amounting to ₩104,203 and ₩4,432 million of plan asset that exceeds total value of defined benefit obligations amounting to ₩94,458 are classified as assets for defined benefit plans for the years ended in December 31, 2021 and 2020, respectively.

- (3) Plans assets as of December 31, 2021 and 2020 are as follows:

<i>(In millions of won)</i>		<b>2021</b>	<b>2020</b>
Retirement pension(*)	₩	111,731	98,636
Transfer to National Pension Fund		228	254
	₩	<u>111,959</u>	<u>98,890</u>

(\*) The retirement pension is invested in principal and interest guaranteed instrument as of December 31, 2021.

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to the Consolidated financial Statements  
For the years ended December 31, 2021 and 2020

**16. Employee Benefits, Continued**

- (4) Expenses recognized in profit or loss for the years ended December 31, 2021 and 2020 are as follows:

(In millions of won)

		<b>2021</b>	<b>2020</b>
Defined benefit plans			
Current service costs	₩	11,421	11,869
Interest expenses on obligations		2,055	2,016
Expected return on plan assets		(2,187)	(1,983)
Past service costs		(605)	-
		<u>10,684</u>	<u>11,902</u>
Defined contribution plans			
Contribution costs		850	398
Retirement bonus			
Retirement bonus		1,001	1,063
	₩	<u>12,535</u>	<u>13,363</u>

- (5) Changes in the defined benefit obligations for the years ended December 31, 2021 and 2020 are as follows:

(In millions of won)

		<b>2021</b>	<b>2020</b>
Beginning balance	₩	100,344	97,161
Current service costs		11,421	11,869
Interest on obligations		2,055	2,016
Actuarial losses(gains) in other comprehensive income (loss)		5,980	(433)
Past service costs		(605)	-
Benefits paid		(10,080)	(10,896)
Transfers from related parties		720	630
Effects of movements in exchange rates		3	(3)
Ending balance	₩	<u>109,838</u>	<u>100,344</u>

- (6) Changes in the fair value of plan assets for the years ended December 31, 2021 and 2020 are as follows:

(In millions of won)

		<b>2021</b>	<b>2020</b>
Beginning balance	₩	98,890	88,609
Benefits paid		(8,041)	(8,428)
Contributions paid into the plan		18,900	17,000
Expected return on plan assets		2,187	1,983
Actuarial losses in other comprehensive income (loss)		23	(274)
Ending balance	₩	<u>111,959</u>	<u>98,890</u>

The Group are reviewing the level of the fund each year and taking the policy to preserve fund in the event of a loss to the fund. As of December 31, 2021, expected contribution payment for the next year is ₩10,837 million.

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to the Consolidated financial Statements  
For the years ended December 31, 2021 and 2020

**16. Employee Benefits, Continued**

- (7) Expected payment date of the defined benefit obligations as of December 31, 2021 is as follows:

<i>(In millions of won)</i>		<b>Less than 1 year</b>	<b>1 ~ 5 years</b>	<b>5 ~ 10 years</b>	<b>More than 10 years</b>	<b>Total</b>
Expected payment	₩	3,991	47,138	60,660	140,640	252,429

- (8) Principal actuarial assumptions as of December 31, 2021 and 2020 are as follows:

<i>(In percentage)</i>	<b>2021</b>	<b>2020</b>
Discount rate at 31 December	2.61	2.25
Future salary growth rate	1.20~2.43	1.27~2.38
Future mortality (Males, at age 45)	0.20	0.20

- (9) Weighted average durations of defined benefit obligations as of December 31, 2021 and 2020 are as follows:

<i>(In years)</i>	<b>2021</b>	<b>2020</b>
Weighted average durations	8.0	9.4

- (10) Reasonably possible changes as of December 31, 2021 and 2020 to the relevant actuarial assumption would have affected the defined benefit obligation by the amounts shown below.

<i>(In millions of won)</i>		<b>2021</b>	
		<b>Increase</b>	<b>Decrease</b>
Discount rate (1% movement)	₩	(96,792)	112,786
Future salary growth (1% movement)		111,692	(97,711)

<i>(In millions of won)</i>		<b>2020</b>	
		<b>Increase</b>	<b>Decrease</b>
Discount rate (1% movement)	₩	(86,792)	103,352
Future salary growth (1% movement)		102,055	(87,752)

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to the Consolidated financial Statements  
For the years ended December 31, 2021 and 2020

## 17. Provisions

Changes in provisions for the years ended December 31, 2021 and 2020 are as follows:

(In millions of won)

(In millions of won)

		2021				
		Provision for construction loss	Provision for construction warranty	Provision for product warranty	Other provision(*)	Total
Beginning balance	₩	32,086	5,344	116,868	-	154,298
Additions		-	-	46,422	115,268	161,690
Reversals		(5,390)	(1,612)	(16,631)	-	(23,633)
Utilization		-	-	(18,293)	-	(18,293)
Effects of movements in exchange rates		43	-	315	-	358
Ending balance	₩	26,739	3,732	128,681	115,268	274,420
Current		26,739	2,448	103,834	115,268	248,289
Non-current		-	1,284	24,847	-	26,131

(\*) Regarding the ordinary wage lawsuit pending as a defendant as of December 31, 2021, the amount is estimated to be additionally paid to employees if bonuses that were previously excluded from the ordinary wage are included in the ordinary wage.

(In millions of won)

		2020			
		Provision for construction loss	Provision for construction warranty	Provision for product warranty	Total
Beginning balance	₩	35,721	4,697	99,135	139,553
Additions		677	647	55,706	57,030
Reversals		(4,296)	-	(21,911)	(26,207)
Utilization		-	-	(15,958)	(15,958)
Effects of movements in exchange rates		(16)	-	(104)	(120)
Ending balance	₩	32,086	5,344	116,868	154,298
Current		32,086	1,996	99,187	133,269
Non-current		-	3,348	17,681	21,029



HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to the Consolidated financial Statements  
For the years ended December 31, 2021 and 2020

## 18. Derivative Financial Instruments

The Group has entered into derivative instrument contracts with various banks to hedge the risk related to changes in foreign exchange rates, interest rate on borrowings. Derivatives are measured at fair value by using the forward exchange rate and interest rate presented by contract counterparty and others. The evaluation details as of December 31, 2021 and 2020, are as follows.

(1) The description of derivative instrument and hedge accounting

Hedge accounting	Type	Description
Cash flow hedge	Foreign currency forward	Hedges the variability in cash flows attributable to foreign currency exposure in respect of forecasted sales and purchases
Cash flow hedge	Interest rate swap	Hedges cash flow risk on interest rate fluctuation
Cash flow hedge	Commodity futures	Hedges cash flow risk on raw material price fluctuation

(2) As of December 31, 2021 and 2020, details of the derivatives entered into by the Group

(In millions of won  
and in thousands of  
USD)

		2021					
		Currency		Contract amount	Weighted average exchange rate (in won)	Average maturities	Number of contracts
Description	Type	Sell	Buy				
Cash flow hedge	Foreign currency forward	USD	KRW ₩	182,988	1,165.7	2022-05-28	18
Cash flow hedge	Commodity futures	KRW	USD	2,813	-	2022-08-14	4

- Terms of settlement: Netting the settlement or collecting total
- The contract amount is denominated in thousand of USD currency.

(In millions of won  
and in thousands of  
USD)

		2020					
		Currency		Contract amount	Weighted average exchange rate (in won)	Average maturities	Number of contracts
Description	Type	Sell	Buy				
Cash flow hedge	Foreign currency forward	USD	KRW ₩	76,631	1,150.2	2021-06-14	10
Cash flow hedge	Interest rate swap	KRW	KRW	80,000	-	2021-09-17	1

- Terms of settlement: Netting the settlement or collecting total
- The contract amount is denominated in selling currency.

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to the Consolidated financial Statements  
For the years ended December 31, 2021 and 2020

**18. Derivative Financial Instruments, Continued**

(3) Book value related to derivatives as of December 31, 2021 and 2020 are as follows:

(In millions of won)

Description	Type	2021				2020			
		Assets		Liabilities		Assets		Liabilities	
		Current	Non-current	Current	Non-current	Current	Non-current	Current	Non-current
Cash flow hedge	Foreign currency forward	₩ 652	-	4,742	-	4,716	-	-	-
Cash flow hedge	Interest rate swap	-	-	-	-	-	-	766	-
Cash flow hedge	Commodity futures	103	-	-	-	-	-	-	-
		₩ 755	-	4,742	-	4,716	-	766	-

(4) Gain and loss on valuation and transaction of derivatives for the years ended December 31, 2021 and 2020 are as follows:

(In millions of won)

Description	Type	2021		2020	
		Revenue/ Interest rate	Accumulated other comprehensive income (loss)	Revenue/ Interest rate	Accumulated other comprehensive income (loss)
Cash flow hedge	Foreign currency forward	₩ (2,177)	(8,806)	5,283	(2,870)
Cash flow hedge	Interest rate swap	(775)	766	(800)	106
Cash flow hedge	Commodity futures	-	102	-	-
		₩ (2,952)	(7,938)	4,483	(2,764)

For the year ended December 31, 2021 the Group applies cash flow hedge accounting, for which the Group accounted for the effective portion of the hedge amounted to ₩7,938 million, net of tax of ₩6,193 million, as gain on valuation of derivatives in accumulated other comprehensive income. For the year ended December 31, 2020 the Group applied cash flow hedge accounting, for which the Company accounted for the effective portion of the hedge amounted to ₩2,764 million, net of tax of ₩2,157 million, as gain on valuation of derivatives in accumulated other comprehensive income.

## HYUNDAI ELECTRIC &amp; ENERGY SYSTEMS CO., LTD.

## Notes to the Consolidated financial Statements

For the years ended December 31, 2021 and 2020

**19. Capital and Capital Surplus**

## (1) Capital

The Group is authorized to issue 160,000,000 shares of capital stock (par value ₩5,000), and as of December 31, 2021 the number of issued common shares is 36,047,135 shares.

## (2) Capital surplus

Capital surplus as of December 31, 2021 and 2020 are summarized as follows:

<i>(In millions of won)</i>		<b>2021</b>	<b>2020</b>
Beginning balance	₩	696,168	696,168
Proceeds from issue of common stock(In November 2017)		257,020	257,020
Proceeds from issue of common stock(In December 2019)		28,870	28,870
Payment of transaction costs related to establishment and issuing common stock		(4,216)	(4,216)
Increase of share capital without considerations		(76,135)	(76,135)
Ending balance	₩	<u>901,707</u>	<u>901,707</u>

## (3) Dividends

There are no dividends resolved at the shareholder's meeting for the years ended December 31, 2021 and 2020.

**20. Capital Adjustments**

Capital Adjustments as of December 31, 2021 and 2020 are summarized as follows:

<i>(In millions of won, except share data)</i>		<b>2021</b>	
	<b>Number of shares (in shares)</b>	<b>Acquisition cost</b>	<b>Fair value</b>
Treasury stock	54,431	₩ 15,241	1,083

<i>(In millions of won, except share data)</i>		<b>2020</b>	
	<b>Number of shares (in shares)</b>	<b>Acquisition cost</b>	<b>Fair value</b>
Treasury stock	54,431	₩ 15,241	893

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to the Consolidated financial Statements  
For the years ended December 31, 2021 and 2020

**21. Accumulated Other Comprehensive Income (loss)**

- (1) Accumulating other comprehensive income as of December 31, 2021 and 2020 is summarized as follows:

<i>(In millions of won)</i>		<b>2021</b>	<b>2020</b>
Net changes in fair value of financial assets measured at FVOCI	₩	(167)	(170)
Effective portion of changes in fair value of cash flow hedges		(3,111)	3,082
Exchange differences on translating foreign operations		12,737	1,164
Revaluation of property, plant and equipment		69,875	69,875
	₩	<u>79,334</u>	<u>73,951</u>

- (2) Other comprehensive income (loss) for the years ended December 31, 2021 and 2020 are as follows:

<i>(In millions of won)</i>		<b>2021</b>		
		<b>Before tax amount</b>	<b>Tax effect</b>	<b>After tax amount</b>
Net changes in fair value of financial assets measured at FVOCI	₩	4	(1)	3
Effective portion of changes in fair value of cash flow hedges		(7,938)	1,745	(6,193)
Exchange differences on translating foreign operations, net of tax		11,573	-	11,573
Actuarial gains and losses		(5,957)	1,310	(4,647)
	₩	<u>(2,318)</u>	<u>3,054</u>	<u>736</u>

<i>(In millions of won)</i>		<b>2020</b>		
		<b>Before tax amount</b>	<b>Tax effect</b>	<b>After tax amount</b>
Net changes in fair value of financial assets measured at FVOCI	₩	(1,503)	330	(1,173)
Effective portion of changes in fair value of cash flow hedges		(2,764)	607	(2,157)
Revaluation of property, plant and equipment		34,728	(7,632)	27,096
Exchange differences on translating foreign operations, net of tax		(3,936)	-	(3,936)
Actuarial gains and losses		159	(35)	124
	₩	<u>26,684</u>	<u>(6,730)</u>	<u>19,954</u>

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to the Consolidated financial Statements  
For the years ended December 31, 2021 and 2020

## 22. Retained Earnings (Accumulated Deficit)

- (1) Retained earnings (Accumulated Deficit) as of December 31, 2021 and 2020 are summarized as follows:

<i>(In millions of won)</i>		<b>2021</b>	<b>2020</b>
Unappropriated retained earnings (Accumulated Deficit)	₩	(499,814)	(461,480)

- (2) Changes in retained earnings (Accumulated Deficit) for the years ended December 31, 2021 and 2020 are as follows:

<i>(In millions of won)</i>		<b>2021</b>	<b>2020</b>
Beginning balance	₩	(461,480)	(427,893)
Loss attributable to owners of the Group		(33,687)	(40,247)
Revaluation of property, plant and equipment's surplus replacement		-	7,712
Reclassification of financial assets measured at FVOCI		-	(1,176)
Actuarial gains and losses		(4,647)	124
Ending balance	₩	<u>(499,814)</u>	<u>(461,480)</u>

## 23. Revenue

- (1) Details of revenue  
Revenue for the years ended December 31, 2021 and 2020 are as follows:

<i>(In millions of won)</i>		<b>2021</b>	<b>2020</b>
Construction contracts(*)	₩	8,249	6,563
Goods sold		1,785,315	1,786,611
Others		12,428	18,171
	₩	<u>1,805,992</u>	<u>1,811,345</u>

(\*) Construction contracts sales are generated from performance obligations satisfied over time.

The foreign sales amount to ₩978,337 million, and domestic sales amount to ₩827,655 million for the year ended December 31, 2021.

No major customer accounts for more than 10% of sales during the current year and previous year.

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to the Consolidated financial Statements  
For the years ended December 31, 2021 and 2020

## 23. Revenue, Continued

- (2) Changes in outstanding contracts for the year ended December 31, 2021 are as follows:

(In millions of won)

		<b>2021</b>
Beginning balance(*)	₩	33,988
Increase during the year		-
Recognized as revenue		(8,249)
Ending balance	₩	<u>25,739</u>

(\*) The beginning balance includes the impact from translation of the contract balance denominated in foreign currency to Korean Won using on the appropriate exchange rate.

In connection with the construction contract, the Group has provided certain amount of deposits or letters from financial institutions for various guarantees (e.g. bid bond, performance bond, refund guarantee, maintenance bond, etc.).

- (3) Accumulated profit and loss of construction and others connected with construction in progress as of December 31, 2021 are as follows:

(In millions of won)

			<b>2021</b>				
			<b>Billed receivables on construction contracts(*)</b>	<b>Unbilled receivables on construction contracts(*)</b>	<b>Contract liabilities</b>	<b>Provisions for Construction Loss</b>	
<b>Accumulated revenue of construction</b>	<b>Accumulated cost of construction</b>	<b>Accumulated profit (loss) of construction</b>					
₩ 255,494	291,026	(35,532)	11,686	5,881	4,032	8,666	

(\*) As of December 31, 2021, the allowance for doubtful accounts for receivables on construction contracts amounts to ₩3,761 million.

There is no amount of retentions according to the contract terms among the receivables on construction contracts.

The Group mainly collect the consideration based on the milestone payment method. Therefore, receivables, contract assets and contract liabilities might be changed according to the progress of construction.

- (4) As of December 31, 2021, information about significant construction contracts which of the contract amount exceeds 5% or more of the Group's previous year total revenue is as follows:

(In millions of won)

				<b>2021</b>			
				<b>Contract assets</b>		<b>Trade receivables</b>	
				<b>Total amount</b>	<b>Allowance for doubtful accounts</b>	<b>Total amount</b>	<b>Allowance for doubtful accounts</b>
<b>Contract</b>	<b>Date of contract</b>	<b>Construction deadline</b>	<b>Percentage of completion</b>				
Rabigh 2	2013-11-29	2022-12-31	97.82%	₩ -	-	-	-

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to the Consolidated financial Statements  
For the years ended December 31, 2021 and 2020

## 23. Revenue, Continued

(5) The effect of changes in estimated total contract costs

(i) The effect of changes in estimated total contract costs

For the year ended December 31, 2021, due to the factors causing the change in estimated total contract costs, the estimated total contract costs for contracts in progress have changed. Details of change in profits or loss for the current year and the future period and the impact on contract assets and contract liabilities are as follows:

(In millions of won)

	Changes in total contract revenue(*)	Changes in total estimated contract costs	Effect on profit (loss) of contract			Changes in Contract assets	Changes in Contract liabilities
			Current year	Future period	Total		
₩	979	(751)	1,412	318	1,730	1,853	624

(\*) Changes in entire contract revenue (including foreign currency fluctuation) were included.

Effect on profit or loss for the current period and future period is calculated based on the total contract costs and total contract revenue estimated on the basis of situations generated in the current period. These estimations could be changed by variation of actual situations in the future.

(ii) Sensitivity analysis based on changes in the estimated total contract costs

The amount of contract assets and contract liabilities affected by the rate of progress which is determined by accumulated cost incurred divided by estimated total contract costs. Estimated total contract costs are calculated based on estimation on the materials cost, labour cost and construction period, and has a variance risk related to the fluctuation of exchange rate, changes in field installation cost, etc.

The Group has entered into foreign currency forward contracts to hedge the risk related to exchange rate fluctuation for reducing the short-term price risk. In the case of performance obligations satisfied over time, there may be work uncertainty at the installation site. The impacts on profit or loss of current period and future periods, contract assets and contract liabilities in case field installation cost changes 10% are as follows:

(In millions of won)

	Effect on profit or loss this year		Effect on profit or loss in the future		Changes in Contract assets		Changes in Contract liabilities	
	10% increase	10% decrease	10% increase	10% decrease	10% increase	10% decrease	10% increase	10% decrease
₩	(1,542)	1,756	(284)	70	(340)	573	518	(297)

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to the Consolidated financial Statements  
For the years ended December 31, 2021 and 2020

## 23. Revenue, Continued

### (6) Contracts with customers

#### (i) Revenue streams

Details of source of revenue for the years ended December 31, 2021 and 2020 are as follow:

<i>(In millions of won)</i>		<b>2021</b>	<b>2020</b>
Revenue from contracts with customers	₩	1,808,169	1,806,062
Gain (loss) on valuation of hedging accounting		(2,177)	5,283
	₩	<u>1,805,992</u>	<u>1,811,345</u>

#### (ii) Disaggregation of revenue

The disaggregated revenue for the years ended December 31, 2021 and 2020 is as follow:

<i>(In millions of won)</i>		<b>2021</b>	<b>2020</b>
<b>Region:</b>			
Republic of Korea	₩	827,656	879,704
North America		337,886	283,867
Asia (including in Middle East Asia)		445,607	466,064
Europe		142,347	151,786
Others		54,673	24,641
		<u>1,808,169</u>	<u>1,806,062</u>
<b>Revenue recognition method:</b>			
Recognized when the goods are delivered		1,799,920	1,799,499
Recognized over time as services are provided.		8,249	6,563
		<u>1,808,169</u>	<u>1,806,062</u>
<b>Contract period:</b>			
Short-term contract (within 1 year)		1,211,442	1,229,088
Long-term contract (more than 1 year)		596,727	576,974
	₩	<u>1,808,169</u>	<u>1,806,062</u>

#### (iii) Contract balances

(a) Trade receivables from contracts with customers as of December 31, 2021 and 2020 is as follows:

<i>(In millions of won)</i>		<b>2021</b>	<b>2020</b>
<b>Receivables:</b>			
receivables	₩	499,099	448,052
Allowance for Doubtful Accounts		(55,856)	(71,760)
	₩	<u>443,243</u>	<u>376,292</u>

Contract assets and contract liabilities from contracts with customers as of December 31, 2021 and 2020 are as follows (exclude allowance):

<i>(In millions of won)</i>		<b>2021</b>	<b>2020</b>
<b>Contract Assets:</b>			
Contract Assets	₩	221,536	197,868
Allowance for Doubtful Accounts		(30,836)	(24,707)
	₩	<u>190,700</u>	<u>173,161</u>



HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to the Consolidated financial Statements  
For the years ended December 31, 2021 and 2020

### 23. Revenue, Continued

(6) Contracts with customers, continued

(iii) Contract balances, continued

(a) Trade receivables from contracts with customers as of December 31, 2021 and 2020 is as follows, continued:

(In millions of won)

	<u>2021</u>	<u>2020</u>
<b>Contract Liabilities:</b>		
Current Contract Liabilities	₩ 219,954	188,333
Non-current Contract Liabilities	21,616	22,134
	<u>₩ 241,570</u>	<u>210,467</u>

(b) Changes in contract assets for the years ended December 31, 2021 and 2020 are as follows:

(In millions of won)

	<u>2021</u>	<u>2020</u>
Beginning balance	₩ 173,161	202,505
Revenue (+)	219,925	18,223
Reclassification as receivables (-)	(194,989)	(50,733)
Impairment (-)	(7,397)	3,166
Ending balance	<u>₩ 190,700</u>	<u>173,161</u>

(c) Changes in contract liabilities for the years ended December 31, 2021 and 2020 are as follows:

(In millions of won)

	<u>2021</u>	<u>2020</u>
Beginning balance	₩ 210,467	194,615
Revenue (-)	(122,461)	(97,551)
Advance payment receipt/ Increase due to obligations (+)	153,564	113,403
Ending balance	<u>₩ 241,570</u>	<u>210,467</u>

## HYUNDAI ELECTRIC &amp; ENERGY SYSTEMS CO., LTD.

## Notes to the Consolidated financial Statements

For the years ended December 31, 2021 and 2020

**24. Selling, General and Administrative Expenses**

Selling, general and administrative expenses for the years ended December 31, 2021 and 2020 are as follows:

(In millions of won)

		<b>2021</b>	<b>2020</b>
Salaries(*1)	₩	59,151	40,506
Bonuses		7,787	7,229
Retirement benefits(*2)		2,906	2,934
Employee welfare		11,695	11,868
Depreciation		2,471	2,401
Right-of-use Assets Depreciation		3,753	3,899
Amortization		2,414	2,397
Bad debt expense (reversal allowance for bad debts)		706	277
Ordinary development costs		38,469	32,499
Advertising		2,218	1,468
Printing		292	144
Power cost		185	197
Warranty expenses(reversal)		28,817	34,635
Insurance		1,490	1,399
Office expenses		240	259
Travel		2,749	2,119
Research		326	158
Service fee		10,813	9,496
Transportation		11,435	12,784
Rent		347	1,042
Data processing		3,101	3,359
Entertainment		685	485
Service charges		14,265	46,005
Automobile maintenance		468	408
Sales commissions		8,730	12,022
Others		9,877	7,488
	₩	<u>225,390</u>	<u>237,478</u>

(\*1) Additional charges due to the loss of the ordinary wage lawsuit are included for the year ended December 31, 2021.

(\*2) Retirement benefits for the years ended December 31, 2021 and 2020 includes in retirement bonus due to voluntary retirement.

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to the Consolidated financial Statements  
For the years ended December 31, 2021 and 2020

## 25. Nature of Expenses

The classification of expenses by nature for the years ended December 31, 2021 and 2020 are as follows:

<i>(In millions of won)</i>	<b>2021</b>	<b>2020</b>
Changes in inventories	₩ 1,515	32,177
Purchase of inventories	942,215	1,134,490
Depreciation	31,399	30,437
Right-of-use Assets Depreciation	6,593	6,662
Amortization	4,824	4,805
Labor cost(*)	294,024	215,875
Other expenses	515,685	314,200
	₩ <u>1,796,255</u>	<u>1,738,646</u>

(\*) Additional charges due to the loss of the ordinary wage lawsuit are included for the year ended December 31, 2021.

Total expenses consist of cost of sales and selling, general and administrative expenses.

## 26. Finance Income and Finance Costs

Finance income and finance costs for the years ended December 31, 2021 and 2020 are as follows:

<i>(In millions of won)</i>	<b>2021</b>	<b>2020</b>
<b>Finance income:</b>		
Interest income	₩ 3,479	4,674
Dividend income	17	39
Gain on foreign currency translation	10,836	12,295
Gain on foreign currency transactions	31,231	35,288
Gain on valuation of financial instruments measured at fair value through profit or loss	14	33
	₩ <u>45,577</u>	<u>52,329</u>
<b>Finance costs:</b>		
Interest expense	₩ 24,716	30,128
Loss on foreign currency translation	16,064	19,351
Loss on foreign currency transactions	11,316	47,530
Loss on valuation of financial instruments measured at fair value through profit or loss	29	81
Loss on disposal of financial instruments measured at fair value through profit or loss	1	-
	₩ <u>52,126</u>	<u>97,090</u>

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to the Consolidated financial Statements  
For the years ended December 31, 2021 and 2020

## 27. Other Non-operating Income and Other Non-operating Expenses

Other non-operating income and other non-operating expenses for the years ended December 31, 2021 and 2020 are as follows:

<i>(In millions of won)</i>	<u>2021</u>	<u>2020</u>
<b>Other non-operating income:</b>		
Gain on disposal of property, plant and equipment ₩	209	685
Reversal of loss on revaluation of land	-	35
Gain on disposal of non-current asset held for sale	-	1,043
Gain on disposal of other current assets	3	245
Reversal of other allowance doubtful accounts	275	945
Miscellaneous income	2,832	5,022
	₩ <u>3,319</u>	<u>7,975</u>
<b>Other non-operating expenses:</b>		
Service charges ₩	2,983	789
Loss on disposal of property, plant, and equipment	495	485
Loss on revaluation of land	-	11
Impairment loss on intangible assets	-	6,216
Loss on disposal of non-current asset held for sale	-	2,423
Donation	3,659	2,204
Miscellaneous expenses	39,791	77,285
	₩ <u>46,928</u>	<u>89,413</u>

## 28. Income Tax Expense

- (1) The components of income tax expense (benefit) for the years ended December 31, 2021 and 2020 are as follows:

<i>(In millions of won)</i>	<u>2021</u>	<u>2020</u>
Current tax expense ₩	2,504	4,779
Income tax in arrears for prior periods	(690)	6,292
Origination and reversal of temporary differences	(11,603)	(17,593)
Income tax recognized in other comprehensive income	3,054	(6,730)
Total income tax expense (benefit) ₩	<u>(6,735)</u>	<u>(13,252)</u>

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to the Consolidated financial Statements  
For the years ended December 31, 2021 and 2020

## 28. Income Tax Expense, Continued

- (2) Income tax recognized directly in other comprehensive income for the years ended December 31, 2021 and 2020 are as follows:

<i>(In millions of won)</i>	<b>2021</b>	<b>2020</b>
Net change in fair value of financial assets measured at ₩ FVOCI	(1)	330
Gains on valuation of derivatives	1,745	607
Gains on revaluation of property, plant and equipment	-	(7,632)
Defined benefit plan actuarial gain	1,310	(35)
Income tax recognized directly in other comprehensive ₩ income	<u>3,054</u>	<u>(6,730)</u>

Income taxes related to net change in fair value of financial assets measured at FVOCI, gains/losses on valuation of derivatives, gains/losses on revaluation of property, plant and equipment and defined benefit plan actuarial gains/losses are recognized in other comprehensive income.

- (3) Reconciliation of effective tax rate for the years ended December 31, 2021 and 2020 are as follows:

<i>(In millions of won)</i>	<b>2021</b>	<b>2020</b>
Profit (Loss) before income tax ₩	(40,421)	(53,499)
Income tax using the Group's statutory tax rate	(6,957)	(11,265)
Adjustment for:		
Effect of non-deductible expenses	2,027	519
Tax credits	(213)	(50)
Others	(1,592)	(2,456)
Income tax expense (benefit) ₩	<u>(6,735)</u>	<u>(13,252)</u>
Effective tax rate	(*)	(*)

(\*) As income tax benefit is occurred, the Group did not calculate effective tax rate.

- (4) Deferred tax expenses by origination and reversal of deferred tax assets and liabilities and temporary differences for the years ended December 31, 2021 and 2020 are as follows:

<i>(In millions of won)</i>	<b>2021</b>	<b>2020</b>
Deferred tax assets(liabilities) at the end of the period ₩	216,280	204,677
Deferred tax assets(liabilities) at the beginning of the period	<u>204,677</u>	<u>187,084</u>
Deferred tax effects by origination and reversal of temporary differences ₩	<u>11,603</u>	<u>17,593</u>

- (5) As of December 31, 2021, the tax effects of temporary difference were calculated using the enacted statutory tax rate for the fiscal period when the temporary differences are expected to be reversed.

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to the Consolidated financial Statements  
For the years ended December 31, 2021 and 2020

**28. Income Tax Expense, Continued**

- (6) The Group sets off a deferred tax asset against a deferred tax liability only if it relates to income taxes levied by the same taxation authority and has a legally enforceable right to set off current tax assets against current tax liabilities.
- (7) Changes in deferred tax assets (liabilities) for the years ended December 31, 2021 and 2020 are as follows:

(In millions of won)

		2021		
		Beginning balance	Change	Ending balance
Allowance for doubtful accounts	₩	29,983	(2,145)	27,838
Accrued income		(120)	(240)	(360)
Present value of defined benefit obligations		11,850	2,373	14,223
Fair value of plan assets		(12,730)	(2,878)	(15,608)
Provisions for construction loss		7,141	(961)	6,180
Provisions for construction warranty		26,124	2,236	28,360
Land revaluation		(32,377)	-	(32,377)
Depreciation		13,884	(2,766)	11,118
Derivatives		(868)	1,744	876
Gain on foreign currency translations		1,083	(190)	893
Accrued expenses		2,525	(56)	2,469
Others		82,764	15,914	98,678
		<u>129,259</u>	<u>13,031</u>	<u>142,290</u>
Loss carried forward		71,550	(1,825)	69,725
Carried forward tax credit		3,868	397	4,265
	₩	<u>204,677</u>	<u>11,603</u>	<u>216,280</u>

(In millions of won)

		2020		
		Beginning balance	Change	Ending balance
Allowance for doubtful accounts	₩	30,227	(244)	29,983
Accrued income		(81)	(39)	(120)
Present value of defined benefit obligations		11,089	761	11,850
Fair value of plan assets		(10,562)	(2,168)	(12,730)
Provisions for construction loss		8,248	(1,107)	7,141
Provisions for construction warranty		21,900	4,224	26,124
Land revaluation		(29,363)	(3,014)	(32,377)
Depreciation		6,872	7,012	13,884
Derivatives		(1,476)	608	(868)
Loss on foreign currency translations		(47)	1,130	1,083
Accrued expenses		2,701	(176)	2,525
Others		66,055	16,709	82,764
		<u>105,563</u>	<u>23,696</u>	<u>129,259</u>
Loss carried forward		77,472	(5,922)	71,550
Carried forward tax credit		4,049	(181)	3,868
	₩	<u>187,084</u>	<u>17,593</u>	<u>204,677</u>

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to the Consolidated financial Statements  
For the years ended December 31, 2021 and 2020

**28. Income Tax Expense, Continued**

- (8) As of December 31, 2021 and 2020, the timing of collection and settlement of deferred tax assets and liabilities is as follows:

<i>(In millions of won)</i>	<u>2021</u>	<u>2020</u>
Deferred tax assets	₩	
Deferred tax assets to be recovered in 12 months	86,199	109,839
Deferred tax assets to be recovered within 12 months.	130,081	94,838
	₩ <u>216,280</u>	<u>204,677</u>

- (9) The details of temporary differences that were not recognised as deferred tax assets as of December 31, 2021 and 2020 are as follows:

<i>(In millions of won)</i>	<u>2021</u>	<u>2020</u>	<u>Reason</u>
Treasury stock	₩ 15,241	15,241	Unrecognized in accordance with paragraph 24 of K-IFRS 12

- (10) As of December 31, 2021 and 2020, the expected realizable timing of unused tax loss recognised as a deferred tax assets is as follows:

<i>(In millions of won)</i>	<u>2021</u>	<u>2020</u>
2022	₩ -	-
2023	8,463	20,440
2024	46,409	35,365
2025	57,577	42,079
2026	67,291	68,271
2027	88,466	69,161
2028	49,047	70,122
2029	-	20,117
After 2030	136,838	134,615
	₩ <u>454,091</u>	<u>460,170</u>

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to the Consolidated financial Statements  
For the years ended December 31, 2021 and 2020

## 29. Lease

### (1) Leases as lessee

Information about leases for which the Group is a lessee is presented below.

#### (i) Right-of-use Assets

(In millions of won)

(In millions of won)

		2021				
		Lands	Buildings	Machinery	Vehicles	Total
Beginning balance	₩	246	9,864	-	480	10,590
Depreciation		(235)	(5,914)	(191)	(253)	(6,593)
Additions to right-of-use assets		500	2,690	865	147	4,202
Sublease replacement(*)		(500)	-	-	-	(500)
The Effects of Changes in Foreign Exchange Rates		-	90	25	4	119
Ending balance	₩	11	6,730	699	378	7,818

(\*) Lands represented as right-of-use assets were subleased for the year ended 31, 2021.

(In millions of won)

(In millions of won)

		2020			
		Lands	Buildings	Vehicles	Total
Beginning balance	₩	103	6,248	688	7,039
Depreciation		(76)	(6,216)	(370)	(6,662)
Additions to right-of-use assets		219	9,790	176	10,185
Termination of right-of-use assets		-	-	(10)	(10)
The Effects of Changes in Foreign Exchange Rates		-	42	(4)	38
Ending balance	₩	246	9,864	480	10,590

#### (ii) Amounts recognized in profit or loss

(In millions of won)

		2021	2020
Interest on lease liabilities	₩	461	420
Expenses relating to short-term lease		226	774
Expenses relating to leases of low-value assets, excluding short-term leases of low-value assets		144	82
	₩	831	1,276

#### (iii) Amounts recognized in statement of cash flows

(In millions of won)

		2021	2020
Total cash outflow for leases	₩	8,980	7,848

### (2) Leases as lessor

The Group provides lands represented as right-of-use assets by sublease and classified as a financial lease. There is no balance in receivables as all lease receivables are recovered as of December 31, 2021.



HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to the Consolidated financial Statements  
For the years ended December 31, 2021 and 2020

### 30. Earnings per Share

- (1) Basic earnings (loss) per share for the years ended December 31, 2021 and 2020 are as follows:

<i>(In millions of won, except share data)</i>	<b>2021</b>	<b>2020</b>
Profit (loss) attributable to Owners of the Company	₩ (33,687)	(40,247)
Weighted average number of ordinary shares outstanding <i>(In thousands of shares)(*)</i>	35,993	35,993
Earnings (loss) per share <i>(In won)</i>	₩ (936)	(1,118)

(\*) Weighted average number of ordinary shares

<i>(In shares)</i>	<b>2021</b>		
	<b>Number of shares outstanding</b>	<b>Weighted average</b>	<b>Weighted average number of shares outstanding</b>
Beginning balance	36,047,135	365/365	36,047,135
Treasury stock	(54,431)	365/365	(54,431)
Weighted average number of ordinary shares outstanding	35,992,704		35,992,704

<i>(In shares)</i>	<b>2020</b>		
	<b>Number of shares outstanding</b>	<b>Weighted average</b>	<b>Weighted average number of shares outstanding</b>
Beginning balance	36,047,135	366/366	36,047,135
Treasury stock	(54,431)	366/366	(54,431)
Weighted average number of ordinary shares outstanding	35,992,704		35,992,704

- (2) As the Group has no dilutive securities as of December 31, 2021 and 2020, diluted earnings per share has not been calculated.

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to the Consolidated financial Statements  
For the years ended December 31, 2021 and 2020

### 31. Cash flow from Operations

- (1) Cash generated from operations for the years ended December 31, 2021 and 2020 are as follows

(In millions of won)

	<u>2021</u>	<u>2020</u>
<b>Loss for the period</b>	₩ (33,687)	(40,247)
<b>Adjustments for:</b>	164,763	277,799
Post-employment benefit costs	10,684	11,902
Property, plant and equipment depreciation	31,399	30,437
Right-of-use depreciation	6,593	6,662
Amortization	4,824	4,805
Bad (Reversal) debt expenses	706	277
Finance income	(14,346)	(17,041)
Finance costs	40,810	49,560
Other non-operating income	(487)	(2,953)
Other non-operating expenses	1,870	9,135
Tax expense (income)	(6,735)	(13,252)
<b>Changes in assets and liabilities:</b>		
Trade receivables	(41,669)	67,940
Other receivables	(3,890)	7,638
Contract assets	(21,646)	32,179
Inventories	8,434	49,900
Other current assets	3,600	(1,760)
Other non-current assets	(48)	3
Trade payables	27,637	(68,324)
Other payables	(6,615)	96,638
Contract liabilities	23,279	17,641
Other current liabilities	7	385
Long-term other payables	(150)	-
Benefits paid	(10,080)	(10,896)
Succession of benefits	720	630
Plan assets	(10,859)	(8,572)
Provisions	120,725	14,865
	<u>₩ 131,076</u>	<u>237,552</u>

- (2) Significant transactions that do not involve cash inflows and outflows operations for the years ended December 31, 2021 and 2020 are as follows:

(In millions of won)

	<u>2021</u>	<u>2020</u>
Reclassification of construction-in-progress	₩ 9,520	26,396
Reclassification of construction-in-progress to work-in-progress	-	21,202
Reclassification of current portion of debentures	30,000	145,000
Reclassification of current portion of long-term borrowings	54,000	92,000
Reclassification of Property, plant and equipment to non-current asset held for sale	-	32,841
Revaluation of land	-	34,729
Adjusting the acquisition value of a right-of-use assets	4,202	10,185
Reclassification of right-of-use assets and financial lease receivables	(500)	-
Adjustment of Accounts Receivable for sale of Property, plant and equipment	(234)	(322)
Adjustment of Accounts Receivable for sale of non-current asset held for sale	-	234
Adjustment of Accounts Payable for purchase of Property, plant and equipment and Intangible assets	(999)	1,792
Reclassification of Dividend income to financial instruments	8	30

## HYUNDAI ELECTRIC &amp; ENERGY SYSTEMS CO., LTD.

## Notes to the Consolidated financial Statements

For the years ended December 31, 2021 and 2020

**32. Categories of Financial Instruments and Income and Costs by Categories**

(1) Categories of financial instruments as of December 31, 2021 and 2020 are summarized as follows:

*(In millions of won)*

(In millions of won)

	2021				
	Fair value –hedging instruments	Financial Instruments measured at FVTPL	Financial Instruments measured at FVOCI	Financial Instruments measured at amortized cost	Total
<b>Financial assets:</b>					
Cash and cash equivalents	₩ -	-	-	354,809	354,809
Short- term Financial assets	-	-	-	21,057	21,057
Trade and other receivables	-	-	-	456,484	456,484
Contract assets	-	-	-	190,700	190,700
Derivative assets (current)	755	-	-	-	755
Long-term Financial assets	-	5,202	129	839	6,170
Long-term Trade and other receivables	-	-	-	3,473	3,473
	₩ 755	5,202	129	1,027,362	1,033,448
<b>Financial liabilities:</b>					
Short-term Financial liabilities	₩ -	-	-	290,802	290,802
Trade and other payables	-	-	-	479,634	479,634
Derivative liabilities (current)	4,742	-	-	-	4,742
Current lease liabilities	-	-	-	3,498	3,498
Long-term Financial liabilities	-	-	-	255,060	255,060
Long-term Trade and other receivables	-	-	-	200	200
Non-current lease liabilities	-	-	-	5,276	5,276
	₩ 4,742	-	-	1,034,470	1,039,212

## HYUNDAI ELECTRIC &amp; ENERGY SYSTEMS CO., LTD.

## Notes to the Consolidated financial Statements

For the years ended December 31, 2021 and 2020

**32. Categories of Financial Instruments and Income and Costs by Categories, Continued**

(1) Categories of financial instruments as of December 31, 2021 and 2020 are summarized as follows, continued:

(In millions of won)

(In millions of won)

	2020				
	Fair value –hedging instruments	Financial Instruments measured at FVTPL	Financial Instruments measured at FVOCI	Financial Instruments measured at amortized cost	Total
<b>Financial assets:</b>					
Cash and cash equivalents	₩ -	-	-	524,257	524,257
Short- term Financial assets	-	-	-	10,511	10,511
Trade and other receivables	-	-	-	385,082	385,082
Contract assets	-	-	-	173,161	173,161
Derivative assets (current)	4,716	-	-	-	4,716
Long-term Financial assets	-	5,209	125	1,331	6,665
Long-term Trade and other receivables	-	-	-	3,405	3,405
	₩ 4,716	5,209	125	1,097,747	1,107,797
<b>Financial liabilities:</b>					
Short-term Financial liabilities	₩ -	-	-	508,960	508,960
Trade and other payables	-	-	-	433,257	433,257
Derivative liabilities (current)	766	-	-	-	766
Current lease liabilities	-	-	-	6,244	6,244
Long-term Financial liabilities	-	-	-	258,963	258,963
Long-term Trade and other receivables	-	-	-	350	350
Non-current lease liabilities	-	-	-	6,371	6,371
	₩ 766	-	-	1,214,145	1,214,911

## HYUNDAI ELECTRIC &amp; ENERGY SYSTEMS CO., LTD.

## Notes to the Consolidated financial Statements

For the years ended December 31, 2021 and 2020

## 32. Categories of Financial Instruments and Income and Costs by Categories, Continued

(2) Financial instruments income and costs by categories for the years ended December 31, 2021 and 2020 are as follows:

(In millions of won)

	2021					
	Cash Flow –hedging instruments	Financial Instruments measured at FVTPL	Financial Instruments measured at FVOCI	Financial assets measured at amortized cost	Financial liabilities measured at amortized cost	Total
<b>Net income (loss):</b>						
Interest income(*) ₩	-	-	-	3,479	-	3,479
Dividend income	-	17	-	-	-	17
Gain on valuation of financial instruments measured at FVTPL	-	14	-	-	-	14
Gain on foreign currency transactions	-	-	-	30,531	700	31,231
Gain on foreign currency translation	-	-	-	10,817	19	10,836
Reversal of allowance for doubtful accounts	-	-	-	275	-	275
Revenue	(2,177)	-	-	-	-	(2,177)
Bad debt expense	-	-	-	(706)	-	(706)
Interest expense(*)	-	-	-	-	(24,716)	(24,716)
Loss on valuation of financial instruments measured at FVTPL	-	(29)	-	-	-	(29)
Loss on disposals of financial instruments measured at FVTPL	-	(1)	-	-	-	(1)
Loss on foreign currency transaction	-	-	-	(9,771)	(1,545)	(11,316)
Loss on foreign exchange translation	-	-	-	(452)	(15,612)	(16,064)
Payment fee	-	-	-	-	(2,380)	(2,380)
	(2,177)	1	-	34,173	(43,534)	(11,537)
<b>Other comprehensive income (loss)</b>						
Effective portion of changes in fair value of cash flow hedges	(6,193)	-	-	-	-	(6,193)
Losses on valuation of financial instruments at FVOCI	-	-	3	-	-	3
	(6,193)	-	3	-	-	(6,190)
₩	(8,370)	1	3	34,173	(43,534)	(17,727)

(\*) Interest income and interest expense arising from effective interest rate amortization are included.

## HYUNDAI ELECTRIC &amp; ENERGY SYSTEMS CO., LTD.

## Notes to the Consolidated financial Statements

For the years ended December 31, 2021 and 2020

**32. Categories of Financial Instruments and Income and Costs by Categories, Continued**

(2) Financial instruments income and costs by categories for the years ended December 31, 2021 and 2020 are as follows, continued:

(In millions of won)

(In millions of won)		2020					
		Cash Flow –hedging instruments	Financial Instruments measured at FVTPL	Financial Instruments measured at FVOCI	Financial assets measured at amortized cost	Financial liabilities measured at amortized cost	Total
<b>Net income (loss):</b>							
Interest income(*)	₩	-	-	-	4,674	-	4,674
Dividend income		-	39	-	-	-	39
Gain on valuation of financial instruments measured at FVTPL		-	33	-	-	-	33
Gain on foreign currency transactions		-	-	-	33,388	1,900	35,288
Gain on foreign currency translation		-	-	-	780	11,515	12,295
Reversal of allowance for doubtful accounts		-	-	-	945	-	945
Revenue		5,283	-	-	-	-	5,283
Bad debt expense		-	-	-	(277)	-	(277)
Interest expense(*)		(800)	-	-	-	(29,328)	(30,128)
Loss on valuation of financial instruments measured at FVTPL		-	(81)	-	-	-	(81)
Loss on foreign currency transaction		-	-	-	(45,831)	(1,699)	(47,530)
Loss on foreign exchange translation		-	-	-	(19,273)	(78)	(19,351)
Payment fee		-	-	-	-	(815)	(815)
		4,483	(9)	-	(25,594)	(18,505)	(39,625)
<b>Other comprehensive income (loss)</b>							
Effective portion of changes in fair value of cash flow hedges		(2,157)	-	-	-	-	(2,157)
Losses on valuation of financial instruments at FVOCI		-	-	(1,173)	-	-	(1,173)
		(2,157)	-	(1,173)	-	-	(3,330)
₩		2,326	(9)	(1,173)	(25,594)	(18,505)	(42,955)

(\*) Interest income and interest expense arising from effective interest rate amortization are included.

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to the Consolidated financial Statements  
For the years ended December 31, 2021 and 2020

### 33. Risk of Financial Instruments

(1) Credit risk

(i) Exposure to credit risk

The carrying amount of financial assets and contract assets represents the maximum credit exposure. The maximum exposure to credit risk as of December 31, 2021 and 2020 are as follows:

<i>(In millions of won)</i>		<b>2021</b>	<b>2020</b>
Cash and cash equivalents	₩	354,809	524,257
Short-term financial instruments		21,057	10,511
Long-term financial instruments		839	1,331
Financial assets measured at FVTPL (non-current)		5,202	5,209
Financial assets measured at FVOCI		129	125
Trade receivables and other receivables		456,484	385,082
Long-term trade receivables and other receivables		3,473	3,405
Contract asset		190,700	173,161
Derivative assets(current)		755	4,716
	₩	<u>1,033,448</u>	<u>1,107,797</u>

The maximum exposure to risk for debt guarantee for the loan for treasury stock of employee stock ownership is ₩36,208 million (See Note 34).

The maximum exposure to credit risk for trade and other receivables by geographic region as of December 31, 2021 and 2020 are as follows:

<i>(In millions of won)</i>		<b>2021</b>	<b>2020</b>
Korea	₩	232,469	295,284
North America		112,952	45,517
Asia		259,544	216,675
Europe		42,466	10,374
Others		25,122	5,640
	₩	<u>672,553</u>	<u>573,490</u>

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to the Consolidated financial Statements  
For the years ended December 31, 2021 and 2020

### 33. Risk of Financial Instruments, Continued

(1) Credit risk, continued

(ii) Impairment losses

(a) The aging of short- and long-term financial instruments and Trade receivables and other receivables and contract assets and the related allowance for impairment as of December 31, 2021 and 2020 are as follows:

(In millions of won)

		2021		2020	
		Gross	Impairment	Gross	Impairment
Not past due	₩	281,383	(2,448)	345,177	(23,860)
Past due up to 6 months		222,799	(3,417)	158,752	(3,433)
Past due 6~12 months		66,929	(5,541)	50,213	(3,644)
Past due 1~3 years		92,679	(17,016)	55,253	(21,376)
More than three years		146,421	(109,235)	111,746	(95,338)
	₩	<u>810,211</u>	<u>(137,657)</u>	<u>721,141</u>	<u>(147,651)</u>

(b) The movement in the allowance for impairment in respect of trade receivables, other receivables and contract assets for the years ended December 31, 2021 and 2020 are as follows:

		2021	
		Trade receivables and Other receivables	Contract assets
Beginning balance	₩	122,944	24,707
Impairment loss recognized		10,209	8,439
Reversal of allowance accounts		(15,172)	(2,310)
Write-offs		(11,160)	-
Ending balance	₩	<u>106,821</u>	<u>30,836</u>

		2020	
		Trade receivables and Other receivables	Contract assets
Beginning balance	₩	126,060	25,700
Impairment loss recognized		5,174	2,173
Reversal of allowance accounts		(5,151)	(3,166)
Write-offs		(3,139)	-
Ending balance	₩	<u>122,944</u>	<u>24,707</u>

The allowance accounts in respect of loans and receivables is used to record impairment losses unless the Group is satisfied that all collection measures have been exhausted. At that point, the amounts are considered irrecoverable and are written off against the financial asset directly.



HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to the Consolidated financial Statements  
For the years ended December 31, 2021 and 2020

**33. Risk of Financial Instruments, Continued**

(1) Credit risk, continued

(ii) Impairment losses, continued

(c) For the years ended December 31, 2021 and 2020, impairment losses and impairment reversals that occur in other receivables are recorded as other non-operating income and details of them are as follows:

<i>(In millions of won)</i>		<u>2021</u>	<u>2020</u>
Other bad debt expense	₩	-	-
Reversal of other allowance doubtful accounts	₩	(275)	(945)

(iii) The analysis of the aging of financial assets that are past due as of December 31, 2021 and 2020, but not impaired are summarized as follows:

(In millions of won)		2021				
		Carrying amount	Less than 6 months	6 to 12 months	1 to 3 years	More than 3 years
Trade and other receivables	₩	393,619	219,382	61,388	75,663	37,186

(In millions of won)		2020				
		Carrying amount	Less than 6 months	6 to 12 months	1 to 3 years	More than 3 years
Trade and other receivables	₩	228,645	140,146	44,262	30,157	14,080

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to the Consolidated financial Statements  
For the years ended December 31, 2021 and 2020

### 33. Risk of Financial Instruments, Continued

(2) Liquidity risk

(i) Liquidity risk

The contractual maturities of financial liabilities, including estimated interest payments and excluding the impact of netting agreements as of December 31, 2021 and 2020 are summarized as follows:

(In millions of won)

		2021					
		Carrying amount	Contractual cash flow	Less than 6 months	6 to 12 months	1 to 3 years	More than 3 years
<b>Non-derivative financial liabilities:</b>							
Short-term borrowings	₩	206,842	208,389	145,244	63,145	-	-
Current portion of Debentures		29,960	30,855	570	30,285	-	-
Current Portion of Long-term Borrowings		54,000	54,986	14,681	40,305	-	-
Current lease liabilities		3,498	3,538	2,360	1,178	-	-
Trade and other payables		479,634	479,634	476,767	2,867	-	-
Long-term borrowings		110,440	118,515	1,962	2,010	82,815	31,728
Debentures		144,620	156,322	2,638	2,638	151,046	-
Long-term trade and other payables		200	200	-	-	200	-
Non-current lease liabilities		5,277	5,707	-	-	3,962	1,745
	₩	<u>1,034,471</u>	<u>1,058,146</u>	<u>644,222</u>	<u>142,428</u>	<u>238,023</u>	<u>33,473</u>

The maximum exposure to risk for debt guarantee for the loan for treasury stock of employee stock ownership is ₩36,208 million (See Note 34).

(In millions of won)

		2020					
		Carrying amount	Contractual cash flow	Less than 6 months	6 to 12 months	1 to 3 years	More than 3 years
<b>Non-derivative financial liabilities:</b>							
Short-term borrowings	₩	250,328	252,406	201,918	50,488	-	-
Current portion of Debentures		144,872	148,387	22,324	126,063	-	-
Current Portion of Long-term Borrowings		113,760	114,327	108,221	6,106	-	-
Current lease liabilities		6,244	6,351	3,131	3,220	-	-
Trade and other payables		433,257	433,257	430,900	2,357	-	-
Long-term borrowings		84,440	93,447	1,368	1,501	57,562	33,016
Debentures		174,523	192,720	3,341	3,341	186,038	-
Long-term trade and other payables		350	350	-	-	350	-
Non-current lease liabilities		6,371	6,914	-	-	3,870	3,044
	₩	<u>1,214,145</u>	<u>1,248,159</u>	<u>771,203</u>	<u>193,076</u>	<u>247,820</u>	<u>36,060</u>

It is not expected that the cash flows included in the maturity analysis could occur significantly earlier, or at significantly different amounts.

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to the Consolidated financial Statements  
For the years ended December 31, 2021 and 2020

**33. Risk of Financial Instruments, Continued**

(2) Liquidity risk, continued

(ii) The periods in which the cash flows associated with cash flow hedges are expected to occur as of December 31, 2021 and 2020 are summarised as follows:

*(In millions of won)*

(In millions of won)

	2021					
	Carrying amount	Contractual cash flow	Less than 6 months	6 to 12 months	1 to 3 years	More than 3 years
<b>Forward exchange contracts</b>						
Assets	653	668	-	668	-	-
Liabilities	₩ (4,742)	(4,777)	(4,772)	(5)	-	-
<b>Commodity Futures</b>						
Assets	102	103	-	103	-	-

*(In millions of won)*

(In millions of won)

		2020					
		Carrying amount	Contractual cash flow	Less than 6 months	6 to 12 months	1 to 3 years	More than 3 years
<b>Interest rate swaps</b>							
Liabilities	₩	(766)	(768)	(522)	(246)	-	-
<b>Forward exchange contracts</b>							
Assets		4,716	4,771	4,382	389	-	-

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to the Consolidated financial Statements  
For the years ended December 31, 2021 and 2020

### 33. Risk of Financial Instruments, Continued

(3) Currency risk

(i) Exposure to currency risk

The Group's exposure to foreign currency risk based on notional amounts as of December 31, 2021 and 2020 are as follows:

(In millions of won)

		2021					
		USD	EUR	CNY	JPY	Others	Total
Cash and cash equivalents	₩	67,947	250	-	28	1,419	69,644
Trade and other receivables		130,729	16,783	1,626	97	42,753	191,988
Contract assets		84,443	2,351	-	-	13,299	100,093
Financial assets total	₩	283,119	19,384	1,626	125	57,471	361,725
Trade and other payables	₩	200,751	3,784	2,218	326	1,249	208,328
Borrowings and debentures		-	178	-	-	-	178
Financial liabilities total	₩	200,751	3,962	2,218	326	1,249	208,506
Gross statement of financial position exposure	₩	82,368	15,422	(592)	(201)	56,222	153,219
Derivative contracts		(216,932)	-	-	-	-	(216,932)
Net exposure	₩	(134,564)	15,422	(592)	(201)	56,222	(63,713)

(In millions of won)

		2020					
		USD	EUR	CNY	JPY	Others	Total
Cash and cash equivalents	₩	154,795	246	-	39	893	155,973
Trade and other receivables		115,564	8,322	162	21	33,215	157,284
Contract assets		107,788	212	-	-	27,450	135,450
Financial assets total	₩	378,147	8,780	162	60	61,558	448,707
Trade and other payables	₩	155,440	2,861	3,947	317	1,917	164,482
Borrowings and debentures		-	1,057	-	-	-	1,057
Financial liabilities total	₩	155,440	3,918	3,947	317	1,917	165,539
Gross statement of financial position exposure	₩	222,707	4,862	(3,785)	(257)	59,641	283,168
Derivative contracts		(83,375)	-	-	-	-	(83,375)
Net exposure	₩	139,332	4,862	(3,785)	(257)	59,641	199,793

Significant exchange rates applied for the years ended December 31, 2021 and 2020 are as follows:

(In won)

		Average rate		Spot rate	
		2021	2020	2021	2020
USD	₩	1,144	1,180	1,186	1,088
EUR		1,353	1,346	1,342	1,338
CNY		177	171	186	167
JPY(100)		1,041	1,105	1,030	1,054

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to the Consolidated financial Statements  
For the years ended December 31, 2021 and 2020

### 33. Risk of Financial Instruments, Continued

(3) Currency risk, continued

(ii) Sensitivity analysis

A weakening of the won, as indicated below, against the USD, EUR, CNY, JPY and others as of December 31, 2021 would have increased (decreased) profit or loss by the amounts shown below. This analysis is based on foreign currency exchange rate variances that the Group considered to be reasonably possible at the reporting date. The analysis assumes that all other variables, in particular interest rates, remain constant. The changes in profit or loss for the years ended December 31, 2021 and 2020 are as follows:

(In millions of won)

		Profit or loss	
		2021	2020
USD (3 percent strengthening)	₩	(4,037)	4,180
EUR (3 percent strengthening)		463	146
CNY (3 percent strengthening)		(18)	(114)
JPY (3 percent strengthening)		(6)	(8)

A strengthening of the won against the above currencies as of December 31, 2021 would have had the equal but opposite effect on the above currencies to the amounts shown above assuming all other variables remain constant.

(4) Interest rate risk

- (i) The interest rate profile of the Group's interest-bearing financial instruments as of December 31, 2021 and 2020 are as follows:

(In millions of won)

	2021	2020
<b>Fixed rate instruments:</b>		
Financial assets	₩ 74,072	73,530
Financial liabilities	(395,668)	(570,192)
	₩ (321,596)	(496,662)
<b>Variable rate instruments:</b>		
Financial assets(*)	₩ 284,742	450,550
Financial liabilities	(150,614)	(198,336)
	₩ 134,128	252,214

(\*) Included in trade receivables related to related party receivables that receive overdue interest due to collection delay as of December 31, 2020.

(ii) Fair value sensitivity analysis for fixed rate instruments

The risk of change in the Group's interest rates usually arises from variable-rate borrowing contracts. The Group appropriately manages the risk of interest rate changes in the variable interest rate borrowings through the interest rate swap in order to avoid risks arising from changes in interest rates. Interest rate swap agreement do not exist as of December 31, 2021.

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to the Consolidated financial Statements  
For the years ended December 31, 2021 and 2020

**33. Risk of Financial Instruments, Continued**

(4) Interest rate risk, continued

(iii) Cash flow sensitivity analysis for variable rate instruments

A change of 100 basis points in interest rates as of December 31, 2021 and 2020 would have increased (decreased) profit or loss by the amounts shown below. This analysis assumes that all other variables, in particular foreign currency rates, remain constant. The changes in profit or loss are as follows:

*(In millions of won)*

		<b>Profit or loss</b>	
		<b>100 bp increase</b>	<b>100 bp decrease</b>
<b>2021</b>			
Variable rate instruments	₩	1,341	(1,341)
Cash flow sensitivity (net amount)		1,341	(1,341)
<b>2020</b>			
Variable rate instruments	₩	2,522	(2,522)
Interest rate swap		800	(800)
Cash flow sensitivity (net amount)		3,322	(3,322)

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to the Consolidated financial Statements  
For the years ended December 31, 2021 and 2020

### 33. Risk of Financial Instruments, Continued

(5) Fair values

(i) Fair values versus carrying amounts

The fair values of financial assets and liabilities, together with the carrying amounts shown in the statement of financial position as of December 31 2021 and 2020, are as follows:

(In millions of won)

(In millions of won)		2021				
		Carrying amounts				Fair values
		Cash flow hedging instruments	Financial instruments measured at FVTPL	Equity investments measured at FVOCI	Financial instruments measured at amortized cost	
<b>Assets carried at fair value:</b>						
Derivative assets(current)	₩	755	-	-	-	755
Financial assets measured at FVTPL(non-current)		-	5,202	129	-	5,331
		755	5,202	129	-	6,086
<b>Assets not carried at fair value:</b>						
Cash and cash equivalents		-	-	-	354,809	354,809
Short-term financial assets		-	-	-	21,057	21,057
Trade and other receivables		-	-	-	456,484	456,484
Contract assets		-	-	-	190,700	190,700
Long-term financial instruments		-	-	-	839	839
Long-term Trade and other receivables		-	-	-	3,473	3,473
		-	-	-	1,027,362	1,027,362
<b>Total financial assets</b>	₩	755	5,202	129	1,027,362	1,033,448
<b>Liabilities carried at fair value:</b>						
Derivative liabilities(current)	₩	4,742	-	-	-	4,742
		4,742	-	-	-	4,742
<b>Liabilities not carried at fair value:</b>						
Short-term borrowings		-	-	-	206,842	206,842
Current portion of debentures		-	-	-	29,960	29,960
Current portion of Long-term borrowings		-	-	-	54,000	54,000
Trade and other payables		-	-	-	479,634	479,634
Current lease liabilities		-	-	-	3,498	3,498
Long-term borrowings		-	-	-	110,440	110,440
Debentures		-	-	-	144,620	144,620
Long-term Trade and other payables		-	-	-	200	200
Non-current lease liabilities		-	-	-	5,276	5,276
		-	-	-	1,034,470	1,034,470
<b>Total financial liabilities</b>	₩	4,742	-	-	1,034,470	1,039,212

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to the Consolidated financial Statements  
For the years ended December 31, 2021 and 2020

### 33. Risk of Financial Instruments, Continued

(5) Fair values, continued

(i) Fair values versus carrying amounts, continued

(In millions of won)

		2020				
		Carrying amounts				Fair values
		Cash flow hedging instruments	Financial instruments measured at FVTPL	Equity investments measured at FVOCI	Financial instruments measured at amortized cost	
<b>Assets carried at fair value:</b>						
Derivative assets(current)	₩	4,716	-	-	-	4,716
Financial assets measured at FVTPL(non-current)		-	5,209	125	-	5,334
		4,716	5,209	125	-	10,050
<b>Assets not carried at fair value:</b>						
Cash and cash equivalents		-	-	-	524,257	524,257
Short-term financial assets		-	-	-	10,511	10,511
Trade and other receivables		-	-	-	385,082	385,082
Contract assets		-	-	-	173,161	173,161
Long-term financial instruments		-	-	-	1,331	1,331
Long-term Trade and other receivables		-	-	-	3,405	3,405
		-	-	-	1,097,747	1,097,747
<b>Total financial assets</b>	₩	4,716	5,209	125	1,097,747	1,107,797
<b>Liabilities carried at fair value:</b>						
Derivative liabilities(current)	₩	766	-	-	-	766
		766	-	-	-	766
<b>Liabilities not carried at fair value:</b>						
Short-term borrowings		-	-	-	250,328	250,328
Current portion of debentures		-	-	-	144,872	144,872
Current portion of Long-term borrowings		-	-	-	113,760	113,760
Trade and other payables		-	-	-	433,257	433,257
Current lease liabilities		-	-	-	6,244	6,244
Long-term borrowings		-	-	-	84,440	84,440
Debentures		-	-	-	174,523	174,523
Long-term Trade and other payables		-	-	-	350	350
Non-current lease liabilities		-	-	-	6,371	6,371
		-	-	-	1,214,145	1,214,145
<b>Total financial liabilities</b>	₩	766	-	-	1,214,145	1,214,911



HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to the Consolidated financial Statements  
For the years ended December 31, 2021 and 2020

### 33. Risk of Financial Instruments, Continued

(5) Fair values, continued

(ii) Interest rates used for determining fair value

The interest rates used to discount estimated cash flows, when applicable, are based on the government yield curve at the reporting date plus an adequate credit spread. The interest rates applied as of December 31, 2021 and 2020 are as follows:

<i>(In percentage)</i>		<u>2021</u>	<u>2020</u>
Derivatives	%	3,66	4.57

(iii) Fair value hierarchy

The different levels have been defined as follows:

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

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to the Consolidated financial Statements  
For the years ended December 31, 2021 and 2020

### 33. Risk of Financial Instruments, Continued

(5) Fair values, continued

(iii) Fair value hierarchy, continued

The financial instruments carried at fair value, by fair value hierarchy as of December 31, 2021 and 2020 are as follows:

(In millions of won)

		Level 1	Level 2	Level 3	Total
<b>2021:</b>					
Derivative assets	₩	-	755	-	755
Financial assets measured at FVTPL		-	-	5,202	5,202
Financial assets measured at FVOCI		20	-	109	129
Derivative liabilities		-	4,742	-	4,742
<b>2020:</b>					
Derivative assets	₩	-	4,716	-	4,716
Financial assets measured at FVTPL		-	-	5,209	5,209
Financial assets measured at FVOCI		16	-	109	125
Derivative liabilities		-	766	-	766

The fair value of financial instruments traded in active markets is based on quoted market prices at the end of reporting period. A market is regarded as active if quoted prices are readily and regularly available from an exchange, dealer, broker, industry group, pricing service, or regulatory agency, and those prices represent actual and regularly occurring market transactions on an arm's length basis. The quoted market price used for financial assets held by the Group is the current bid price. These instruments are included in level 1. Instruments included in level 1 are comprised primarily of listed equity investments.

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 fairly value an instrument are observable, the instrument is included in level 2.

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

Specific valuation techniques used to value financial instruments include:

- Quoted market prices or dealer quotes for similar instruments.
- The fair value of forward foreign exchange contracts is determined using forward exchange rates at the end of reporting period, with the resulting value discounted back to present value.
- Other techniques, such as discounted cash flow analysis, are used to determine fair value for the remaining financial instruments.

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to the Consolidated financial Statements  
For the years ended December 31, 2021 and 2020

### 33. Risk of Financial Instruments, Continued

(5) Fair values, continued

(iv) Valuation techniques and input variables of Level 2 fair values

The valuation techniques and input variables used in measuring Level 2 fair values as of December 31, 2021 and 2020 are as follows:

(In millions of won)

Derivatives	2021	2020	Valuation techniques	Input variables
<b>Derivative</b>				
Derivative assets			Cash flow discount	Currency forward price,
(Foreign currency forward)	₩ 652	4,716	model	discount rate and others
Derivative liabilities			Cash flow discount	Currency forward price,
(Foreign currency forward)	4,742	-	model	discount rate and others
Derivative assets			Cash flow discount	Commodity Futures price,
(Commodity Futures)	103	-	model	discount rate and others
Derivative liabilities			Cash flow discount	Interest rate and others
(interest rate swap)	-	766	model	

(v) Level 3 fair values

(a) Changes in financial asset classified as Level 3 in the fair value hierarchy of assets and liabilities measured at fair value as of December 31, 2021 and 2020 are as follows:

(In millions of won)

	Financial assets measured at FVTPL	
	2021	2020
<b>Financial assets at FVTPL:</b>		
Beginning balance	₩ 5,209	2,977
Acquisition	-	2,269
Disposition	-	(19)
Profit and loss included in net income	(7)	(18)
Ending balance	₩ 5,202	5,209

(In millions of won)

	Financial assets measured at FVOCI	
	2021	2020
<b>Financial assets at FVOCI:</b>		
Beginning balance	₩ 109	-
Acquisition	-	109
Ending balance	₩ 109	109

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to the Consolidated financial Statements  
For the years ended December 31, 2021 and 2020

**33. Risk of Financial Instruments, Continued**

(5) Fair values, continued

(v) Level 3 fair values, continued

(b) The valuation technique and inputs of assets and liabilities classified as level 3 in the fair value hierarchy of assets and liabilities measured at fair value as of December 31, 2021 and 2020 are as follows:

(In millions of won)

		2021			
	Amount	Valuation technique	Input valuables	Significant unobservable inputs	Range of significant unobservable inputs
<b>Financial assets measured at FVTPL:</b>					
Construction Guarantee Cooperation	₩ 289	Market comparison on technique	PBR	PBR	0.42
Machinery Financial Cooperation	2,531	Net asset value method	-	-	-
Others(*)	2,491	-	-	-	-
	<u>₩ 5,311</u>				

(\*)The carrying amount was used as there would be no significant difference between the carrying amount and the fair value.

(In millions of won)

		2020			
	Amount	Valuation technique	Input valuables	Significant unobservable inputs	Range of significant unobservable inputs
<b>Financial assets measured at FVTPL:</b>					
Construction Guarantee Cooperation	₩ 275	Market comparison on technique	PBR	PBR	0.38
Machinery Financial Cooperation	2,552	Net asset value method	-	-	-
Others(*)	2,491	-	-	-	-
	<u>₩ 5,318</u>				

(\*) The carrying amount was used as there would be no significant difference between the carrying amount and the fair value.

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to the Consolidated financial Statements  
For the years ended December 31, 2021 and 2020

### 33. Risk of Financial Instruments, Continued

(5) Fair values, continued

(v) Level 3 fair values, continued

(c) The effect of changes in unobservable inputs as of December 31, 2021 and 2020 on the fair value measurement of financial assets and financial liabilities is as follows:

(In millions of won)

(In millions of won)		2021				
		Unobservable inputs	Effects of unobservable inputs on the measurement of fair value	Calculating the effects of variation	Variation effects of fair value	
					Net income	
					Favorable change	Unfavorable change
Financial assets measured at FVTPL:						
Construction			Fair value change as	Fair value change as		
Guarantee	PBR		increase(decrease) of price-	increase(decrease) of	₩	7
Cooperation			to-book ratio	1P (price-to-book ratio)		(7)

(In millions of won)

(In millions of won)		2020				
					Variation effects of fair value	
					Net income	
		Unobservable inputs	Effects of unobservable inputs on the measurement of fair value	Calculating the effects of variation	Favorable change	Unfavorable change
Financial assets measured at FVTPL:						
Construction			Fair value change as	Fair value change as		
Guarantee	PBR		increase(decrease) of price-	increase(decrease) of	₩	7
Cooperation			to-book ratio	1P (price-to-book ratio)		(7)

## HYUNDAI ELECTRIC &amp; ENERGY SYSTEMS CO., LTD.

## Notes to the Consolidated financial Statements

For the years ended December 31, 2021 and 2020

**33. Risk of Financial Instruments, Continued**

## (6) Offsetting of financial assets and financial liabilities

The details of financial assets or financial liabilities netting arrangements as of December 31, 2021 and 2020 are as follows:

(In millions of won)

(In millions of won)

		2021					
		Total recognized financial assets that will be setoff	Net financial assets presented in the Statement of Financial Position	Related amount: won't be setoff in the Statement of Financial Position			
				Financial instruments	Received cash security	Net amount	
<b>Financial assets</b>							
Trade and other receivables	₩	5,779	(3,276)	2,503	-	-	2,503
<b>Financial liabilities</b>							
Trade and other payables		14,214	(3,276)	10,938	-	-	10,938

(In millions of won)

(In millions of won)		2020					
		Total recognized financial assets	Total recognized financial assets that will be setoff	Net financial assets presented in the Statement of Financial Position	Related amount: won't be setoff in the Statement of Financial Position		
					Financial instruments	Received cash security	Net amount
<b>Financial assets</b>							
Trade and other receivables	₩	2,935	(1,711)	1,224	-	-	1,224
<b>Financial liabilities</b>							
Trade and other payables		9,935	(1,711)	8,224	-	-	8,224

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to the Consolidated financial Statements  
For the years ended December 31, 2021 and 2020.

### 34. Commitments and Contingencies

- (1) As of December 31, 2021, the Group has entered into general loan agreements with the Korea Development Bank and SC Bank and others amounting to ₩170,000 million, USD 122,000 thousand respectively.
- (2) As of December 31, 2021, the Group has entered into a loan agreement of accounts receivable collateral with KEB Hana Bank for a total limit of ₩20,000 million.
- (3) As of December 31, 2021, the Group has entered into promissory note issuance agreements amounting to CNY 80,000 thousand from financial institutions.
- (4) In connection with the Group's contract performance guarantees, the Group has been provided with guarantees amounting to ₩368,592 million, USD 395,609 thousand and CNY 230,000 thousand and CAD 100,000 thousand by various banking facilities respectively.
- (5) As of December 31, 2021, the Group has entered into trade and credit limit agreements amounting to ₩3,500 million and USD 76,000 thousand from financial institutions.
- (6) As of December 31, 2021, the Group has granted a debt guarantee amounting to ₩44,973 million for the loan for treasury stock of employee stock ownership association based on the board of directors' decision on October 31, 2017. The amount of debt is ₩37,477 million at the time of guarantee and the amount of debt guarantee is based on 120% of the debt. Due to the repayment of debt from certain employees' stock ownership association, the remaining balance of debt is ₩13,270 million and debt guarantee is ₩32,683 million as of December 31, 2021.
- (7) As of December 31, 2021, the Group has granted a debt guarantee amounting to ₩15,207 million for the loan for treasury stock of employee stock ownership association based on the board of directors' decision on September 16, 2019. The amount of debt is ₩15,207 million at the time of guarantee and the amount of debt guarantee is based on 120% of the debt. Due to the repayment of debt from certain employees' stock ownership association, the remaining balance of debt is ₩3,525 million and debt guarantee is ₩3,525 million as of December 31, 2021.

The Company was incorporated on April 1, 2017 through the spin-off the Korea Shipbuilding & Offshore Engineering Co., Ltd.(formerly, Hyundai Heavy Industries Co., Ltd.) And in accordance with Article 530, paragraph 9.1 of the Commercial law, the Group is jointly liable for the liability of Korea Shipbuilding & Offshore Engineering Co., Ltd. before the spin-off.

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to the Consolidated financial Statements  
For the years ended December 31, 2021 and 2020.

### 35. Litigations

- (1) Ordinary wage lawsuit (Supreme Court 2016da7975 remand after quashing -> Busan High court 2022na29)

Date of filing	December 28, 2012.
Litigant	Plaintiff: Kyung-Hwan Jeong and nine others, Defendant: Hyundai Heavy Industries Co., Ltd.
Litigation content	Plaintiff filed a suit claiming that total bonuses should be included in the ordinary wage category and recalculated.
Litigation value	₩630 million
The progress of litigation	Defendant partially lost the first trial (Ulsan District Court 2012 gahap 10108) on February 12, 2015. Defendant won the second trial (Busan High Court 2015 na 1888) on January 13, 2016. Defendant lost the third trial and remand after quashing on December 16, 2021. Second trial(Busan district Court 2022 na 29) on January 3, 2022.
Future litigation schedule and countermeasures	The case is being reviewed by the Busan District Court after the Supreme Court lost the defendant and the judgment was quashed and remanded.
The effect on the Group as a result of litigation	As losses were expected due to the decision to lose Hyundai Heavy Industries Co., Ltd., the cost of ₩115.3 billion was reflected in other provisions.

- (2) Ordinary wage lawsuits (Busan district court 2019na54524)

Date of filing	July 9, 2015
Litigant	Plaintiff: Dong-guk, Kim and 12,436 others, Defendant: Hyundai Heavy Industries Co., Ltd.
Litigation content	Plaintiff filed a suit claiming that total bonuses should be included in the ordinary wage category and recalculated
Litigation value	₩1,250 million
The progress of litigation	Filed a lawsuit on July 9, 2015 Defendant won the first trials (Ulsan district court 2015 gahapna 2351) on May 30, 2018 Plaintiff filled appeals and the third trial is in progress (Busan district Court 2018 na 54524) on July 4, 2018 First date of a sentence on November 7, 2018
The effect on the Group as a result of litigation	If Hyundai Heavy Industries Co., Ltd. loses the case, it is expected to make an additional loss from compensation. Currently, the impact on the Group's financial statements, if any, cannot be reliably estimated.



HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to the Consolidated financial Statements  
For the years ended December 31, 2021 and 2020.

### 35. Litigations, Continued

(3) The Transformer's antidumping

(i) Transformer's second annual antidumping appeal (US Court of Appeals for the Federal Circuit)

Date of filing	March 31 2016.
Litigant	Plaintiff: ABB, INC., Defendant: United States
Litigation content	In March 2016, ABB, INC., appealed the US Department of Commerce's antidumping duties determination rate of 4.07% in the second annual review to the United States Court of International Trade (CIT).
The progress of litigation	The International Trade Court upheld a 16.13% tariff rate at the U.S. Department of Commerce on May 26, 2020(U.S time). Appeals to Court of Appeals for the Federal Circuit (CAFC) on July 24, 2020.
Future litigation schedule and countermeasures	Procedures for investigation of evidence are scheduled.
The effect on the Group as a result of litigation	Since the electric and electronic business is under the jurisdiction of the Group before the division, and we may pay additional tariffs or receive refunds by the U.S. Court of Appeals for the Federal Circuit(CAFC) but at this time we cannot reasonably predict the judgment result.

(ii) The Transformer's fourth annual antidumping appeal (US Court of Appeals for the Federal Circuit)

Date of filing	March 30, 2018.
Litigant	Plaintiff: Korea Shipbuilding & Offshore Engineering Co., Ltd.(formerly, Hyundai Heavy Industries Co., Ltd.) Defendant: United States
Litigation content	March 12, 2018, Korea Shipbuilding & Offshore Engineering Co., Ltd.(formerly, Hyundai Heavy Industries Co., Ltd.) appealed the US Department of Commerce's antidumping duties determination rate of 60.81% about transformer that electro electronic segment of Hyundai Heavy Industries Co., Ltd. exported in the four annual review to the United States Court of International Trade (CIT).
The progress of litigation	July 9, 2021 (US time), the United states Court of International Trade (CIT) finally approved the 0% anti-dumping duty rate, which is the final calculated plan of the U.S. Department of Commerce, and the complainant (ABB, INC.) dissatisfied with the decision, Appealed to the Superior Court of Appeals for the Federal Circuit (CAFC).
Future litigation schedule and countermeasures	It will participate in the Court of Appeals for the Federal Circuit (CAFC) appeal process and respond.
The effect on the Group as a result of litigation	In the future, according to the decision of the Superior Court of Appeals for the Federal Circuit (CAFC), there is a possibility that the anti-dumping-related expenses that we have already recognized will be reversed in the amount of USD 79,720 thousand (duties: USD 66,988 thousand, delayed interest: USD 12,732 thousand).

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to the Consolidated financial Statements  
For the years ended December 31, 2021 and 2020.

### 35. Litigations, Continued

(3) The Transformer's antidumping, Continued

(iii) The Transformer's sixth annual antidumping appeal (US Court of International Trade)

Date of filing	May 27, 2020.
Litigant	Plaintiff: Hyundai Electric & Energy Systems Co., Ltd. Defendant: United States
Litigation content	April 16, 2020, Hyundai Electric & Energy Systems Co., Ltd appealed the US Department of Commerce's antidumping duties determination rate of 60.81% about transformer that electro electronic segment of Hyundai Electric & Energy Systems Co., Ltd exported in the six annual review to the United States Court of International Trade (CIT).
The progress of litigation	Litigation process is in progress.
Future litigation schedule and countermeasures	Written submissions and oral arguments will be made in accordance with the litigation procedure.
The effect on the Group as a result of litigation	The Group have deposited tariffs according to the US Department of Commerce's anti-dumping tariff rate of 60.81%, so there is no additional tariff burden based on the judgment.

(4) Incheon Airport Energy Co., Ltd, defect repair compensation claim lawsuit (Seoul Central District Court 2021 Gadan 5344398)

Date of filing	December 16, 2021.
Litigant	Plaintiff: Hyundai Electric & Energy Systems Co., Ltd. Defendant: Hyundai Heavy Industries Co., Ltd., Hyundai Electric & Energy Systems Co., Ltd.
Litigation content	After compensating for damages caused by a defect in the blade of the gas turbine, the plaintiff filed a claim for compensation against Hyundai Heavy Industries, the supplier of the gas turbine, as the peripheral defendant and the Company, which is believed to have actually manufactured the gas turbine, as the preliminary defendant.
Litigation value	₩11.6 billion
The progress of litigation	Filed a lawsuit on December 16, 2021
Future litigation schedule and countermeasures	Since gas turbines are not manufactured by the Company, we plan to request that the preliminary lawsuit against us be withdrawn from the written answer and the date of pleading.
The effect on the Group as a result of litigation	If the lawsuit against the Group is withdrawn, the outcome of the lawsuit will not affect the Group.

(5) In addition to the cases mentioned above, the Group has filed various lawsuits pending. Currently, the impact on the Group's separate financial statements, if any, cannot be reliably estimated. However, management of the Group believes that the ultimate outcomes will not have a significant impact on the Group's separate financial statements.

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to the Consolidated financial Statements  
For the years ended December 31, 2021 and 2020.

**36. Related Parties**

(1) As of December 31, 2021, related parties with the Group are as follows:

<b>The parent company</b>	<b>Main business</b>
Hyundai Heavy Industries Holdings Co., Ltd.	Non-financial Holding company
<b>Others (large-scale corporate conglomerate)</b>	<b>Main business</b>
Korea Shipbuilding & Offshore Engineering Co., Ltd.	Non-financial holding company
Hyundai Heavy Industries Co., Ltd.	Shipbuilding
Hyundai Mipo Dockyard Co., Ltd.	Shipbuilding
Hyundai Genuine Co., Ltd.	Sale and manufacture of machinery equipment for construction and holding company
Hyundai Construction Equipment Co., Ltd.	Sale and manufacture of machinery equipment for construction
Hyundai Energy Solutions Co., Ltd.	Solar photovoltaic and renewable energy
Hyundai Samho Heavy Industries Co., Ltd.	Shipbuilding
Hyundai E&T Co., Ltd.	Other engineering services
Hyundai Oilbank Co., Ltd.	Manufacturing of petroleum products Oil storage business
Hyundai Cosmo Co., Ltd.	Manufacturing of chemicals
Hyundai Chemical Co., Ltd.	Crude oil refining business
Taeback Wind Power Co., Ltd.	Other power generation
TaebackGuinemi Wind Power Co., Ltd.	Other power generation
Changjuk Wind Power Co., Ltd.	Other power generation
Ulsan Hyundai Football Club Co., Ltd.	Sports Club Management
Hyundai Heavy Industries Mos Co., Ltd.	Maintenance services of Business facilities
Hyundai Global Service	Engineering services
Hyundai Heavy Industries Power Systems Co., Ltd.	Manufacturing of boilers for power generation
Hyundai Core Motion Co., Ltd.	Manufacturing of oil pressure machine
Hyundai Seen Tec Co., Ltd.	Manufacturing of internal combustion engine and turbine(excluding aircraft and vehicles)
Hyundai LNS	Engineering services
Hyundai Robotics Co., Ltd.	Manufacturing of industrial robot
HHI China Investment Co., Ltd.	Holding company
Other Affiliates	Others

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to the Consolidated financial Statements  
For the years ended December 31, 2021 and 2020.

### 36. Related Parties, Continued

(2) Transactions with related parties

(i) Significant transactions for the years ended December 31, 2021 and 2020 with related parties are as follows:

(In millions of won)

	2021			
	Sales and others		Purchase and others	
	Sales(*)	Other	Purchase of Raw material	Purchase of others
<b>The parent company</b>				
Hyundai Heavy Industries Holdings Co., Ltd. ₩	125	-	-	395
<b>Others related parties</b>				
Korea Shipbuilding & Offshore Engineering Co., Ltd.	125	-	248	4,784
Hyundai Heavy Industries Co., Ltd.	76,099	-	12,996	8,552
Hyundai Construction Equipment Co., Ltd.	533	-	-	488
Hyundai Samho Heavy Industries Co., Ltd.	41,650	-	-	-
Hyundai Mipo Dockyard Co., Ltd.	26,322	-	-	-
Hyundai E&T Co., Ltd.	392	-	8,165	7
Hyundai Oilbank Co., Ltd.	2,141	-	2,458	703
Ulsan Hyundai Football Club Co., Ltd.	-	-	-	1,262
Hyundai Heavy Industries Mos Co., Ltd.	17	-	4,031	-
Hyundai Global Service	9,822	-	-	1,305
Hyundai Heavy Industries Power Systems Co., Ltd	104	-	-	-
HHI China Investment Co., Ltd.	41	-	-	933
Others	5,796	-	-	51
	163,042	-	27,898	18,085
₩	163,167	-	27,898	18,480

(\*) Including interest income.

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to the Consolidated financial Statements  
For the years ended December 31, 2021 and 2020.

**36. Related Parties, Continued**

(2) Transactions with related parties, continued

- (i) Significant transactions for the years ended December 31, 2021 and 2020 with related parties are as follows, continued:

(In millions of won)

	2020			
	Sales and others		Purchase and others	
	Sales(*)	Other	Purchase of Raw material	Purchase of others
<b>The parent company</b>				
Hyundai Heavy Industries Holdings Co., Ltd. ₩	56	-	-	397
<b>Others related parties</b>				
Korea Shipbuilding & Offshore Engineering Co., Ltd.(formerly, Hyundai Heavy Industries Co., Ltd.)	176	-	552	4,589
Hyundai Heavy Industries Co., Ltd. (a new split corporation)	65,453	32,640	13,344	9,244
Hyundai Construction Equipment Co., Ltd.	235	-	-	381
Hyundai Samho Heavy Industries Co., Ltd.	32,590	-	-	-
Hyundai Mipo Dockyard Co., Ltd.	21,905	-	-	-
Hyundai E&T Co., Ltd.	407	-	6,845	498
Hyundai Oilbank Co., Ltd.	5,119	-	3,019	-
Ulsan Hyundai Football Club Co., Ltd.	-	-	-	500
Hyundai Heavy Industries Mos Co., Ltd.	16	-	4,276	-
Hyundai Global Service	9,773	-	-	1,293
Hyundai Heavy Industries Power Systems Co., Ltd	22	-	-	-
HHI China Investment Co., Ltd.	24	-	-	901
Others	10,888	4,969	-	896
	146,608	37,609	28,036	18,302
₩	146,664	37,609	28,036	18,699

(\*) Including interest income.

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to the Consolidated financial Statements  
For the years ended December 31, 2021 and 2020.

### 36. Related Parties, Continued

(2) Transactions with related parties, continued

(ii) The balances of receivables and payables as of December 31, 2021 and 2020 with related parties are as follows:

(In millions of won)

	2021			
	Trade receivables and other receivables		Trade payables and other payables	
	Trade receivables	Other receivables	Trade payables	Other payables
<b>The parent company</b>				
Hyundai Heavy Industries Holdings Co., Ltd. ₩	-	-	-	61
<b>Other related companies:</b>				
Korea Shipbuilding & Offshore Engineering Co., Ltd.	-	49	-	704
Hyundai Heavy Industries Co., Ltd.	21,328	-	4,302	5,279
Hyundai Construction Equipment Co., Ltd.	112	-	-	-
Hyundai Samho Heavy Industries Co., Ltd.	13,240	-	-	519
Hyundai Mipo Dockyard Co., Ltd.	7,954	-	-	135
Hyundai E&T Co., Ltd.	-	-	714	-
Hyundai Oilbank Co., Ltd.	122	-	786	1,146
Hyundai Heavy Industries Mos Co., Ltd.	2	-	736	-
Hyundai Global Service	5,533	-	-	305
HHI China Investment Co., Ltd.	-	410	-	89
Others	980	-	-	-
	49,271	459	6,538	8,177
₩	49,271	459	6,538	8,238

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to the Consolidated financial Statements  
For the years ended December 31, 2021 and 2020.

### 36. Related Parties, Continued

(2) Transactions with related parties, continued

- (ii) The balances of receivables and payables as of December 31, 2021 and 2020 with related parties are as follows, continued:

(In millions of won)

	2020			
	Trade receivables and other receivables		Trade payables and other payables	
	Trade receivables	Other receivables	Trade payables	Other payables
<b>The parent company</b>				
Hyundai Heavy Industries Holdings Co., Ltd. ₩	-	-	-	-
<b>Other related companies:</b>				
Korea Shipbuilding & Offshore Engineering Co., Ltd.(formerly, Hyundai Heavy Industries Co., Ltd.)	-	-	992	-
Hyundai Heavy Industries Co., Ltd. (a new split corporation)	28,542	-	3,783	2,263
Hyundai Construction Equipment Co., Ltd.	9	-	-	-
Hyundai Samho Heavy Industries Co., Ltd.	10,278	-	-	171
Hyundai Mipo Dockyard Co., Ltd.	8,148	-	-	-
Hyundai E&T Co., Ltd.	-	-	576	-
Hyundai Oilbank Co., Ltd.	1,145	-	785	-
Hyundai Heavy Industries Mos Co., Ltd.	1	-	569	-
Hyundai Global Service	3,260	-	189	-
HHI China Investment Co., Ltd.	-	552	112	-
Others	204	-	10	246
	51,587	552	7,016	2,680
₩	51,587	552	7,016	2,680

- (3) The Group was provided guarantee of CNY 210 million from related parties, HHI China Investment Co., Ltd., in relation to payment and performance as of December 31, 2021.
- (4) Financial transactions with related parties for the years ended December 31, 2021 and 2020 are as follows:

(In thousand of CNY)

				2021			
		Detail	Counter party	Beginning	Increase	Decrease	Ending
Hyundai Heavy Industries (Shanghai) R&D Co., Ltd.(*)	₩	Lend	HHI China Investment Co., Ltd.	3,298	19,639	20,739	2,198

(\*) This is a fund transaction under the CASHPOOLING agreement.

(In thousand of CNY)

				2020			
		Detail	Counter party	Beginning	Increase	Decrease	Ending
Hyundai Heavy Industries (Shanghai) R&D Co., Ltd.(*)	₩	Lend	HHI China Investment Co., Ltd.	10,541	-	7,243	3,298

(\*) This is a fund transaction under the CASHPOOLING agreement.

HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to the Consolidated financial Statements  
For the years ended December 31, 2021 and 2020.

**36. Related Parties, Continued**

- (5) There is no collateral provided to related parties as of December 31, 2021.
- (6) Compensation for key management of the Group for the years ended December 31, 2021 and 2020 are as follows:

<i>(In millions of won)</i>		<b>2021</b>	<b>2020</b>
Short-term employee benefits	₩	2,325	2,368
Post-employment benefits		194	170
	₩	<u>2,519</u>	<u>2,538</u>

Key management is defined as the directors (Including unregistered directors) and internal auditors who have important roles and responsibilities involving the planning, operation and control of the Group.

- (7) Other  
In addition to the above transaction, as of December 31, 2021, the Group has granted a debt guarantee for the loan for treasury stock of employee stock ownership association based on the board of directors' decision. Details of the guarantee is described in Note 34.



HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD.  
Notes to the Consolidated financial Statements  
For the years ended December 31, 2021 and 2020.

### 37. Greenhouse Gas Emission Rights and Emission Liabilities

- (1) As of December 31, 2021, the estimate of the number of free allocation emission rights for each implementation year for the 3rd planning period (2021-2025) are as follows:

(In tCO <sub>2</sub> -eq)	2021	2022	2023	2024	2025	Total
Free allocation emission rights	34,493	34,493	34,493	34,171	34,171	171,821

- (2) The changes in the amount of greenhouse gas emission rights of the Group are as follows for the years ended December 31, 2021 and 2020.

(In tCO <sub>2</sub> -eq)	2021	2020
Beginning and free allocation(*)	34,493	37,585
Carry-over of the previous term	5,000	14,545
Purchase(sold)	-	(18,924)
Government submission	-	(28,206)
Borrowing (carried forward)	-	(5,000)
	39,493	-

(\*) This is the amount considering additions and cancellations from the initial free allocation

- (3) The book value of free allocation allowances is "0", and there is no change in emission liabilities for the years ended December 31, 2021 and 2020.
- (4) As of December 31, 2021, there are no emission rights provided as collateral.

### 38. Events after the Reporting Period

The Group decided to acquire a 61.84% interests in Plaspo Co., Ltd for ₩22.9 billion through a resolution of the board of directors on February 4, 2022 for the purpose of expanding the new and renewable energy business plan by adding product line-up such as power converters.

## **ATTACHMENT 5**

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HD Hyundai Financial Statements 2023

1Q 2023 Earnings release

**HD HYUNDAI ELECTRIC**



## Disclaimer

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The above "forecast information" is influenced by changes in the future business environment and inherently contains uncertainties. As a result of such uncertainties, actual future performance may significantly differ from those stated or implied in the "forecast information".

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[Contents]

# 1Q 2023 Consolidated Earnings

1. 1Q 2023 Consolidated earnings (summary)
2. Sales analysis by segments
3. Operating Profit analysis
4. Non-operating profit and loss & net profit
5. Issues
6. Key financial indicators



## 1. 1Q 2023 Consolidated earnings



- Consolidated sales in 1Q recorded KRW 568.6 billion, while operating profit and net profit recorded KRW 46.3 billion, KRW 28.8 billion respectively.
- Orders in 1Q recorded USD 796 million, while orders for distribution equipment increased significantly.

Unit : KRW bn

		'23.1Q		'22.4Q	'22.1Q
		QoQ	YoY		
Sales	568.6	-16.1%	+61.6%	677.5	351.8
Operating Profit	46.3	-9.6%	+177.2%	51.2	16.7
OP Margin (%)	8.1%	+0.5%p	+3.3%p	7.6%	4.8%
Non-Operating Profit and Loss	-8.7	-	-	-35.4	-10.6
Net income Before taxes	37.6	+138.0%	+516.4%	15.8	6.1
Net Profit	28.8	-37.4%	+305.6%	46.0	7.1
Controlling Shareholder's N/I	29.2	-36.8%	+311.3%	46.2	7.1
Orders(USD mil.)	796	+21.3%	+5.0%	656	758
Backlog (USD mil.)	3,050	+12.4%	+45.2%	2,713	2,100

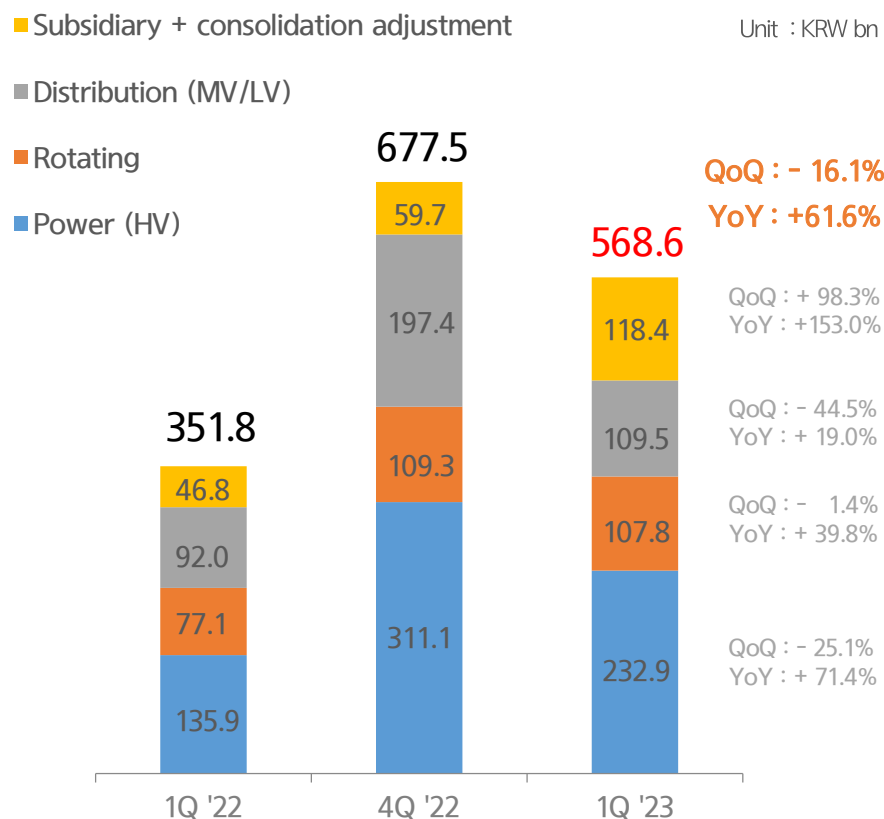
Note) Figures based on HE's Consolidated Financial Statement (Consolidated assets : Hyundai Tech Center Hungary, Hyundai Electric Switzerland, HDENE Power Solution India, Yang Zhong(China) Corporation, Shanghai R&D Center, Middle East Corporation, Alabama Corporation, Atlanta Sales Corporation, Hyundai Plaspo, Yeocheon Energy)



## 2. Sales analysis by segments

- Sales in 1Q increased significantly compared to the previous year (YoY +61.6%)
- The decrease in sales due to seasonal impacts (normally, sales in 1Q of the year are weak) has been reduced (QoQ -16.1%)

### Sales by segments



### Analysis by segments

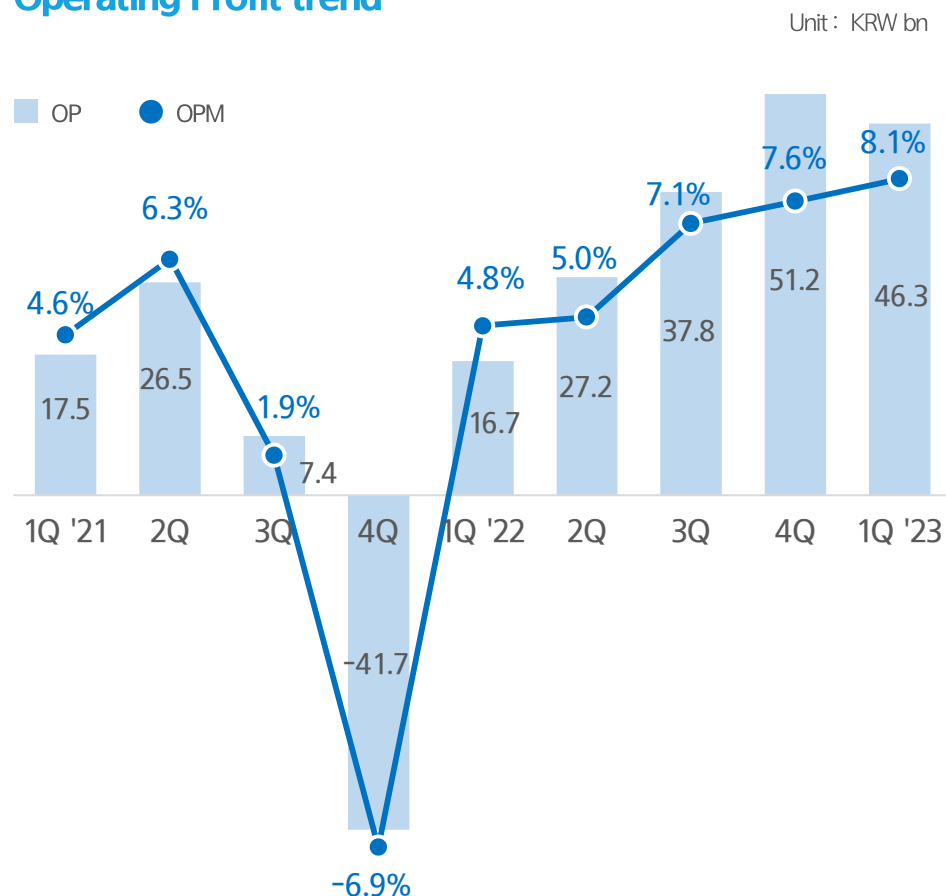
Power Equip.	<ul style="list-style-type: none"> <li>- The orders introduced in accordance with the boom last year realized to sales (QoQ -25.1%, YoY +71.4%)</li> <li>- While overseas sales were high, sales in domestic market were weak due to the deficit of KEPCO</li> </ul>
Rotating / Distribution Equip.	<ul style="list-style-type: none"> <li>- Sales in rotating equipment maintained similar level of the previous quarter</li> <li>- Sales in distribution equipment decreased due to the base effect of Solar EPC sales in the pervious quarter</li> </ul>
Subsidiaries	<ul style="list-style-type: none"> <li>- Sales of US subsidiaries improved significantly (QoQ +46.2%)</li> <li>- Sales of China subsidiary decreased due to seasonal impacts</li> </ul>

Note) Figures based on HE's Consolidated Financial Statement (Consolidated assets : Hyundai Tech Center Hungary, Hyundai Electric Switzerland, HDENE Power Solution India, Yang Zhong(China) Corporation, Shanghai R&D Center, Middle East Corporation, Alabama Corporation, Atlanta Sales Corporation, Hyundai Plaspco, Yeocheon Energy)

### 3. Operating Profit analysis

- Operating profit recorded KRW 46.3 billion (OPM 8.1%) reflecting sales of sorting orders and impact of an increase in selling prices of mass products.

#### Operating Profit trend



#### OP analysis by segments

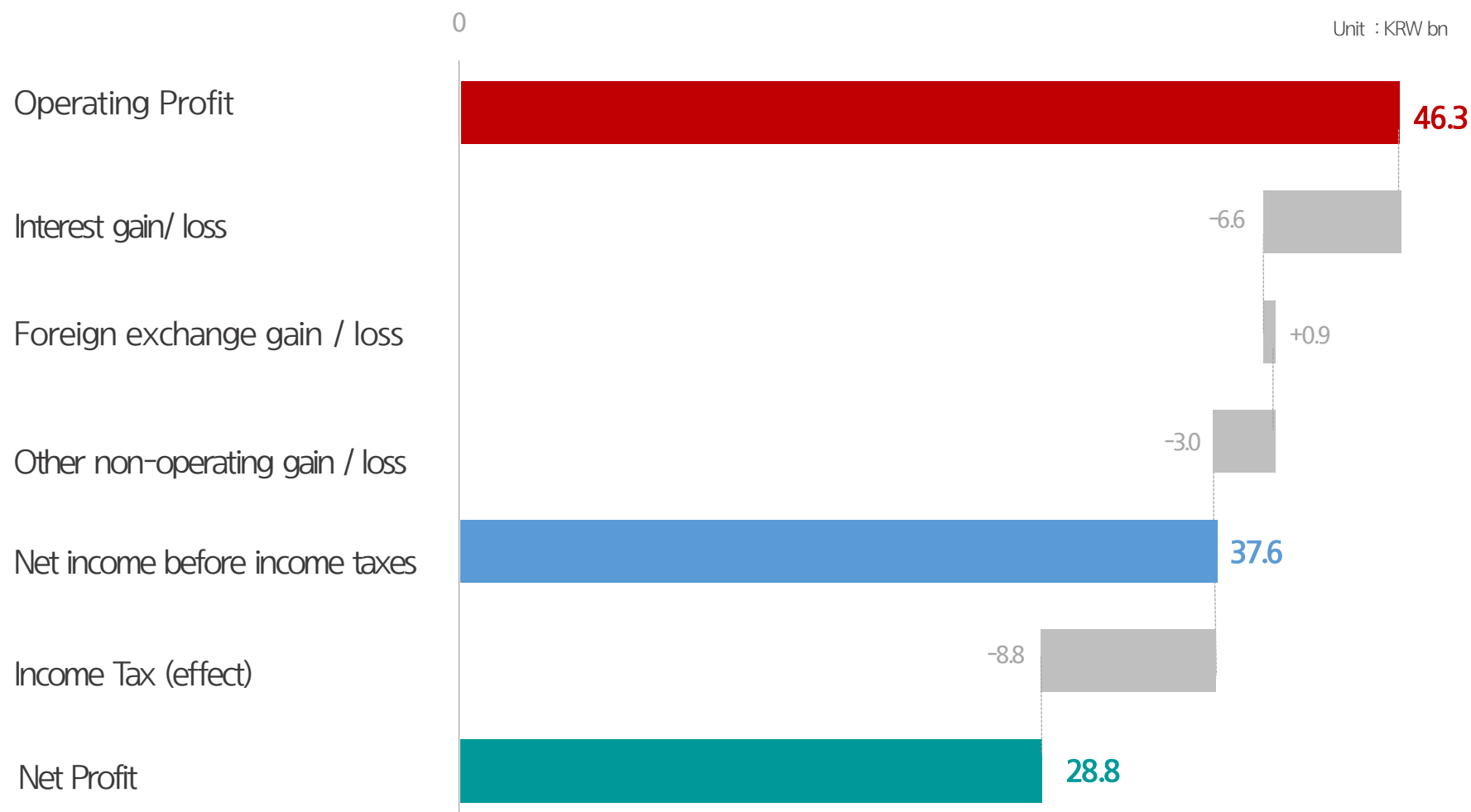
Power Equip.	<ul style="list-style-type: none"> <li>Selective orders were reflected to sales and the profit of all products in power equipment maintained solid</li> <li>Sales in North America and Middle East towed improvement in profit</li> </ul>
Rotating /Distribution Equip.	<ul style="list-style-type: none"> <li>sales in marine products (distribution + Rotating Equip.) were profitable</li> <li>The profitability in MV/LV circuit breaker and rotating equipment improved as increasing in selling prices</li> </ul>
Subsidiaries	<ul style="list-style-type: none"> <li>Stable profit in US subsidiaries maintained</li> <li>Profit in China subsidiary was weak due to the the burden of fixed cost</li> </ul>



## 4. Non-operating profit and loss & net profit



- Net profit recorded to KRW 28.8 billion, reflecting interest losses and the losses related to foreign exchange

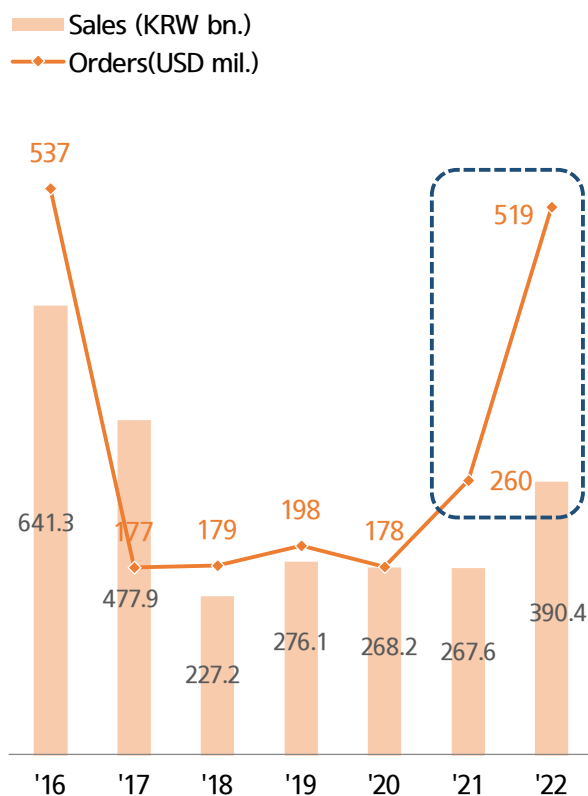


## 5. Issues

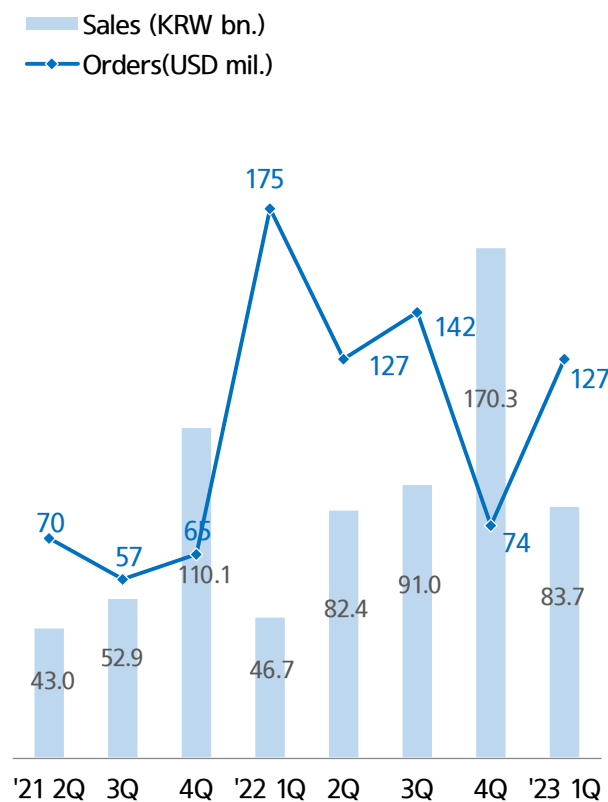
### 1) Middle East market

- Orders to the Middle East market in 1Q recorded USD 127 million (backlog USD 527 million), while sales recorded KRW 83.7 billion

#### Orders / Sales (Annual)



#### Orders / Sales (Quarter)



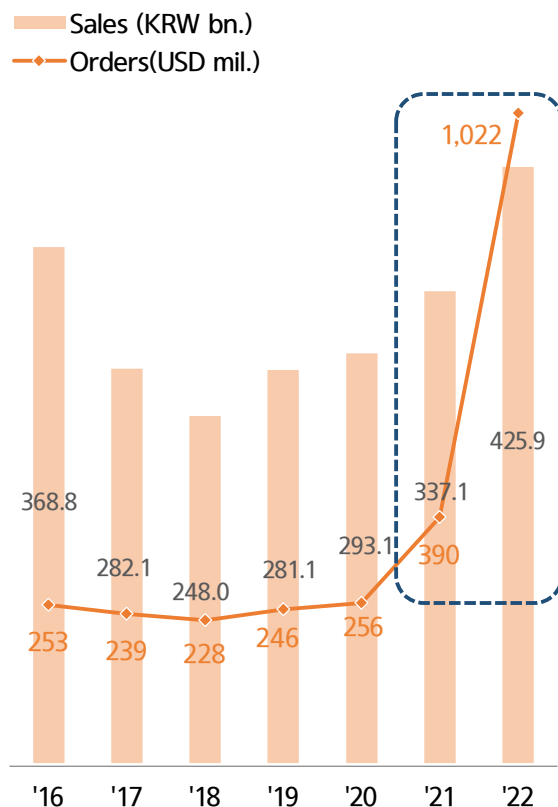
- Increasing orders as the delay in biddings resolved
  - ✓ Orders increased after resolving the delay in biddings in previous quarter (QoQ + 71.6%)
  - ✓ Expecting solid demand for electric power equipment due to the various ongoing projects (construction of large-scale complex cities)
- Decrease in sales due to seasonal impacts
  - ✓ Reflecting the orders received in previous year to sales, sales presented good profitability

## 5. Issues

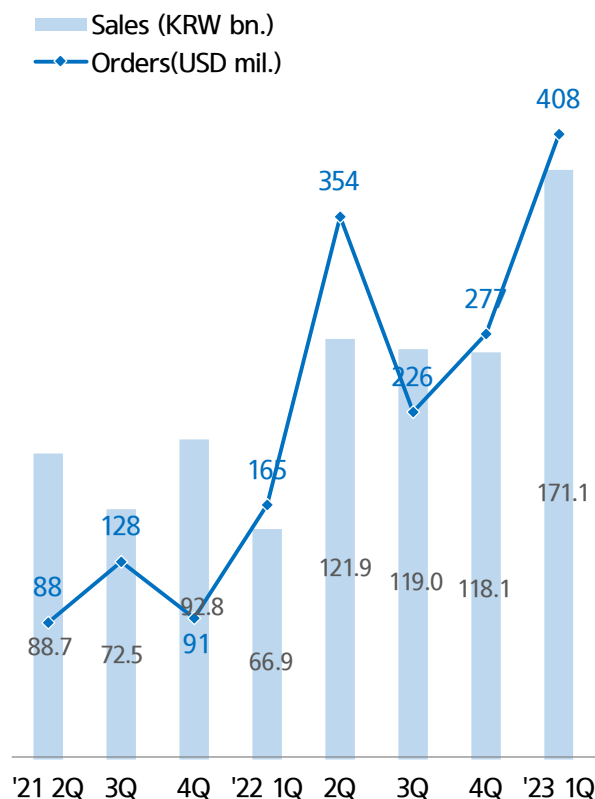
### 2) North America market

- Orders to North America market in 1Q recorded USD 408 million (backlog USD 1.4 billion), while sales recorded KRW 171.1 billion

#### Orders / Sales (Annual)



#### Orders / Sales (Quarter)



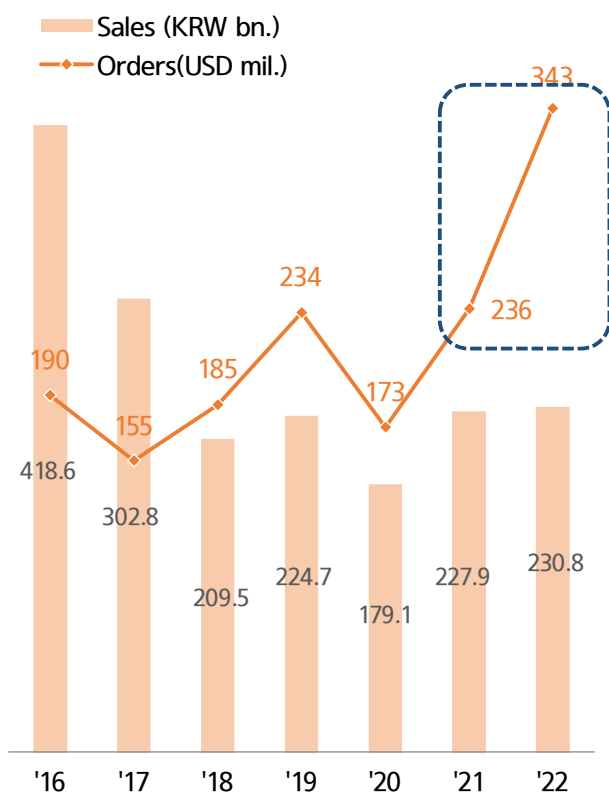
- **Expectation of the product market expansion**
  - ✓ In addition to high voltage power transformers, orders for distribution transformers were also increases significantly
  - ✓ Starting with the order to supply distribution transformers to American Electric Power (AEP), we expect more orders for distribution transformers in North America market
- **Solid trends in both sales and profitability**

## 5. Issues

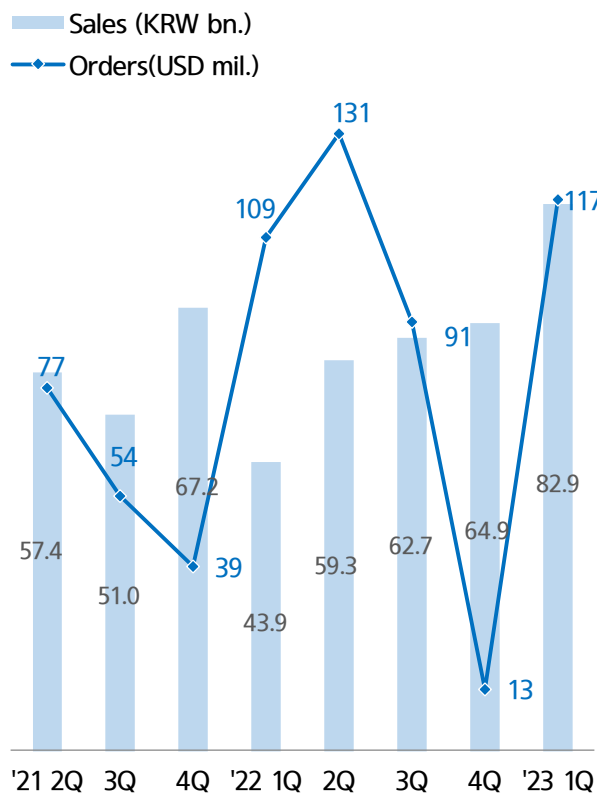
### 3) Marine products

- Orders of marine products in 1Q recorded USD 117 million (backlog USD 382 million), while sales recorded KRW 82.9 billion

Orders / Sales (Annual)



Orders / Sales (Quarter)



- Recovery of good order flow
  - ✓ Orders increased due to the base effect (QoQ +800%, YoY +7.3%)
  - ✓ Despite the exhaustion of the docks of major shipyards, orders for large LNG carriers and medium-sized eco-friendly containers continued → expecting same orders flow in marine products
- Improvement in profitability
  - ✓ Profitability improved due to a gradual increase in selling prices

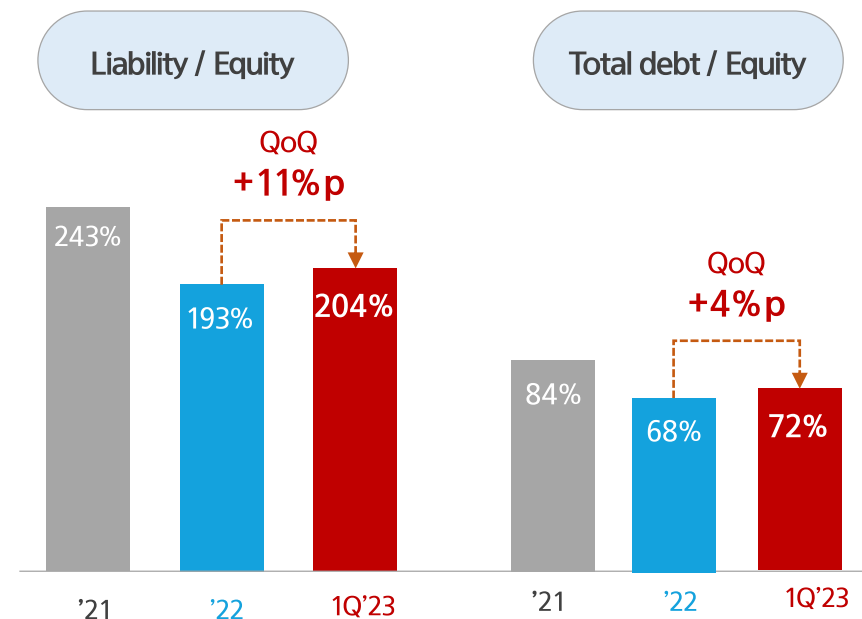
## 6. Key financial Statement

### Financial Statements

UNIT: KRW bn

	'21 year	'22 year	1Q '23
Total Assets	2,215.0	2,435.0	2,581.9
Current assets	1,398.3	1,547.4	1,692.0
Cash and cash equivalents	354.8	172.7	103.6
Non-current assets	816.6	887.6	889.9
Total Liabilities	1,568.7	1,603.9	1,732.8
Current liabilities	1,252.5	1,411.1	1,488.9
Non-current liabilities	316.3	192.7	243.9
Total Debt	545.9	565.2	612.3
Net Debt	169.2	371.1	485.2
Total Equity	646.2	831.2	849.1

### Financial Ratios



- Financial ratios increased slightly due to an increase in operating debt (advance payment received, account payable)
- Borrowing amount increased due to a large scale of expenditure related to the ordinary wage suit

Note) Figures based on HE's Consolidated Financial Statement (Consolidated assets : Hyundai Tech Center Hungary, Hyundai Electric Switzerland, HDENE Power Solution India, Yang Zhong(China) Corporation, Shanghai R&D Center, Middle East Corporation, Alabama Corporation, Atlanta Sales Corporation, Hyundai Plaspo, Yecheon Energy)





2Q 2023 Earnings release

**HD HYUNDAI ELECTRIC**



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[Contents]

# 2Q 2023 Consolidated Earnings

1. 2Q 2023 Consolidated earnings (summary)
2. Sales analysis by segments
3. Operating Profit analysis
4. Non-operating profit and loss & net profit
5. Issues
6. Key financial indicators



## 1. 2Q 2023 Consolidated earnings

- Consolidated sales in 2Q recorded KRW 642.5 billion, while operating profit and net profit recorded KRW 58.8 billion, KRW 37.4 billion respectively (OPM 9.2%)
- New orders in 2Q recorded USD 1.23 billion, including large scale orders in the Middle East, the United States, and Europe

Unit : KRW bn

		'23.2Q		'23.1Q	'22.2Q
		QoQ	YoY		
Sales	642.5	+13.0%	+19.0%	568.6	540.1
Operating Profit	58.8	+27.0%	+116.2%	46.3	27.2
OP Margin (%)	9.2%	+1.1%p	+4.2%p	8.1%	5.0%
Non-Operating Profit and Loss	-11.3	-	-	-8.7	-16.2
Net income Before taxes	47.5	+26.3%	+327.9%	37.6	11.1
Net Profit	37.4	+29.9%	+350.6%	28.8	8.3
Controlling Shareholder's N/I	37.7	+29.1%	+348.8%	29.2	8.4
Orders(USD mil.)	1,232	+54.7%	+38.3%	796	891
Backlog (USD mil.)	3,723	+22.1%	+48.0%	3,050	2,515

Note) Figures based on HE's Consolidated Financial Statement (Consolidated assets : Hyundai Tech Center Hungary, Hyundai Electric Switzerland, HDENE Power Solution India, Yang Zhong(China) Corporation, Shanghai R&D Center, Middle East Corporation, Alabama Corporation, Atlanta Sales Corporation, Hyundai Plaspco, Yeocheon Energy)

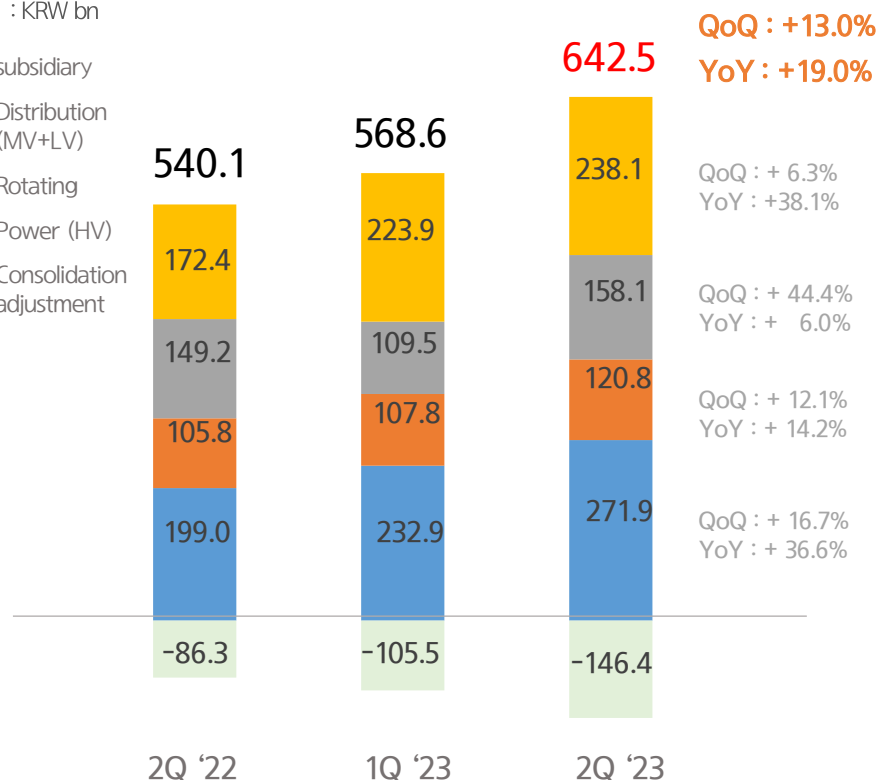
## 2. Sales analysis by segments

- All divisions have increased sales evenly (QoQ +13%, YoY +19%)
- In the midst of solid growth in sales of the power equipment, the sales of rotating/distribution equipment in the overseas market significantly increased compared to the previous quarter

### Sales by segments

Unit : KRW bn

- subsidiary
- Distribution (MV+LV)
- Rotating
- Power (HV)
- Consolidation adjustment



### Analysis by segments

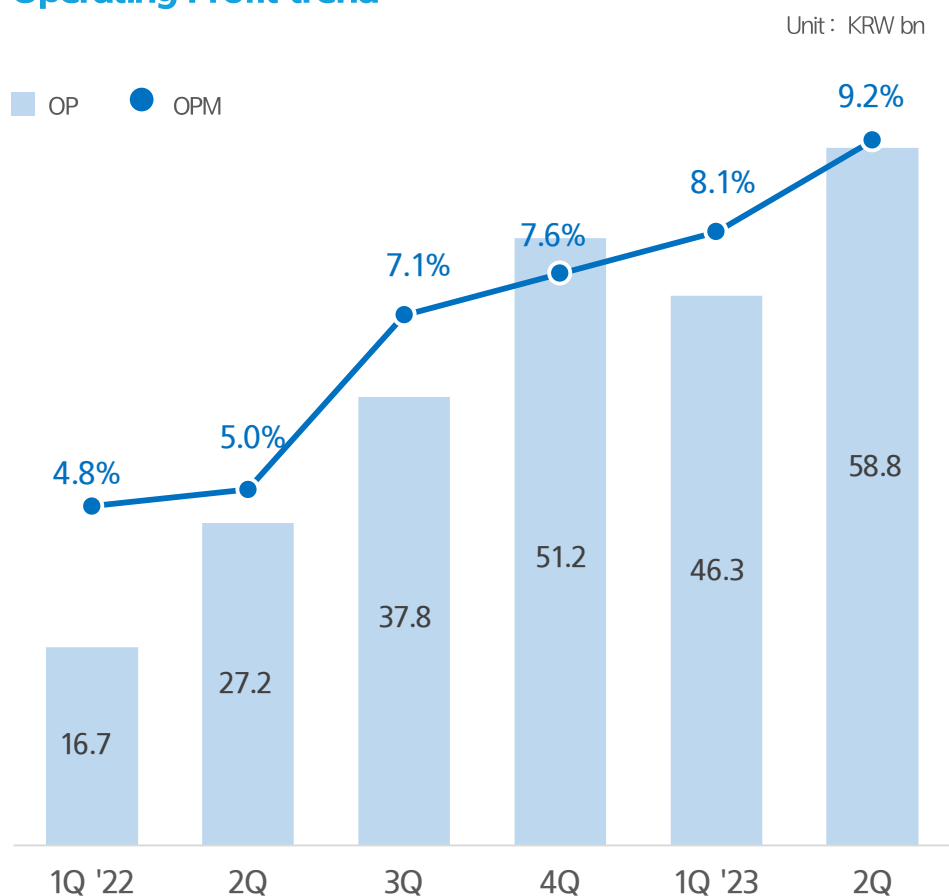
Power Equip.	<ul style="list-style-type: none"> <li>- Sales increased (QoQ +16.7%, YoY +36.6%)</li> <li>- Sales for HV Power transformer increased (QoQ +67.1%) and there was a sales growth in both domestic and overseas markets</li> </ul>
Rotating/ Distribution Equip.	<ul style="list-style-type: none"> <li>- In the rotating equipment division, sales to the Middle East plant construction increased (QoQ +12.1%, YoY +14.2%)</li> <li>- In the distribution equipment, sales to Asia and the Middle East increased significantly (QoQ + 44.4%, YoY +6.0%)</li> </ul>
Subsidiaries	<ul style="list-style-type: none"> <li>- The US subsidiaries showed good sales growth following the previous quarter</li> <li>- The China Subsidiary increased sales due to the base effect, which is still normal sales recovery</li> </ul>

Note) Figures based on HE's Consolidated Financial Statement (Consolidated assets : Hyundai Tech Center Hungary, Hyundai Electric Switzerland, HDENE Power Solution India, Yang Zhong(China) Corporation, Shanghai R&D Center, Middle East Corporation, Alabama Corporation, Atlanta Sales Corporation, Hyundai Plaspo, Yeocheon Energy)

### 3. Operating Profit analysis

- Operating profit of 2Q is KRW 58.8 billion, OPM(9.2%) improved by 1.1%p of QoQ, 4.2%p of YoY
- The profitability of the entire division has been improved by the sales of selective orders for transformers and the cost improvement of the rotating/distribution equipment

#### Operating Profit trend

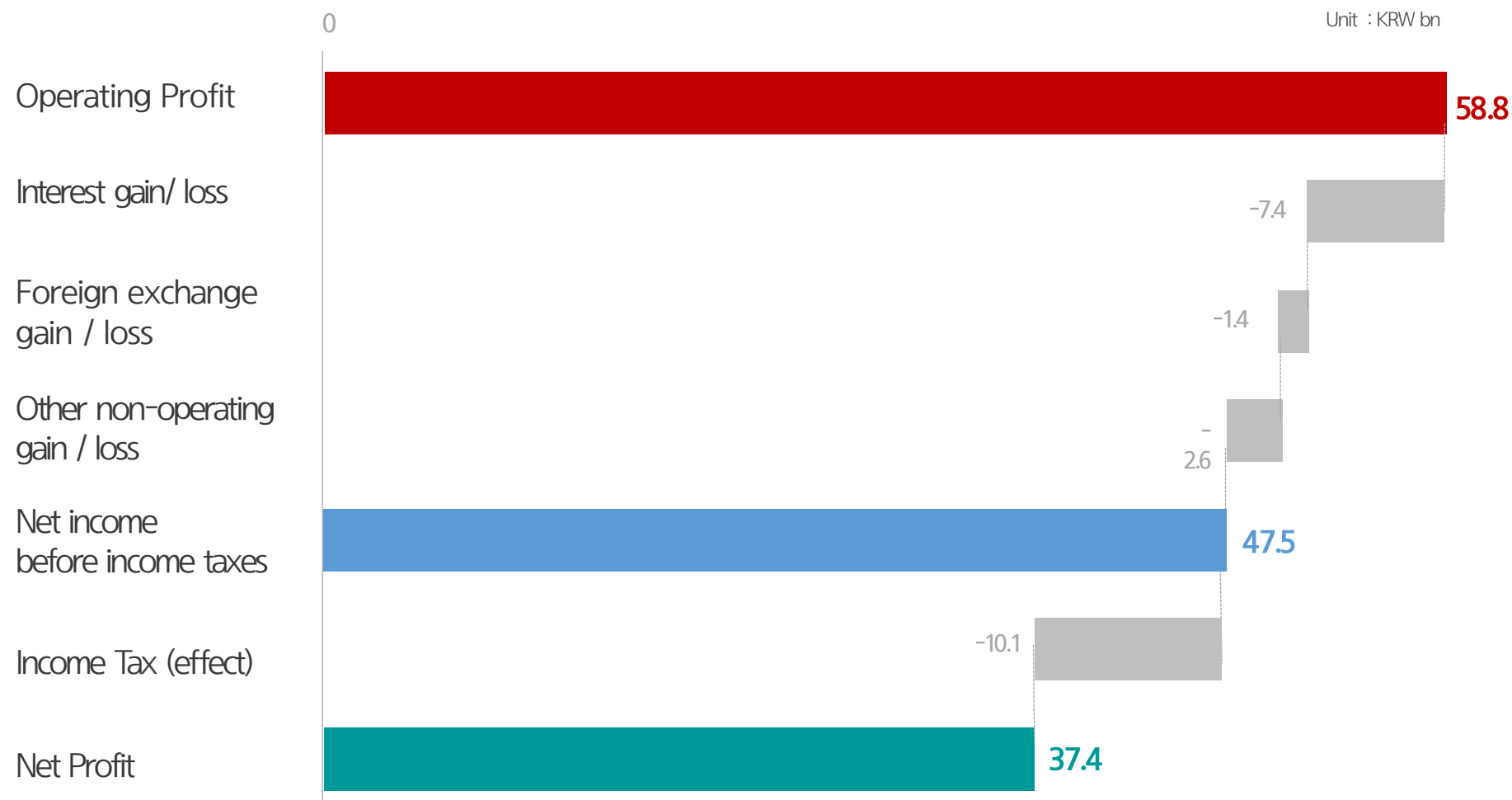


#### OP analysis by segments

Power Equip.	<ul style="list-style-type: none"> <li>- Power equipment division achieved good profit due to the sales of the sorting orders received in last year</li> <li>- The profitability in the US, the Middle East and the domestic market has been greatly improved</li> </ul>
Rotating /Distribution Equip.	<ul style="list-style-type: none"> <li>- The cost improvement of the motor and switchboard contributed to the profitability</li> <li>- Despite the provisioning relating to Solar EPC Project, the profitability of distribution equipment was solid</li> </ul>
Subsidiaries	<ul style="list-style-type: none"> <li>- The US subsidiaries maintained good growth in profitability</li> <li>- The China subsidiary reduced the deficit due to the easing of the burden of fixed costs</li> </ul>

## 4. Non-operating profit and loss & net profit

- Net profit recorded to KRW 37.4 billion, reflecting interest losses and the losses related to foreign exchange

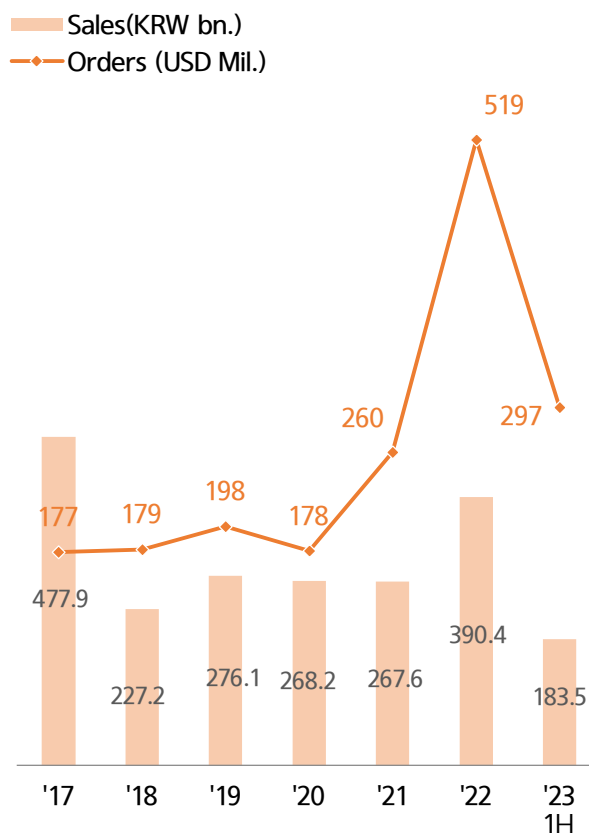


## 5. Issues

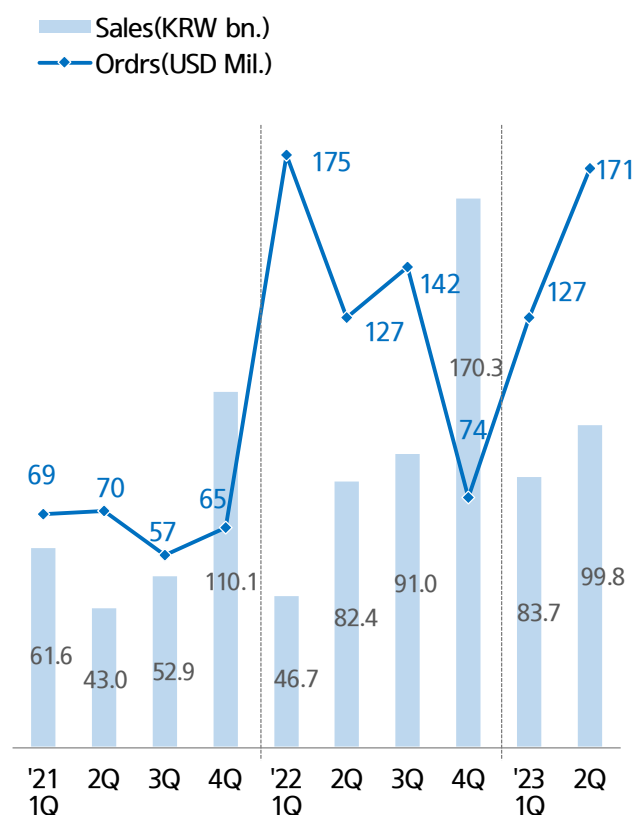
### 1) Middle East market

- Orders to the Middle East market in 2Q recorded USD 171 million (backlog USD 632 million), while sales recorded KRW 99.8 billion

#### Orders / Sales (Annual)



#### Orders / Sales (Quarter)



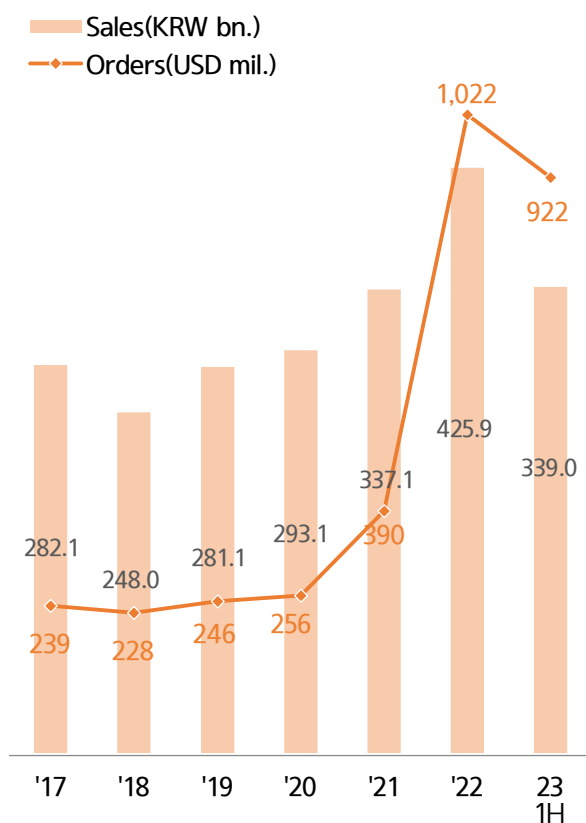
- **Good order flow continues**
  - ✓ Orders increased (QoQ +34.6%)
  - ✓ The demand for power equipment will be solid for the time being as the expansion of renewable power sources and investments in large-scale urban development are in progress
- **Expecting stable sales growth and improvement in profitability**
  - ✓ Sales increased (QoQ + 19.2%, YoY +21.1%)
  - ✓ Profitability improved as the selective orders reflected to sales

## 5. Issues

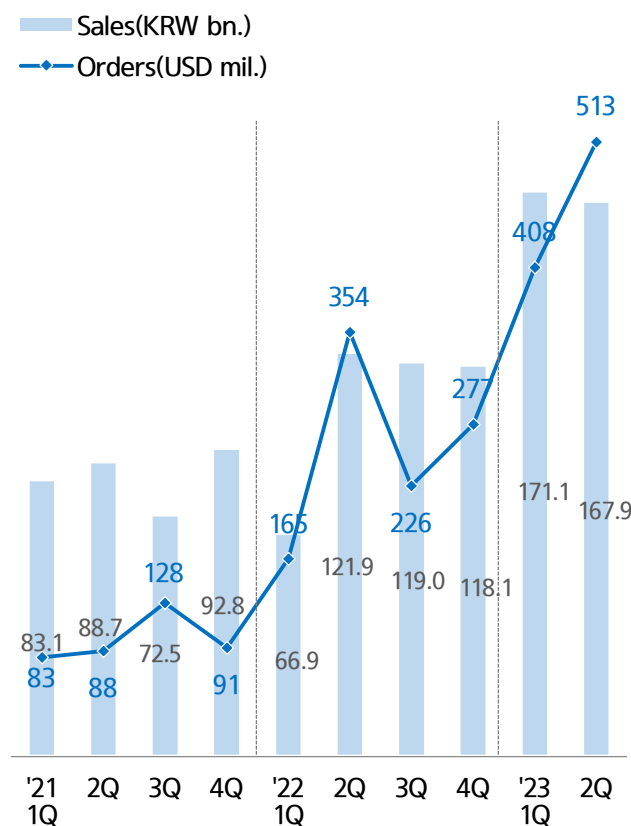
### 2) North America market

- Orders to North America market in 2Q recorded USD 513 million (backlog USD 1.84 billion), while sales recorded KRW 167.9 billion

#### Orders / Sales (Annual)



#### Orders / Sales (Quarter)



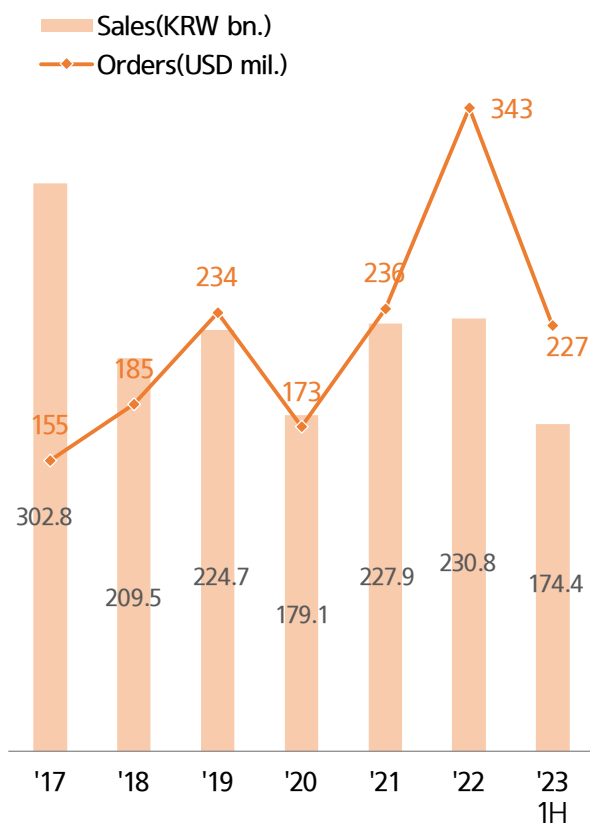
- **Orders continue to be strong**
  - ✓ Orders increased (QoQ +26.3%, YoY +44.9%)
  - ✓ As the demand for customers to secure the transformer in advance is strong, the long-term supply contracts of transformers are increasing
  - ✓ In June, there was a order for high-voltage transformers from Xcel Energy (KRW 213.6 billion)
- **Stable sales and profits continue**
  - ✓ Sales and profits are expected to improve based on a good order backlog

## 5. Issues

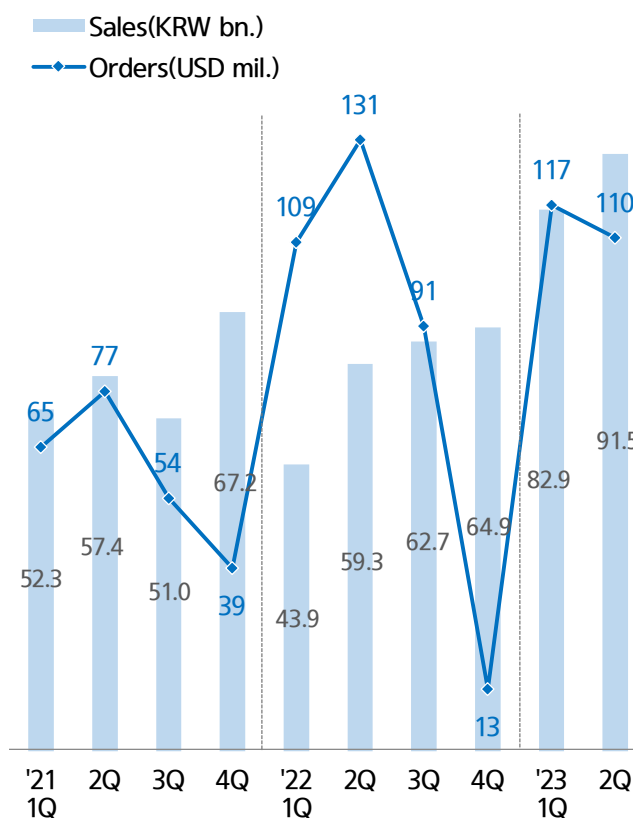
### 3) Marine products

- Orders of marine products in 2Q recorded USD 110 million (backlog USD 426 million), while sales recorded KRW 91.5 billion

Orders / Sales (Annual)



Orders / Sales (Quarter)



- Stable order flow continues

- ✓ Orders decreased (QoQ -6.0%, YoY -16%), but absolute orders amount maintained stable level
- ✓ According to the dock exhaustion of major shipyards, new orders are expected to be stable instead of the rapid growth

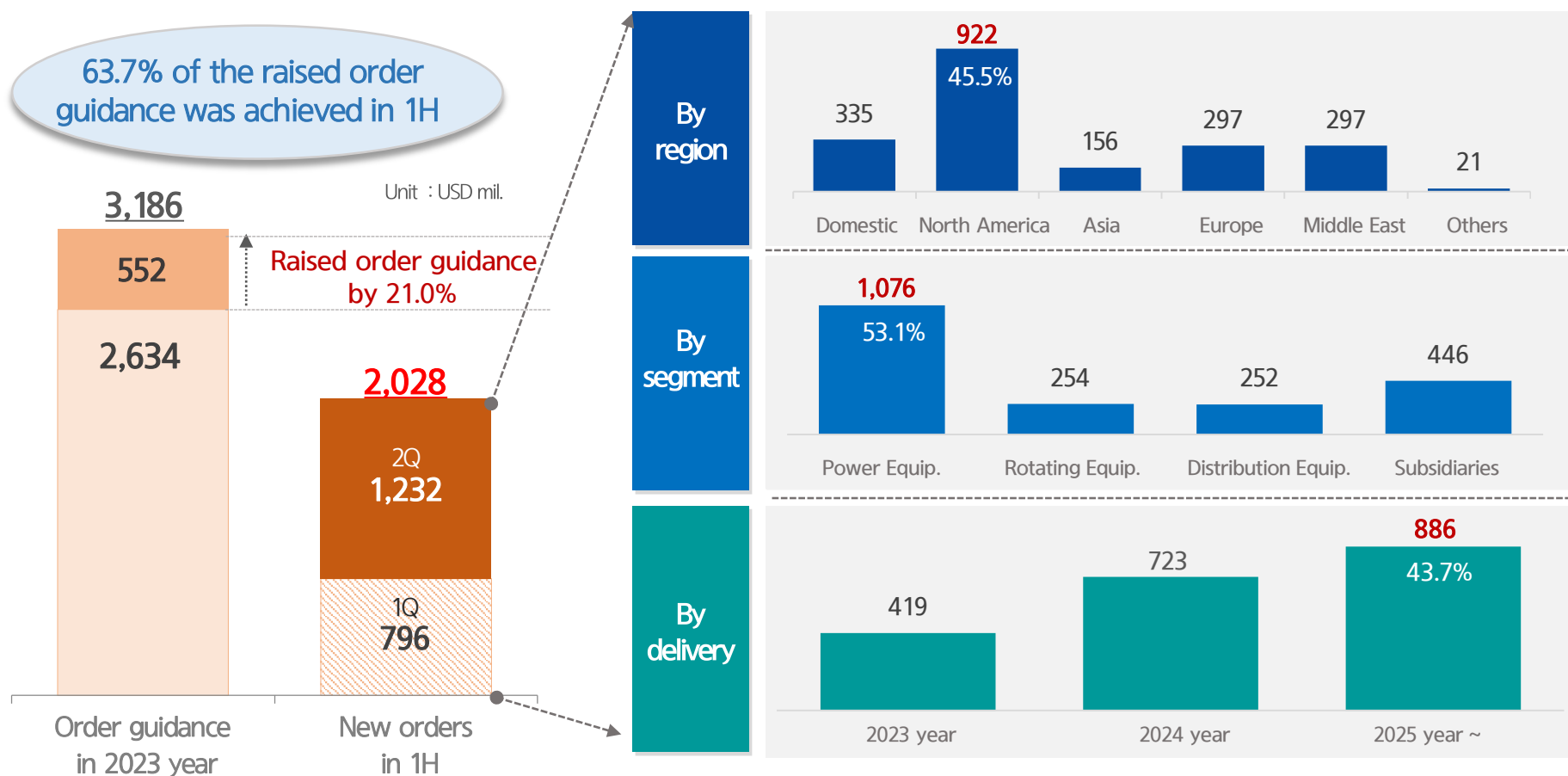
- Stable sales and profits maintain

- ✓ Sales increased (QoQ +10.4%, YoY +54.3%)



## [Appendix] New orders in the first half

- New orders in the first half the year recorded USD 2.03 billion (1Q 796 mil., 2Q 1.2 bn.), the orders achieved in 1H were 67.3% of the order guidance in 2023 year
- As the demand for the power equipment from North America was prominent, orders for long-term delivery (after 2025 year) increased significantly.



## 6. Key financial Statement

### Financial Statements

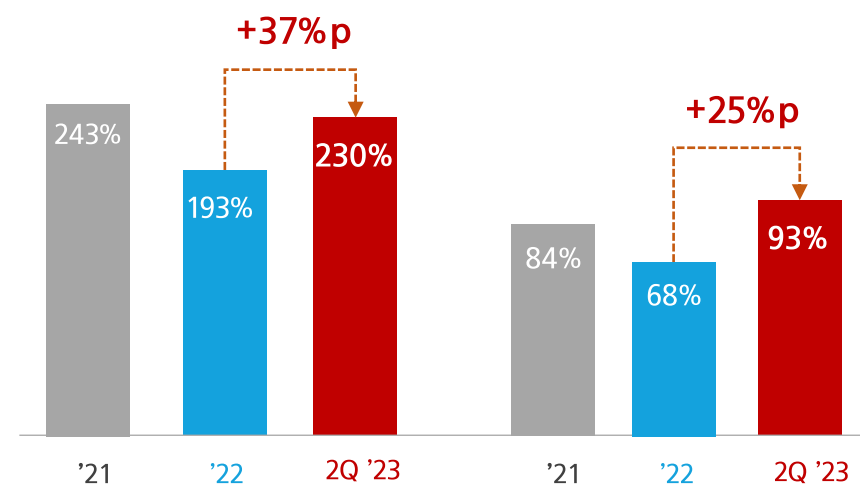
UNIT: KRW bn

	'21 year	'22 year	2Q '23
Total Assets	2,215.0	2,435.0	2,922.4
Current assets	1,398.3	1,547.4	2,038.0
Cash and cash equivalents	354.8	172.7	277.1
Non-current assets	816.6	887.6	884.4
Total Liabilities	1,568.7	1,603.9	2,037.6
Current liabilities	1,252.5	1,411.1	1,612.4
Non-current liabilities	316.3	192.7	425.2
Total Debt	545.9	565.2	818.5
Net Debt	169.2	371.1	517.7
Total Equity	646.2	831.2	884.8

### Financial Ratios

Liability / Equity

Total debt / Equity



- Financial ratios increased due to an increase in operating debt (advance payment received, account payable)
- Borrowing amount increased due to the issuance of corporate bonds (KRW 145 billion)

Note) Figures based on HE's Consolidated Financial Statement (Consolidated assets : Hyundai Tech Center Hungary, Hyundai Electric Switzerland, HDENE Power Solution India, Yang Zhong(China) Corporation, Shanghai R&D Center, Middle East Corporation, Alabama Corporation, Atlanta Sales Corporation, Hyundai Plaspo, Yecheon Energy)



3Q 2023 Earnings release

**HD HYUNDAI ELECTRIC**



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[Contents]

# 3Q 2023 Consolidated Earnings

1. 3Q 2023 Consolidated earnings (summary)
2. Sales analysis by segments
3. Operating Profit analysis
4. Non-operating profit and loss & net profit
5. Issues
6. Key financial indicators



## 1. 3Q 2023 Consolidated earnings

- Consolidated sales and operating profit recorded KRW 694.4 billion, KRW 85.4 billion respectively
- Due to the base effect from the surge in the previous quarter, this quarter's orders decreased, but the absolute scale achieved good levels.
- the quarterly orders are highly volatile, but the backlog is increasing stably.

Unit : KRW bn

		'23. 3Q		'23.2Q	'22.3Q
		QoQ	YoY		
Sales	694.4	+8.1%	+29.8%	642.5	535.1
Operating Profit	85.4	+45.2%	+125.9%	58.8	37.8
OP Margin (%)	12.3%	+3.1%p	+5.2%p	9.2%	7.1%
Non-Operating Profit and Loss	-18.7	-	-	-11.3	93.2
Net income Before taxes	66.7	+40.4%	-49.1%	47.5	131.0
Net Profit	54.3	+45.2%	-46.0%	37.4	100.6
Controlling Shareholder's N/I	53.4	+41.6%	-47.0%	37.7	100.8
Orders(USD mil.)	677	-45.0%	+3.4%	1,232	655
Backlog (USD mil.)	3,967	+6.6%	+43.2%	3,723	2,770

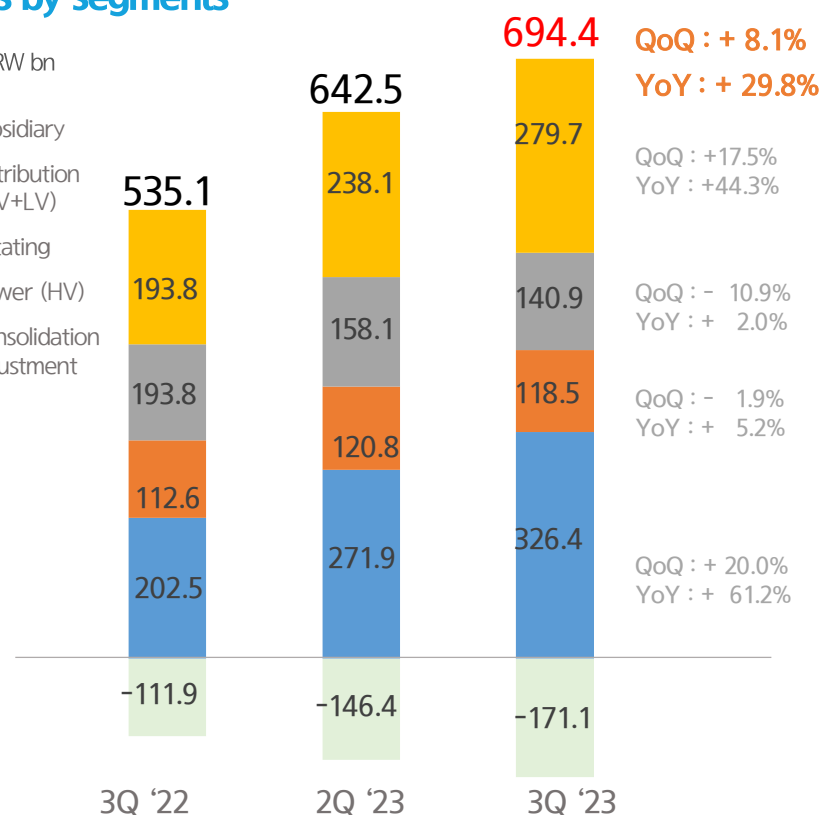
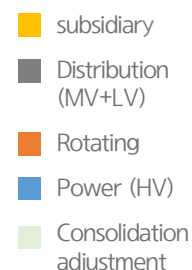
Note) Figures based on HE's Consolidated Financial Statement (Consolidated assets : Hyundai Tech Center Hungary, Hyundai Electric Switzerland, HDENE Power Solution India, Yang Zhong(China) Corporation, Shanghai R&D Center, Middle East Corporation, Alabama Corporation, Atlanta Sales Corporation, Hyundai Plaspo, Yeocheon Energy)

## 2. Sales analysis by segments

- Despite the relatively low operating days during the summer season in 3Q, the sales increased by 8.1% compared to the previous quarter.
- While the sales of power equipment segment showed noticeable growth, the sales of rotating/distribution equipment segment also maintained good level.

### Sales by segments

Unit : KRW bn



### Analysis by segments

Power Equip.	<ul style="list-style-type: none"> <li>- Sales increased by 20.0%, QoQ by 61.2%</li> <li>- Sales of both transformers and high voltage circuit breakers increased evenly</li> <li>- Middle East and Korean domestic market were the main region led the increase in total sales.</li> </ul>
Rotating / Distribution Equip.	<ul style="list-style-type: none"> <li>- The rotating equipment maintained good sales level followed by the previous quarter (QoQ -1.9%, YoY +5.2%)</li> <li>- Sales decreased QoQ due to the base effect (new growth business). However, the absolute sales level showed fine number. (QoQ -10.9%, YoY +2.0%)</li> </ul>
Subsidiaries	<ul style="list-style-type: none"> <li>- Solid sale's growth of US subsidiaries continued</li> <li>- Sales of China's subsidiary decreased compared to the previous quarter due to the slow economy in China</li> </ul>

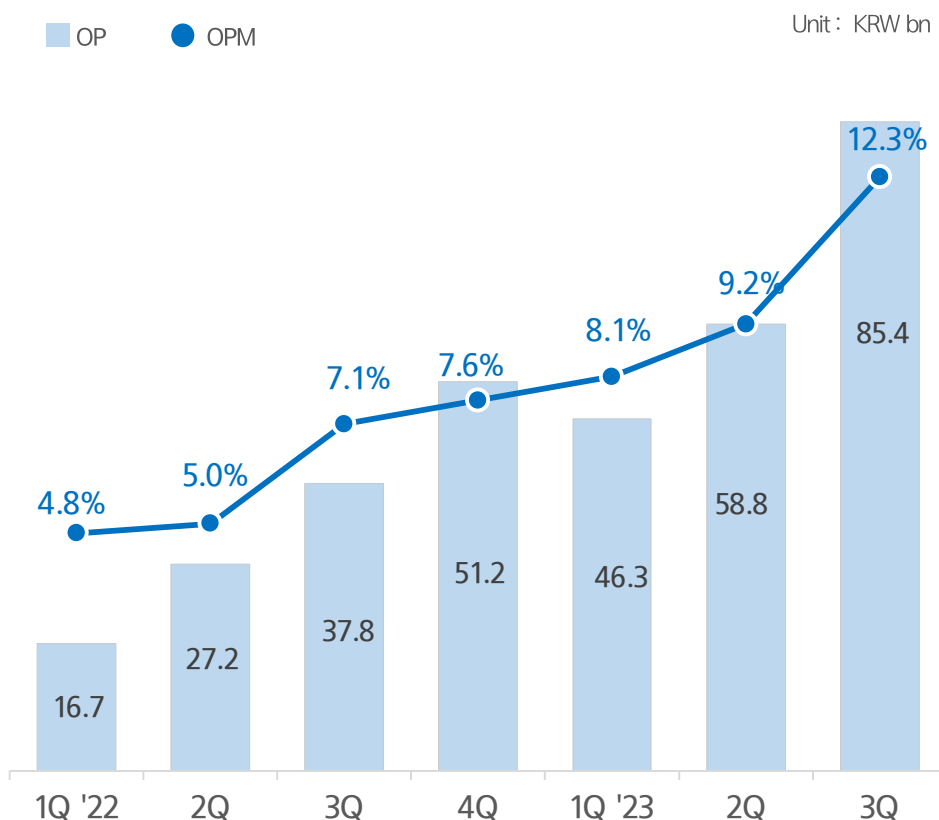
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### 3. Operating Profit analysis

- Operating profit of 3Q is KRW 85.4 billion, OPM(12.3%) improved by 3.1%p of QoQ, 5.2%p of YoY
- The orders received in the boom of the power equipment market were reflected to sales and the highest OPM in a single quarter was recorded

#### Operating Profit trend



#### OP analysis by segments

##### Power Equip.

- The profitability of the power transformer was improved, especially in the Middle east and North America
- The profitability of the distribution transformer was also improved in Korea and North America.

##### Rotating /Distribution Equip.

- The rotating equipment maintained good profits
- The profitability of the switch board and the middle-low voltage circuit breaker fell slightly and the profitability of solar EPC was weak due to the sluggish domestic market

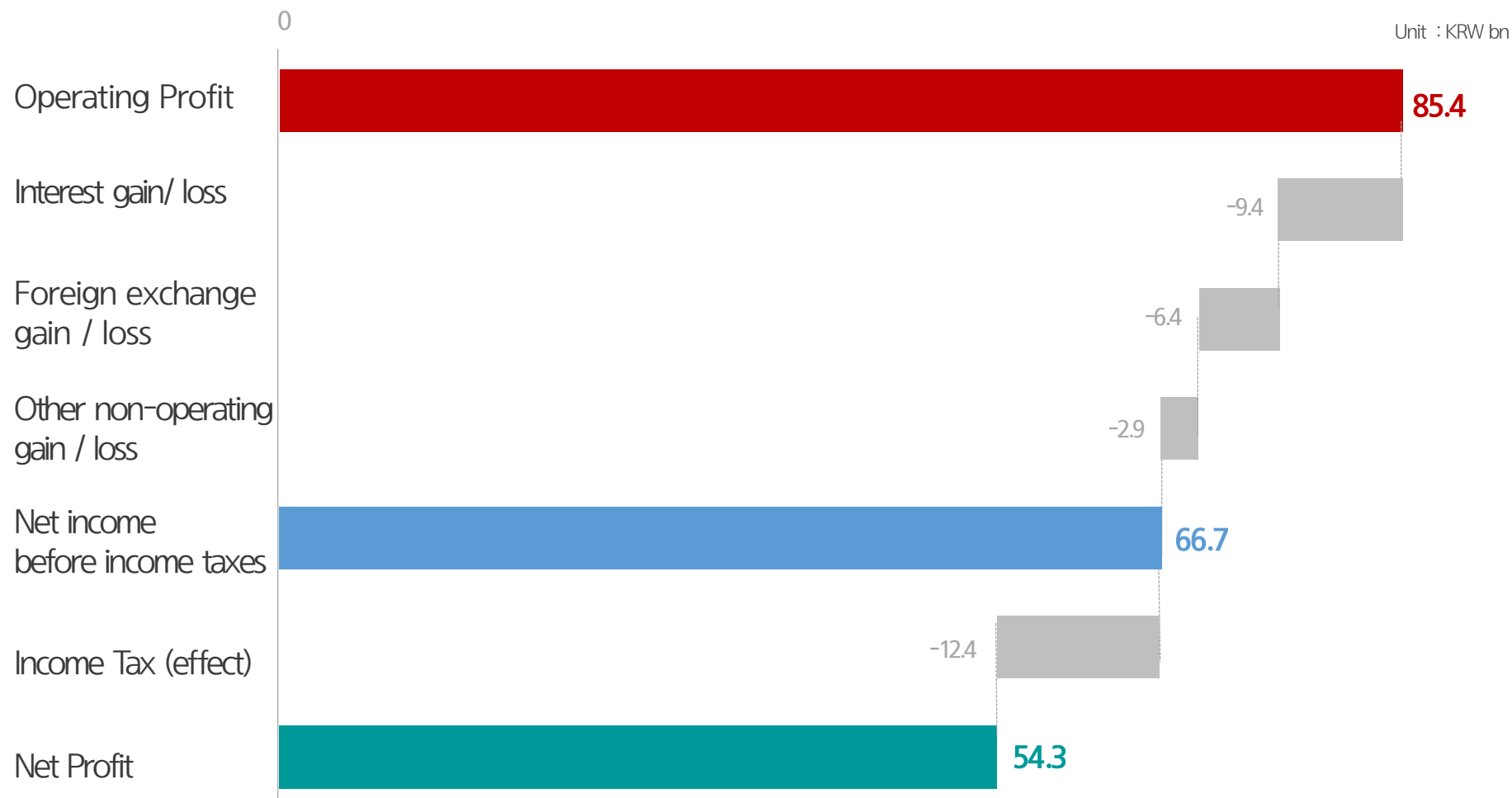
##### Subsidiaries

- The US subsidiaries maintained good profit
- The profitability of China subsidiary was weak due to the burden of the fixed cost and the provisioning for bad debt

## 4. Non-operating profit and loss & net profit



- Net profit recorded to KRW 54.3 billion, reflecting interest losses and the losses related to foreign exchange

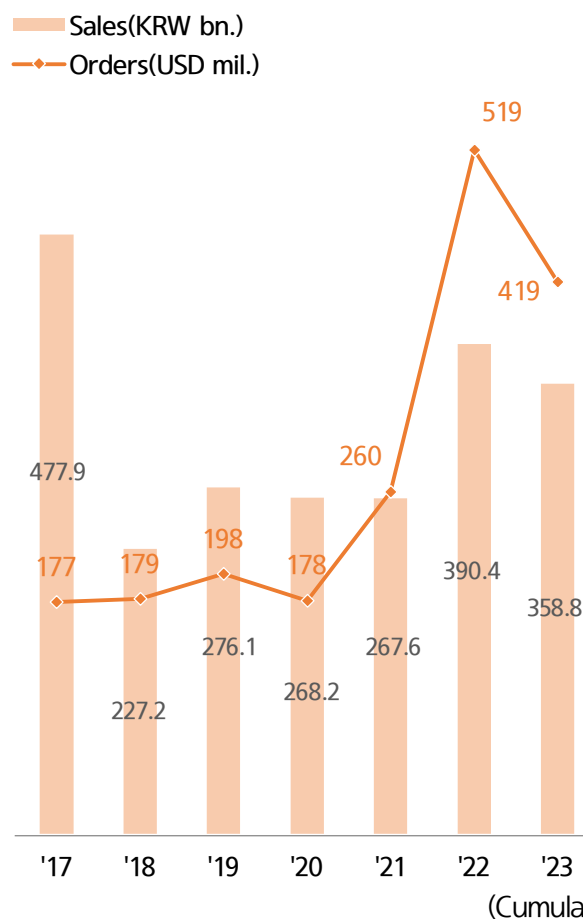


## 5. Issues

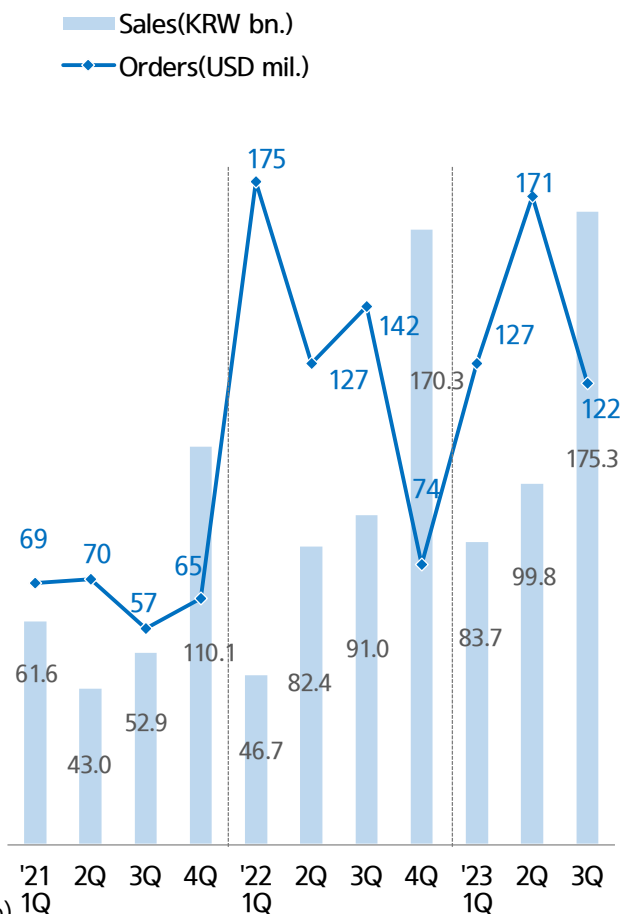
### 1) Middle East market

Orders to the Middle East market in 3Q recorded USD 122 million (backlog USD 613 million), while sales recorded KRW 175.3 billion

#### Orders / Sales (Annual)



#### Orders / Sales (Quarter)



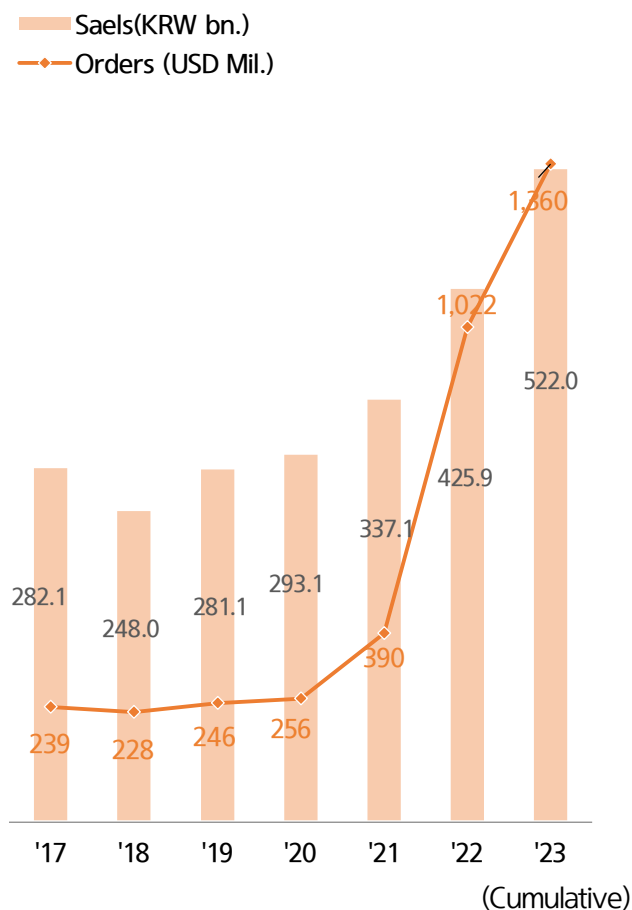
- Orders decreased, but still solid
  - ✓ Orders decreased by 28.7% QoQ
  - ✓ The demand for power equipment will be solid for the time being as the expansion of renewable power sources and investments in large-scale urban development are in progress
  - ✓ There was a order for high voltage circuits and transformers, which are for Neom project (KRW 67.8 billion)
- Scales for sales and profit are improving
  - ✓ Sales increased by 75.7% QoQ, 92.6% YoY

## 5. Issues

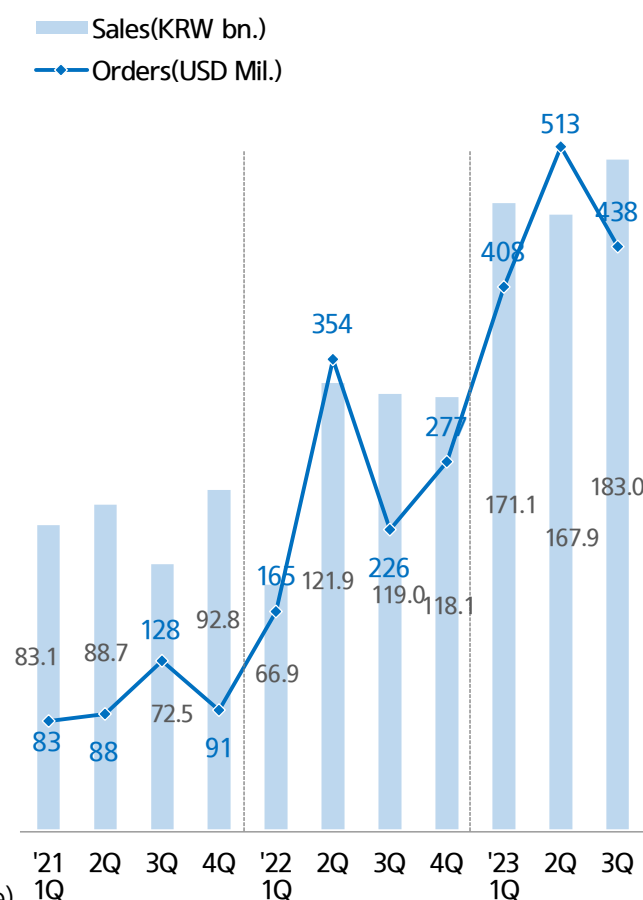
### 2) North America market

- Orders to North America market in 3Q recorded USD 438 million (backlog USD 2.05 billion), while sales recorded KRW 183.0 billion

#### Orders / Sales (Annual)



#### Orders / Sales (Quarter)



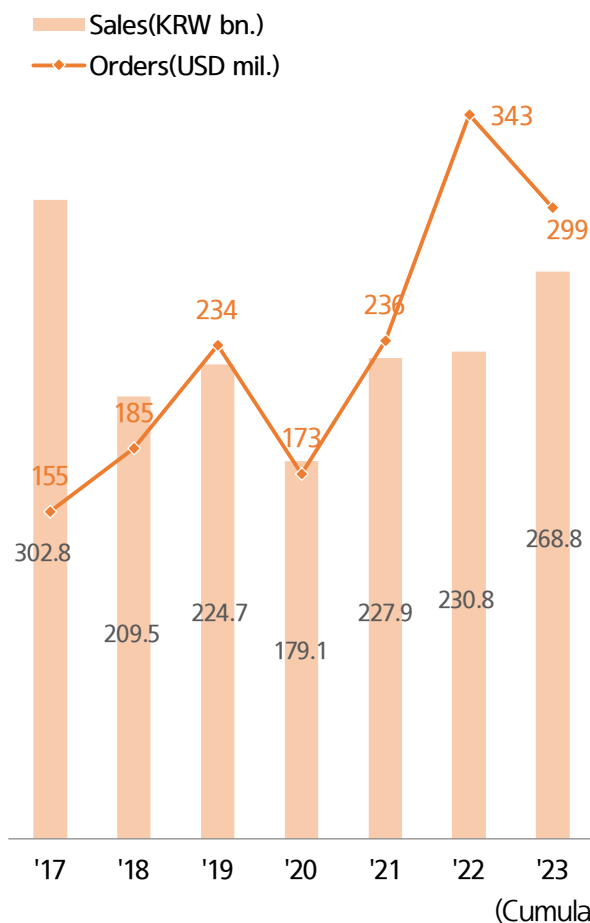
- Orders decreased, but still solid
  - ✓ Orders in 3Q decreased by 14.6% QoQ, increased by 93.8% YoY
  - ✓ The long-term supply contracts for transformers are increasing thanks for the investment of the renewable power sources and replacement of old age power equipment.
- Sales products are diversified and the profitability is improving
  - ✓ Sales increased by 53.8% YoY
  - ✓ In addition to the power transformer, sales for the distribution transformer are increasing

## 5. Issues

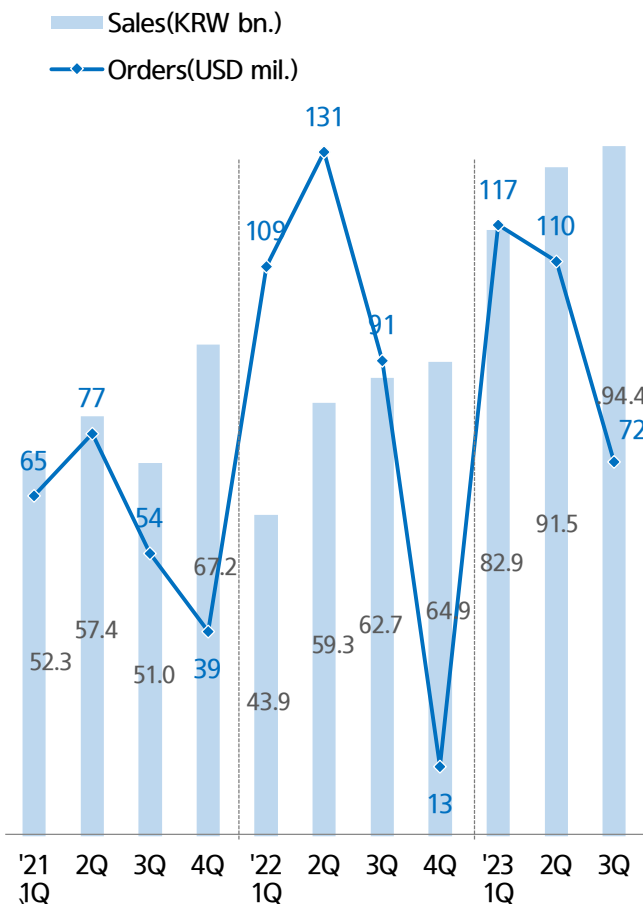
### 3) Marine products

- Orders of marine products in 3Q recorded USD 72 million (backlog USD 410 million), while sales recorded KRW 94.4 billion

#### Orders / Sales (Annual)



#### Orders / Sales (Quarter)



- Orders decreased due to the delay
  - ✓ The orders in 3Q decreased by 34.5% QoQ
  - ✓ The Orders for marine products were delayed due to the dock exhaustion of the main shipyards and seasonal impact
  - ✓ Expecting the orders of marine products for Qatar LNG carrier from 1Q of next year and stable demands would be continued
- Stable growth for sales and profitability
  - ✓ Sales increased by 50.8% YoY

## [Appendix] Capacity expansion plan for transformers

- To meet the increased demands from US and European transformers market, the Headquarters and Alabama subsidiary is planning to be expanded as the fastest way to maximize manufacturing efficiency.
- Investment effect will start from the second half of '24 year, and the expected increase of annual sales is approx. KRW 220 billion due to the expansion of capacity of large/special transformers.
- To respond to the future market situation in the US market, additional transformer capacity expansion plans are thoroughly under consideration

	1 Ulsan headquarter plant	2 Alabama subsidiary plant
Plan	Expansion of the total assembly space Integration of core stage	Expansion of the total assembly space
Investment & Period	investment of KRW 27.2 billion ..... Period 19 months (April, 2023 ~ October, 2024)	investment of KRW18.0 billion ..... Period 10 months (December, 2023 ~ September, 2024)
Expansion effect	<i>KRW140 billion increase in annual sales</i>	<i>KRW 80 billion increase in annual sales</i>

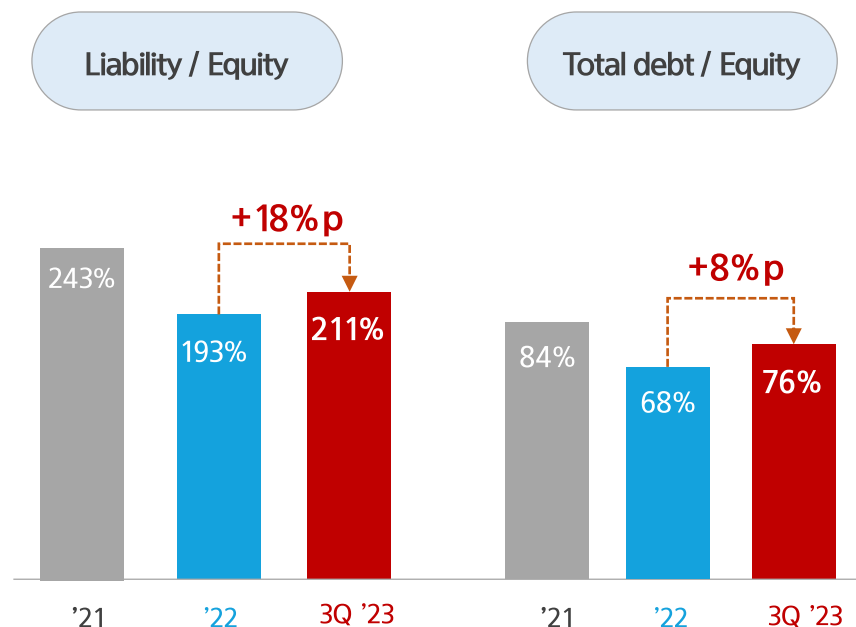
## 6. Key financial Statement

### Financial Statements

UNIT: KRW bn

	'21 year	'22 year	3Q '23
Total Assets	2,215.0	2,435.0	2,930.2
Current assets	1,398.3	1,547.4	2,035.4
Cash and cash equivalents	354.8	172.7	152.7
Non-current assets	816.6	887.6	894.8
Total Liabilities	1,568.7	1,603.9	1,987.2
Current liabilities	1,252.5	1,411.1	1,612.9
Non-current liabilities	316.3	192.7	374.3
Total Debt	545.9	565.2	719.5
Net Debt	169.2	371.1	541.4
Total Equity	646.2	831.2	943.0

### Financial Ratios



- Financial ratios increased due to an increase in operating debt (advance payment received, account payable) compared to end of last year
- Borrowing amount increased due to the increase of working capital

Note) Figures based on HE's Consolidated Financial Statement (Consolidated assets : Hyundai Tech Center Hungary, Hyundai Electric Switzerland, HDENE Power Solution India, Yang Zhong(China) Corporation, Shanghai R&D Center, Middle East Corporation, Alabama Corporation, Atlanta Sales Corporation, Hyundai Plaspo, Yecheon Energy)





4Q 2023 Earning Release

**HD HYUNDAI ELECTRIC**



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[Contents]

# 4Q 2023 Consolidated Earnings

1. 2023 Consolidated Earnings (summary)
2. Sales Analysis by Segments
3. Operating Profit Analysis
4. Non-operating Profit and Loss & Net Profit
5. Main Issues
  - Middle East
  - North America
  - Marine
6. Key Financial Indicators



## 1. 2023 Consolidated Earnings (4Q)

- 4Q Consolidated sales recorded KRW 797.3 billion (QoQ +14.8%, YoY +17.7%), and Operating profit increased to KRW 124.7billion (QoQ + 46%, YoY +143.6%) reaching OPM of 15.6%.
- Orders and backlog also grew on QoQ and YoY basis (QoQ orders: +26.9%, QoQ Backlog: +8.4%).

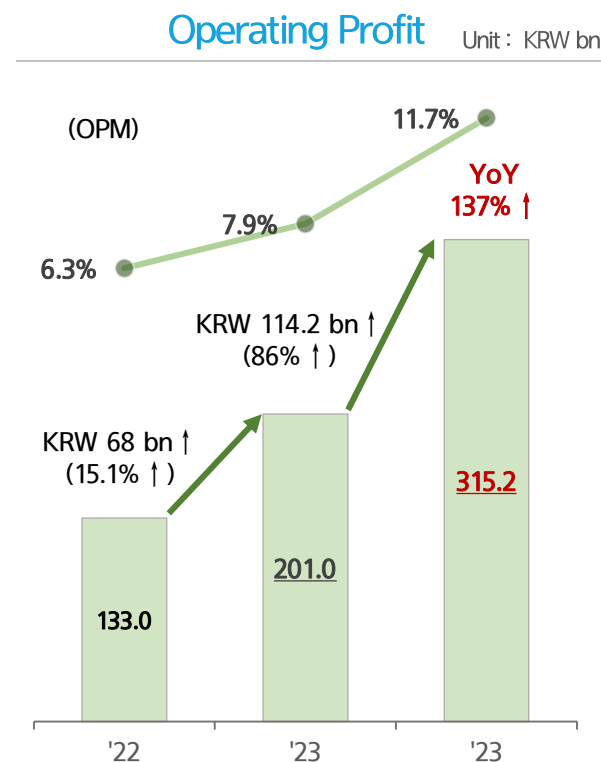
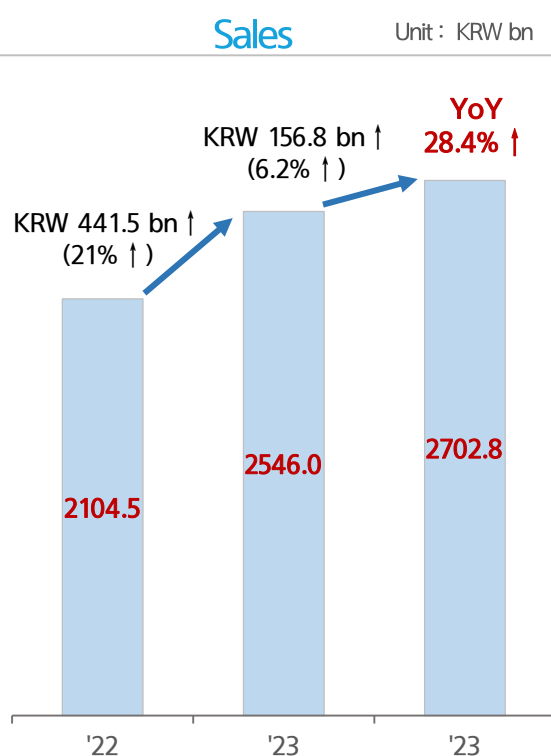
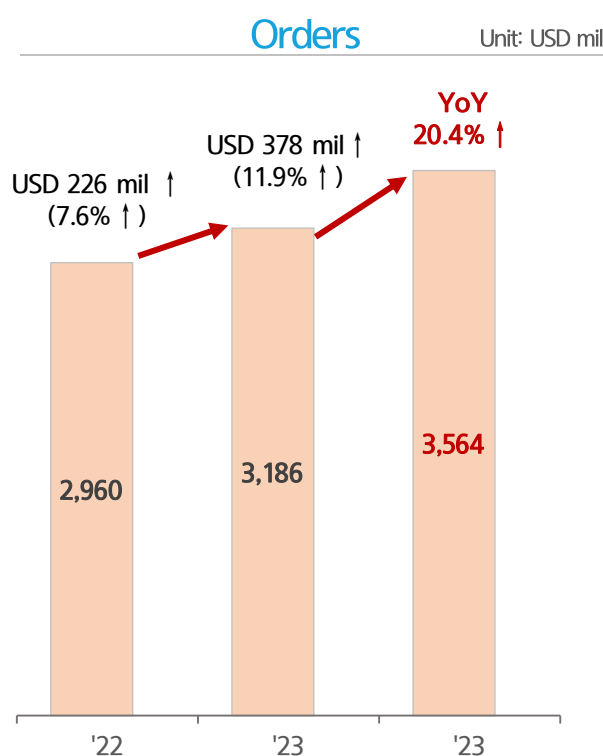
Unit : KRW bn

구 분		'23.4Q		'23.3Q	'22.4Q
		QoQ	YoY		
Sales	797.3	+14.8%	+17.7%	694.4	677.5
Operating Profit	124.7	+46.0%	+143.6%	85.4	51.2
OP Margin (%)	15.60%	+26.8%	+105.3%	12.30%	7.60%
Non-Operating Profit and Loss	34.0	-	-	-18.7	-35.4
Net income Before taxes	1,58.7	+137.9%	+904.4%	66.7	15.8
Net Profit	1,39.0	+156.0%	+202.2%	54.3	46.0
Controlling Shareholder's N/I	1,38.9	-	-	53.4	46.2
Orders(USD mil.)	859	+26.9%	+30.9%	677	656
Backlog (USD mil.)	4,302	+8.4%	+58.6%	3,967	2,713

Note) Figures based on HE's Consolidated Financial Statement (Consolidated assets : Hyundai Tech Center Hungary, Hyundai Electric Switzerland, HDENE Power Solution India, Yang Zhong(China) Corporation, Shanghai R&D Center, Middle East Corporation, Alabama Corporation, Atlanta Sales Corporation, Hyundai Plaspo, Yecheon Energy)

# 1. 2023 Consolidated Earnings (Annual)

- Until the end of 2023, strong power equip. demand continued in North America and Middle-east market recording annual orders of USD 3,564 mil (overachieving twice raised '23 annual order guidance)
- Also, profitability growth trend maintained on both power and distribution equip. reaching annual sales of KRW 2.7 tril (YoY +28.4%) and KRW 315.2 bil. operating profit (YoY +11.7%)
- Continuous growth in 2024 is projected with annual outlook of Order USD 3,743 mil, Sales KRW 3.3 tril.



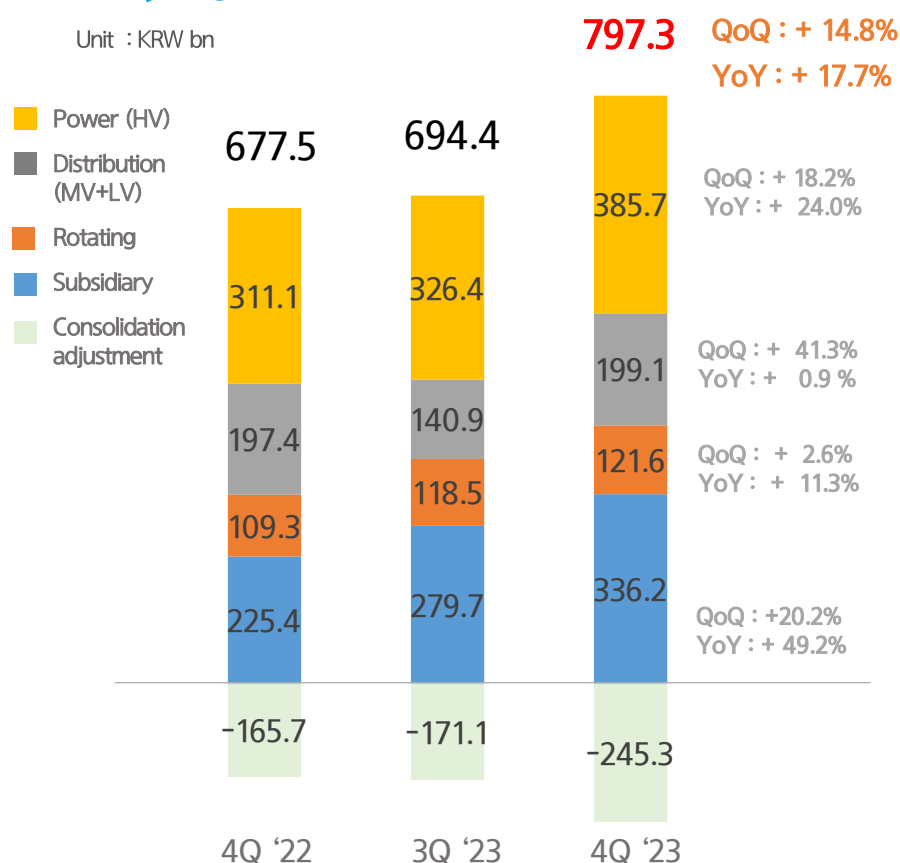


## 2. Sales Analysis by Segments

- Influenced by the Price effect started in 2023 from North America and Middle East market, sales of 4Q increased by QoQ +14.8%, YoY +17.7%.
- Along with the noticeable growth of power equipment segment, rotating/distribution equipment segment also maintained good level.

### Sales by segments

Unit : KRW bn



### Analysis by segment

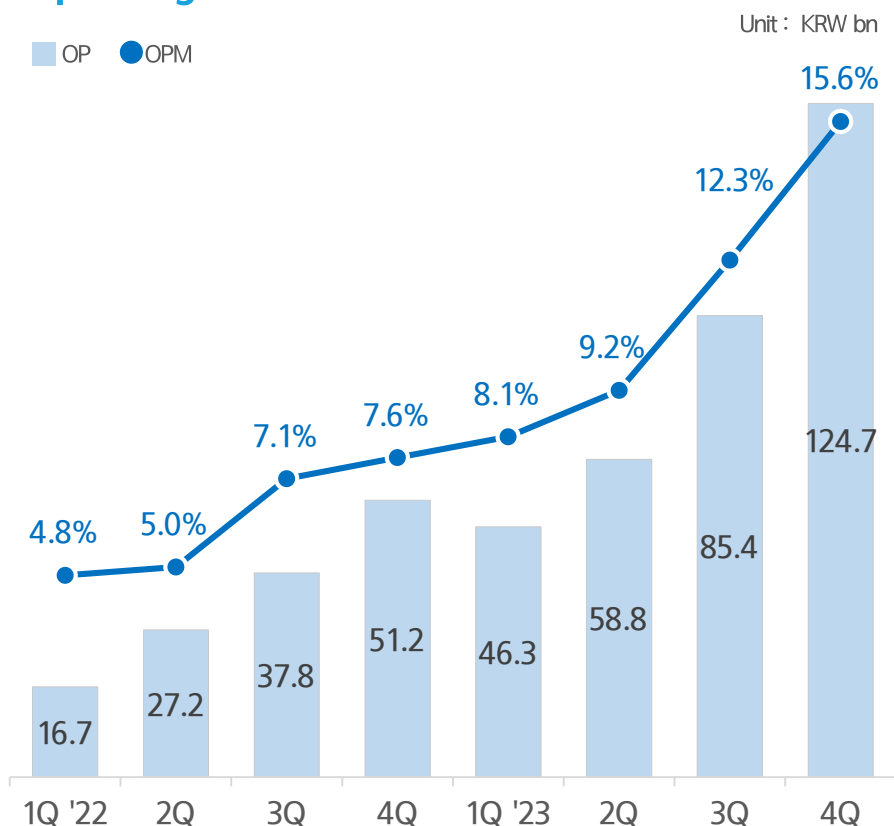


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### 3. Operating Profit Analysis

- Operating profit of the 4<sup>th</sup> quarter reached KRW 124.7 billion (OPM 15.6%) showing QoQ 3.3%p and YoY 8%p increase.
- Boom in transformer market resulting positive impact on the sales price, profitability continued to increase with result of the highest operating profit in a single quarter.

#### Operating Profit Trend

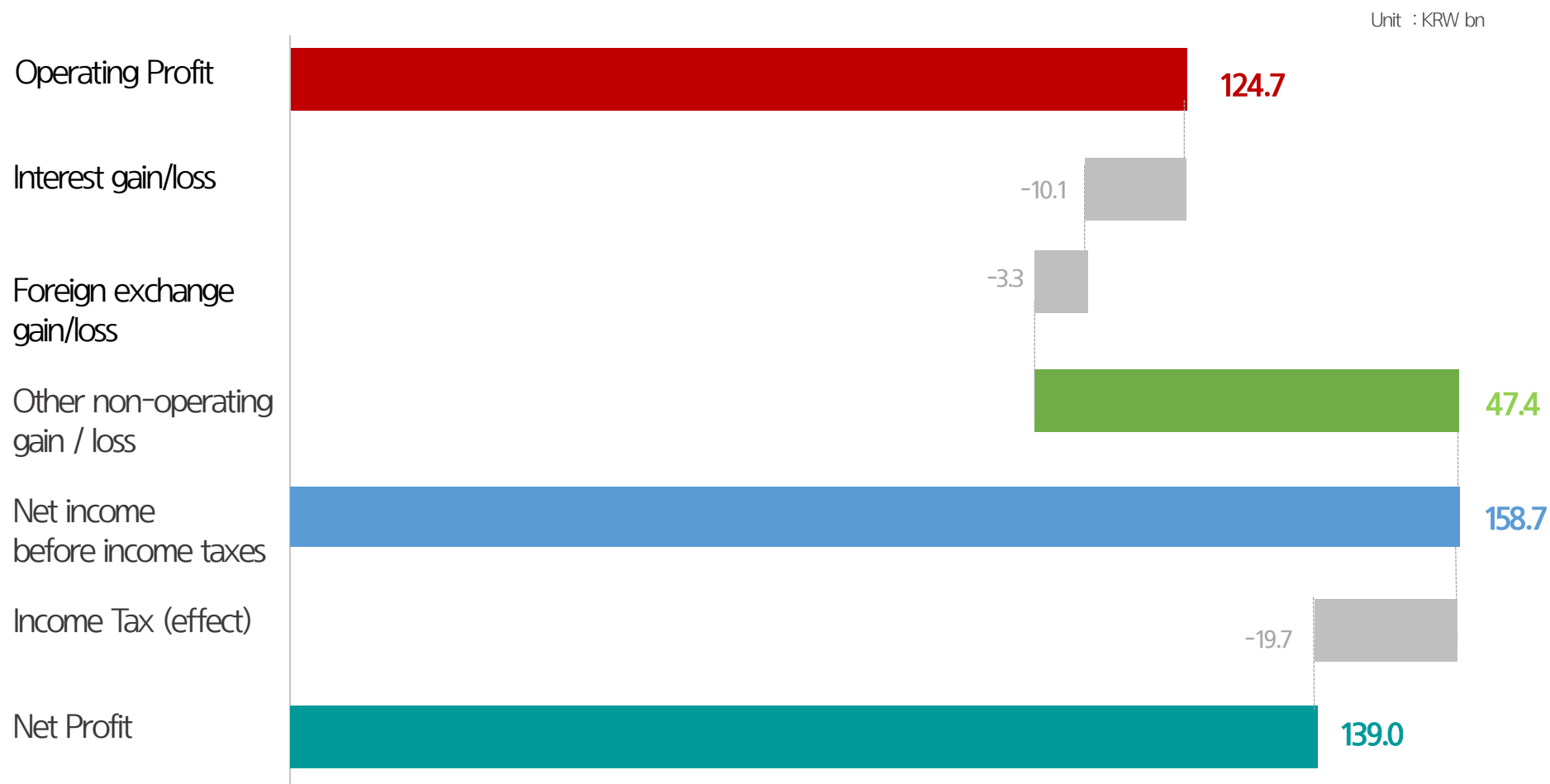


#### Operating Profit Analysis by Segment

Power Equip.	<ul style="list-style-type: none"> <li>Transformer profitability growth mainly led by North America &amp; Middle-East market</li> <li>Positive impact on profitability driven by increase in HV Circuit breaker sales</li> </ul>
Rotating/ Distribution Equip.	<ul style="list-style-type: none"> <li>Domestic market sales expansion on rotating segment generated profitability improvement</li> <li>M/LV Distribution segment OP turned slow compare to the last quarter</li> </ul>
Subsidiary	<ul style="list-style-type: none"> <li>Solid profit growth of the U.S. subsidiaries continued</li> <li>Chinese subsidiary profit in recovery trend supported by the increase in sales</li> </ul>

## 4. Non-operating Profit and Loss & Net Profit

- Net profit recorded KRW 139 billion reflecting interest and foreign exchange related losses
- Recovering the tangible & intangible asset losses (KRW 55.9 billion) reflected during the market downturn in 2018-2019



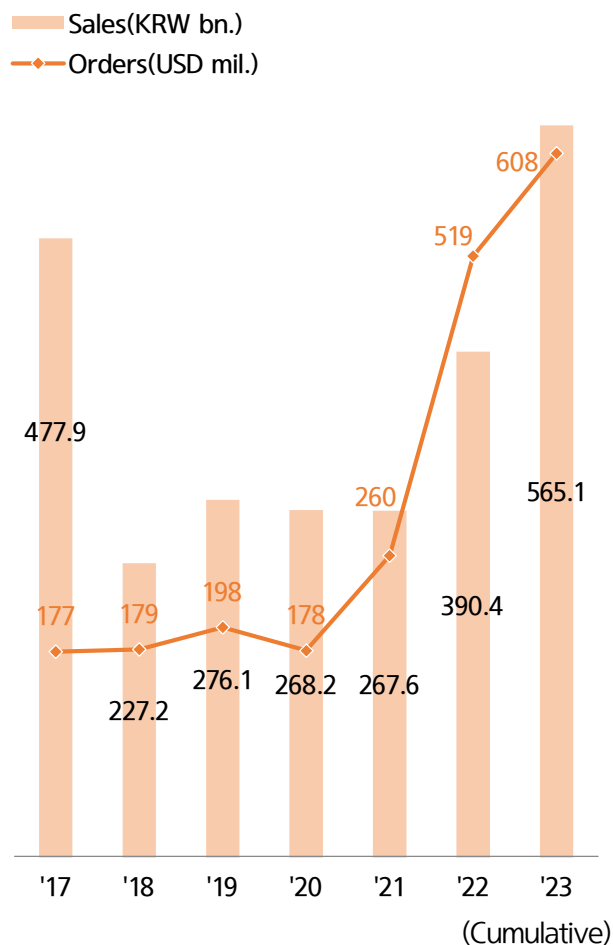


## 5. Main Issues

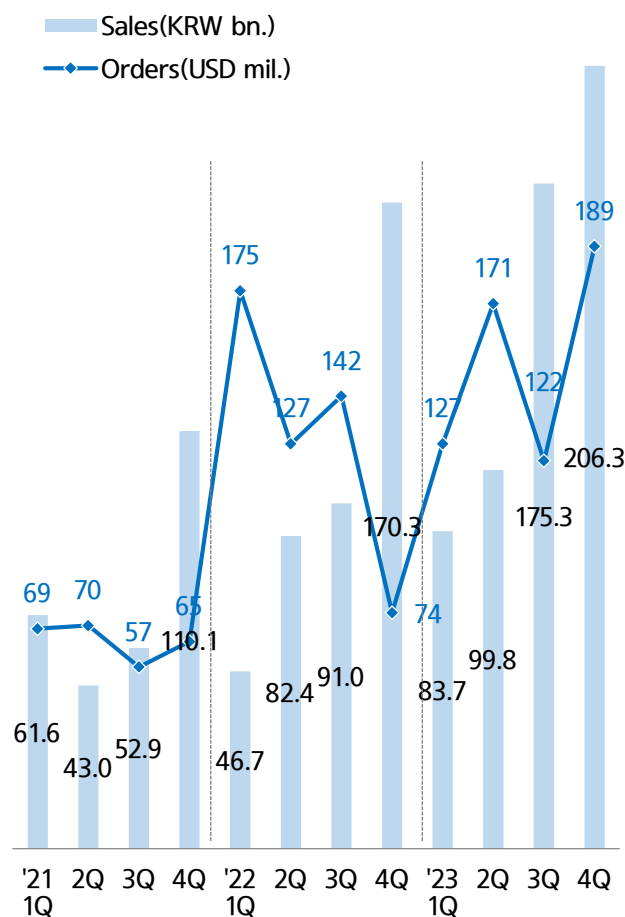
### 1) Middle East Market

- Orders from the Middle-East market in the 4Q recorded USD 189 million (backlog USD 655 million), and sales recorded KRW 206.3 billion

#### Orders / Sales (Annual)



#### Orders / Sales (Quarter)



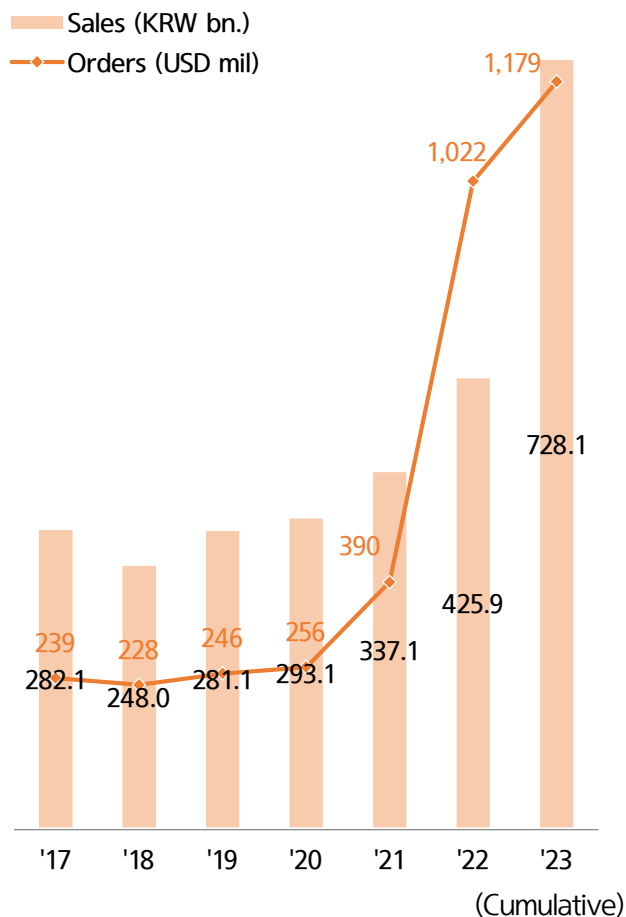
- Still increasing orders with strong market condition
  - ✓ The highest order recorded quarter, even stronger than the striking 2Q. (QoQ +54.9%, YoY +155.4%)
  - ✓ Strong power equip. demands on mega city development projects continued. (4Q disclosure contracts appx. KRW 243.5 billion regarding Neom, Diryah gate and etc.)
- Sales and OP growth continued
  - ✓ QoQ 17.7%, YoY 21.1% sales increase
  - ✓ Increase in the portion of HV Circuit breaker was the key factor of profitability recovery in the Middle East Market

## 5. Main Issues

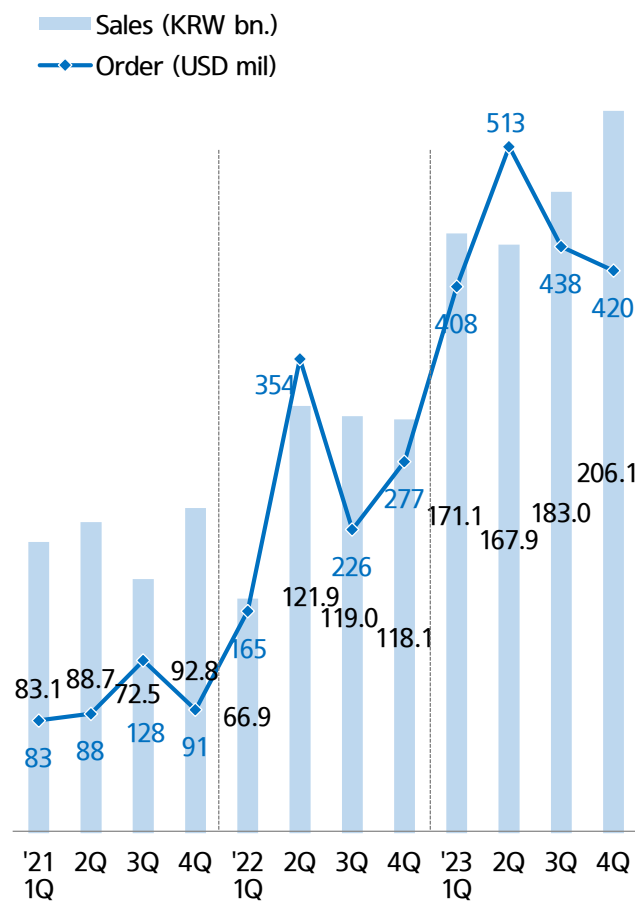
### 2) North America Market

- Orders to North America market in 4Q recorded USD 420 million (backlog USD 2.39 billion), while sales recorded KRW 206.1 billion

#### Orders / Sales (Annual)



#### Orders / Sales (Quarter)



- Order Backlog still increasing

- ✓ Slower order compared to the previous quarter but the order backlog is still on increasing trend (YoY +51.6%)
- ✓ Solid market demand continued and with increasing long-term contracts (4Q disclosure contract: CA, Santa Clara electric Util, appx. KRW 78.2 bn)

- Favorable market condition on going

- ✓ High profitability based on the power equip, price increase effect
- ✓ Increased sales of the distribution transformer continued
- ✓ Backlog increased by 4.5%p from last quarter (56.2% of total backlog)

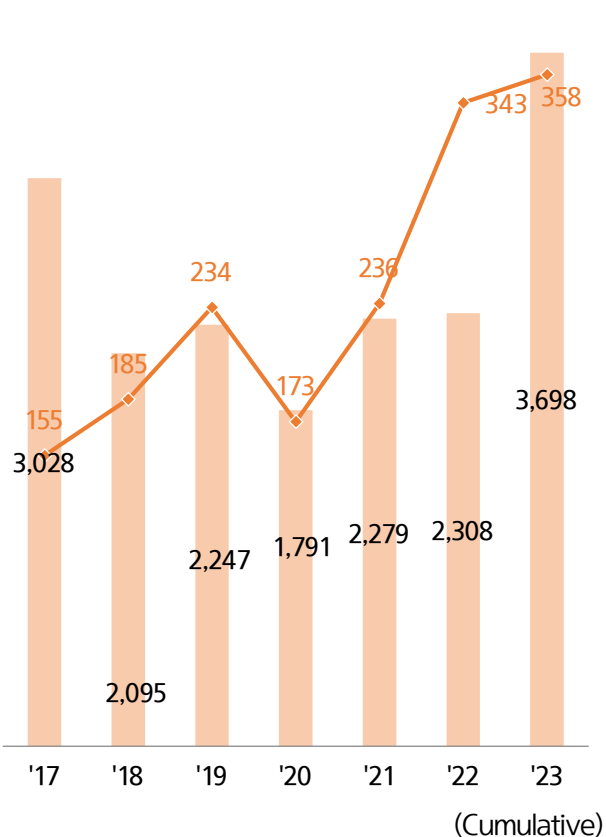
## 5. Main Issues

### 3) Marine Products

- Order of marine products in 4Q orders recorded USD 58 million (Order backlog USD 411 million), and sales recorded KRW 101 billion

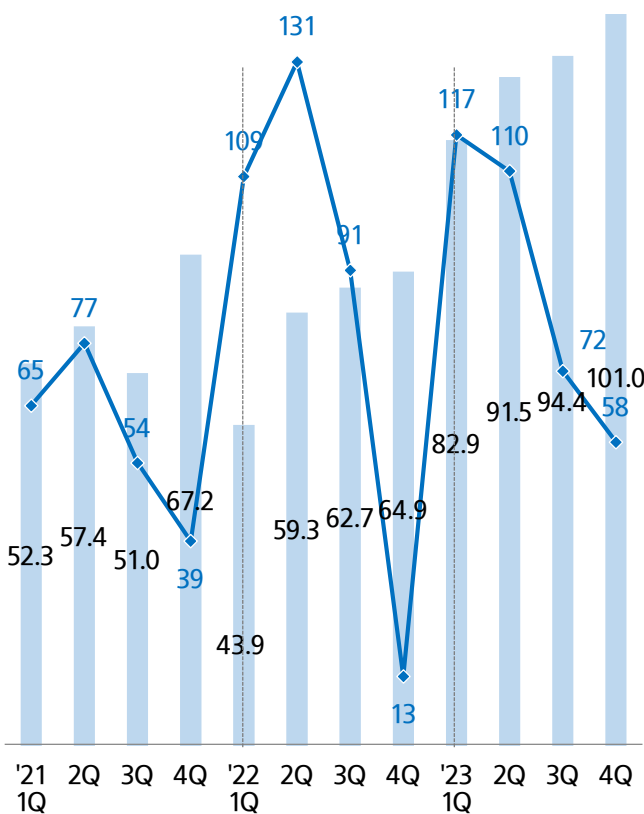
#### Orders / Sales (Annual)

■ Sales (KRW bn.)  
—◆— Orders (USD mil.)



#### Orders / Sales (Quarter)

■ Sales (KRW bn.)  
—◆— Orders (USD mil.)



- Orders down by seasonal effect
  - ✓ Orders decreased QoQ by 19.4% but triple times increase on a YoY basis
  - ✓ Due to the 4Q's seasonal effect, new orders decreased but it shall ease up as Qatar LNG ships contracts from 2023 begins to order electric equipment
  - ✓ In a mid-long term, increase in demand of Ammonia transport, tanker ships and 2<sup>nd</sup> Qatar LNG ship order schedule share the stable market outlook
- Stable growth for sales and profitability
  - ✓ Stable level of sales continues (YoY +55.6%)

## [Appendix] Distribution segment – Smart Factory Construction Plan



- With extensive global investment trend on electric grid infrastructure and renewable energy, demand on M/LV distribution equipment is projected to grow followed by the strong global power equip. demand.
- As a key player of such energy shift and to have balanced business portfolio, distribution equipment production smart factory construction plan is on going
- Smart Factory is scheduled to operate from year 2026 and to gradually increase its productivity until 2030 reaching approx. twice of current production capacity (approx. KRW 250 billion impact)

Topic	Smart factory construction (M/LV product line)
Investment scale and duration	KRW 117.3 billion investment Construction period: 19 Month ('24. April ~ '25. October)
Effect	<ol style="list-style-type: none"> <li>1) Portfolio diversification <ul style="list-style-type: none"> <li>→ Balancing from cyclical power equipment focused portfolio to less cyclical distribution equipment, which has strong demand prospective</li> </ul> </li> <li>2) Competitive mass production capability <ul style="list-style-type: none"> <li>→ Process advancement (applying supply chain management ect.)</li> <li>→ Smart manufacturing equipment (Automatic production &amp; logistics line)</li> <li>- <i>Approx. KRW 250 billion capacity expansion impact</i></li> </ul> </li> </ol>

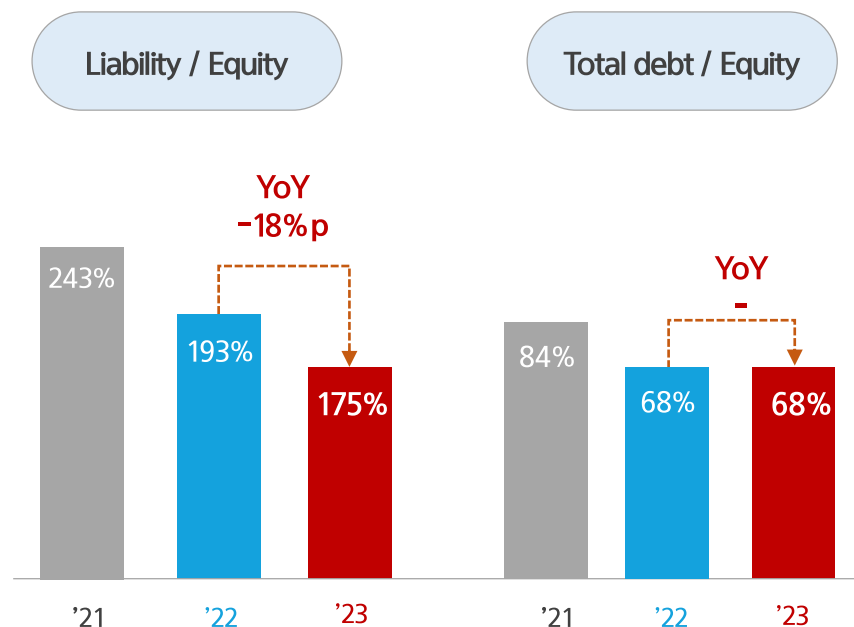
## 6. Key Financial Statement

### Financial Statements

UNIT: KRW bn

	'21 year	'22 year	'23 year
Total Assets	22,150	24,350	29,102
Current assets	13,983	15,474	19,730
Cash and cash equivalents	3,548	1,727	1,761
Non-current assets	8,166	8,876	9,372
Total Liabilities	15,687	16,039	18,531
Current liabilities	12,525	14,111	14,974
Non-current liabilities	3,163	1,927	3,557
Total Debt	5,459	5,652	7,155
Net Debt	1,692	3,711	5,148
Total Equity	6,462	8,312	10,570

### Financial Ratios



- Liability/equity ratio decreased while debt/equity ratio stayed the same
- Rapid volume growth of orders and sales increased working capital (advance payment received, account payable)

Note) Figures based on HE's Consolidated Financial Statement (Consolidated assets : Hyundai Tech Center Hungary, Hyundai Electric Switzerland, HDENE Power Solution India, Yang Zhong(China) Corporation, Shanghai R&D Center, Middle East Corporation, Alabama Corporation, Atlanta Sales Corporation, Hyundai Plaspo, Yeocheon Energy)



## **ATTACHMENT 6**

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HD Hyundai Financial Statements H1 2024

# 2Q 2024 Earning Release

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July 23<sup>rd</sup> 2024



# Disclaimer

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This report has been prepared by HD Hyundai Electric indicated as "Company" below, for the purpose of promoting understanding of the company's business activities and it is prohibited to export, copy or redistribute the report.

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The above "forecast information" is influenced by changes in the future business environment and inherently contains uncertainties. As a result of such uncertainties, actual future performance may significantly differ from those stated or implied in the "forecast information".

Furthermore, the outlook is based on current market conditions and the direction of the company management. Please be advised that changes may occur due to changes in the market environment and strategies, and are subject to change without notice.

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# **CONTENTS**

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1. 2Q 2024 Consolidated Earnings
2. Sales Analysis
3. Operating Profit Analysis
4. Non-Operating Profit and Loss & Net Profit
5. Main Issue
  - 1) North America
  - 2) Middle East
  - 3) Marine Product
6. Key Financial Indicators

## 2Q24 Summary

- Supported by the upcycle of global power grid industry, revenue and operating profit achieved the best performance as of a single quarter
- Due to the base affect of last quarter and strong order backlog, order decreased but the backlog growth and selective order trend continued

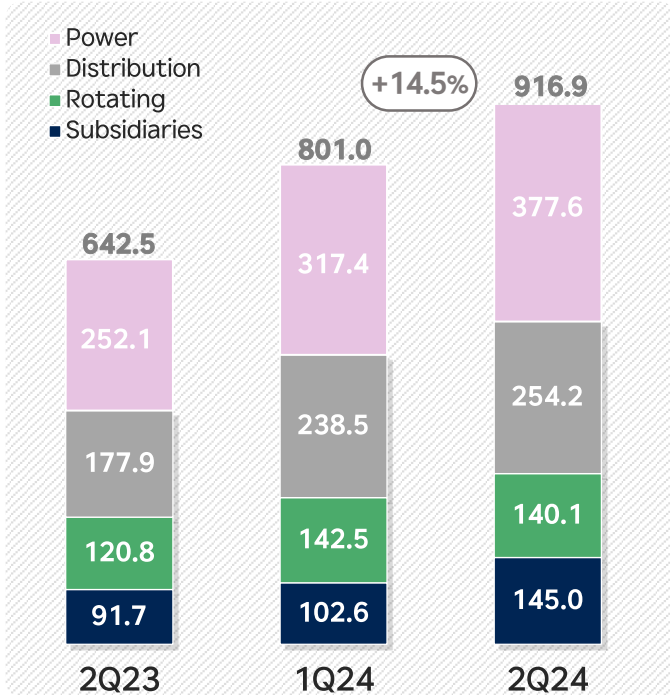
(Consolidated Basis, UNIT : KRW bn)

	2Q23	1Q24	2Q24	QoQ	YoY
Sales	642.5	801.0	916.9	14.5%	42.7%
Operating Profit	58.8	128.8	210.1	63.0%	257.1%
OP Margin(%)	9.2%	16.1%	22.9%	6.8%p	13.7%p
Non-Operating Profit & Loss	-11.3	-6.0	-0.6	-	-
Net income Before taxes	47.5	122.8	209.4	70.5%	340.8%
Net Profit	37.4	93.4	161.2	72.6%	331.0%
Controlling Shareholder's N/I	37.7	94.0	161.5	71.8%	328.4%
Order (USD mil.)	1,232	1,438	880	-38.8%	-28.6%
Backlog(USD mil)	3,723	5,076	5,252	3.5%	41.1%

Note) Figures based on HE's Consolidated Financial Statement (Consolidated assets : Hyundai Tech Center Hungary, Hyundai Electric Switzerland, Yang Zhong(China) Corporation, Shanghai R&D Center, Middle East Corporation, Alabama Corporation, Atlanta Sales Corporation, HD Hyundai Plaspco, Yecheon Energy)

### Sales by Segment

(UNIT : KRW bn)



### Analysis by Segment

		QoQ	YoY
Power	<ul style="list-style-type: none"> <li>Strong growth trend continued in the major markets                             <ul style="list-style-type: none"> <li>North America: sales exposure increased</li> <li>Middle East: high-voltage circuit breaker sales increased</li> </ul> </li> </ul>	19.0%	49.8%
Distribution	<ul style="list-style-type: none"> <li>Sales growth in North America                             <ul style="list-style-type: none"> <li>PAD &amp; mold transformer revenue increase was the major contribution</li> </ul> </li> <li>Switchgear sales increased in the Middle East and Marine product markets</li> </ul>	6.6%	42.9%
Rotating	<ul style="list-style-type: none"> <li>QoQ decrease due to the strong base of the last quarter but solid market trend continued                             <ul style="list-style-type: none"> <li>Stable performance in North America</li> <li>Marine product sales growth (QoQ +30%)</li> </ul> </li> </ul>	-1.7%	16.0%
Subsidiaries	<ul style="list-style-type: none"> <li>U.S.: Steady growth trend</li> <li>China: Strong QoQ increase</li> </ul>	41.3%	58.1%

## Operating Profit Trend

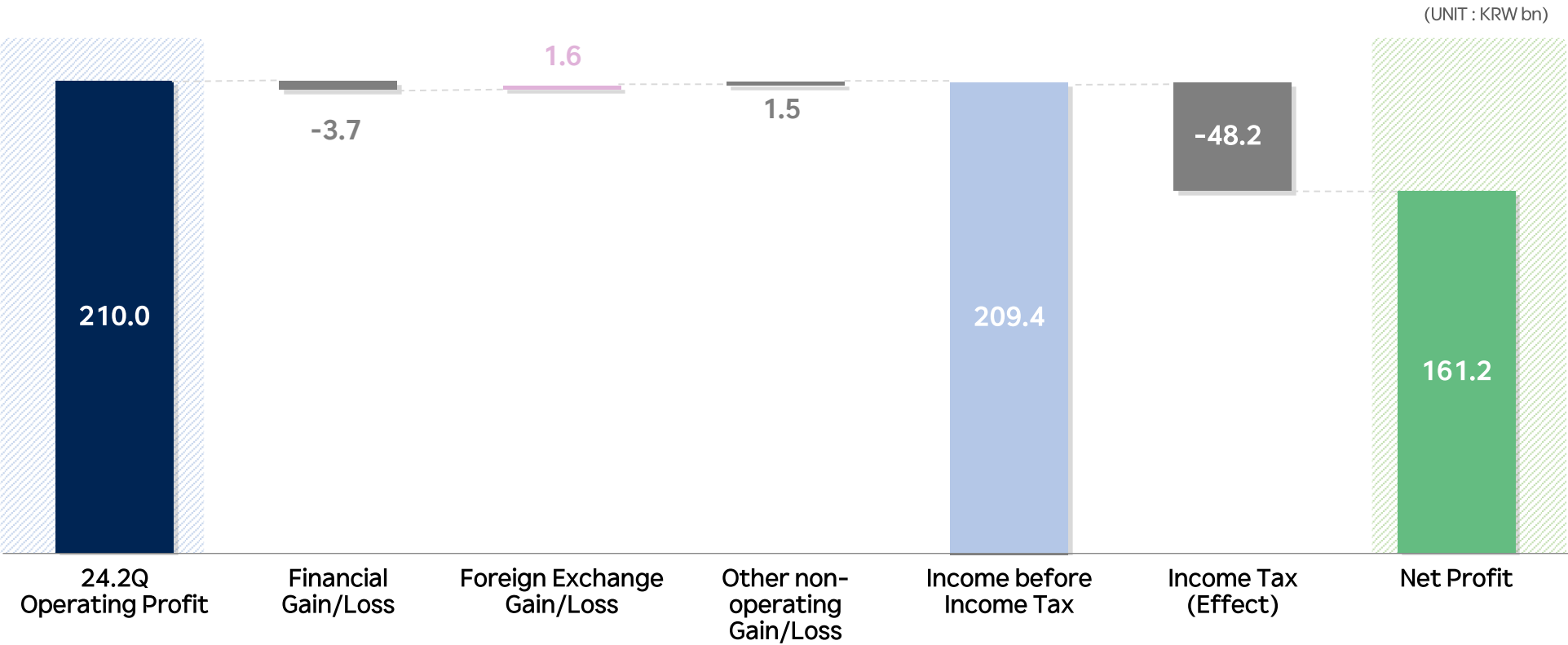
(UNIT : KRW bn)



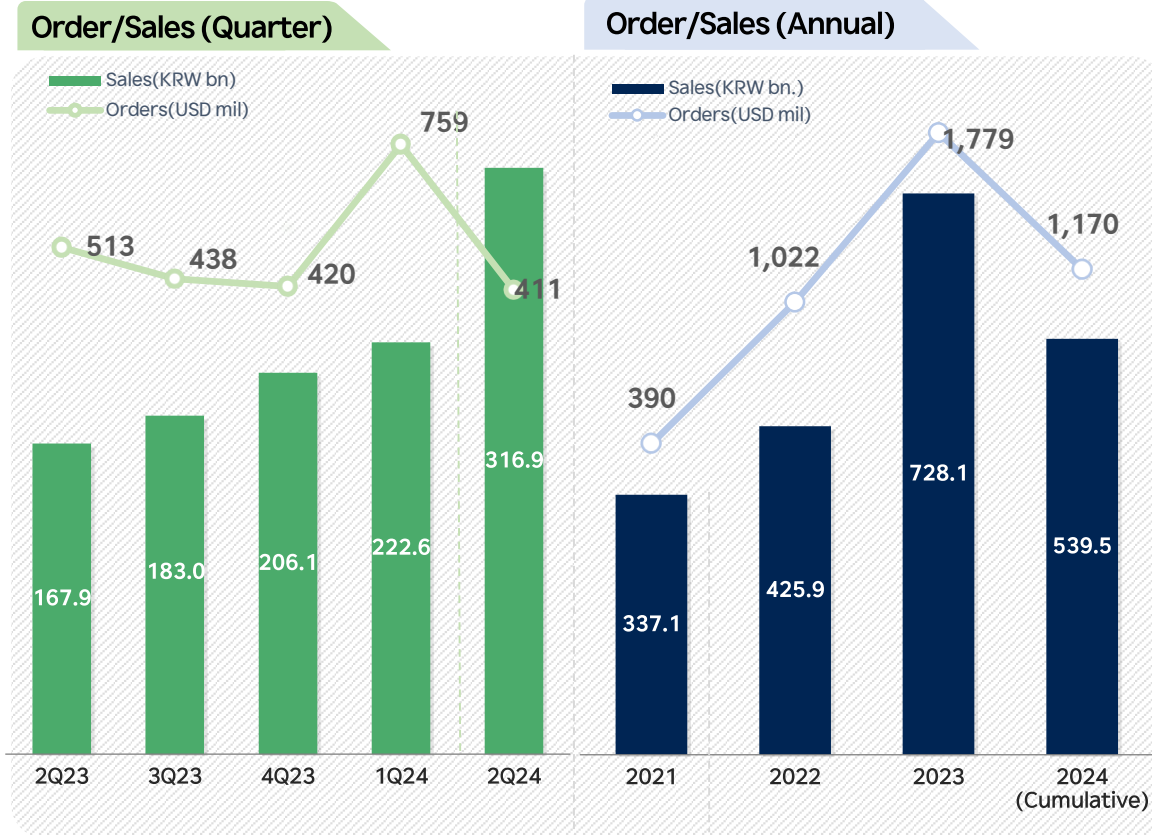
## OP Analysis by Segments

	QoQ	YoY
<b>Power</b> <ul style="list-style-type: none"> <li>Profitability growth in both domestic and overseas markets                             <ul style="list-style-type: none"> <li>North America and Middle East sales exposure increased</li> </ul> </li> </ul>		
<b>Distribution</b> <ul style="list-style-type: none"> <li>All product line's profitability growth continued                             <ul style="list-style-type: none"> <li>Distribution transformers</li> <li>Marine Products: switchgear</li> </ul> </li> </ul>		
<b>Rotating</b> <ul style="list-style-type: none"> <li>Profit growth with the recognition of improved margin projects                             <ul style="list-style-type: none"> <li>Solid trend in North America market</li> <li>Marine products made continues progress</li> </ul> </li> </ul>		
<b>Subsidiaries</b> <ul style="list-style-type: none"> <li>U.S.: profitability improved with selective orders</li> <li>China: Profitability showed process driven by the GIS volume increase</li> </ul>		
	+6.8%p	+13.7%p

2Q. 24 Non-Operating Profit and Loss & Net Profit



## 1) North America



## Analysis(QoQ)

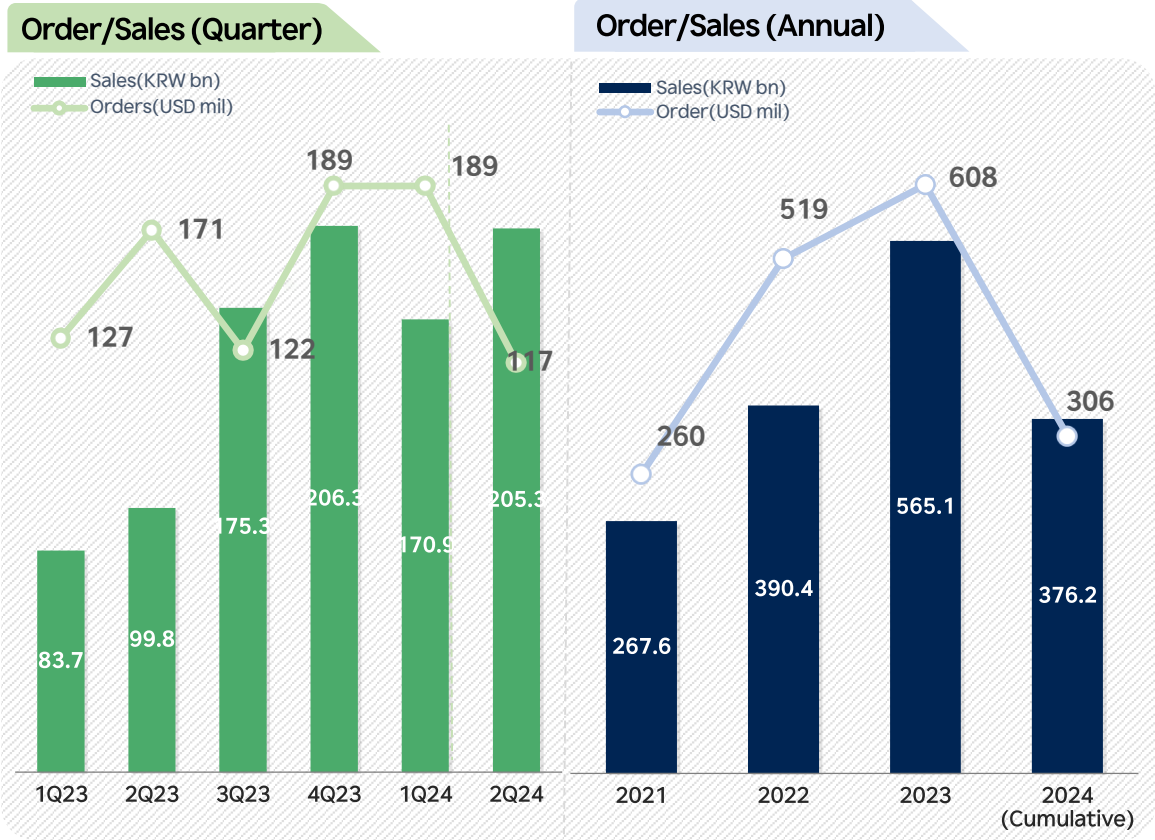
ORDER	QoQ	YoY
<ul style="list-style-type: none"> <li>Persisting favorable market condition <ul style="list-style-type: none"> <li>Long-term contracts based selective order</li> <li><u>59.6%</u> of the total order backlog</li> </ul> </li> </ul>	-45.8%	-19.9%
SALES		
<ul style="list-style-type: none"> <li>Proportion of revenue increase (1Q24: 28%→ 2Q24: 35%)</li> <li>Simultaneous sales growth of power and distribution transformers</li> </ul>	42.4%	88.7%

## OUTLOOK

- Extended delivery period trend in the market has led utility companies to establish advance ordering plans and diversifying suppliers
- Power consumption increase outlooks released (Electricity usage by data centers in the U.S. will rise by 166% by 2030)

\* EPRI ( Electric Power Research Institute)

2) Middle East



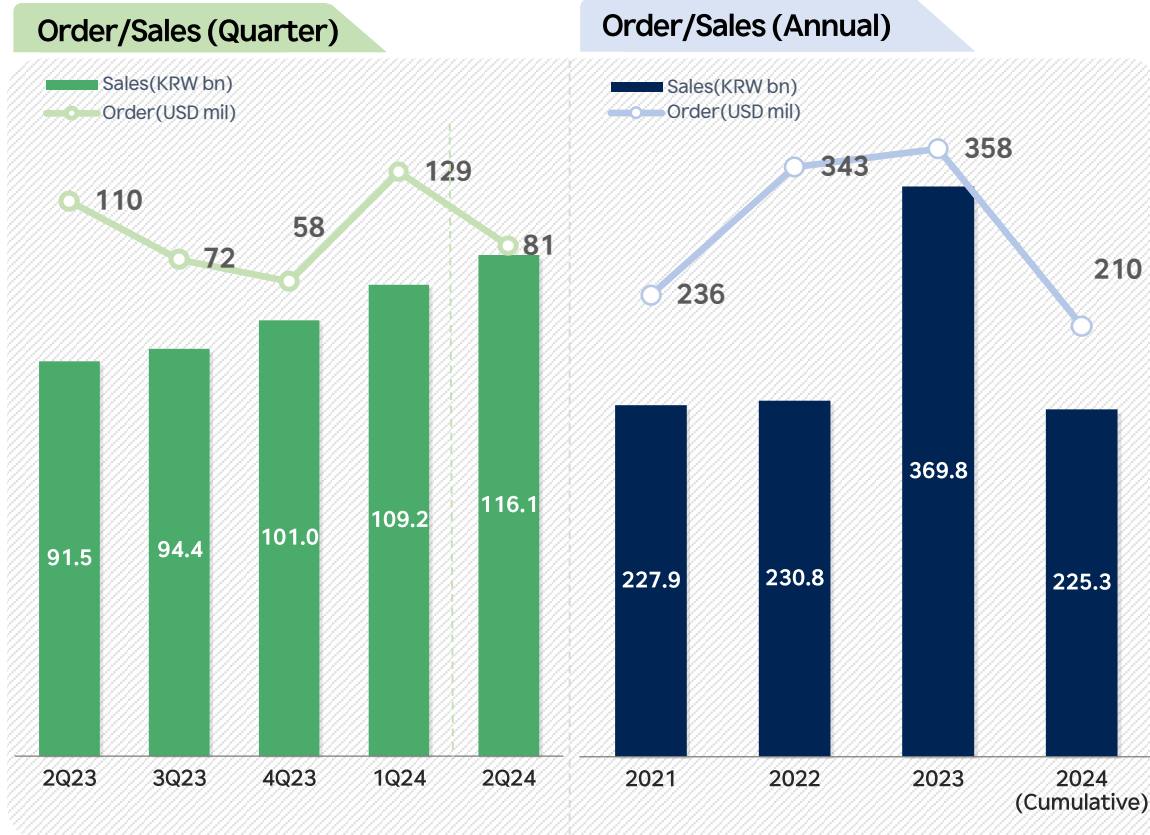
Analysis(QoQ)

ORDER	QoQ	YoY
<ul style="list-style-type: none"><li>• Selective order due to prolonged delivery lead time<ul style="list-style-type: none"><li>- Market diversification (Oman, Kuwait etc.)</li></ul></li></ul>	-38.1%	-31.6%
SALES		
<ul style="list-style-type: none"><li>• Growth in both revenue and profitability<ul style="list-style-type: none"><li>- Recognition of improved margin projects</li><li>- Sales and profitability growth with strong performance of high-voltage circuit breakers</li></ul></li></ul>	20.1%	105.7%

- OUTLOOK
- Market diversification & Package orders centered
  - Focusing on various product lines (large-capacity transformers and high-voltage circuit breakers)



### 3) Marine Product



### Analysis(QoQ)

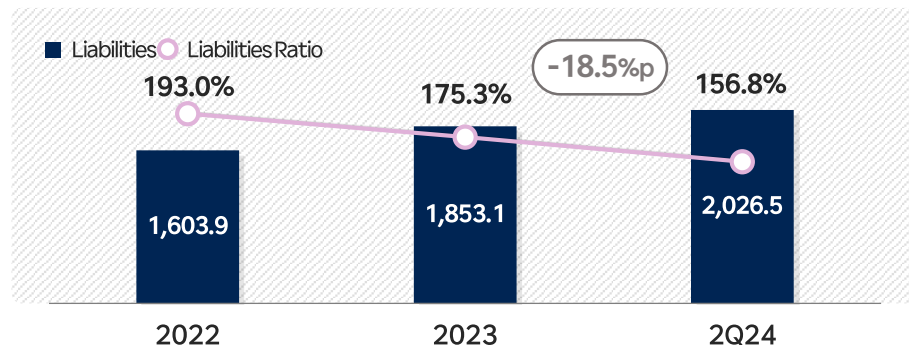
ORDER	QoQ	YoY
<ul style="list-style-type: none"> <li>QoQ decrease due to the base effect from the previous quarter</li> <li>Temporary order decrease caused by capacity constraints of shipyards</li> </ul>	-37.2%	-26.4%
SALES		
<ul style="list-style-type: none"> <li>Stable revenue growth               <ul style="list-style-type: none"> <li>Sales and profitability increased driven by demands from Europe</li> <li>pricing upwards trend due to the increase in ship prices</li> </ul> </li> </ul>	6.3%	26.9%

### OUTLOOK

- Rising freight rates and increased transportation demand as a consequence of geopolitical risks  
→ Continuous container and tanker ship demands
- Stable demands are expected with Qatar's Phase 2 LNG vessels & Environmental regulations (eco-friend vessels etc.)

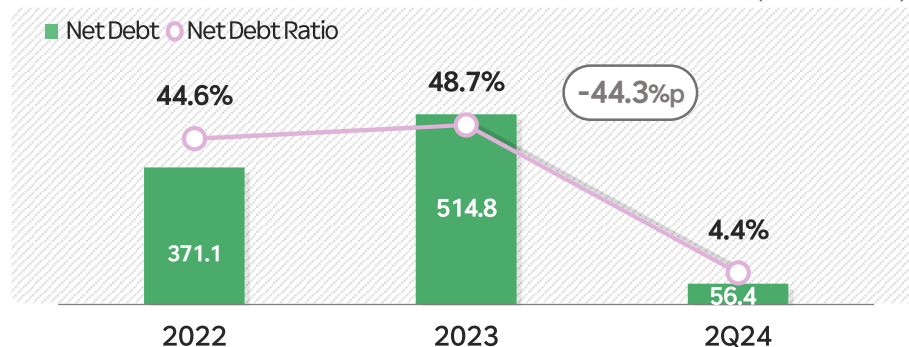
### Liabilities / Equity Ratio

(UNIT : KRW bn)



### Net Debt / Equity Ratio

(UNIT : KRW bn)



### Financial Statement

(UNIT : KRW bn)

	2022	2023	2Q24
Current Assets	1,547.4	1,973.0	2,345.1
Cash and Cash Equivalents	172.7	176.1	400.0
Non-current assets	887.6	937.2	973.8
<b>Assets</b>	<b>2,435.0</b>	<b>2,910.2</b>	<b>3,318.9</b>
Current liabilities	1,411.1	1,497.4	1,687.8
Non-current liabilities	192.7	355.7	338.7
<b>Total Debt</b>	<b>565.2</b>	<b>715.5</b>	<b>482.1</b>
<b>Net Debt</b>	<b>371.1</b>	<b>514.8</b>	<b>56.4</b>
<b>Liabilities</b>	<b>1,603.9</b>	<b>1,853.1</b>	<b>2,026.5</b>
Other components of equity	659.3	660.4	676.3
Retained Earnings	171.9	396.6	616.1
<b>Equity</b>	<b>831.2</b>	<b>1,057.0</b>	<b>1,292.4</b>



## **ATTACHMENT 7**

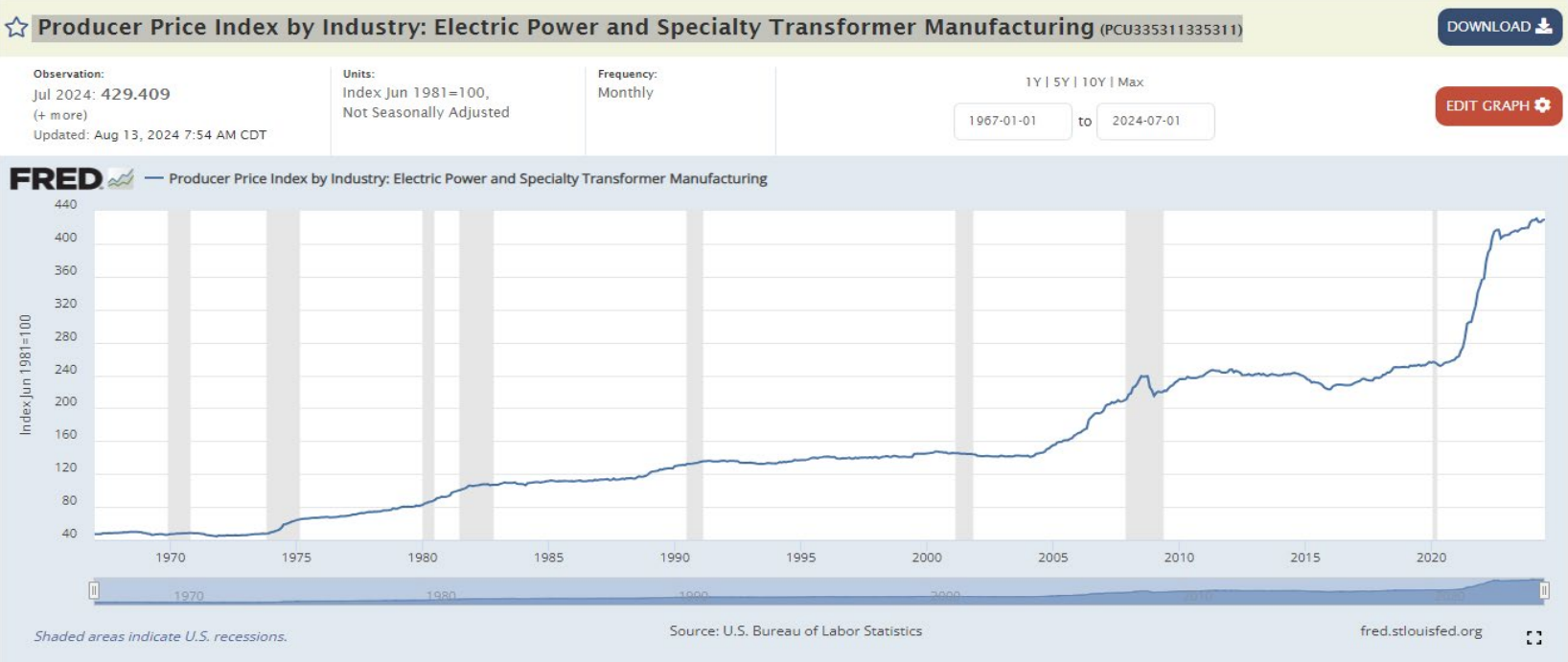
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FRED Transformers Price Index (PCU335311335311) through July 2024

FRED Graph Observations  
Federal Reserve Economic Data  
Link: <https://fred.stlouisfed.org>  
Help: <https://fredhelp.stlouisfed.org>  
Economic Research Division  
Federal Reserve Bank of St. Louis

PCU335311335311      Producer Price Index by Industry: Electric Power and Specialty Transformer Manufacturing, Index Jun 1981=100, Monthly, Not Seasonally Adjusted

Frequency: Monthly	
observation_date	PCU335311335311
2019-07-01	252.800
2021-11-01	340.584
2024-07-01	429.409



## ATTACHMENT 8

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T&D Europe Cost Indices (through May 2024)



## TRANSFORMER COMMODITIES INDICES

MONTHLY

STATISTICS

FOR THE PERIOD

**January 2009 - June 2024**

**PUBLICATION DATE: 1 AUGUST 2024**

The indices are published monthly, usually in the last week of the month following the month of reference in compliance with EU market statistical rules (e.g. data for September 2021, is published in the last week October 2021). The indices for paper, cold steel and hot steel are lagging one month behind as these are based on data from national statistical offices, which become available after the deadline for the T&D Europe indices.

### **IMPORTANT**

Each operator on the market remains free, autonomous and independent to set its respective prices. The indices do not affect the freedom of markets players to set and change their prices and T&D Europe will not give any instructions on how to use the indices.

In January 2024 we have been made aware of a reporting error. We will correct the series. Until then we can not report a value for mineral oil.

In April 2020, the December 2019 - March 2020 indices for GOES High Grade have been updated due to a change in the number of reporting organisations.

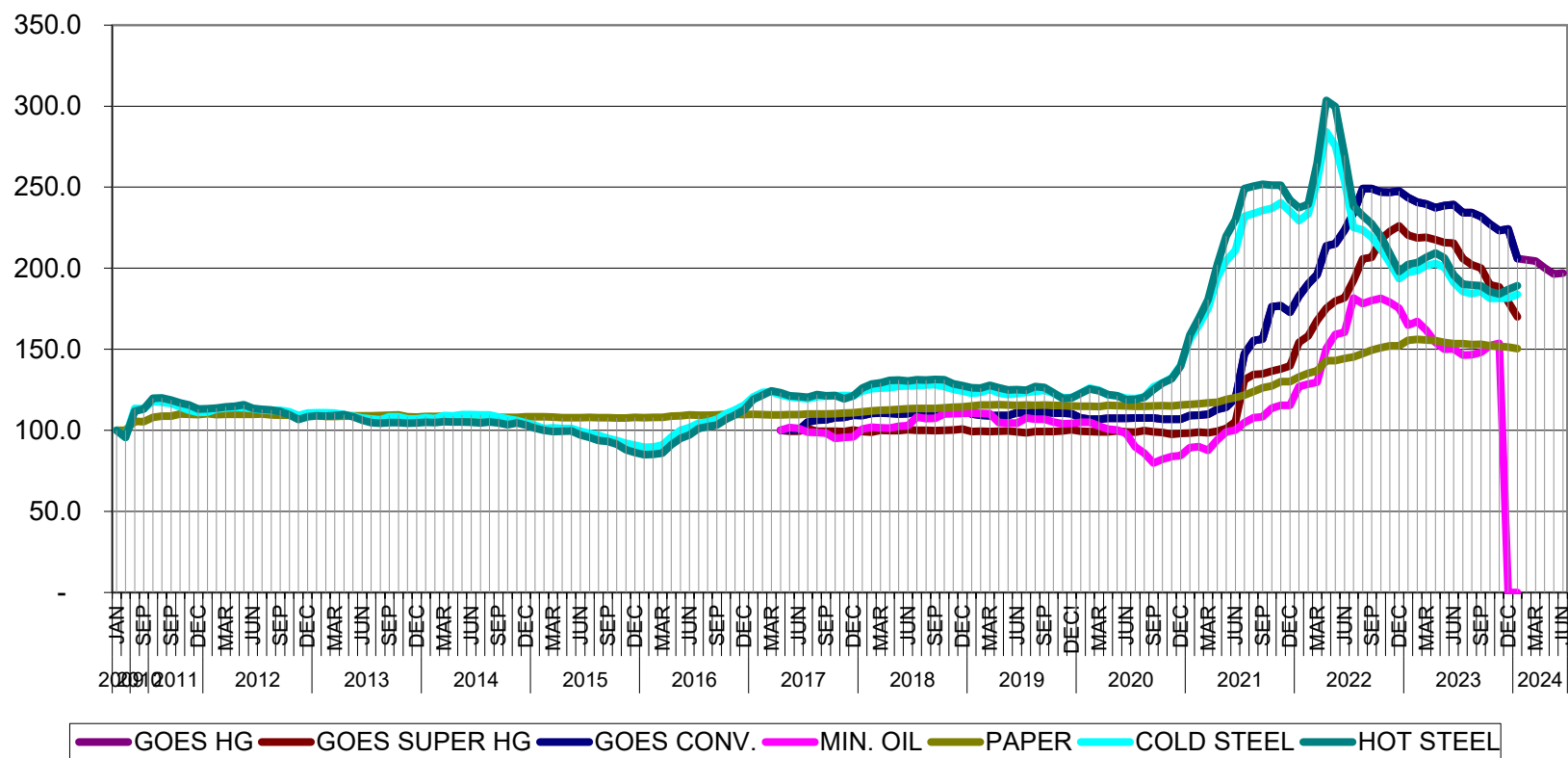
We have stopped publishing the **Aluminium and Copper indices** after December 2012, as information is readily available from other sources.



T&D EUROPE								
TRANSFORMER COMMODITY INDICES								
BASE APR-2017 = 100 [Goes Conv., Goes High Grade, Goes Super High Grade, Mineral Oil]					The number of reporting organisations has changed and a linking factor has been applied to the series.			
BASE JAN-2009 = 100 [Paper, Cold Steel, Hot Steel]								
If due to an insufficient number of respondents, we are not able to provide the High Grade indices.	GOES CONV.		GOES HIGH GRADE	GOES SUPER HIGH GRADE	MIN. OIL	PAPER	COLD STEEL	HOT STEEL
2009	JAN					100	100	100
	FEB					100.043103448276	95.5735053913985	95.5497329271901
	MAR					99.8275862068965	90.7399815848285	90.4970531372299
	APR					99.6120689655172	87.7015604902252	84.4648476481669
	MAY					100.036026762738	88.3318303516457	83.268353401775
	JUN					100.380854348945	86.5596471532988	83.807233149648
	JUL					100.064976839938	87.9925894870113	85.0174302922373
	AUG					100.103898610396	89.6936891694046	87.7601539639409
	SEP					100.707346886258	91.4737488447844	88.6494260823945
	OCT					102.948726196603	92.4518210834782	89.36460469231
	NOV					102.819415851776	91.5031114372935	88.0777568503048
	DEC					103.314783839424	91.3359772087362	88.8342281417551
=A5+1	JAN					103.8596906237771	91.0065196825429	89.3987018739259
	FEB					103.471759589289	93.2909560307748	90.6695746578664
	MAR					103.661376934134	95.4425120129131	93.8258097333733
	APR					103.706143996232	104.652007645272	104.513132145886
	MAY					104.438902616922	110.005367794115	110.812483542715
	JUN					104.766526651386	112.670347853781	112.237479550792
	JUL					105.342411416893	113.521058732905	112.576291342663
	AUG					105.514825209996	113.514560904802	111.848946771256
	SEP					105.318175134181	113.347923316937	113.177993050947
	OCT					105.118944112354	111.19438419149	111.616958297688
	NOV					105.812379696833	109.682771270266	108.382451323616
	DEC					106.159097489072	110.146080018756	109.49790052962
=A17+1	JAN					107.344101148538	114.022250368153	114.719353616603
	FEB					107.618970603376	119.498943793154	121.354391404162
	MAR					107.618970603376	122.614195084782	122.964866396249
	APR					107.76382086123	123.599218226139	122.524560762264
	MAY					107.860387741289	121.095145068437	121.219284181095
	JUN					107.860387741289	120.936699074786	121.048283138388
	JUL					108.005238024036	117.897834062031	119.799974725563
	AUG					108.631768974666	117.292771934631	119.994749053302
	SEP					108.631768974666	116.482093974996	118.640493147214
	OCT					110.08024089535	114.501886653476	116.867552078694
	NOV					109.77130540867	112.345218205095	115.489795367252
	DEC					109.723961672497	111.031415088771	113.096514759077
=A29+1	JAN					110.252260301676	111.201839985904	113.22045793718
	FEB					109.731479203774	113.071827185025	113.714848696969
	MAR					109.780702322766	113.759727744431	114.481448610389
	APR					109.779762631356	114.031374491312	114.755539401333
	MAY					109.926492296923	113.929157209132	115.850513460936
	JUN					109.926492296923	113.250138393936	113.523707693295
	JUL					110.024938534908	112.544769750897	112.852298139009
	AUG					109.503217745595	112.200875627407	112.455459450292
	SEP					109.219155328557	112.413681047474	111.517443067505
	OCT					109.26649906473	111.302328021364	109.46835730975
	NOV					109.169932209565	109.099077791768	106.672858331459
	DEC					109.21275945738	110.582265092069	108.316925839236
=A41+1	JAN					109.122588473392	110.889330208631	108.910256283991
	FEB					108.495843606228	110.871741711692	108.710748890538
	MAR					108.542247650992	110.665736164779	109.119893033483
	APR					108.781785406085	109.743444858932	109.607445628386
	MAY					108.876472878431	108.638230748659	108.296685558496
	JUN					108.829129142258	107.59584983579	106.180052641073
	JUL					108.922876923195	107.072822091482	104.758527048878
	AUG					109.017564395541	106.359187527278	104.269665396952
	SEP					109.260955310865	108.34666018727	104.721128827769
	OCT					109.486696916499	108.391861932249	104.677556461485
	NOV					108.409477263526	106.982931361379	104.28089933759
	DEC					108.189191211539	107.097238679861	104.629924580503
2014	JAN					108.483594023884	107.79345131282	104.953841745202
	FEB					108.564620941129	107.261865034934	104.710988437512
	MAR					108.656007816987	109.129057761705	105.35583787822
	APR					108.709471223876	109.003086983843	105.046406728362
	MAY					108.445670554914	109.719752821806	105.04496978383
	JUN					108.321540189394	109.595190088569	104.845207816058
	JUL					108.10602948014	109.4858287459	104.558423873723
	AUG					108.08099479045	109.53038864702	105.132097459172
	SEP					107.934964732481	108.241274960332	104.444865456723
	OCT					107.941752817895	107.092719838876	103.3182237375
	NOV					107.941752817895	106.085749362953	104.59022909153
	DEC					108.245029554219	104.454513651085	103.110739307338
2015	JAN					108.251817639633	102.954054396343	101.38013733513
	FEB					108.396667922381	101.166593959177	99.9314678916739
	MAR					108.059450758987	101.53946590666	99.1535147579076
	APR					107.863896025662	101.14522403934	99.4246199885319
	MAY					107.851974048144	101.043960699053	99.5220370904509
	JUN					107.741831022151	99.4405150195465	97.1579348237105
	JUL					108.017188587135	98.002681857506	95.6043336211998
	AUG					107.67997142374	96.8793897309689	93.642676855666
	SEP					107.67997142374	95.1078608165779	93.2115802324149
	OCT					107.569828397747	93.759753452331	91.4626538801005
	NOV					107.61811825329	91.9736644285237	87.960225210199
	DEC					107.941752817895	90.8630411501295	86.3415784819559
2016	JAN					107.708681279417	89.5790016168718	84.968087660828
	FEB					107.887448134583	89.739329594282	85.1083937503025
	MAR					107.990803075162	90.8302305398018	85.9339597559659
	APR					108.755016171702	95.7644010550878	91.0976208254964
	MAY					108.975302223688	99.9	95.1
	JUN					109.499631841683	101.6	97.2
	JUL					109.362336474033	104.4	101.2
	AUG					109.31405304645	105.1	102.3
	SEP					109.417407987029	106.9	103.2
	OCT					109.802908578006	110.2	106.8
	NOV					109.899475433172	112.6	109.5
	DEC					109.7	115.5	112.8
2017	JAN					109.8	120.6	119
	FEB					109.7	123.3	121.7
	MAR					109.5	123.8	124.3
	APR	100	100	100	100	109.5	121.8	123.2
	MAY	100.162659813267	100	99.3776272293189	101.734312231611	108.664893083024	120.519166444716	121.334861327489
	JUN	100.235314529859	98.9788245813689	99.4123168591801	101.080482061227	119.864766767999	120.967255507732	120.967255507732
	JUL	105.145472092998	98.012518289709	100.828469983267	98.8964307152422	110.000175685172	119.347958818181	120.409882671877
	AUG	106.172397714087	97.8428304340758	99.3898706280864	98.6203075218174	110.000175685172	120.707096608286	122.026697649037
	SEP	106.434822212824	97.8428304340758	99.317430518712	98.2860045250958	109.999	121.16	121.249
	OCT	107.81477429324	96.028048642497	99.325592784557	95.0427113635314	110.222231703644	121.248514460476	121.389080474946
	NOV	107.878156955876	96.028048642497	99.1603069011958	95.6725308214434	121.472240845678	119.326584105692	119.326584105692
	DEC	109.271609356192	96.028048642497	100.09794719014	96.0446968647551	110.758683867082	121.193701496101	121.212326054237
2018	JAN	109.007016059946	95.2162250040644	99.3021262702526	100.80852623567	111.457830539103	124.212889064409	125.963007754394
	FEB	110.347332921262	97.1407088278329	98.773619558789	101.87468250676	111.889850416625	125.71185845265	128.469510452149
	MAR	110.862892958999	97.1386766379451	99.916387750888	101.426790414185	112.26910450758	125.991513826768	129.34080640948
	APR	110.377696086405	97.047228092993	99.7449291923438	101.371381077712	112.587897801426	126.28123949505	130.751642857772
	MAY	110.115271587668	97.047228092993	99.7051381463494	102.368749134229	112.917683967473	127.248856111606	131.035751190445
	JUN	110.187926304261	97.2169159486263	100.370362812717	102.765849378954	113.355202061096	127.6348474131	130.482715886386
	JUL	111.646442629884	98.733945699862	99.9683712198506	108.084222191439	113.516795502446	127.624716438741	131.226602589492
	AUG	111.984775041478	99.572					

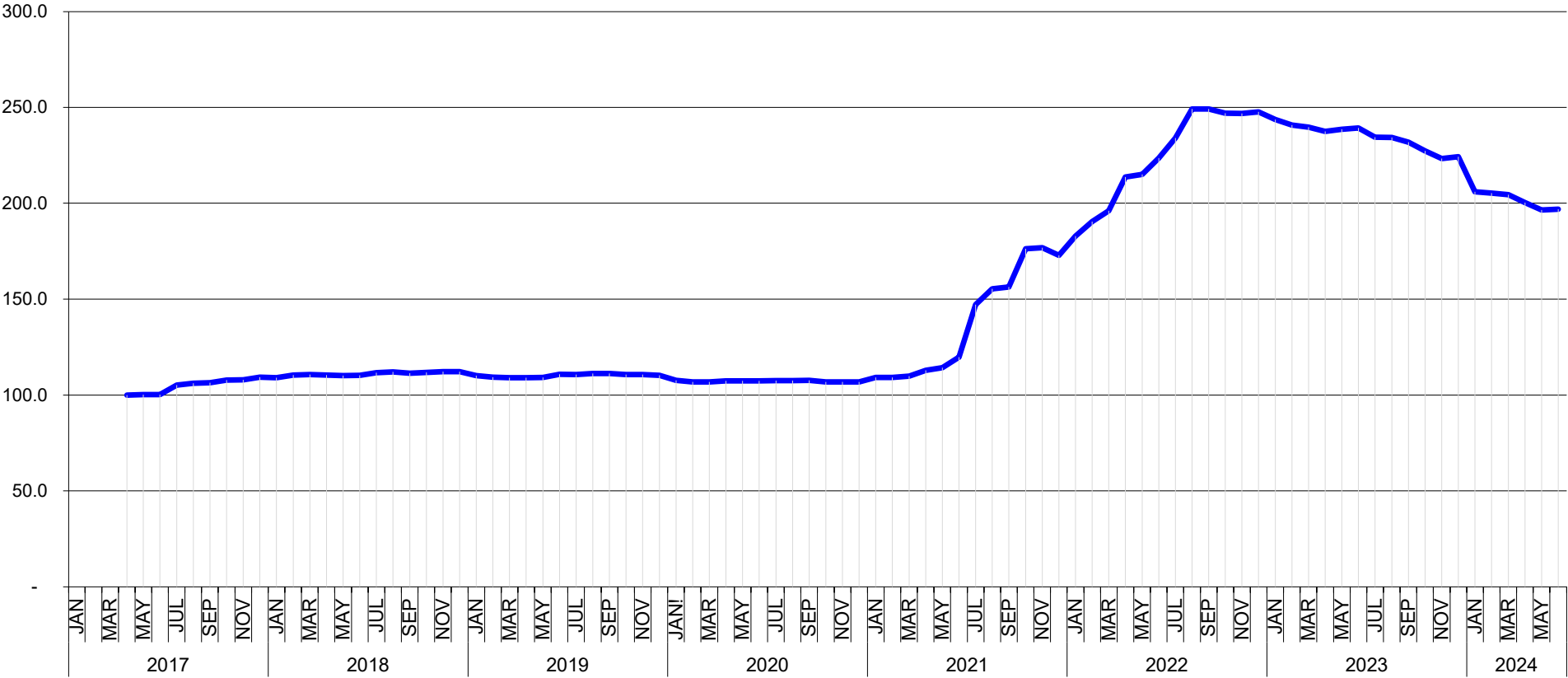
T&D EUROPE									
TRANSFORMER COMMODITY INDICES									
BASE APR-2017 = 100 [Goes Conv., Goes High Grade, Goes Super High Grade, Mineral Oil]					1The number of reporting organisations has changed and a linking factor has been applied to the series.				
BASE [JAN-2009 = 100 [Paper, Cold Steel, Hot Steel]									
If due to an insufficient number of respondents, we are not able to provide the High Grade indices.		GOES CONV.	GOES HIGH GRADE	GOES SUPER HIGH GRADE	MIN. OIL	PAPER	COLD STEEL	HOT STEEL	
2019	MAR	108.990750078619	98.4057470330028	99.146022935967	110.333841252251	115.525193253689	125.242	127.719	
	APR	109.069	98.439	99.396	104.816	115.733	123.038	126.157	
	MAY	109.101	98.277	99.58	104.613	115.634	122.054	124.932	
	JUN	110.869	98.612	99.07	104.345	115.381	122.647	125.062	
	JUL	110.695	98.541	98.539	107.54	115.48	123.374	124.758	
	AUG	111.183	98.541	99.284	106.875	115.436	123.933	127.046	
	SEP	111.173	98.378	99.141	106.875	115.535	124.649	126.472	
	OCT	110.63	96.123	99.192	105.139	115.326	122.725	123.153	
	NOV	110.641	96.123	99.559	103.939	115.183	120.119	119.64	
	DEC	110.186	96.1139275650595	100.365	104.16	115.073	120.219	119.944	
	2020	JAN	107.583	95.8445056938558	99.427	104.881	114.876	122.949	122.709
		FEB	106.867	96.344320596306	99.121	104.871	114.876	125.992	125.496
MAR		106.835	96.4442835767961	99.029	102.664	114.711	124.727	124.303	
APR		107.421	97.126	99.033	100.799	115.304	121.819	121.982	
MAY		107.421	97.126	99.518	100.217	115.249	121.304	121.299	
JUN		107.431	97.126	99.039	98.019	114.996	119.805	118.74	
JUL		107.507	97.126	98.814	89.782	114.887	119.515	119.087	
AUG		107.507	97.126	99.855	85.894	114.832	120.488	120.399	
SEP		107.659	97.126	99.059	79.845	115.04	126.819	125.029	
OCT		106.857	96.406	98.549	82.089	115.194	129.359	129.172	
NOV		106.857	96.406	97.631	83.733	115.084	132.256	131.698	
DEC		106.857	96.406	97.978	84.342	115.557	139.907	139.473	
2021	JAN	109.112	97.958	98.345	89.329	115.997	156.139	158.851	
	FEB	109.21	97.958	98.814	89.819	116.415	164.808	169.088	
	MAR	109.828	97.958	98.386	87.685	116.843	175.155	180.702	
	APR	112.843	102.21	99.478	93.983	117.261	194.071	202.227	
	MAY	114.176	104.566	101.028	99.1	119.064	204.531	219.761	
	JUN	119.772	114.128	105.252	100.18	120.119	211.008	229.998	
	JUL	147.077	138.935	131.229	104.761	121.702	231.937	249.137	
	AUG	155.318	155.801	134.473	107.808	123.879	233.783	250.666	
	SEP	156.294	157.508	134.718	108.279	126.198	235.651	251.891	
	OCT	176.323	157.938	136.412	113.654	127.363	236.923	251.16	
	NOV	176.79	159.05	137.769	115.418	130.013	240.331	251.16	
	DEC	172.886	159.63	139.739	115.468	130.068	235.114	242.164	
2022	JAN	182.828	168.341	154.287	127.012	132.882	229.342	237.296	
	FEB	190.394	171.295	158.117	128.531	135.08	233.447	239.388	
	MAR	196.117	182.895	167.738	129.686	136.597	253.46	264.741	
	APR	213.674		n/a !! 175.313	150.547	142.907	284.278	303.616	
	MAY	215.041		n/a !! 179.641	159.219	143.006	275.575	299.756	
	JUN	223.517		n/a !! 181.771	160.401	144.38	253.907	269.675	
	JUL	234.014		n/a !! 192.403	181.641	145.282	225.125	238.358	
	AUG	249.154		n/a !! 205.844	178.159	147.337	223.615	232.34	
	SEP	249.085		n/a !! 206.656	180.006	149.459	219.051	227.525	
	OCT	246.976		n/a !! 217.861	181.392	150.998	211.735	219.674	
	NOV	246.788		n/a !! 222.695	178.972	152.053	203.255	208.896	
	DEC	247.629		n/a !! 226.277	175.343	152.009	193.613	197.911	
2023	JAN	243.619		n/a !! 220.364	164.87	155.45	197.338	202.281	
	FEB	240.797		n/a !! 218.654	167.142	156.11	198.479	203.484	
	MAR	239.589		n/a !! 219.132	161.86	155.681	201.566	206.629	
	APR	237.43		n/a !! 217.613	154.158	155.252	202.808	209.318	
	MAY	238.608		n/a !! 215.874	149.938	154.197	200.593	206.293	
	JUN	239.252		n/a !! 215.492	150.289	153.351	191.241	195.915	
	JUL	234.38		n/a !! 205.853	146.484	153.362	185.525	190.114	
	AUG	234.35		n/a !! 202.204	146.622	152.889	184.261	189.528	
	SEP	231.776		n/a !! 200.007	148.183	153.043	185.659	189.279	
	OCT	227.26		n/a !! 189.833	152.367	152.031	181.364	185.527	
	NOV	223.349		n/a !! 188.381	153.613	151.713	181.42	184.15	
	DEC	224.21		n/a !! 179.364		n/a 151.383	181.655	186.828	
2024	JAN	205.94		n/a !! 170.04		n/a 150.459	183.802	189.236	
	FEB	205.267		n/a !! 165.865		n/a 149.668	186.711	192.294	
	MAR	204.485		n/a !! 166.974		n/a 149.36	183.847	187.002	
	APR	200.286		n/a !! 157.335		n/a 148.162	183.053	186.145	
	MAY	196.474		n/a !! 158.577		n/a 147.766	182.169	184.876	
	JUN	196.949		n/a !! 154.545		n/a			
	JUL								
	AUG								
	SEP								
	OCT								
	NOV								
	DEC								

BASE APR-2017 = 100 [Goes Conv, Goes High Grade, Goes Super High Grade, Mineral Oil]  
BASE JAN-2009 = 100 [Paper, Cold Steel, Hot Steel]



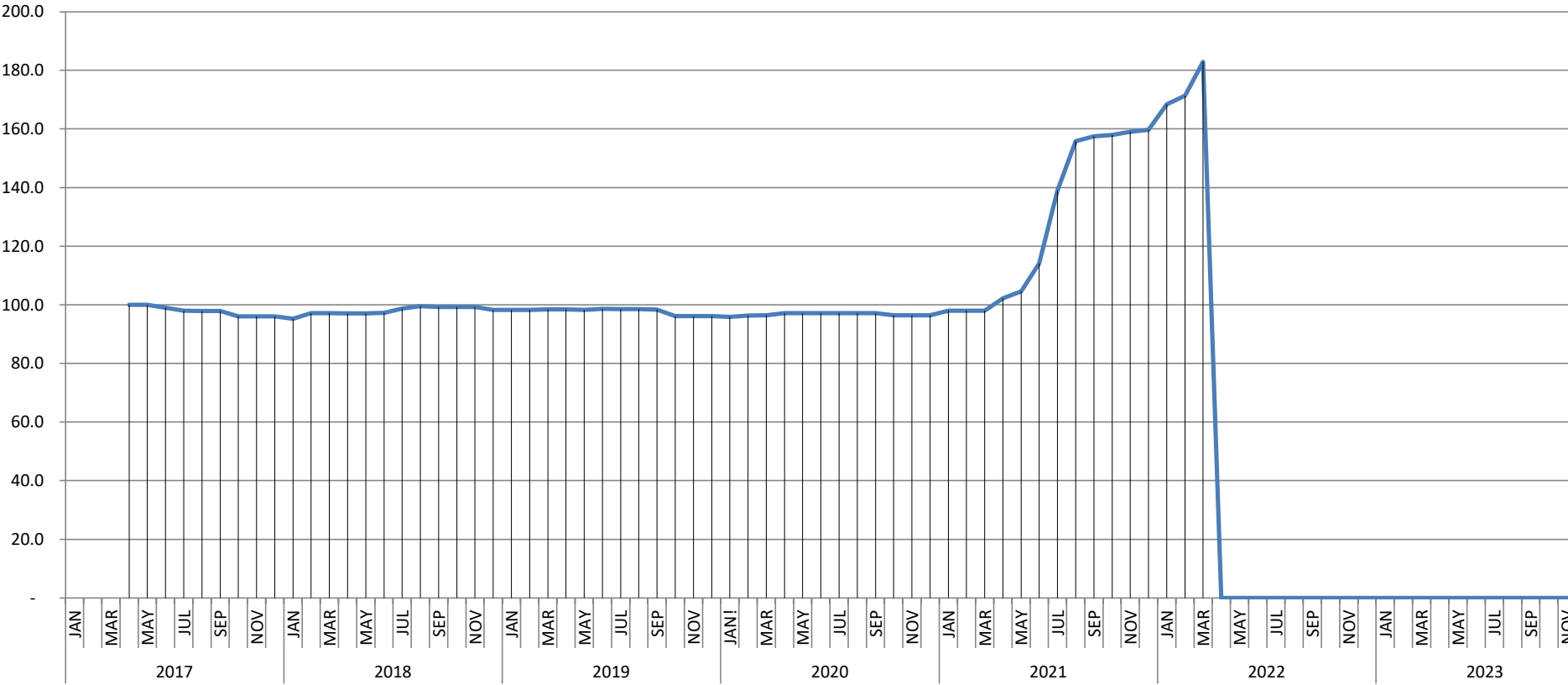
T&D EUROPE  
**GOES CONV.**  
BASIS APR 2017 = 100

- Provisional
- Complete
- Amended



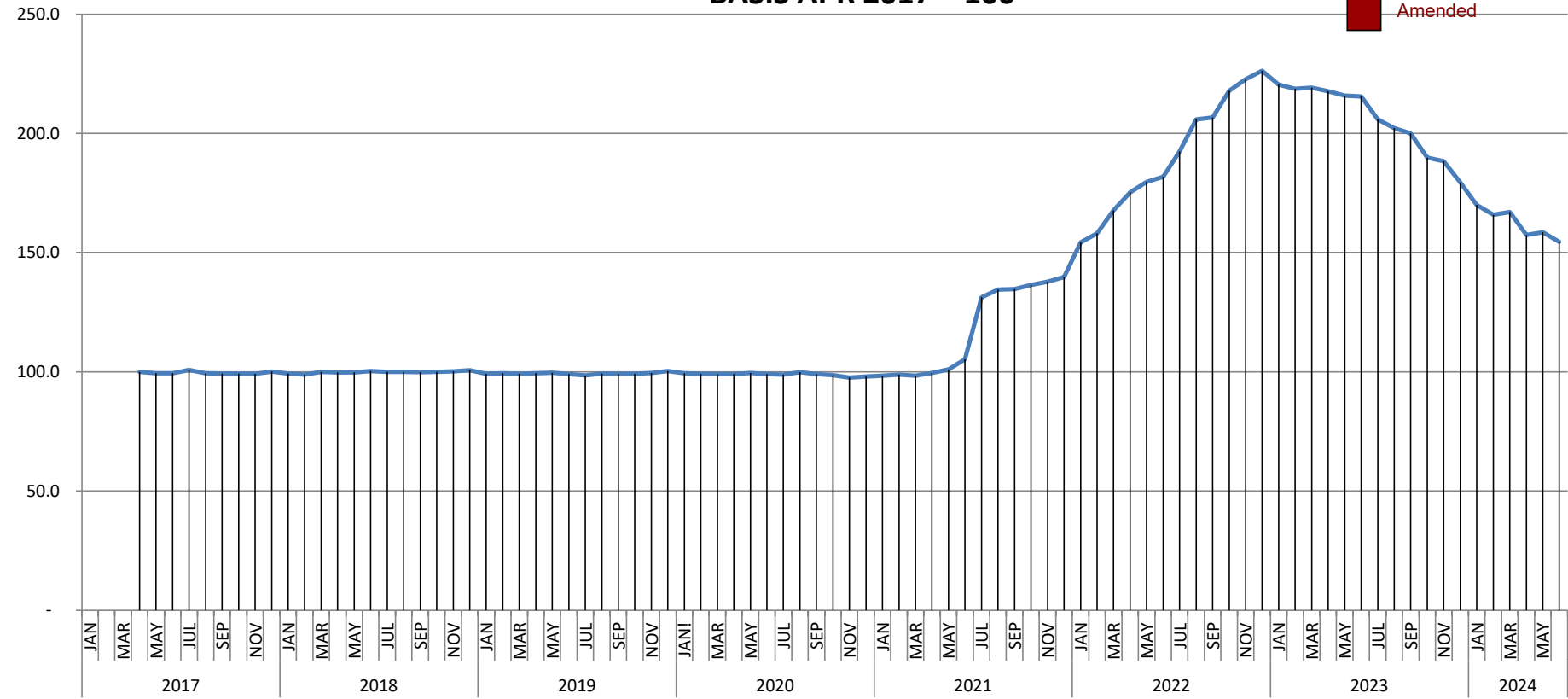
T&D EUROPE  
GOES HIGH GRADE  
BASIS APR 2017 = 100

- Provisional
- Complete
- Amended



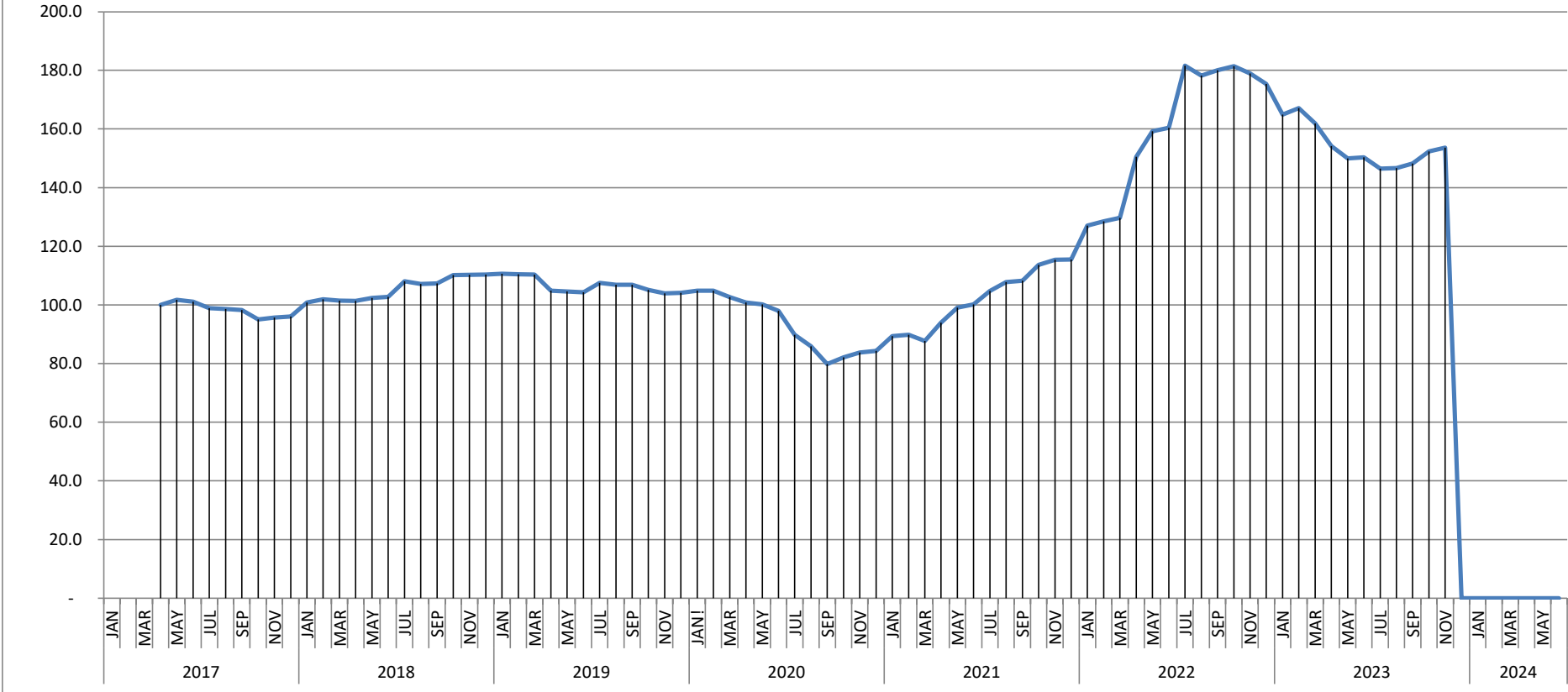
**T&D EUROPE  
GOES SUPER HIGH GRADE  
BASIS APR 2017 = 100**

- Provisional
- Complete
- Amended



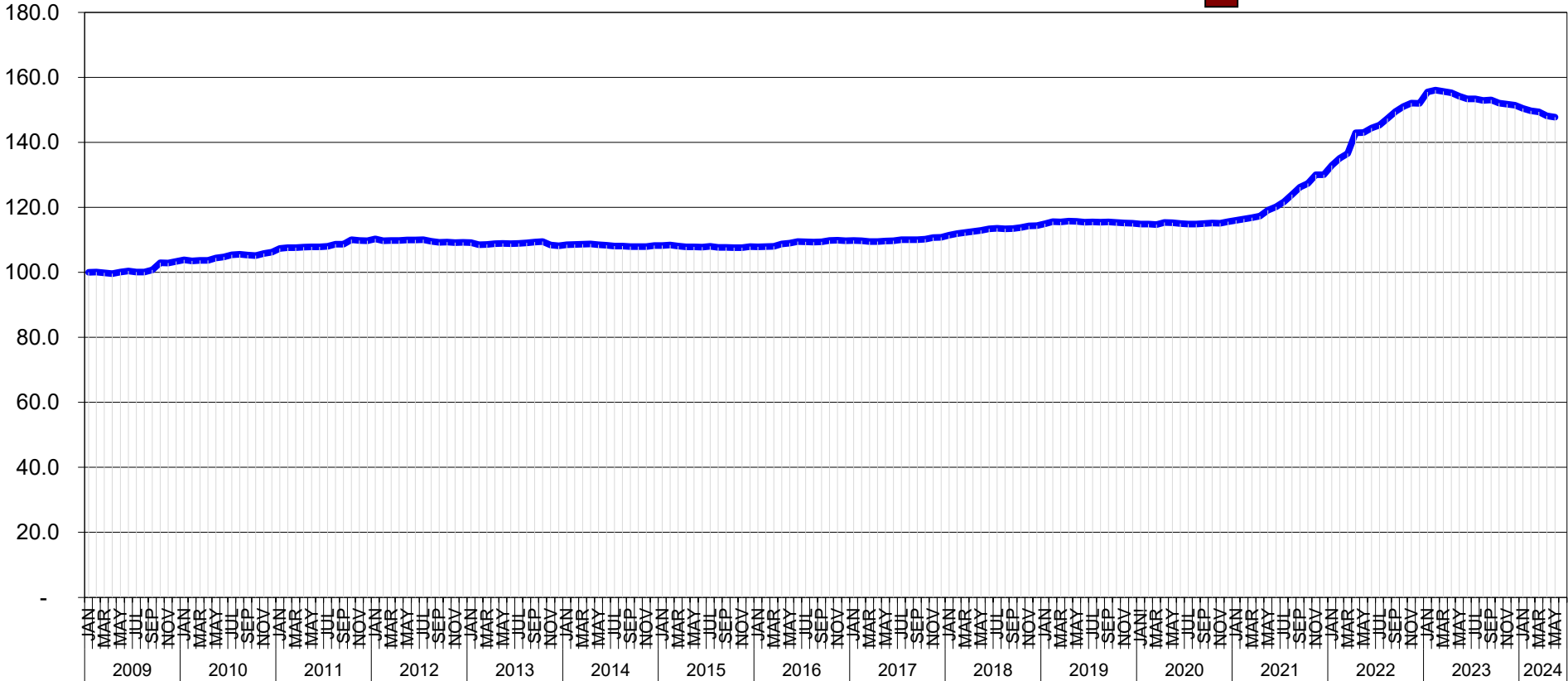
**T&D EUROPE  
MINERAL OIL  
BASIS APR 2017 = 100**

- Provisional
- Complete
- Amended

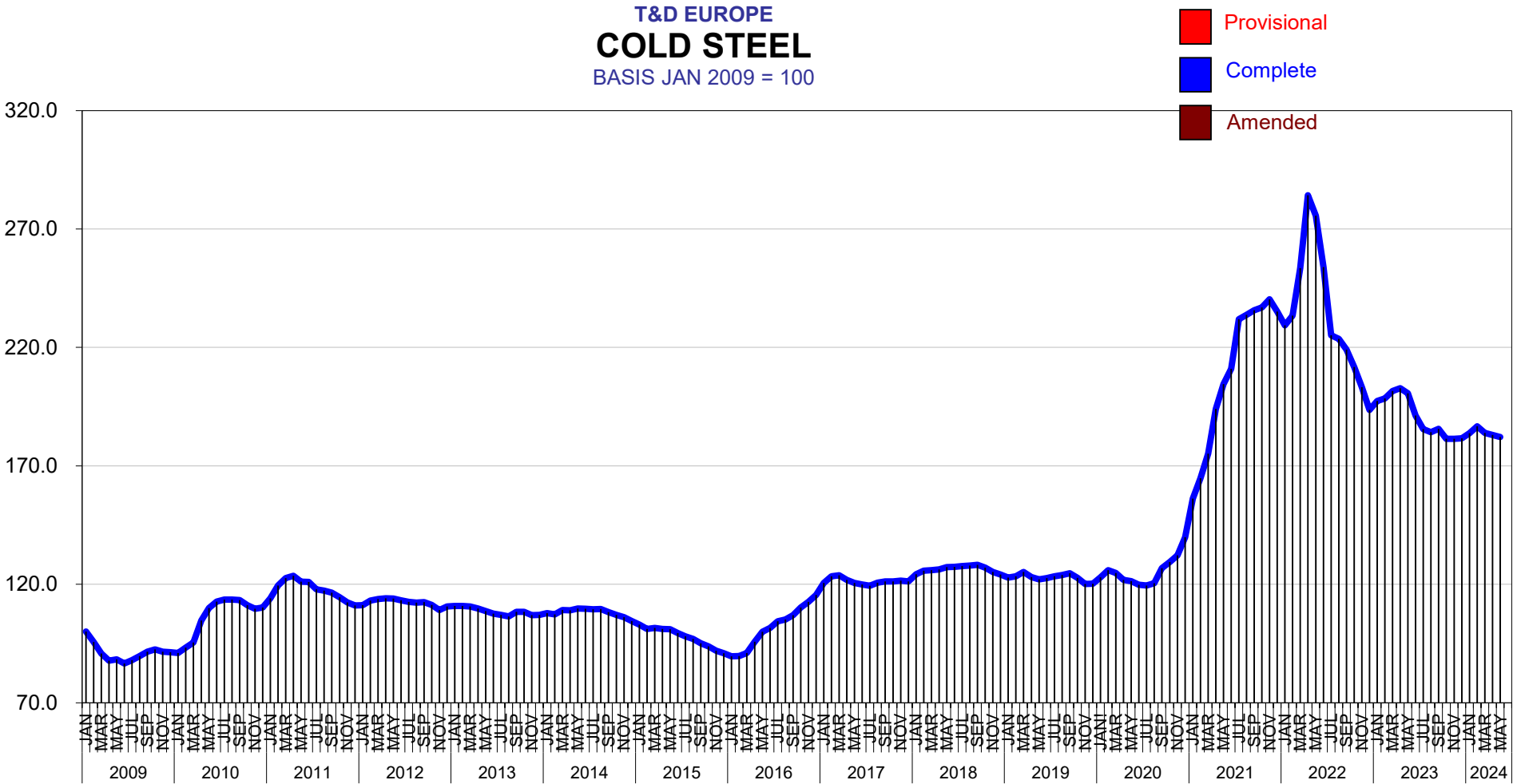


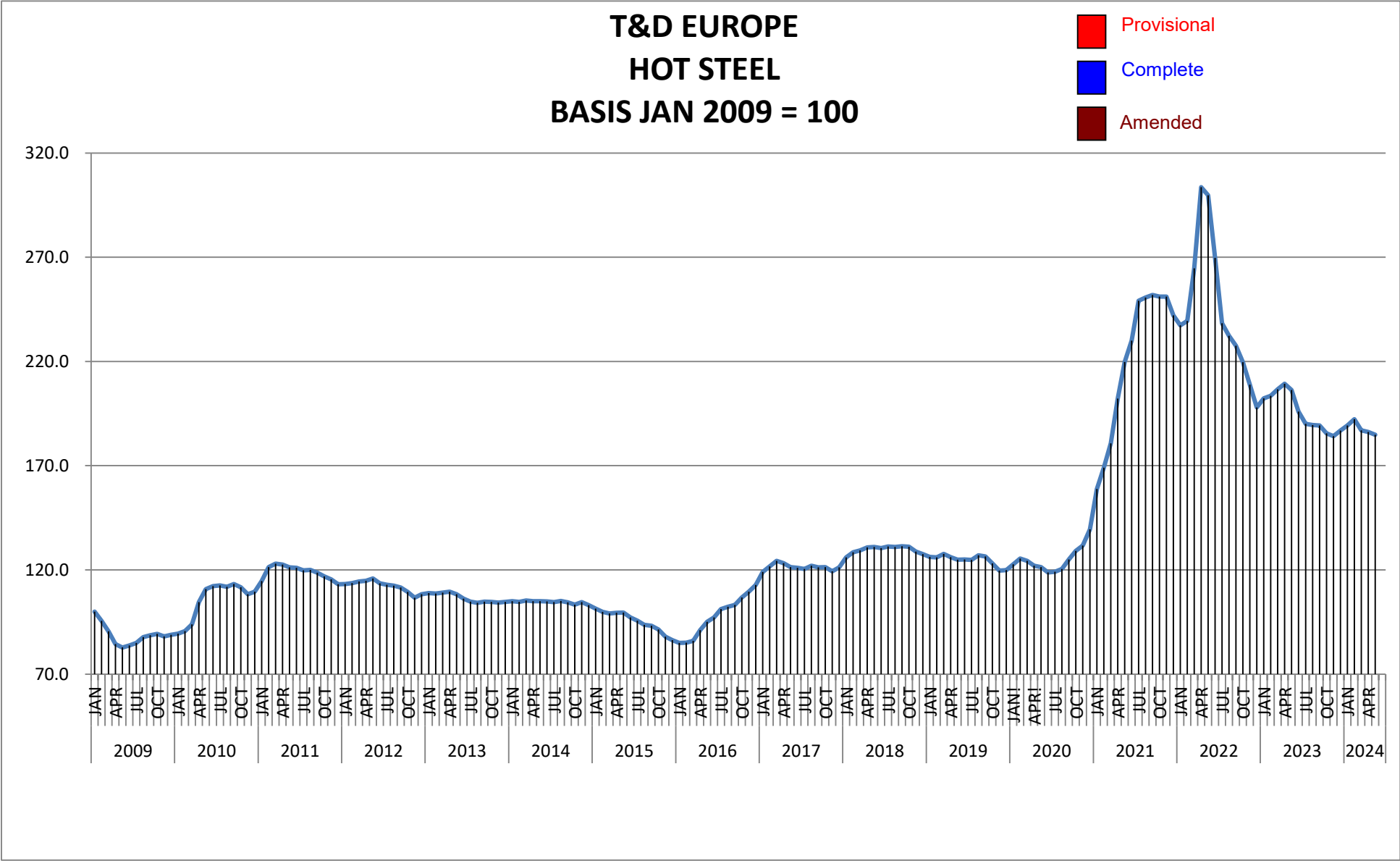
T&D EUROPE  
PAPER  
BASIS JAN 2009 = 100

- Provisional
- Complete
- Amended









January 2009 - June 2024

PUBLICATION DATE: 1 August 2024

## **ATTACHMENT 9**

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Trading Economics Copper Futures (through August 2024)



## Copper

Price - Chart - Historical Data - News

Summary

Stats

Forecast

Alerts

↓ Export ▾

Copper futures held above \$4.1 per pound, holding the rebound from the five-month low of \$3.95 touched on August 7th as markets continued to gauge the magnitude of poor demand among the world's top consumers. Trade data showed that copper exports out of China eased from recent record highs, raising hopes that the plunge in domestic consumption has bottomed, and preventing domestic producers from having to scramble for foreign clients to meet sales. Still, the broad view of weakening manufacturing in China held year-to-date losses, with the NBS and the Caixin manufacturing PMIs pointing to contractions in July. Base metal demand is set to remain muted in the country as Beijing refrained from passing significant stimulus in its recent Third Plenum. Additionally, reports that some Chinese smelters are pursuing new projects to comply with output mandates challenged earlier reports of a joint production cut to lift treatment charges, easing supply concerns.



Copper

Price - Chart - Historical Data - News

	Summary	Stats	Forecast	Alerts	⬇️ Export ▼		
	Silver	29.444	▲	0.036	0.12%	1.29%	26.12%
	Copper	4.1445	▼	0.036	-0.86%	-1.24%	10.89%
	Steel	3,063.00	▲	9.00	0.29%	-5.35%	-16.43%
	Iron Ore	98.10	▲	0.29	0.30%	-9.30%	-7.87%
	Lithium	73,500.00	▲	0	0%	-14.04%	-66.21%
	Platinum	950.00	▼	-7.10	-0.74%	0.33%	4.49%
	+						

Copper

Copper futures are widely traded on the London Metal Exchange (LME), at the COMEX and on the Multi-Commodity Exchange in India. The standard contract is 25,000 lbs. Copper is the third most widely used metal in the world. Chile accounts for over one third of world's copper production followed by Peru, Democratic Republic of the Congo, China, United States, Australia, Indonesia, Zambia, Canada and Poland. The biggest importers of copper are China, Japan, India, South Korea and Germany. Copper market prices displayed in Trading Economics are based on over-the-counter (OTC) and contract for difference (CFD) financial instruments. Our copper market prices are intended to provide you with a reference only, rather than as a basis for making trading decisions. Trading Economics does not verify any data and disclaims any obligation to do so.

Actual	Previous	Highest	Lowest	Dates	Unit	Frequency
4.15	4.18	5.20	0.60	1988 - 2024	USd/LB	Daily

Copper

Price - Chart - Historical Data - News

	Summary	Stats	Forecast	Alerts	📄 Export ▼
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Brent	77.165	▼ 0.495	-0.64%
Natural gas	2.2070	▼ 0.028	-1.25%
Gasoline	2.2520	▼ 0.0132	-0.58%
Heating Oil	2.2694	▲ 0.0069	0.30%
Gold	2516.23	▲ 12.56	0.50%
Silver	29.444	▲ 0.036	0.12%
Copper	4.1445	▼ 0.036	-0.86%
Soybeans	957.51	▲ 2.46	0.26%
Wheat	557.50	▲ 5.25	0.95%
Coal	146.50	▼ 0.25	-0.17%
Steel	3063.00	▲ 9.00	0.29%
Iron Ore	98.10	▲ 0.29	0.30%
TTF Gas	38.12	▼ 1.40	-3.54%
Lumber	512.68	▼ 14.96	-2.83%

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News

- Ibovespa Hits Record High
- TSX Breaks 8-Day Win Streak
- S&P 500, Nasdaq Break 8-Day Winning S...
- Agricultural Commodities Updates: Che...
- Aluminum Rebounds
- Canola Near 4-Year Lows
- US Natgas Prices Hover Below \$2.2
- Copper Holds Rebound
- IBEX Fails to Maintain Early Tuesday ...
- German Stocks Close Lower

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