Doosan Fuel Cell

2024 IR Presentation

February 2025
Investor Relations

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Forecasts and projections contained in this material are based on current business environments and management strategies, and they may differ from the actual results upon changes and unaccounted variables.

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Financial data in this presentation is on K-IFRS consolidated and separate basis.

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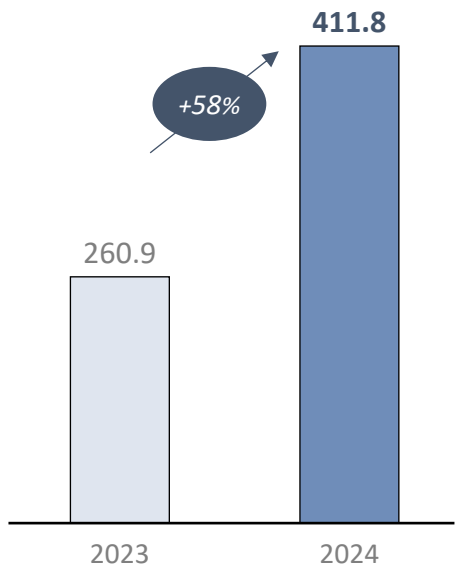
1. Business performance highlight

In 2024, sales amounted to KRW 411.8 billion, a 58% increase compared to the previous year.
Achieved results exceeding initial targets in the CHPS general H2 market bidding (M/S 73%).

Sales

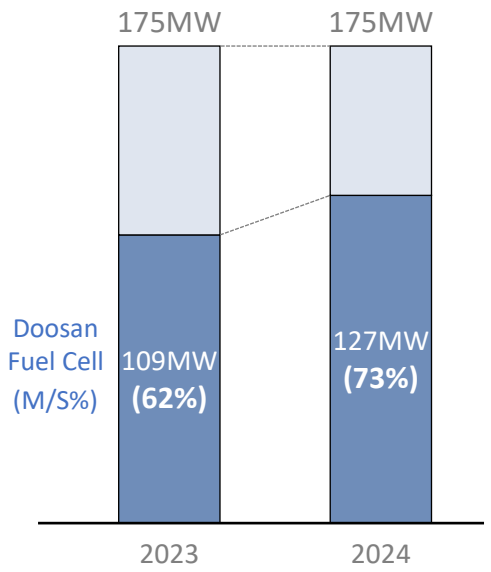
(Unit: KRW billion)



- Sales : KRW 411.8 billion (same on a consolidated and separate basis)
- Operating income
  : KRW -1.7 billion on a consolidated basis, KRW 0.3 billion on a separate basis

CHPS general H2 bidding

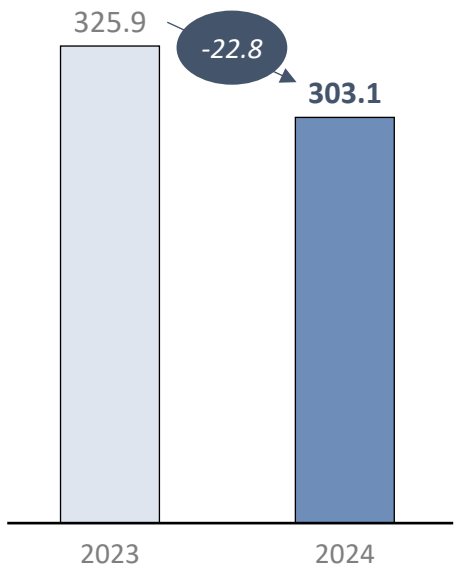
(Unit: MW)



- A bid for 127MW won in the general H2 market, with a M/S of 73% (+11%p YoY)
  - Selected strategic business and demonstrated the competitiveness of M500 model

Net borrowings

(Unit: KRW billion)



- Net debt decreased by KRW 22.8 billion
  - Cash flows from operating activities KRW +101.1 billion
  - Cash flows from investing activities KRW -82.7 billion

2. P&L status

Sales growth(+58% YoY): Sales from CHPS projects in 2023 began to be fully reflected
Increased cost ratio: Decline in sales price of CHPS projects compared to RPS, along with fixed cost increases due to production facility investments

Summary of Income Statement(Consolidated)

(Unit: KRW billion)

Category	FY23	FY24	YoY
Sales	**260.9**	**411.8**	+57.8%
COGS	221.3	375.6	
(%)	*(84.8%)*	*(91.2%)*	*(+6.4%p)*
SG&A	37.9	37.9	
Operating Profit(Loss)	**1.6**	**-1.7**	Turn to deficit
(OP margin %)	*(0.6%)*	*(-0.4%)*	
Finance income	-13.4	-11.9	
Other income	-2.1	2.6	
Gain on equity method evaluation	1.3	0.8	
Income before taxes	-12.5	-10.2	
Tax	-4	0.3	
Net income	-8.5	-10.5	

Sales growth

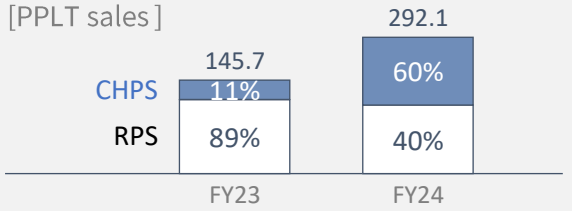
- **PPLT sales growth**
  - PPLT sales of CHPS project secured in 2023 began to be fully realized in 2024

Category	FY23	FY24	YoY
PPLT	145.7	292.1	146.4 ✓
Service	115.2	119.8	4.6
Sales	260.9	411.8	150.9

Operating loss

- **Operating profit of KRW 0.3 billion on a separate basis**
  - When excluding the operating loss(-KRW 2.1 billion) of consolidated subsidiaries
- **Factors that worsen cost ratio (*84.8% → 91.2%*)**

① Decline in selling price (∵CHPS bidding market)



② Increasing fixed costs
  - Increase in fixed costs, such as labor costs and depreciation, due to SOFC factory investments and the acquisition of electrode production facilities

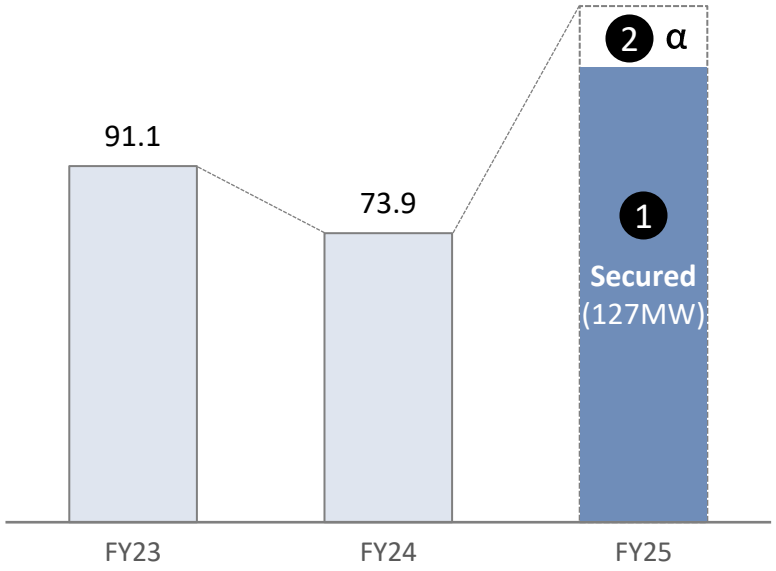
3. Order performance and outlook

Significant increase in orders anticipated for 2025

- Most of the bids won(127MW) in CHPS general H2 market in 2024 are planned to be reflected in this year's orders
- In addition, overseas business opportunities are expected to be explored

Order Trend

(Unit: MW)



1 Secured

- 2024 CHPS-won project
  - 11 projects (127MW) are primarily expected to be reflected in orders for 2025 (order contracts to be signed after procuring PF from power producers)

2 Plus α

- New overseas orders
  - Asia: Securing presence through pilot projects in China and Taiwan
  - US: Winning orders for sales in the US market through affiliates
- Sales of components such as SOFC stack
- Remaining quantity of RPS

4. Current borrowings status

Despite KRW 82.7 billion in investing activities in 2024, cash flows from operating activities improved, resulting in a drop in net borrowings.
Total borrowings amounted to KRW 452.2 billion at the end of 2024, with only KRW 81 billion of corporate bonds due for repayment in 2025.

Summary of cash flow statement(Consolidated)

(Unit: KRW billion)

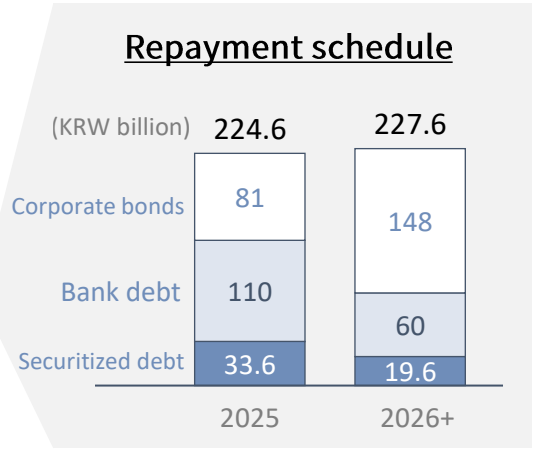
Category	FY23	FY24
Operating activities CF	7.8	101.1 ✓
Investing activities CF	-95.7	-82.7
Financing activities CF	105.3	69.1
Other(currency fluctuation)	1	0
Cash Flow	**18.3**	**87.4**
Cash at end of FY	51.6	139.9

- Cash flows from investing activities in 2024
  - New SOFC factory construction and investments in PAFC electrode production facilities
- Cash flows from operating activities in 2024
  - Reduction of inventory assets by KRW 79.7 billion due to increased PPLT deliveries

Borrowings and maturity status

(Unit: KRW billion)

Category	End of 2024
Corporate bonds	229
Bank debt	170
Securitized debt	53.2
Total borrowings	**452.2**
Cashable assets	149.1
Net borrowings	303.1



- Net borrowings of KRW 303.1 billion (KRW -22.8 billion from the end of the previous year)
- Funding needs in 2025 are not higher than 2024
  - Completion of major facility investments
  - Continuous improvement in working capital due to sales growth

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1. Business area restructuring

By centralizing fuel cell production corporations in Korea, ‘market expansion’ and ‘cost competitiveness enhancement’ are expected.

Overview	Integrating fuel cell production into the Korean corporation to secure fundamental competitiveness of the hydrogen business
Expected effect	1 Market expansion - Potential supply of fuel cell products to the US market - Potential benefit from the increasing demand in the US market, including data centers 2 Cost competitiveness enhancement - By scaling up production, sourcing negotiation power and production efficiency are expected to be strengthened.

[Back-up] US hydrogen policy

IRA section 45V: Expectations for substantial investments in hydrogen hubs as subsidy criteria for clean hydrogen production are relaxed. Meanwhile, the surge in electricity needs from the US is driving the increased demand for hydrogen fuel cell power generation.

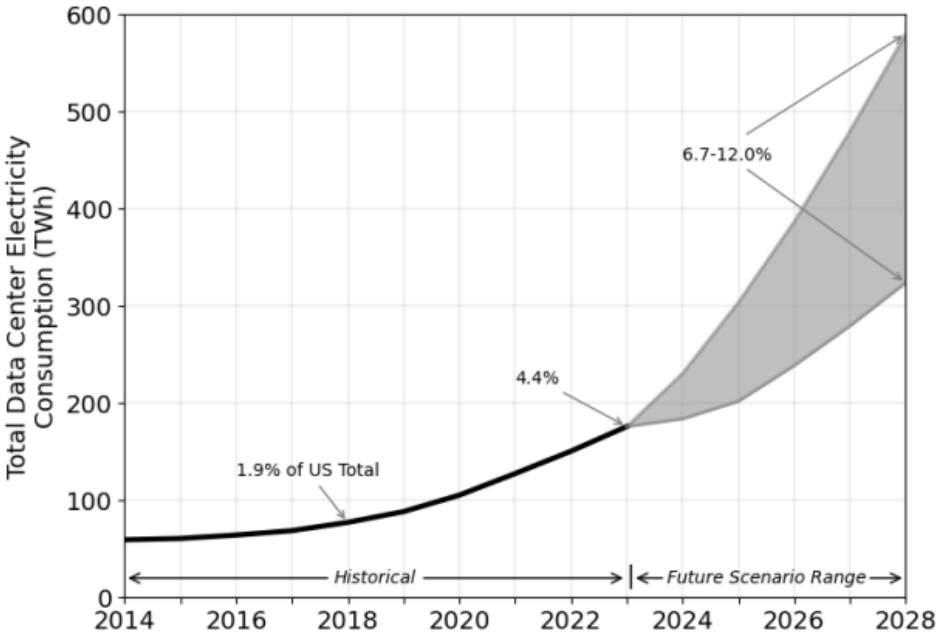
Hydrogen hub (H2 Hub program)

- **Selection of 7 projects** *(Oct 13, 2023)*
  - Federal government budget of USD 7 billion
  - Private investment of USD 43 billion

- **IRA Section 45V** *(Jan 3, 2025)*
  - Tax credits provided for clean hydrogen production (up to $3 per kg)

Demand forecast for the US Data Center (2014~2028)

- **Demand of 176TWh in 2023 → 325~580TWh in 2028** (up to 3 times)
  - Expected to account for 6.7~12% of total electricity consumption in the US

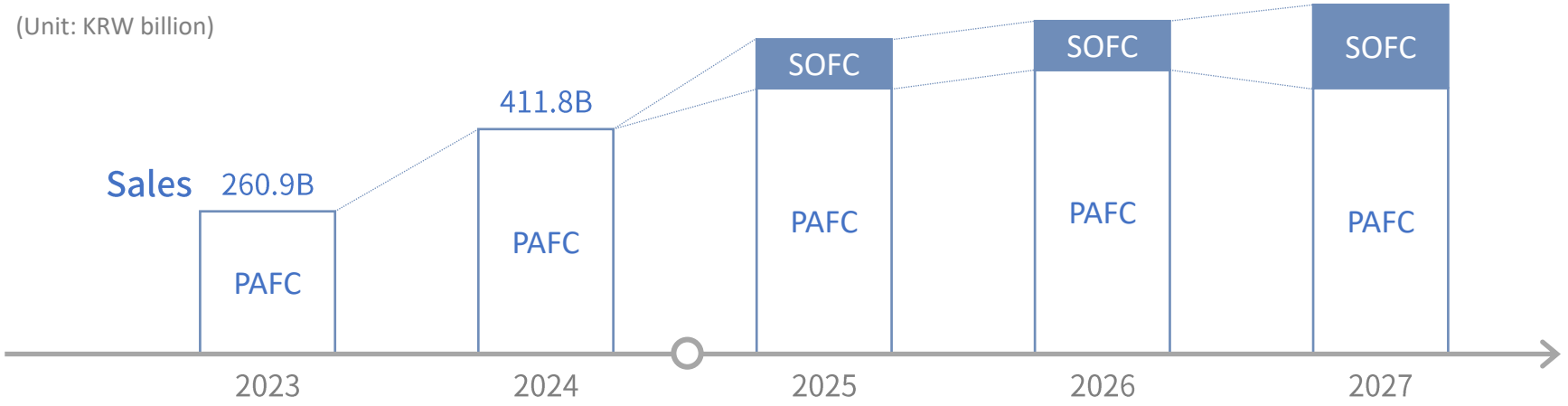


※*Source: 2024 United States Data Center Energy Usage Report(Dec. 2024)*

2. Growth engine by diversifying product line-up

Securing mid-to-long-term growth drive through SOFC, based on stable sales of PAFC

- The last two years were focused on investments for growth
- New market opportunities identified in SOFC from 2025 (data center, stack foundry, etc.)



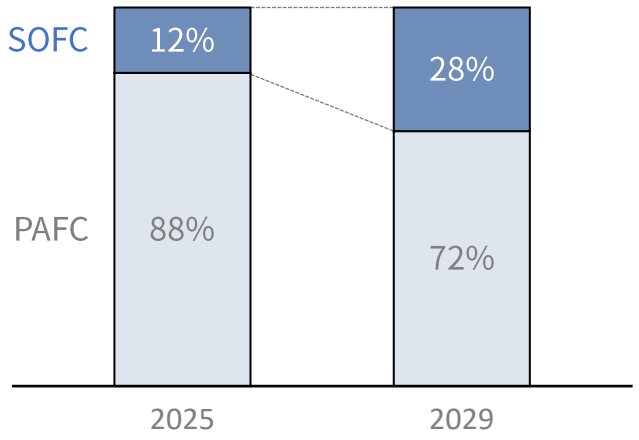
	Executing investments in growth	Strengthening competitiveness (PAFC+SOFC Hybrid)
SOFC	• Introduction of core technologies • Facility investments of KRW 155.8 billion (Gunsan factory)	• Diversifying business models in the general H2 market for CHPS (PAFC, SOFC, PA+SO) • Full-scale entry into data center market • Commercialization of SOFC stack foundry
PAFC	• Acquisition of electrode business for KRW 22.4 billion	

[Back-up] PAFC & SOFC

- With SOFC supply capabilities, we can offer a variety of solutions(PAFC, SOFC, PAFC+SOFC) based on customer needs.
- Leveraging our leading in the Korean market, we are expanding globally to improve profitability.

1 Expansion of product portfolio (PAFC only → PAFC & SOFC)

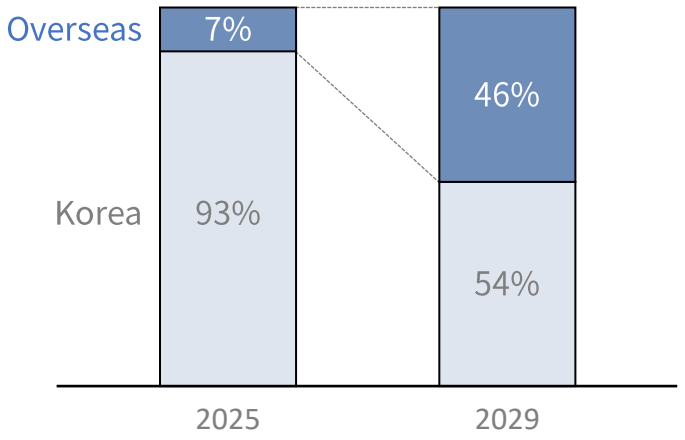
[PPLT revenue share by product]



- Securing SOFC mass production capability (factory completion in Apr. 2025)
- Maintaining a leading position in the CHPS bidding market, and entering the distributed energy market

2 Global expansion (Australia, Southeast Asia, China, Taiwan, and the U.S)

[PPLT revenue share by region]



- Targeting China and Taiwan as priorities for business development and building infrastructure through local partnership
- Securing data center opportunities in the U.S

Appendix

1. Company Overview
2. Our role in the hydrogen economy
3. Fuel cells
4. Trend in the CHPS bidding market
5. Quarterly income statements
6. Financial statements

Appendix 1. Company Overview

A leading player in the domestic fuel cell power generation market

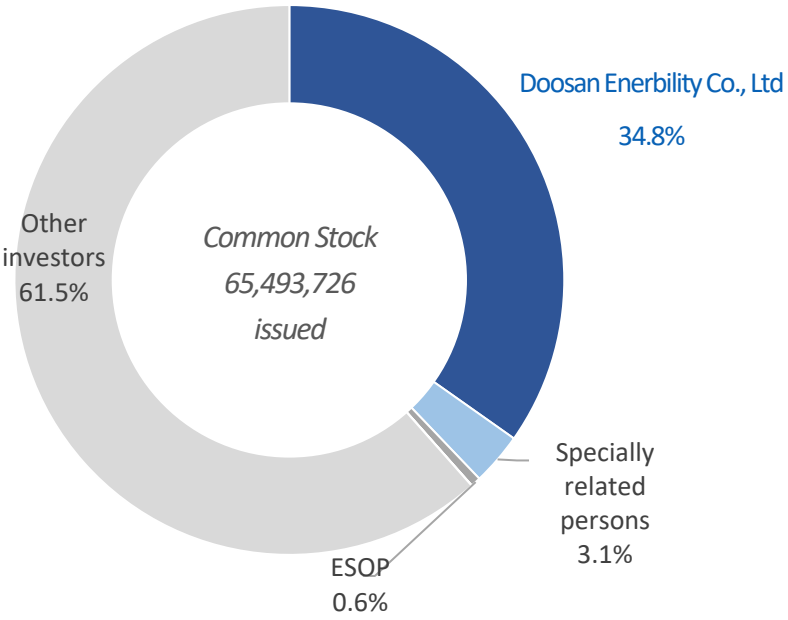
About Doosan Fuel Cell

[As of Dec 31, 2024]

Spin-off	2019. 10. 1. (Spin-off)
HQ address	100, Seokam-ro 7-dil, Iksan-si, Jeollabuk-do
Size	542 employees
CEO	Doosoon Lee / CEO
History	• 2014 Doosan Co. acquired U.S. fuel cell maker • 2017 Iksan factory construction completed • 2019 Spin-off from Doosan Co. and listing on KRX • 2022 Iksan factory ramp-up (CAPA 232MW) • 2023 Completion of Gunsan factory (CAPA 50MW) • 2024 Acquisition of 100% share in HyAxiom Motors

Shareholders

[As of Dec 31, 2024]



Appendix 2. Doosan Fuel Cell's role in the hydrogen economy

Manufacturing and supply of fuel cell equipment, which is key to hydrogen utilization

Doosan Fuel Cell businesses

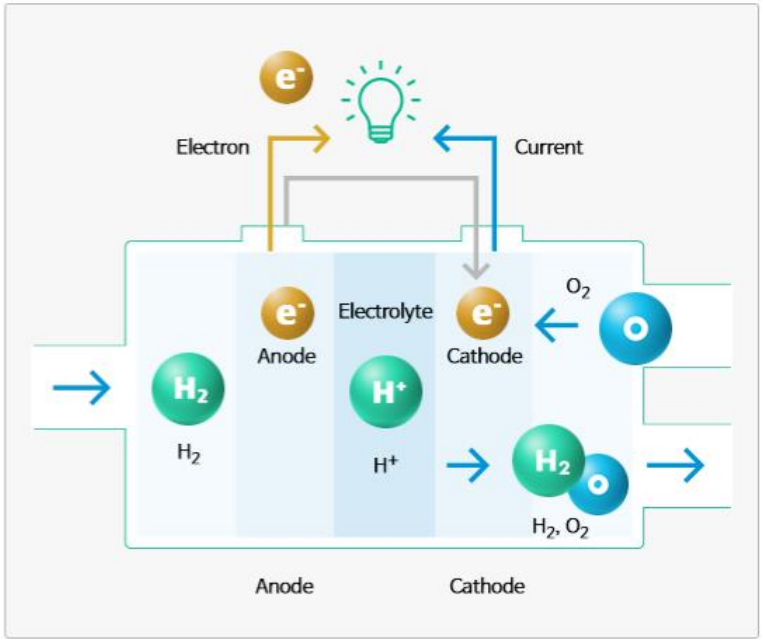
Production	Storage / Shipment	Fueling	Utilization
Byproduct H2	Pipeline	H2 fueling station – Tri-Gen[1] model	Fuel cell systems for power generation – Manufacturing the system
Reformed H2	Tube trailer		Mobility fuel cells – for vehicles and ships
Electrolyzer H2	H2 liquefaction		Fuel cells for buildings – Data centers, etc.
Imported H2			H2 turbine

1) Tri-Gen : a model capable of generating electricity, heat, and hydrogen

Appendix 3. Fuel cell

A fuel cell uses hydrogen and oxygen to generate electricity through an electrochemical reaction, instead of burning the fuel.

Fuel cell working principle



Types of fuel cells

	PEMFC	PAFC	MCFC	SOFC
Electrolyte	Polymer Electrolyte Membrane	Phosphoric Acid	Molten Carbonate	Solid Oxide
Operation Temperature	25 ~ 80℃	160 ~ 200℃	650℃	600 ~ 1,000℃
Catalyst	Platinum	Platinum	Perovskites	Nickel
Elec. Efficiency	35%	40 ~ 45% (NG) 48 ~ 50% (H2)	45 ~ 60%	50 ~ 60%
CHP (Elec. + Heat)	-	90%	80%	50 ~ 80%
Applications	Portable, Mobility	Building, Power Plant	Building, Power Plant	Residential, Building, Power Plant

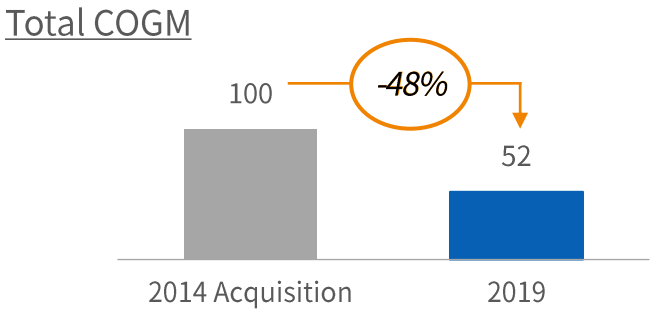
※ The exact details may vary depending on the manufacturer.

Appendix 3-1. Fuel cell: PAFC

1) High localization rate, 2) High combined efficiency and World's first commercialization of H2 model,
3) Technologies aligned with national policy orientations (CHPS[1)]), such as load-following

✓ High localization and combined rate

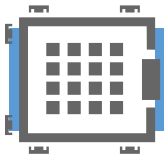
Localization of components [98%] Based on the value



High combined efficiency and product lifetime

Combined efficiency 90%

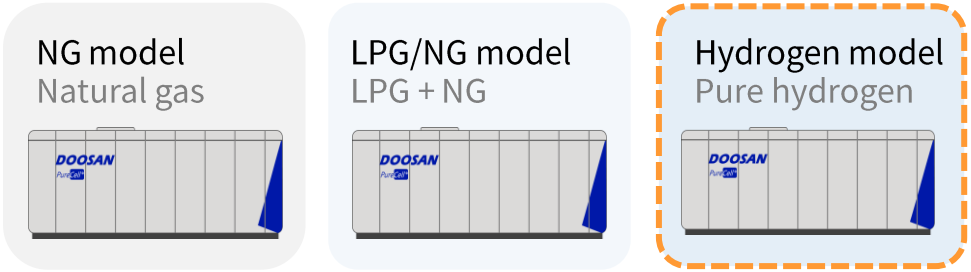
Electricity 42% + Heat 48%



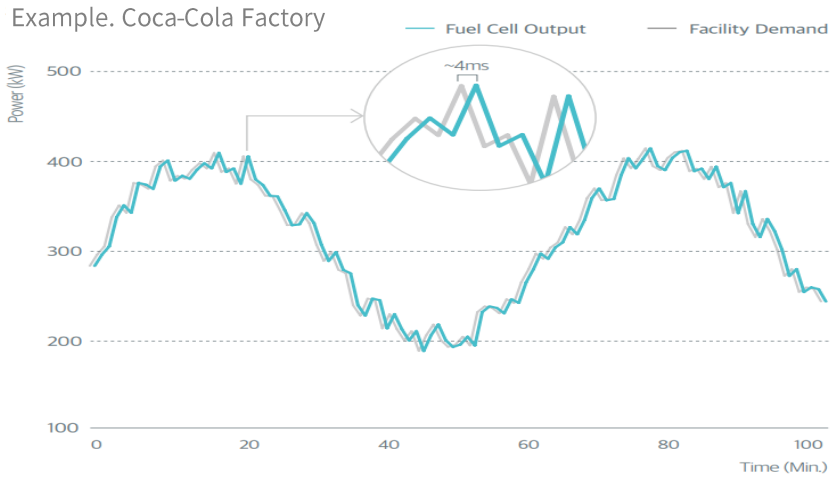
Cell Stack lifespan 10-year warranty

20-year lifespan of key components

✓ Easy transition to a hydrogen model



✓ Load-following: fast response in the power grid



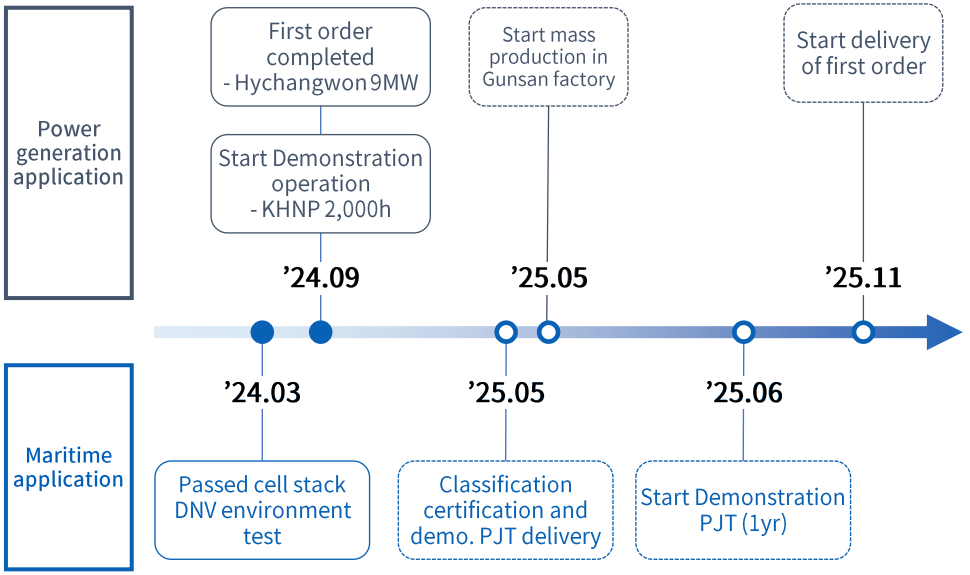
1) CHPS: Clean Hydrogen Portfolio Standard

Appendix 3-2. Fuel cell: SOFC

Preparation for SOFC business is on track

- Won the first order for power generation with demonstration operation commenced.
  Demonstration PJT for maritime application will be delivered following classification certification in 2025.
- Maximizing business effectiveness with product portfolio added.

Expected Timeline



1) Base load : minimum generation capacity maintained at a steady rate

2) Peak load : generation capacity that fluctuates according to power demand
- PAFC has low operating temperature, making it relatively easier to adjust the generation output in response to load variation

SOFC Commercialization strategy

Output per fuel cell	Electrical efficiency	Low to medium- temperature (approximately 600℃) operation to improve stability and product lifetime
300kW	55~60%	

* Based on design specifications

1 High efficiency and stability

✓ Application to 2025 CHPS bidding market
✓ Energy-intensive demand (e.g. data center) response

2 Most optimized solution of SOFC + PAFC

✓ SOFC plays a base load[1)] role, PAFC as a peak load[2)] role
✓ Meet needs for heat or byproduct H2 utilization

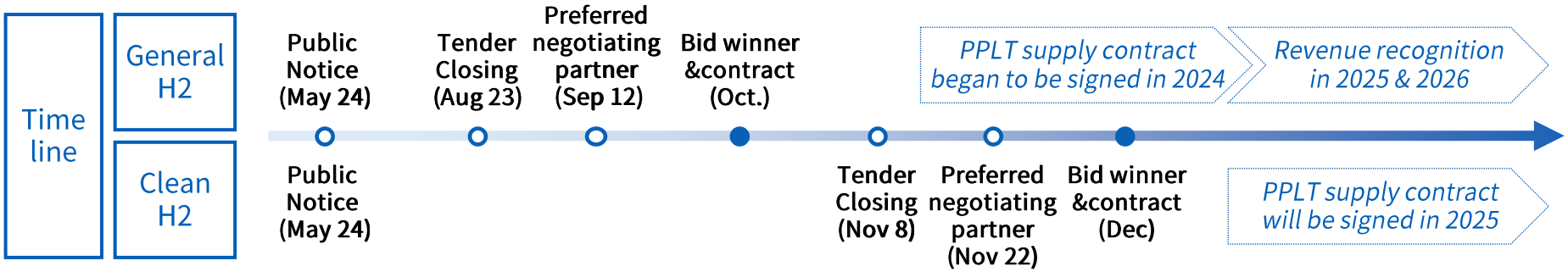
3 Diversified demand

✓Market for power generation and maritime applications
✓ Sales of PPLT and components (cell stack)

Appendix 4. Trends in the CHPS bidding market

The bidding market for general and clean hydrogen power generation commenced in 2023.

Time line



Description

		General H2	Clean H2
Volume		1,300GWh	6,500GWh[1)]
Target		Fuel cell	Fuel cell and hybrid power generation(LNG-H2, Coal-Ammonia)
Fuel		Clean, reforming, byproduct H2	Clean H2[2)]
Hybrid ratio		-	More than 20% of power generation
Evaluation	Price(60%)	Levelized Cost of Energy	Levelized Cost of Energy
	Others(40%)	Industrial·economic contribution, characteristics of distributed power, system acceptance, etc.	Clean H2 grades, stability of fuel introduction, etc.
Settlement		Gap between bid price and market price	Gap between bid price and market price
Contract terms		2 years of preparation, 20 years of transaction - Penalty for failing to commence commercial operations within 2 years of the contract conclusion	3 years of preparation, 15 years of transaction - Penalty for failing to commence commercial operations within 3 years of the contract conclusion (4 years applies only to the initial contract)

1) Considering the delay in the start of commercial operation and the lack of H2 mixing rate, the actual purchase amount in 2027 is expected to be 3,500GWh.
2) Greenhouse gas emissions per kg of hydrogen generation are less than 4kg.

Appendix 5. Quarterly Income Statements (Separate/Consolidated)

Separate Income Statement

Unit: KRW billion	24.1Q	24.2Q	24.3Q	24.4Q	2024
Sales	**31.7**	**86.5**	**32**	**261.6**	**411.8**
COGS	20	74.8	26	254.7	375.6
Gross profit	11.7	11.7	6	6.9	36.2
SG&A	9.7	8.8	8.3	9.1	35.9
Operating Profit/Loss	**2**	**2.9**	**-2.3**	**-2.2**	**0.3**
Margin(%)	*6.3%*	*3.3%*	*-7.2%*	*-0.9%*	*0.1%*
EBITDA	6.6	7.3	2.4	1.7	18
Margin(%)	*20.8%*	*8.4%*	*7.4%*	*0.6%*	*4.4%*
Income before taxes	-0.2	0.5	-3.5	-4.6	-7.8
Net income	0.1	0.4	-2.8	-5.8	-8

Consolidate Income Statement

Unit: KRW billion	24.1Q	24.2Q	24.3Q	24.4Q	2024
Sales	**31.7**	**86.5**	**32**	**261.6**	**411.8**
COGS	20	74.8	26	254.7	375.6
Gross profit	11.7	11.6	6	6.9	36.2
SG&A	10	9.5	9	9.4	37.9
Operating Profit/Loss	**1.6**	**2.2**	**-3**	**-2.6**	**-1.7**
Margin(%)	*5.2%*	*2.5%*	*-9.3%*	*-1.0%*	*-0.4%*
EBITDA	6.3	6.6	2	1.5	16.4
Margin(%)	*19.8%*	*7.6%*	*6.3%*	*0.6%*	*4.0%*
Income before taxes	-0.6	-0.2	-4.4	-5.1	-10.2
Net income	-0.2	-0.3	-3.7	-6.2	-10.5

※ Consolidated subsidiary: HyAxiom Motors Co., Ltd.

Appendix 6. Financial Statements (Separate/Consolidated)

Separate Financial Statement

Unit: KRW billion	2022	2023	2024	YoY
Total Assets	**1,026.9**	**1,070.8**	**1,180**	***109.2***
Current assets	675.7	648.1	666.1	*18*
Inventories	*430.7*	*460.1*	*379.3*	*-80.8*
Non-current assets	351.2	422.8	514	*91.2*
Total Liabilities	**503.9**	**558.2**	**677.3**	***119.1***
Current liabilities	312.7	287.4	364.2	*76.8*
Non-current liabilities	191.2	270.8	313.1	*42.2*
Shareholder's equity	**523.1**	**512.7**	**502.8**	***-9.9***
Capital stock	8.2	8.2	8.2	*0*
Capital surplus	477.5	477.5	477.5	*0*
Other equity	37.3	26.9	17.1	*-9.9*
Debt to Equity Ratio	96%	109%	135%	*26%p*
Total borrowings	**269**	**377.5**	**452.2**	***74.7***
Cash and cash equivalents	50.7	51.6	145.9	*94.3*
Net borrowings	**218.3**	**325.9**	**306.3**	***-19.6***

Consolidated Financial Statement

Unit: KRW billion	2024	Consolidation adjustments
Total Assets	**1,179.7**	***-0.4***
Current assets	660.6	*-5.5*
Inventories	*380.4*	*1.1*
Non-current assets	519.1	*5.1*
Total Liabilities	**680.8**	***3.5***
Current liabilities	366	*1.7*
Non-current liabilities	314.8	*1.7*
Shareholder's equity	**498.9**	***-3.9***
Capital stock	8.2	*0*
Capital surplus	476.1	*-1.4*
Other equity	14.6	*-2.5*
Debt to Equity Ratio	136%	*1%p*
Total borrowings	**452.2**	***0***
Cash and cash equivalents	149.1	*3.2*
Net borrowings	**303.1**	***-3.2***