

(NOTE) This document has been translated from the Japanese original for reference purposes only. In all cases, the Japanese original shall take precedence.

November 29, 2023

To Whom It May Concern:

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(Securities code: 5563  
TSE Prime Market)  
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### **Announcement of Medium/Long-Term Business Plan (FY2024-FY2030)**

Nippon Denko Co., Ltd. (the "Company") hereby announces the formulation of Medium/Long-Term Business Plan targeting FY2030 as follows.

In our new Medium/Long-Term Business Plan, we view changes in the environment toward the realization of a sustainable society as an opportunity, and we will work to formulate and implement concrete business strategies that balance "Solving social issues" and "Enhancing corporate value" to sublimate the "Desired State" formulated in the current Medium-Term Business Plan to "Our Ideal State" in 2030.

#### 1. Outline of Medium/Long-Term Business Plan

##### **<"Our Ideal State" in 2030>**

A company on a constant quest for a better future by supporting people's lives through materials and the environment.

##### **<Basic Policy>**

Balancing "Solving social issues through business activities" and "Enhancing corporate value through sustainable growth."

##### **<Four Targets for Realizing "Our Ideal State">**

- Growth Strategy
- To Improve and Stabilize Profitability
- Financial Strategy
- Sustainability-Related Measures

#### 2. Projections (consolidated)

	Projection for FY2027 (9th Medium-Term Business Plan)* <sup>1</sup>	"Our Ideal State" in 2030	<Reference> Projection for FY2023
Net sales	¥95.0 bil.	¥110.0 bil. or larger	¥78.0 bil.
Ordinary profit	¥10.0 bil.	¥13.0 bil. or larger	¥2.5 bil. Underlying profit basis* <sup>2</sup> : ¥5.7 bil.
ROE	10%	10% or higher	4% Underlying profit basis* <sup>2</sup> : 7%

\*<sup>1</sup> 9th Medium-Term Business Plan (FY2024 to FY2027), with FY2027 as the final year

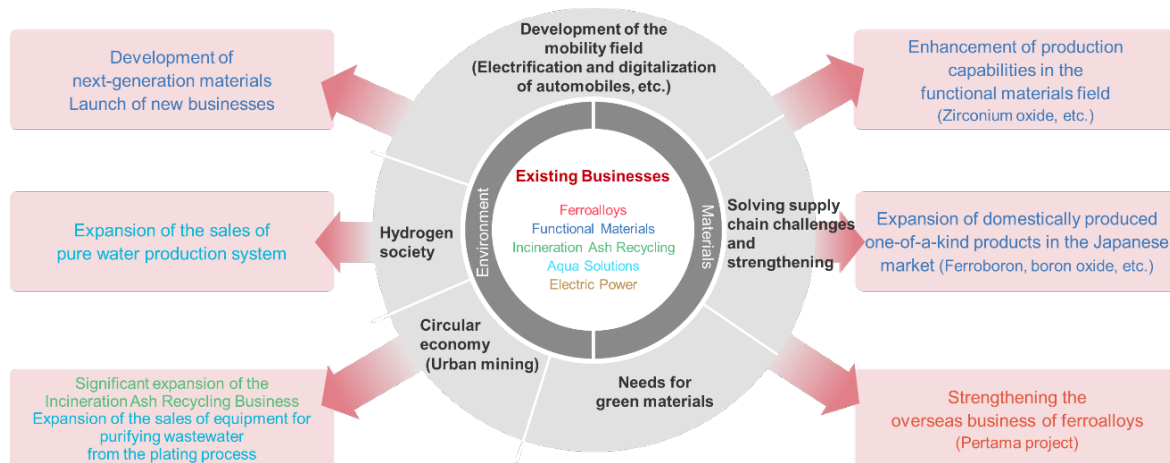
\*<sup>2</sup> Earnings excluding inventory impact and one-time factors

### 3. Four Targets for Realizing "Our Ideal State" in 2030

#### (1) Growth Strategy

To create a business portfolio that is less susceptible to the ferroalloys market conditions by proactively and strategically investing in growing fields. (¥45.0- ¥50.0 bil. / FY2024 to FY2030)

- Expand businesses other than the domestic Ferroalloys Business by more than double
- As a result, ratio of the domestic ferroalloys sales will be 64% in 2023 to around 45% in 2030



#### (2) To Improve and Stabilize Profitability

We aim to achieve an ROE of 10% or higher by establishing a more stable and profitable structure while further stabilizing profitability through the restructuring of the domestic Ferroalloys Business.

#### (3) Financial Strategy

To reform our financial structure to realize growth strategies and improve profitability.

- To reinforce non-current assets as a source of profits
- Appropriate financial leverage (Net D/E ratio 0.20 as of the end of September 2023 → 0.30 to 0.45 at the end of 2030)
- To proactively return profit to shareholders
- To boost the efficiency of inventories

#### (4) Sustainability-Related Measures

We promote our measures towards the goal of resolving social issues and strengthening our corporate foundation, positioning sustainability as a key management strategy to fulfill our group's mission and responsibility.

- GX: Realizing to reduce our CO2 emissions by 45% or more by FY2030 (Scopes 1 and 2, vs. FY2015)
- DX: Realizing optimal manufacturing and creation of new value through digital transformation and self-innovation
- Human-capital management: Executing a human resource strategy, DE&I, and Well-being management linked with the business strategies

# Nippon Denko Group Medium/Long-Term Business Plan

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-Toward "Our Ideal State" in 2030-

November 29, 2023



TSE Prime Market  
5563

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## Medium/Long-Term Business Strategies of Five Core Businesses

# 1. Five Core Businesses (1)

## Five Core Businesses

Our Group aims to be a company on a constant quest for a better future by supporting people's lives through "Materials" and "Environment"

### Materials

#### Ferroalloys

Facility: Tokushima Plant, Pertama Ferroalloys Sdn. Bhd. (overseas affiliates)

- Top domestic manganese ferroalloy supplier
- Consistent supply of high-quality ferroalloys with outstanding global competitiveness
- Green ferroalloy production using hydroelectric power (overseas affiliates)

<b>Main Products</b>	High-carbon ferromanganese SLP ferromanganese Silicomanganese, Ferrosilicon
<b>Main Applications</b>	Additives for steel to improve its hardness, tensile strength, and other properties Desulfurization and deoxidation agent in steel



High-carbon ferromanganese

#### Functional Materials

Facility: Toyama Plant (Imizu and Takaoka area), Myoko Plant, Tokushima Plant

- Providing materials for advanced components supporting a decarbonization and digitalization society
- Distinctive material lineup, such as "No.1" and domestically produced "One-of-a-kind" products in the Japanese market

<b>Main Products</b>	Zirconium oxide / Boron oxide / Manganese inorganic chemical products / Ferroboron / Metal hydride alloys / Cathode materials for lithium-ion batteries
<b>Main Applications</b>	Ceramic capacitors / Glass substrates for displays / Additives for electronic components / Neodymium magnets / Anode materials for HVs' nickel-hydride batteries / Cathode materials for EVs' lithium-ion batteries



Zirconium oxide

### Environment

#### Incineration Ash Recycling

Facility: Chuo Denki Kogyo (Kashima City)

- Contributing to a recycling-oriented society by recovering resources from incineration ash
  - To increase the capacity of landfill sites by collecting and treating incineration ash
  - To extract metals containing valuable metals from incineration ash
  - To recycle incineration ash as roadbed material

<b>Main Services &amp; Products</b>	Collection and treatment of incineration ash Metals containing valuable metals ECOLAROCK (Roadbed material)
<b>Main Applications</b>	Precious and nonferrous metals for industrial purposes Construction materials such as roadbed materials



Metals containing valuable metals

#### Aqua Solutions

Facility: Koriyama Plant

- Contribute to the realization of circular economy and carbon-neutral society through our wastewater purification and pure water production technology and services

<b>Main Products</b>	Wastewater treatment equipment Pure water production system
<b>Main Applications</b>	Treatment of industrial wastewater Production of pure water for hydrogen stations, etc.

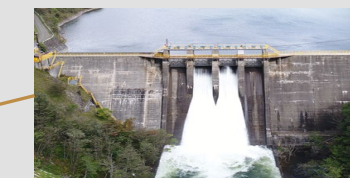


Pure water production system

#### Electric Power

Facility: Hidaka Office

- Stable sale of electricity by utilizing renewable energy Feed-In Tariff system (FIT)
- Stable supply of green electricity through the largest private-sector owned dams
- Introducing the environmental advantages of green electricity



Horomangawa Hydroelectric power plants

### Changed From Four Core Businesses to Five Core Businesses

From January 2024, we will divide the "Environment Business" into the "Incineration Ash Recycling Business (currently, Melting & Solidification of Incineration Ash Business)" and the "Aqua Solutions Business (currently, Environmental Systems Business)" and change the names accordingly.

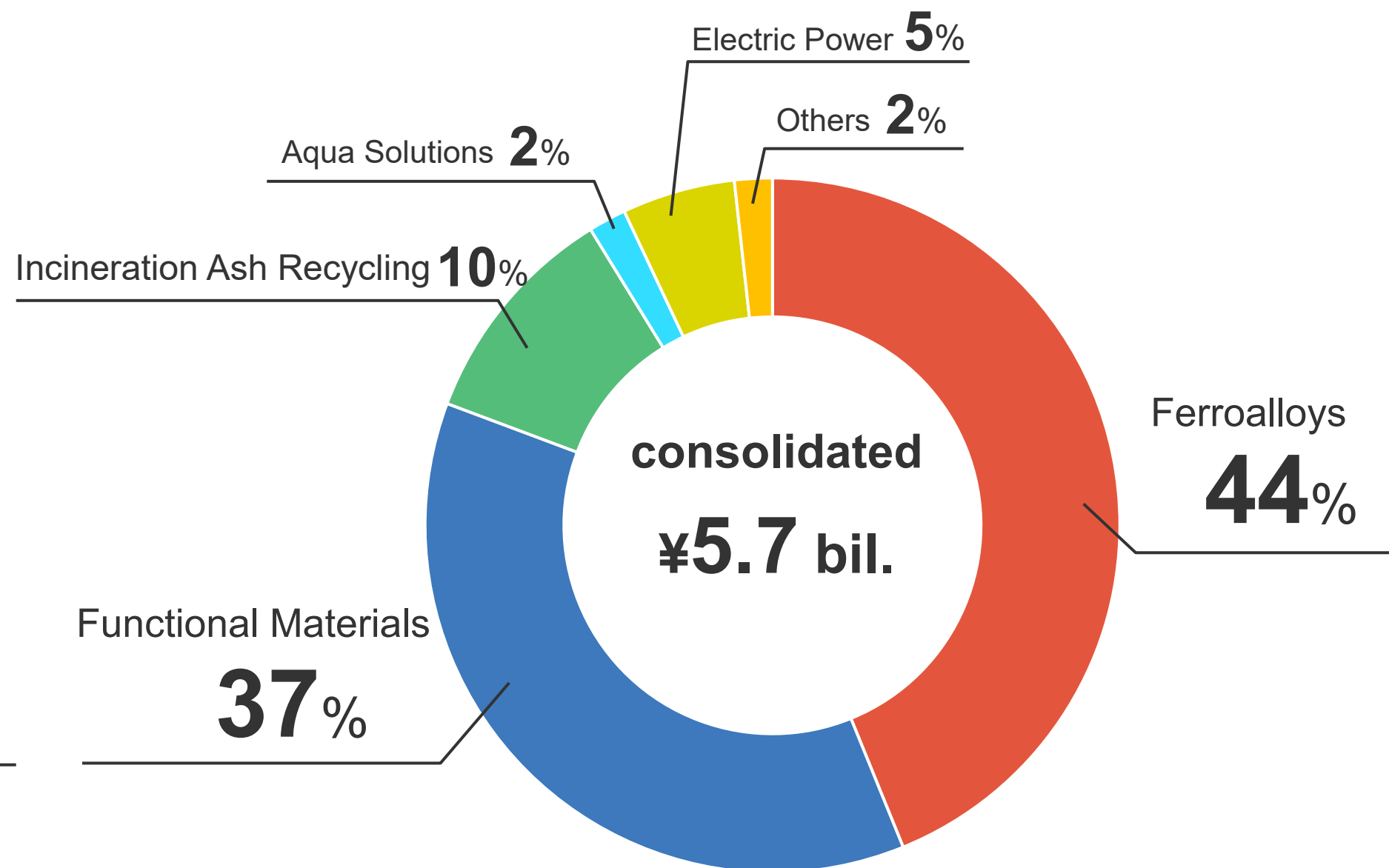
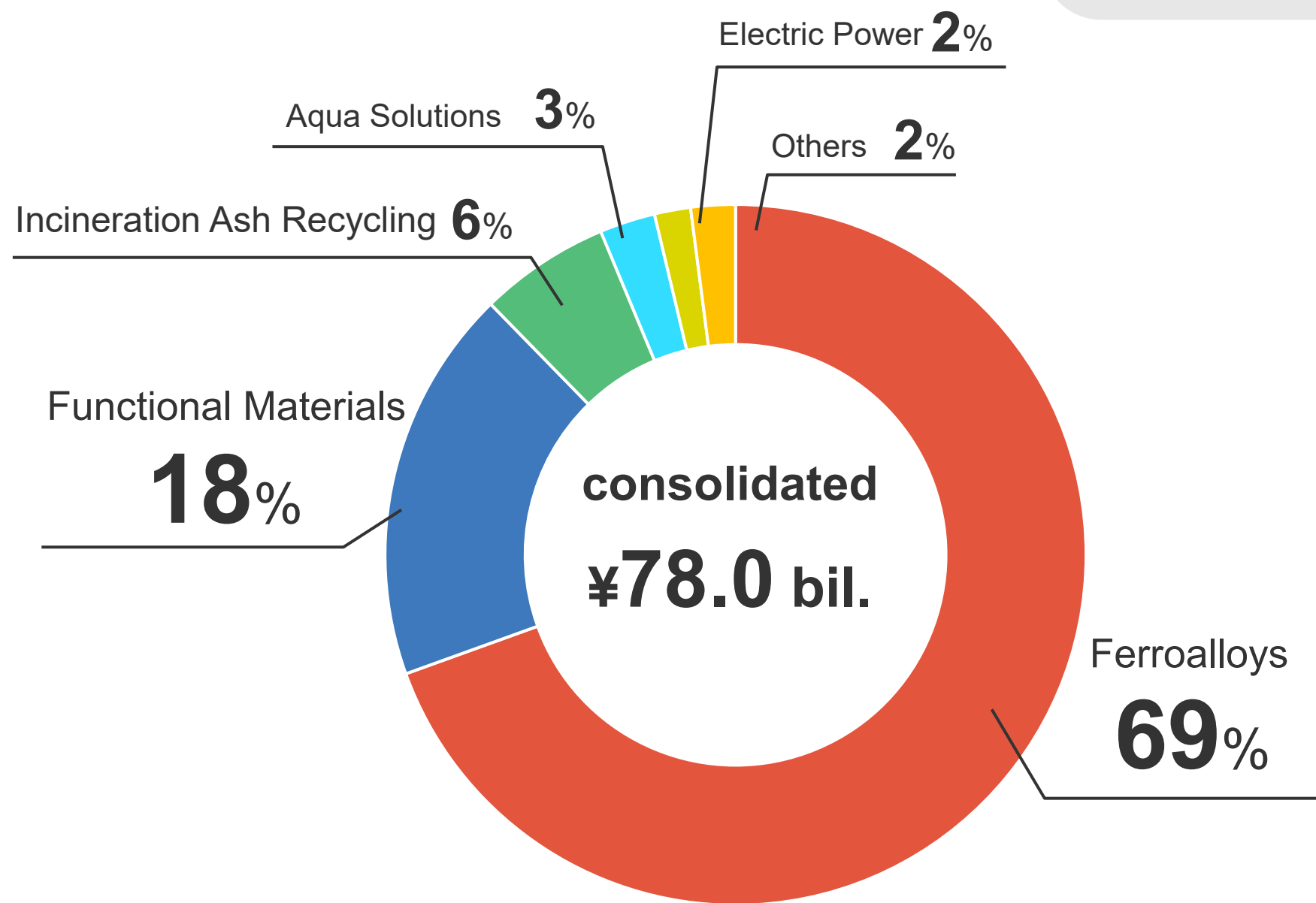
# 1. Five Core Businesses (2)

## Net sales by segment

## Ordinary profit by segment (Underlying profit basis\*)

\*Earnings excluding inventory impact and one-time factors

Projection for FY2023



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**Medium/Long-Term Business Strategies of  
Five Core Businesses**



# 2-1. From the "Desired State" to "Our Ideal State" in 2030

- The period of the 8th Medium-Term Business Plan (FY2021-FY2023) corresponds to the period to lay the groundwork for realizing the "Desired State" in 2030
- We will elevate the "Desired State" to "Our Ideal State" by formulating this medium/long-term business strategy (FY2024-FY2030)

## 8th Medium-Term Business Plan (FY2021 to FY2023)

The period to lay the groundwork for realizing the "Desired State" in 2030

### Basic Policy

Establish a foundation for growth that leads to the next 10 years; "4 Cores + Growth"

### Key Tasks

- Strengthening existing businesses
- Tackling new businesses
- Strengthening the corporate structure to adapt to the changing business environment

### ■ Ferroalloys

- In Japan: To stabilize earnings by consolidating production and revising price formulas
- Overseas: To steadily increase production and sales volume by improving our manufacturing system

### ■ Businesses other than Ferroalloys

#### (Functional Materials, Environment)

- Equipment capacity expansion (zirconium oxide, boron oxide, LIB cathode materials, constructing the incineration ash melting furnace No. 4, restarting ferroboron production)
- To increase earnings by passing on higher electricity charges to prices

### ■ R&D and new businesses

- To enhance collaborative research on new ion-exchange inorganic crystal etc. with external organizations
- To invest in venture capital funds

### ■ Sustainability-related (Established a sustainability committee in Jan. 2022)

- GX: Formulation of CN targets, endorsement in GX League, and energy-saving activities
- DX: Formulation of DX vision and roadmap, commencement of DX education
- Human capital management: Setting targets and KPIs for HR strategy

## FY2030

A company on a constant quest for a better future by supporting people's lives through materials and the environment

Concept of "Desired State" in 2030

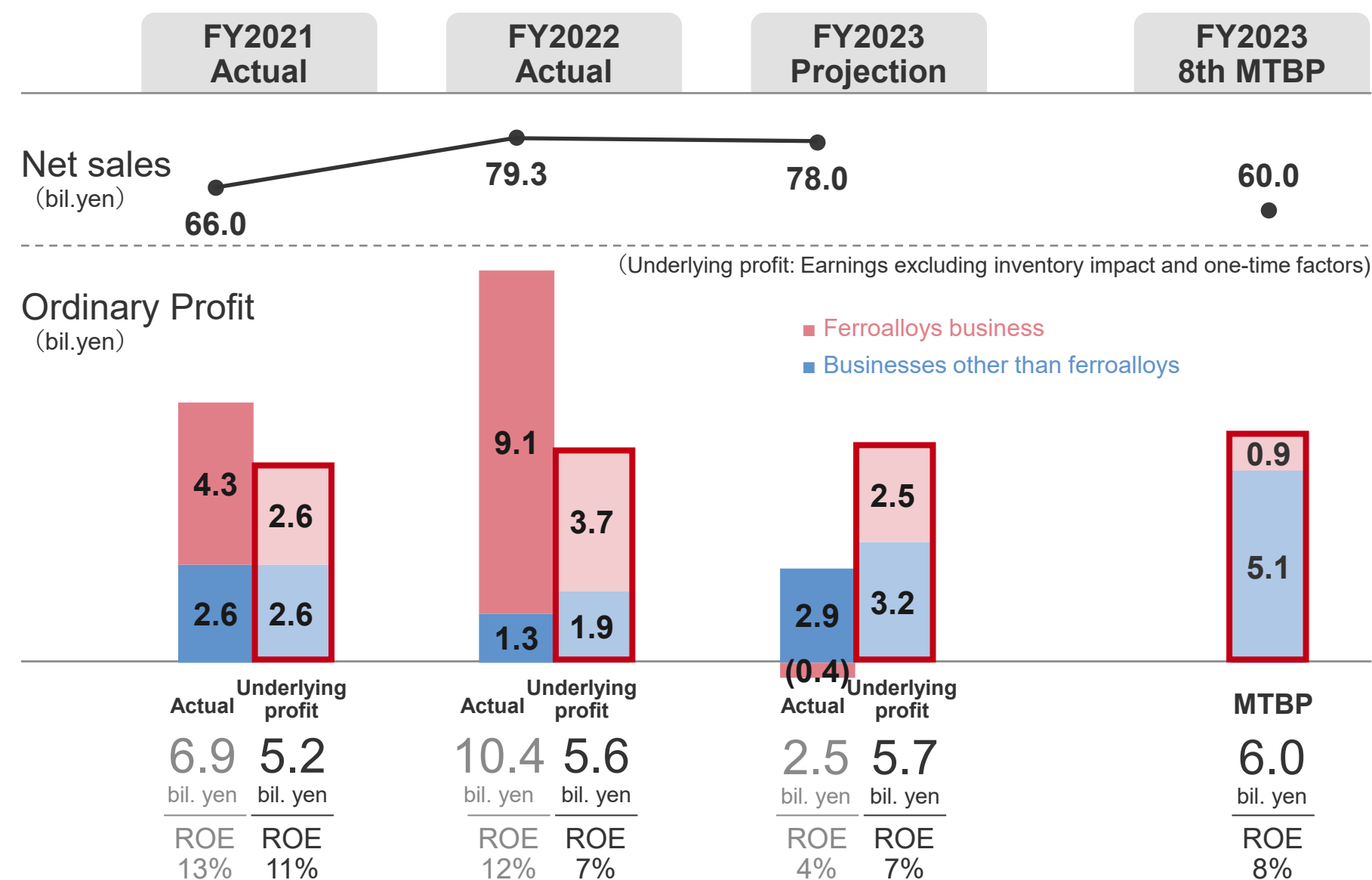
Formulating and implementing medium/long-term business strategies

Elevating it to "Our Ideal State" in 2030

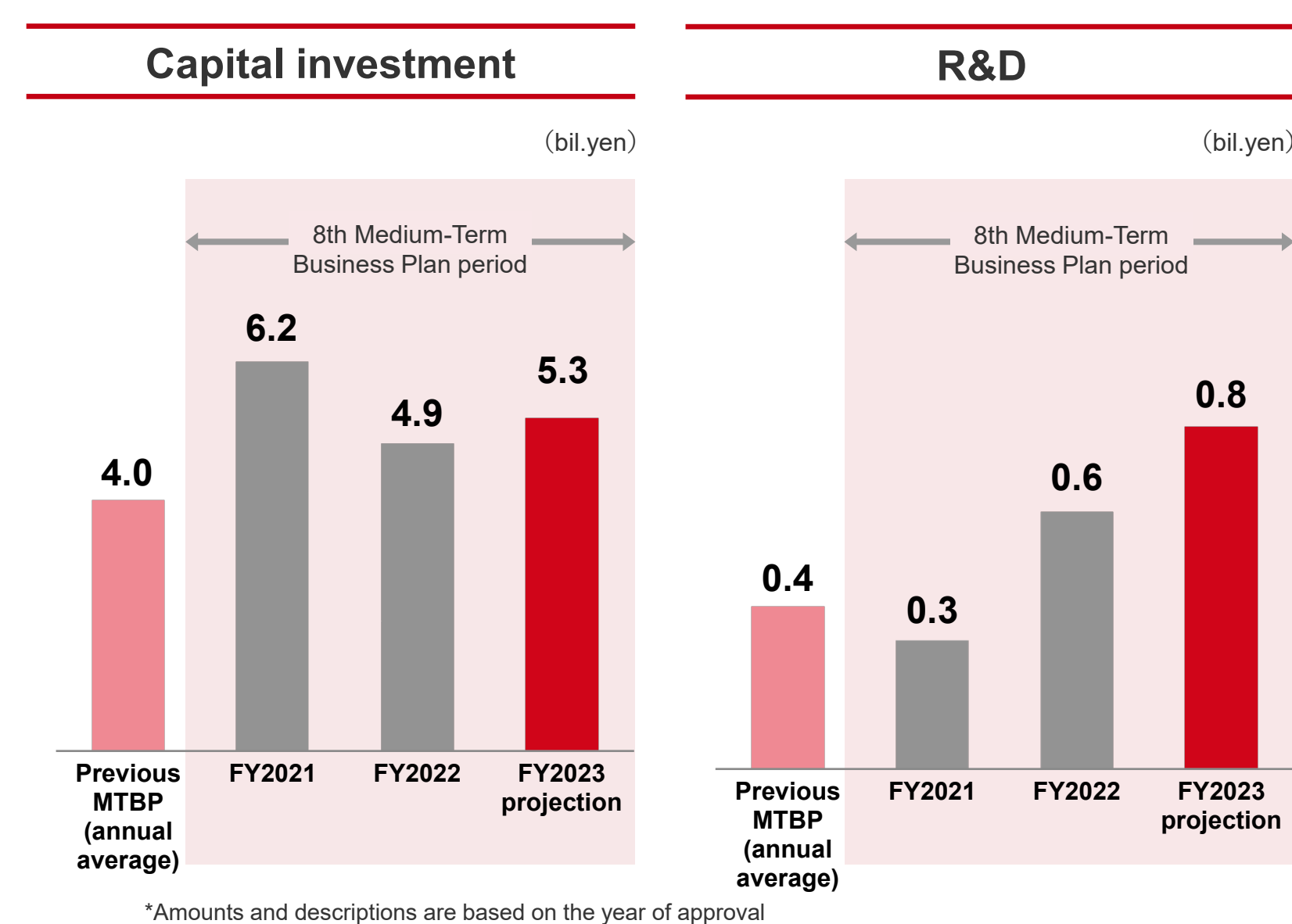
# 2-2. Review of the 8th Medium-Term Business Plan

Underlying ordinary profit, which excludes inventory impact, etc., **almost achieved the target level set in the 8th Medium-Term Business Plan** in spite of business conditions being challenging due to factors such as "COVID-19," "the Russian invasion of Ukraine," and "continued monetary tightening in the U.S. and Europe."

## Variation in consolidated financial results



## Variations in capital investment and R&D expenses



Total shareholder return ratio (8th Medium-Term Business Plan period) **52%**

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Medium/Long-Term Business Strategies of  
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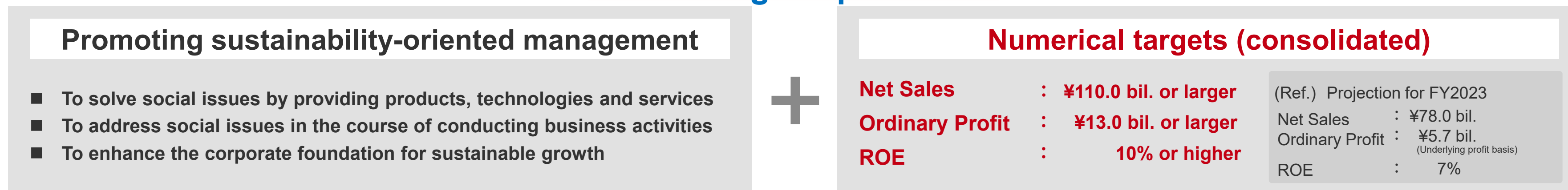
# 3-1. Outline of Medium/Long-Term Business Strategies for "Our Ideal State" in 2030

## 【Management Philosophy】

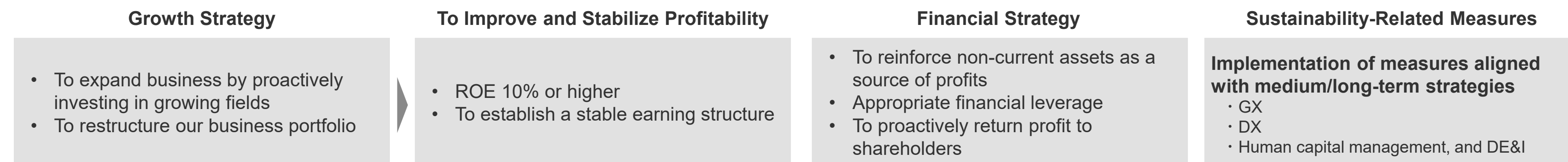
To help create an affluent future through sustainable growth by developing and providing distinctive products, technologies, and services



To achieve both **"Solving Social Issues"** & **"Enhancing Corporate Value"**

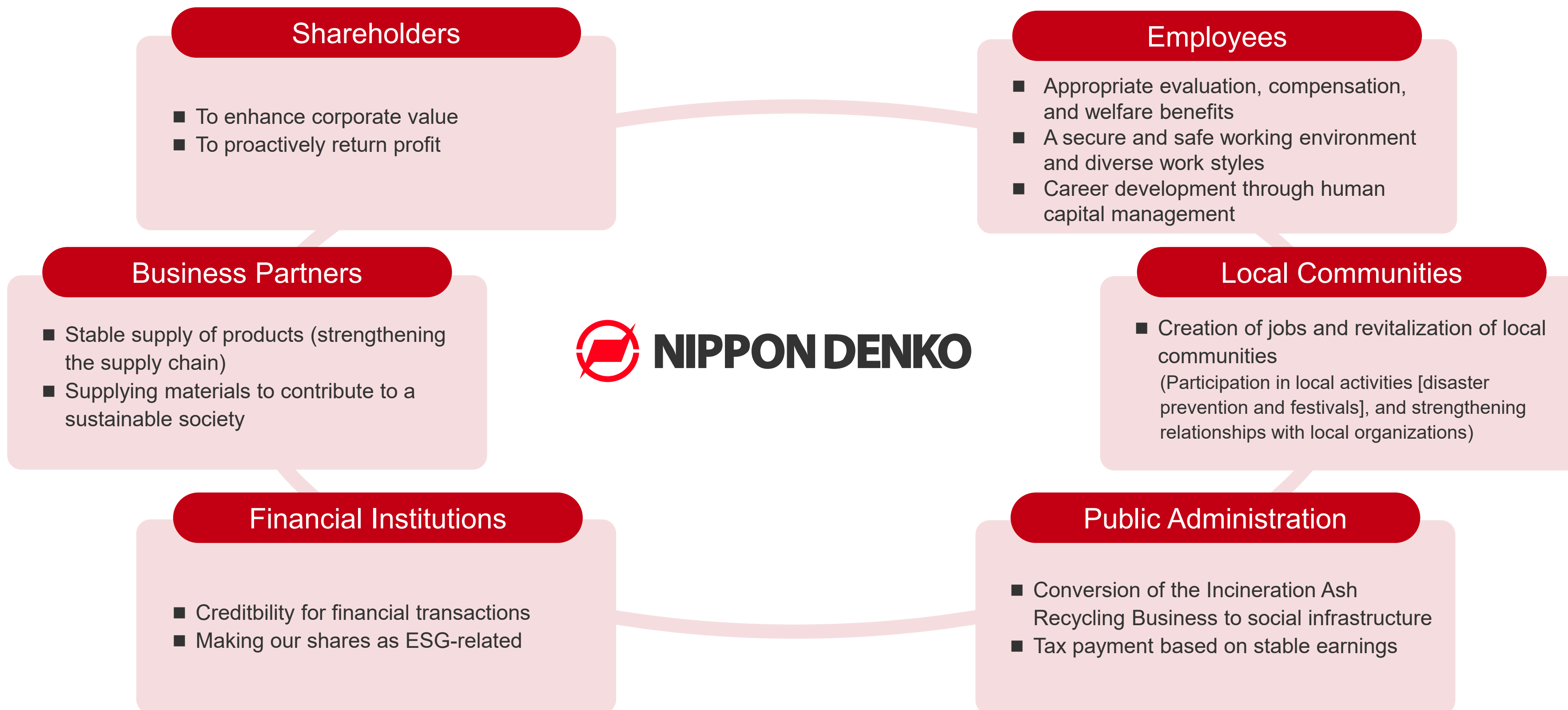


## Four Targets



# 3-2. Providing Value to Diverse Stakeholders Building Trust and Earn High Evaluation

Providing value to diverse stakeholders to form a positive cycle of trust, appreciation, and growth

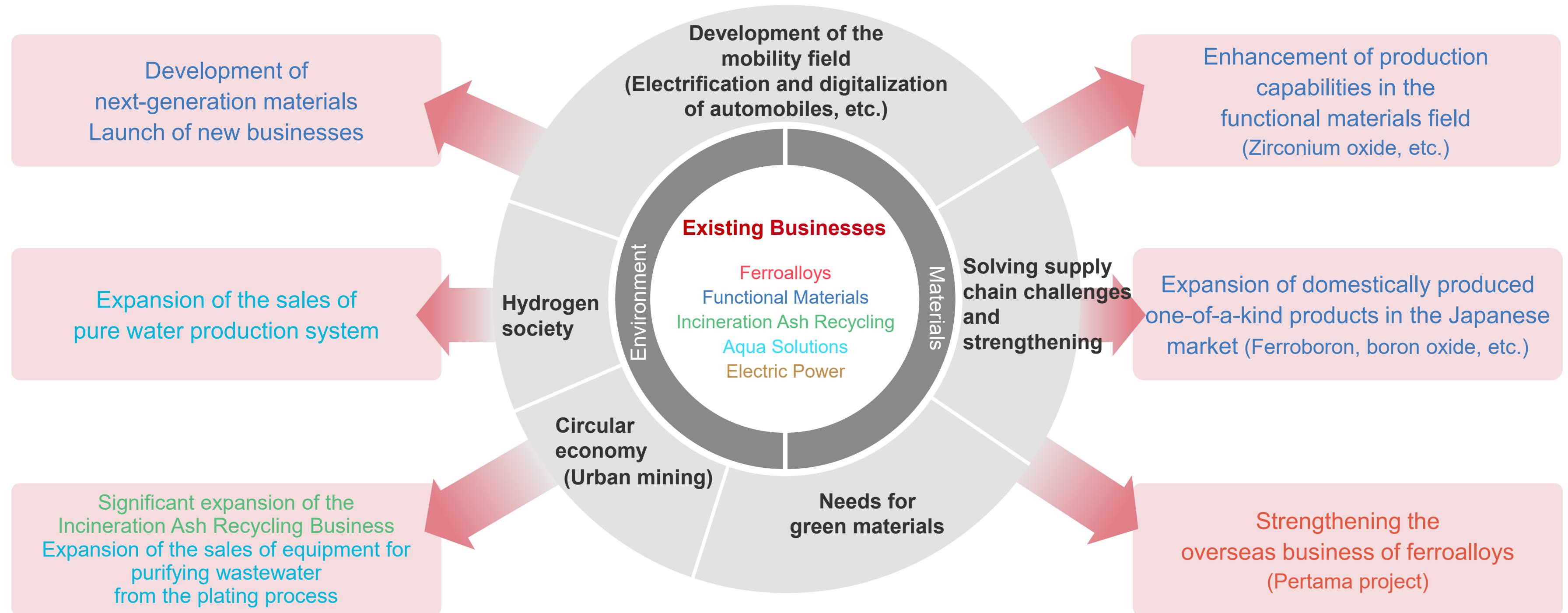


# 3-3. Target 1 - Growth Strategy (1)

## <Medium/Long-Term Business Environment and Our Strategy>

Medium/Long-Term  
Business Strategies

We regard changes in the business environment that would contribute to the building of a sustainable society as a medium/long-term growing fields, and aim to expand the scale and scope of our businesses while leveraging the strengths of our businesses in these fields



# 3-3. Target 1 - Growth Strategy (2)

## <Strategic Investment and Business Portfolio>

Medium/Long-Term Business Strategies

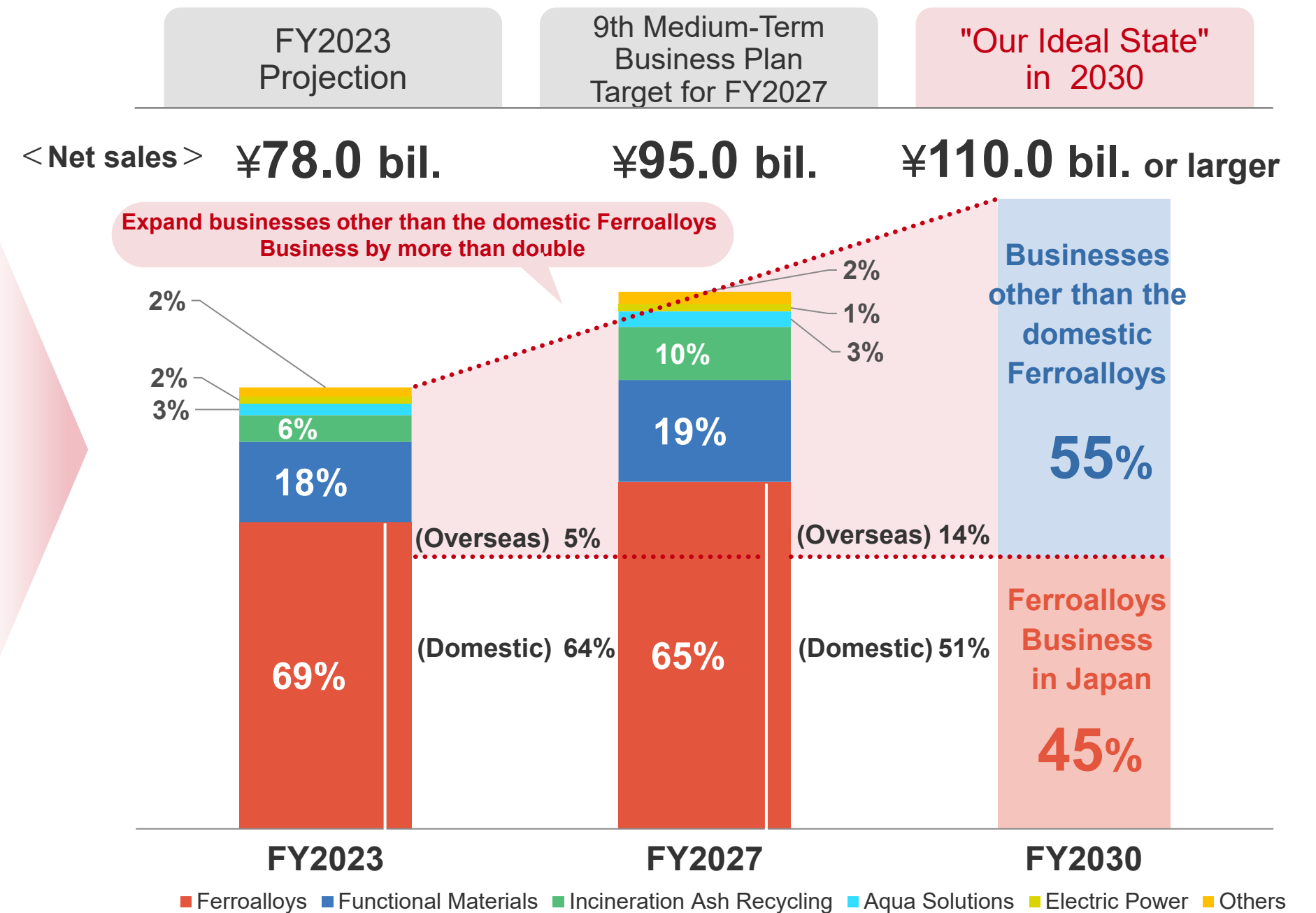
To create a business portfolio that is less susceptible to the ferroalloys market conditions by proactively and strategically investing **¥45.0-¥50.0 bil.**, more than three times the current medium-term plan, in growing fields

Ref. (Strategic investment)  
 Medium/long-term business strategies: ¥45.0 - ¥50.0 bil. / 7 years (FY24-FY30)  
 Current medium-term business plan: ¥6.0 bil. / 3 years (FY21-FY23)

### Business expansion through proactive strategic investment

- **Ferroalloys**
  - Overseas: To strengthen overseas business (Pertama and Kudumane)
- **Functional Materials**
  - Large investment to respond to the electrification and digitalization of automobiles
- **Incineration Ash Recycling**
  - Significant expansion of existing processing capacity (130 thousand to 220 thousand tons)
- **Aqua Solutions**
  - Expansion of wastewater treatment business
- **Other Strategic Investment**
  - Investing in GX and DX
  - New businesses (new battery materials and new wastewater adsorbents)
  - To strengthen existing businesses by acquiring and collaborating with competitors

### Significant expansion of businesses other than the domestic Ferroalloys Business



# 3-3. Target 1 - Growth Strategy (3) <R&D and Exploration of Business Opportunities>

Aiming to increase corporate value by creating new products and businesses that would help solve social issues

## To strengthen the development of new products

- Continuously allocating resources to the development of new products utilizing our proprietary technologies
    - High performance zirconium oxide (Response to needs for smaller MLCC)
    - Materials for next-generation secondary batteries
    - New adsorbents (Inorganic adsorbents)
  - R&D expenses: **a total of ¥3.2 bil.** for the 9th medium-term business plan  
(4 years: FY2024-FY2027)  
(Ref.) Total amount for the 8th medium-term business plan ¥1.7 bil. (3 years: FY2021-FY2023)
- In addition, we consider M&A and partnerships with other companies to promote new business expansion

## To explore business opportunities

- Investment in venture capital funds
  - We have been Investing in two VC funds since 2023  
Energy & Environment Investment, Inc.  
Real Tech Holdings Co., Ltd.
- To collect information on ventures in the materials and environmental fields
- To seek business opportunities through collaboration with venture companies possessing advanced technologies while utilizing our resources and know-how

## External Collaboration to Create New Businesses





# 3-4. Target 2 - To Improve and Stabilize Profitability

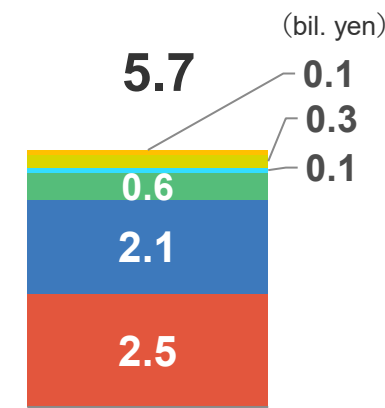
We aim to achieve an ROE of 10% or higher by establishing a more stable and profitable structure through the active investment in growing fields while further stabilizing profitability through the restructuring of the domestic Ferroalloys Business (drastically reducing the impact of market and volume fluctuations)

## Projection for FY2023 (consolidated)

Net sales : ¥78.0 bil.  
 Ordinary profit : ¥5.7 bil.  
(underlying profit basis\*)  
 ROE : 7%

### Underlying profit basis in FY2023

- Ferroalloys ■ Functional Materials
- Incineration Ash Recycling ■ Aqua Solutions
- Electric Power ■ Others



Ordinary profit

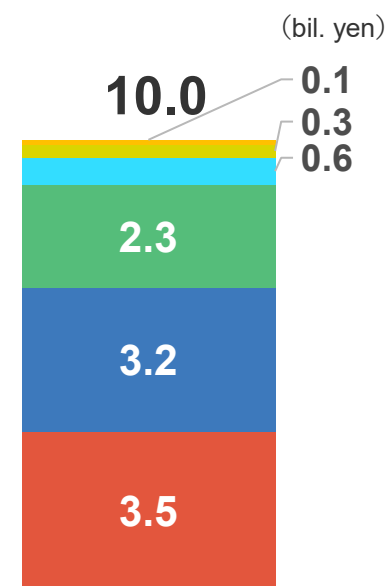
\*Earnings excluding inventory impact and one-time factors

## 9th Medium-Term Business Plan for FY2027 (consolidated)

Net sales : Approx. ¥95.0 bil.  
 Ordinary profit : Approx. ¥10.0 bil.  
 ROE : 10%

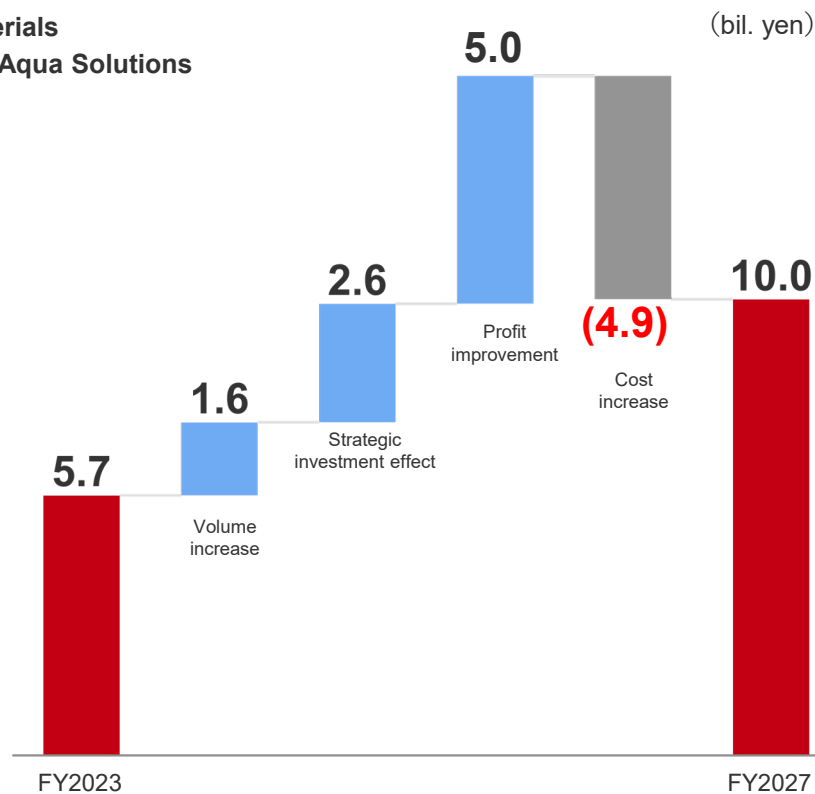
### Target for FY2027

- Ferroalloys ■ Functional Materials
- Incineration Ash Recycling ■ Aqua Solutions
- Electric Power ■ Others



Ordinary profit

### Ordinary profit analyses (vs. FY23)



FY2023

FY2027

## "Our Ideal State" in 2030 (consolidated)

Net sales : ¥110.0 bil. or larger  
 Ordinary profit : ¥13.0 bil. or larger  
 ROE : 10% or higher

### Target for FY2030

(bil. yen)  
 13.0 or larger

Ordinary profit

vs. FY2027

Up more than  
 ¥3.0 bil.

Major items

- Expansion of Incineration Ash Recycling Business
- Zirconium oxide production enhancement
- Effects of DX

# 3-5. Target 3 - Financial Strategy

We aim to reform our financial structure to realize growth strategies and improve profitability

**To reinforce non-current assets as a source of profits**

To strengthen non-current assets through proactive strategic investment

**Appropriate financial leverage**

Net D/E ratio  
0.20 → 0.30 to 0.45

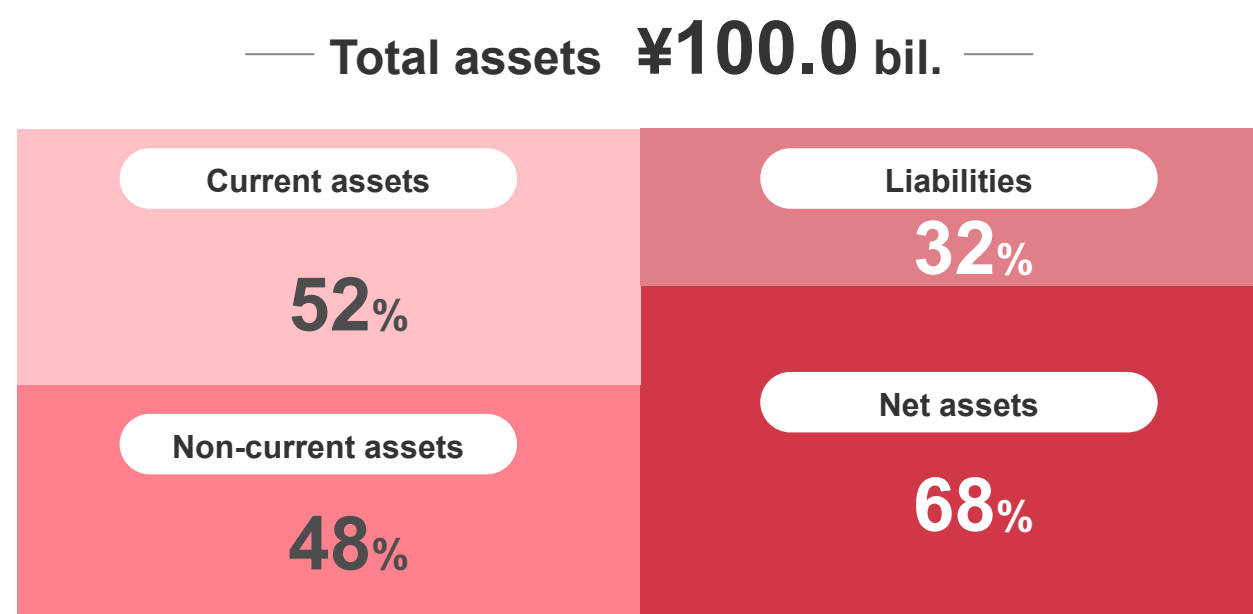
**To proactively return profit to shareholders**

High level of shareholder returns based on stable and high profitability

**To boost the efficiency of inventories**

To improve the efficiency of inventories and reduce the effects of inventory through DX

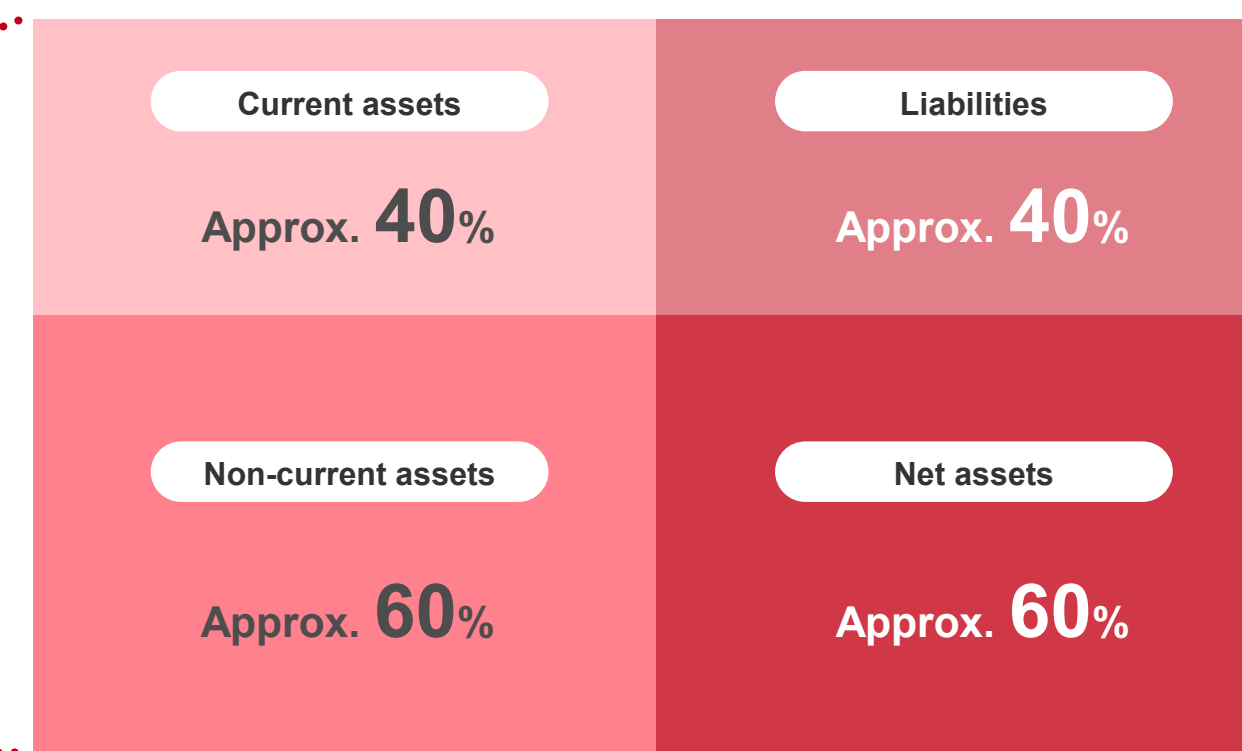
## BS as of the end of September FY2023



Net D/E Ratio: 0.20

## Projection of BS at the end of FY2030

— Total assets: Approx. **¥150.0 bil.** —



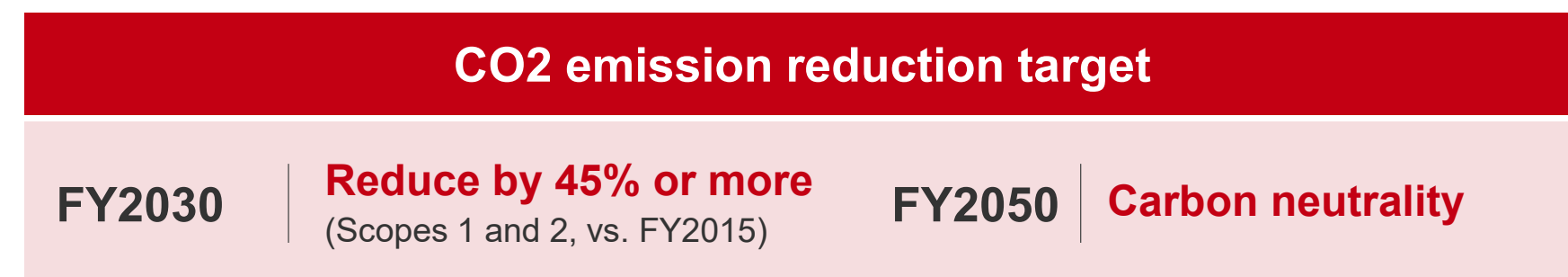
Net D/E Ratio: 0.30 to 0.45

Expand by 1.5 times through proactive strategic investments

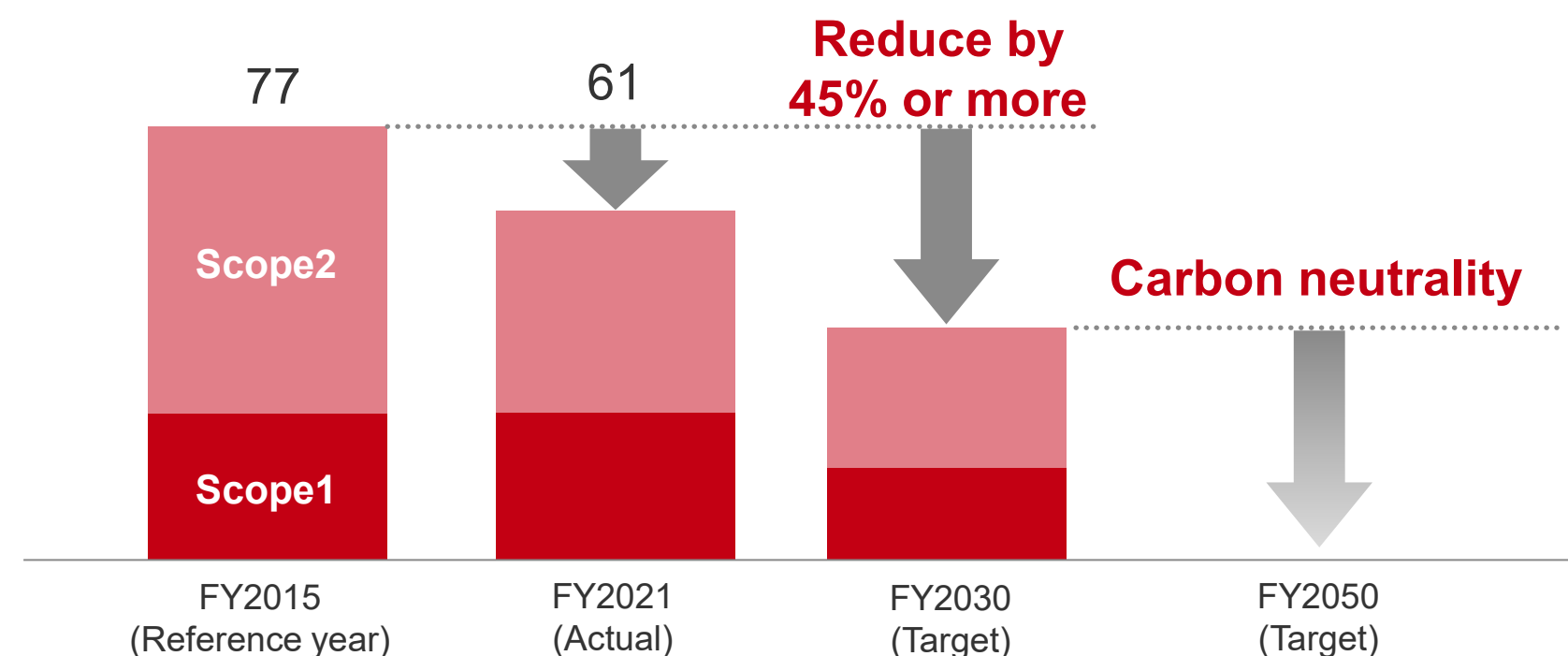
# 3-6. Target 4 - Sustainability-Related Measures – GX (1)

To implement measures to achieve carbon neutrality and aim to reduce our CO2 emissions by 45% or more\* in FY2030

(\*Scopes 1 and 2, vs. FY2015)



## CO2 emissions of Nippon Denko Group (10 thousand tons/year)



### Scope1

Direct emissions by Nippon Denko Group (mainly derived from the coal coke reduction process in high-carbon ferromanganese manufacturing)

< Over 90% of Scope1 CO2 emissions derive from ferroalloy manufacturing >

### Scope2

Indirect emissions from the use of electricity and heat supplied from external sources

## Measures for carbon neutrality

### ■ GX investment plan

- Planning to invest around **¥5.0 bil.** in GX by FY2030
- Adoption of an internal carbon pricing system
  - Set an internal carbon price at ¥10,000/tons-CO2 (Scopes 1 and 2), promoting GX investment (From January 1, 2024)

### ■ Manufacturing technology

- Manufacturing high-carbon ferromanganese by using new reduction technologies to replace coal coke with wood coke and hydrogen etc.
- Installation and upgrade of energy-saving equipment
- Improving the utilization rate of renewable energy

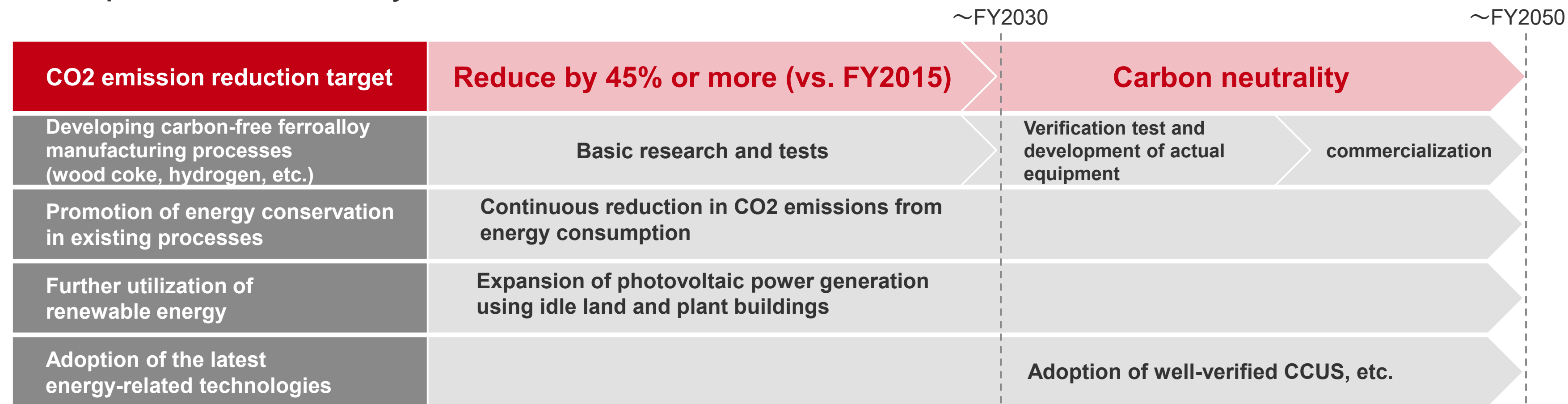
### ■ Information disclosure

- Participation in GX League (May 2023)
- Acquired third-party assurance for our CO2 emissions (Scopes 1 and 2)

# 3-6. Target 4 - Sustainability-Related Measures – GX (2)

Medium/Long-Term Business Strategies

## Roadmap toward carbon neutrality



### Major initiatives in FY2023 Reduction mainly in Scope1 by FY2030

- |  |   |
|--|---|
| <b>R&amp;D on wood coke reduction</b>              | <ul style="list-style-type: none"> <li>■ <b>Reduction test (performance assessment) of manganese ore</b><br/>Great potential as an alternative to coal coke. Improvements in wood coke and technical enhancements during actual furnace operation are the challenges</li> <li>■ <b>Selected in FS research phase of the NEDO project involving the private sector in FY2030</b><br/>Theme: Study on Carbon-Neutral Energy-Saving Technologies for Ferromanganese Manufacturing</li> </ul> |
| <b>Switching to virtually CO2-free electricity</b> | <ul style="list-style-type: none"> <li>■ <b>Purchasing non-fossil certificates with FIT tracking</b><br/>At the Koriyama Plant, there has been a transition to virtually 100% renewable electricity, including solar power generation</li> </ul>  |

# 3-6. Target 4 - Sustainability-Related Measures – DX

Medium/Long-Term  
Business Strategies

To utilize data and digital technology to promote production, operations, and business. Plan to invest around ¥4.0 bil. by FY2030

## DX vision

**Realizing optimal manufacturing and creation of new value through digital transformation and self-innovation**

## DX activity themes

- Production DX** Promotion of smart factories to strengthen manufacturing competitiveness
- Operation DX** Concentrate resources in high value-added services by operational efficiency improvement
- Business DX** Optimal allocation of management resources and creation of new businesses

## DX platform and environment

**Development of an autonomous organization to promote DX and its specialized human resources**  
**A system to enhance productivity and business quality**

## Phase of the DX strategies

### ■ FY23 - FY26: Productivity improvement & operational efficiency improvement (Phase 1)

- Production DX** Visualization of production information, real-time sharing
- Operation DX** Transformation of work styles and business processes by streamlining operations
- Business DX** Visualization of supply chain information, and enhanced management

### ■ FY27 - FY30: Creating corporate value (Phase 2)

- Production DX** To reduce labor and optimize operations
- Operation DX** Shifting from routine work to high-value-added work
- Business DX** Advancement of business management and generation of business ideas

## DX infrastructure & environment

### ■ Human resource development

- In FY2023, we started education for the improvement of DX literacy in all departments and levels, and e-learning targeted at general employees
- DX talent development required for more efficient and advanced operations  
Target for FY2030: A total of 80 members; specifically, 40 DX promotion leaders and 40 data scientists (About 10% of all employees)

### ■ Improvement of system infrastructure

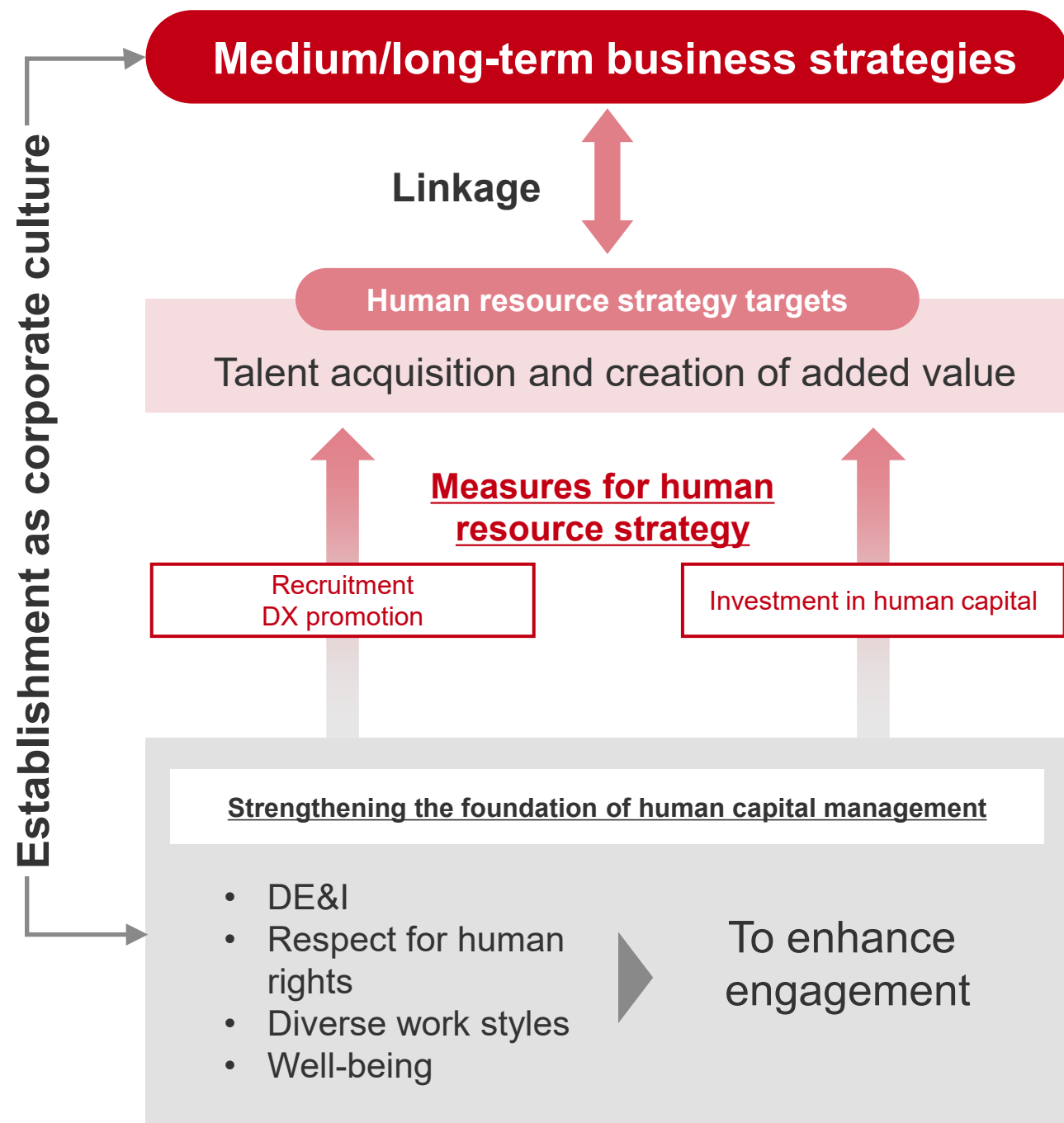
- To revamp core systems (operation/accounting) and adopt purchasing management systems

# 3-6. Target 4 - Sustainability-Related Measures – Human Capital Management

Medium/Long-Term  
Business Strategies

Visualizing and executing a human resource strategy linked with the medium/long-term business strategies will strengthen the foundation of human capital management and improve corporate value

(1) Conceptual diagram of our human resource strategy



(2) Targets (visualization) and measures for human resource strategy

	Target	Human resource strategy measures	
		External environment	Contents
Talent acquisition	Securing additional personnel in response to growth strategies	<ul style="list-style-type: none"> <li>Decrease in the labor force</li> <li>Diverse work styles</li> <li>Labor market mobility</li> </ul>	<ul style="list-style-type: none"> <li>DX promotion</li> <li>Production DX, Operation DX, Business DX</li> </ul>
	Reducing the number of additional personnel by promoting DX		<ul style="list-style-type: none"> <li>Career track employees</li> <li>Establishment of a regional career-track system</li> </ul>
			<ul style="list-style-type: none"> <li>Skilled employees</li> <li>To improve regional presence (popularity)</li> <li>Promotion of participation of female employees in operational departments and more</li> </ul>
Creation of added value for employees	Qualities to carry out growth strategies	<ul style="list-style-type: none"> <li>Strategic management capabilities</li> <li>Innovation capabilities</li> </ul>	<ul style="list-style-type: none"> <li>Innovation training, junior boards, executive candidate training, and development of self-driven personnel</li> <li>Participation in the venture collaboration study team, etc.</li> </ul>
	Specialized capabilities for growth strategies	<ul style="list-style-type: none"> <li>DX talent, key qualified personnel, advanced researchers and foreign talent</li> </ul>	<ul style="list-style-type: none"> <li>DX education, utilization of Off-JT and support for certification acquisition</li> </ul>
	Skills to adapt to business transformation	<ul style="list-style-type: none"> <li>Multitasking skills</li> </ul>	<ul style="list-style-type: none"> <li>Education for fostering multi-skilled workers, reskilling, and a flexible talent portfolio</li> <li>Change of job category and a regional career-track system</li> </ul>
Strengthening the foundation of human capital management			<ul style="list-style-type: none"> <li>To promote diversity (promotion of participation of female employees in operational departments, cultivating female managers, enhancing child-rearing support, etc.)</li> <li>Well-being management (building a secure and safe working environment, reviewing the in-house personnel system, etc.)</li> </ul>

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- Toward "Our Ideal State" in 2030
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- <Target 4> Sustainability-Related Measures

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## Medium/Long-Term Business Strategies of Five Core Businesses

# 4. Five Business Strategies (1) <Ferroalloys (Domestic)>

Largest manganese ferroalloy supplier in Japan

## Our mission <Solving social issues>

- Stable supply of ferroalloys, indispensable for high-grade steel products, which is necessary for the sustainable development of society
- Realization of carbon-free ferroalloys

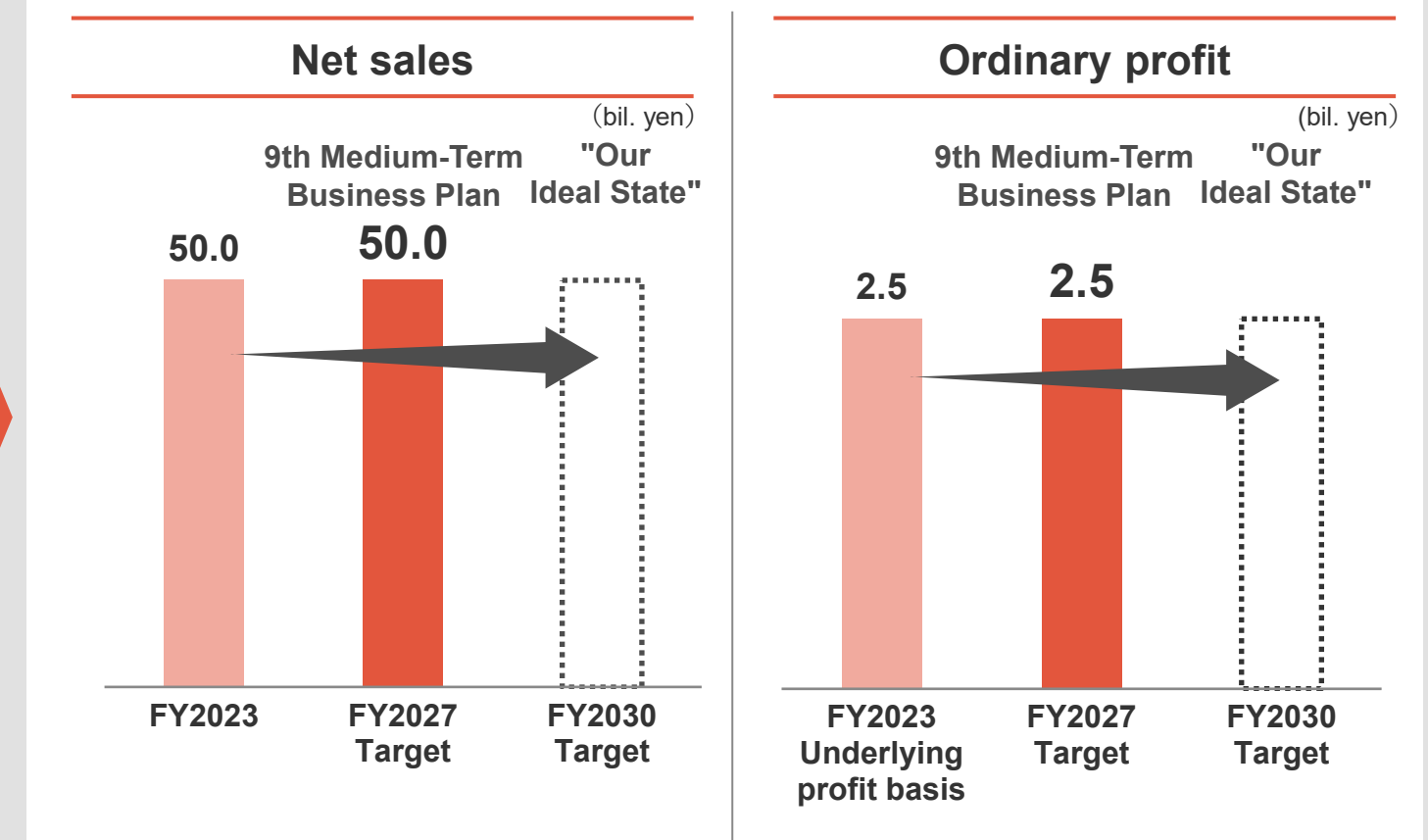
## Direction of our medium/long-term business strategy <Enhancing corporate value>

- Maintaining a stable earning structure by covering the decrease in domestic crude steel production and the increase in costs for ferroalloy manufacturing through productivity improvements, etc.
- Aiming to reduce our CO2 emissions by 45% or more by FY2030

## Specific measures (9th Medium-Term Business Plan)

- 1. Establishment of high-carbon ferromanganese manufacturing system to increase output from 180 thousand to 200 thousand tons/year**
  - To increase production capacity by 10% (increase the ratio of in-house products) by improving plant operation rate
- 2. Establishing a sustainable and stable supply system**
  - Diversification of routes for procuring resources and raw materials in preparation for geopolitical risks
  - Procurement that takes into account social responsibilities such as environmental impact and respect for human rights
- 3. Development of a carbon-free ferroalloy manufacturing process**
  - Shift from coal coke reduction to wood coke reduction
  - To promote the development of new technologies such as hydrogen reduction

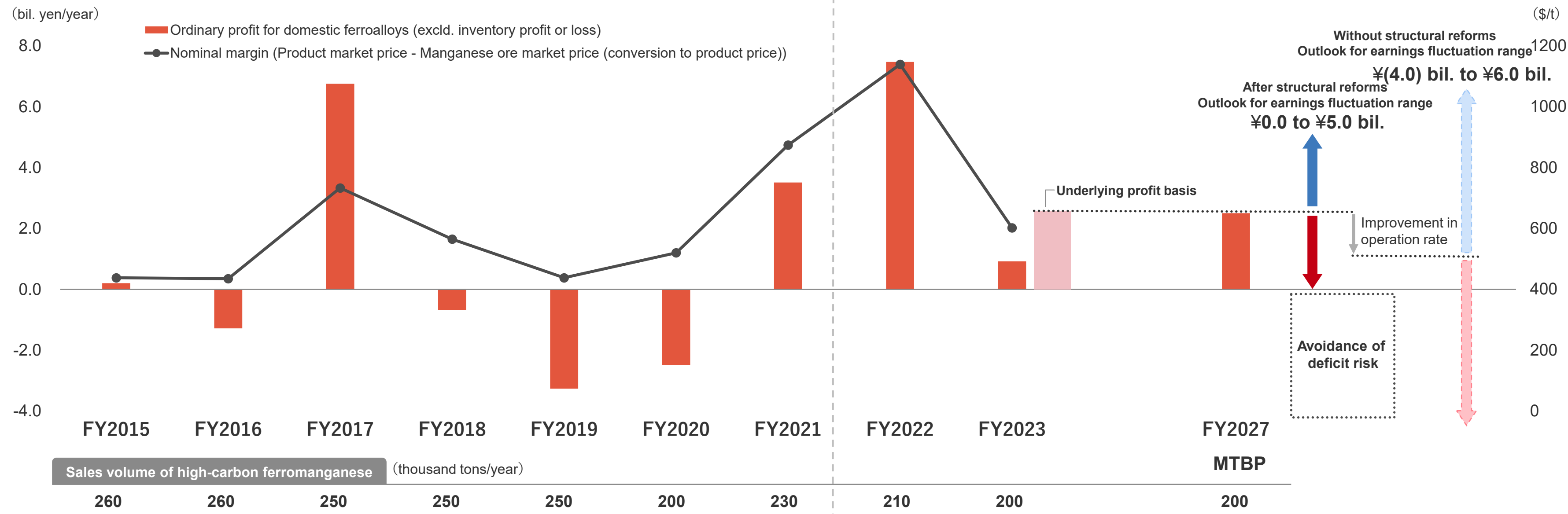
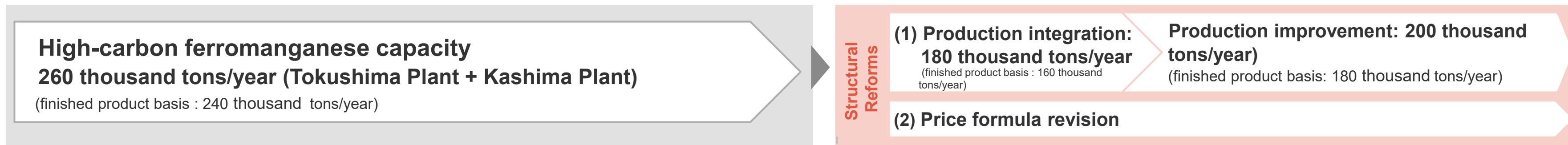
[Market assumptions: Current market level]





# 4. Five Business Strategies (1) <Ferroalloys (Domestic)>

To achieve a stable earning structure that is less susceptible to decreases in domestic crude steel production and market conditions for ferroalloys



The shortfall will be covered by external procurement

# 4. Five Business Strategies (1) <Ferroalloys (Overseas)>

Our ownership ratio  
 Pertama (25%; direct investment)  
 Kudumane (12%; indirect investment)

## Five Business Strategies

Global bases for green ferroalloy utilizing hydroelectric power  
 Strong supply chain by the ownership of manganese mine interests

### Our mission <Solving social issues>

- Pertama** ■ Building a global supply chain for green ferroalloys
- Kudumane** ■ Securing stable manganese procurement to support steel production

### Direction of our medium/long-term business strategy <Enhancing corporate value>

- Pertama** ■ Establishment of an optimal production system utilizing low-cost green electricity
- Pertama** ■ To achieve profitability by expanding our transaction value and improving productivity
- Kudumane** ■ Maintaining and expanding our stakes in manganese resources

## Specific measures (9th Medium-Term Business Plan)

### To strengthen Pertama's ferroalloy production system

- Establishment of an optimal production system to meet demand from customers (carbon neutrality, avoidance of geopolitical risks, high-grade ferroalloys, etc.) required for the sustainable development of society

#### Pertama

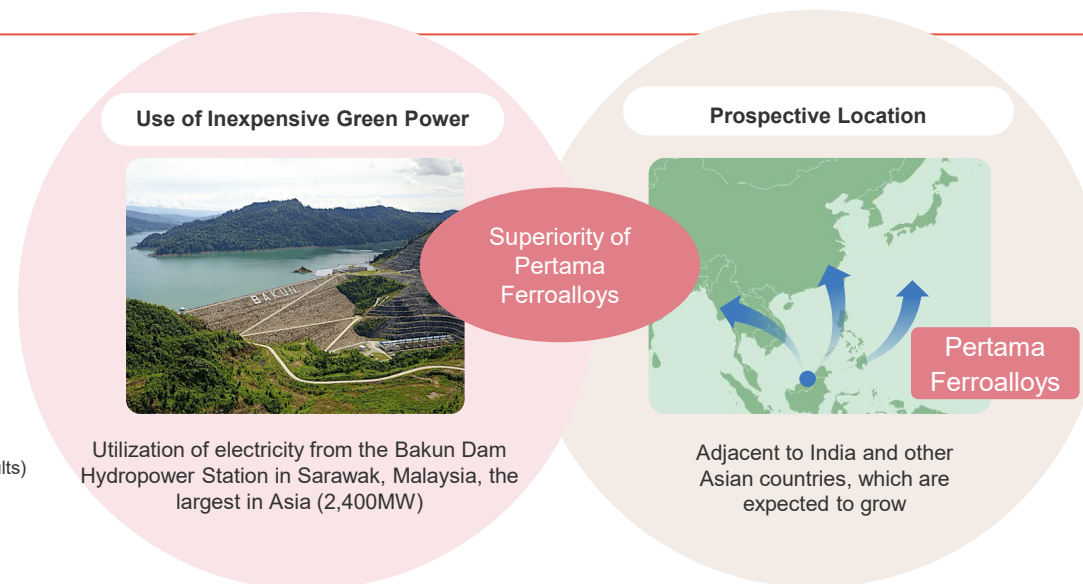
Contributing to the reduction of CO2 emissions in ferroalloy manufacturing by maximizing the use of green electricity

**Effect of reducing 840 thousand tons-CO2/year**

compared to manufacturing with thermal power generation

J-crediting (¥3,200 /t-CO2) conversion: ¥2.7 bil./year

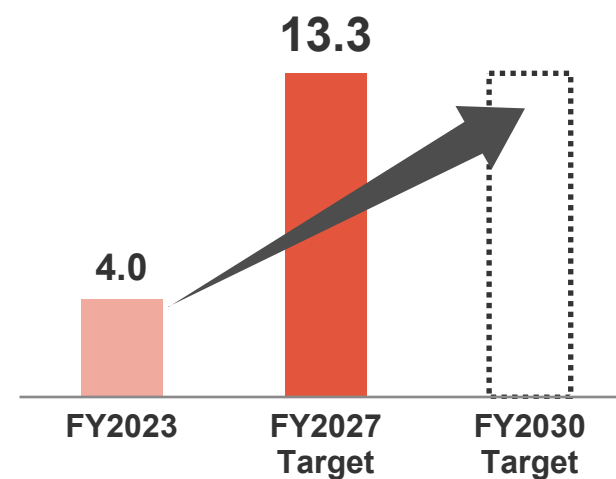
(Source: Agency for Natural Resources and Energy, estimated based on our results)



### Net sales

Our trading value of Pertama product (bil. yen)

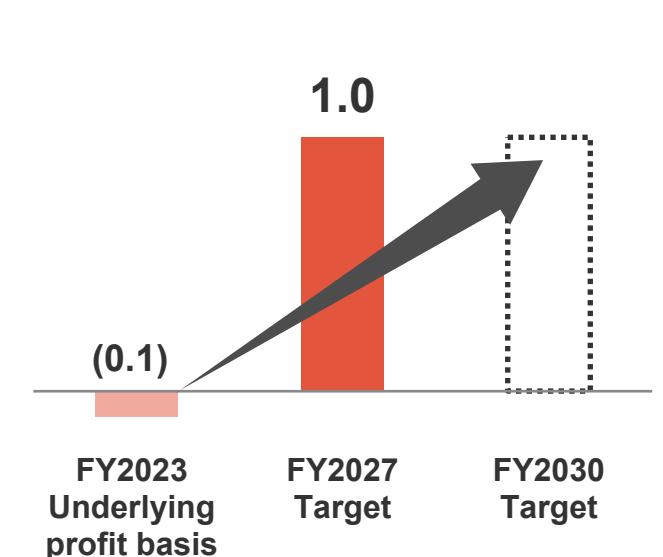
9th Medium-Term Business Plan "Our Ideal State"



### Ordinary profit

Inclusion of our equity interest (bil. yen)

9th Medium-Term Business Plan "Our Ideal State"



# 4. Five Business Strategies (2) <Functional Materials>

A lineup of high-performance, high-quality, distinctive materials, and domestically produced one-of-a-kind products in the Japanese market based on our hard-earned metallurgical and powder technologies

## Our mission <Solving social issues>

- Contributing to carbon neutrality and the development of the mobility field
- Reducing geopolitical risks by providing domestically produced one-of-a-kind products in the Japanese market
- Contributing to the development of society by further developing highly functional materials

## Direction of our medium/long-term business strategy <Enhancing corporate value>

- Expansion of production capacity in anticipation of increased demand due to the further electrification and digitalization of automobiles.
- Expansion of sales of domestically produced one-of-a-kind products in the Japanese market
- Development of new products using manufacturing technologies for electronic materials and battery materials

## Specific measures (9th Medium-Term Business Plan)

### 1. Expansion of zirconium oxide production

- 40% increase from existing production volume (scheduled to start operation in 2027)  
Responding the increased demand for MLCC\* and battery materials due to the further electrification and digitalization of automobiles

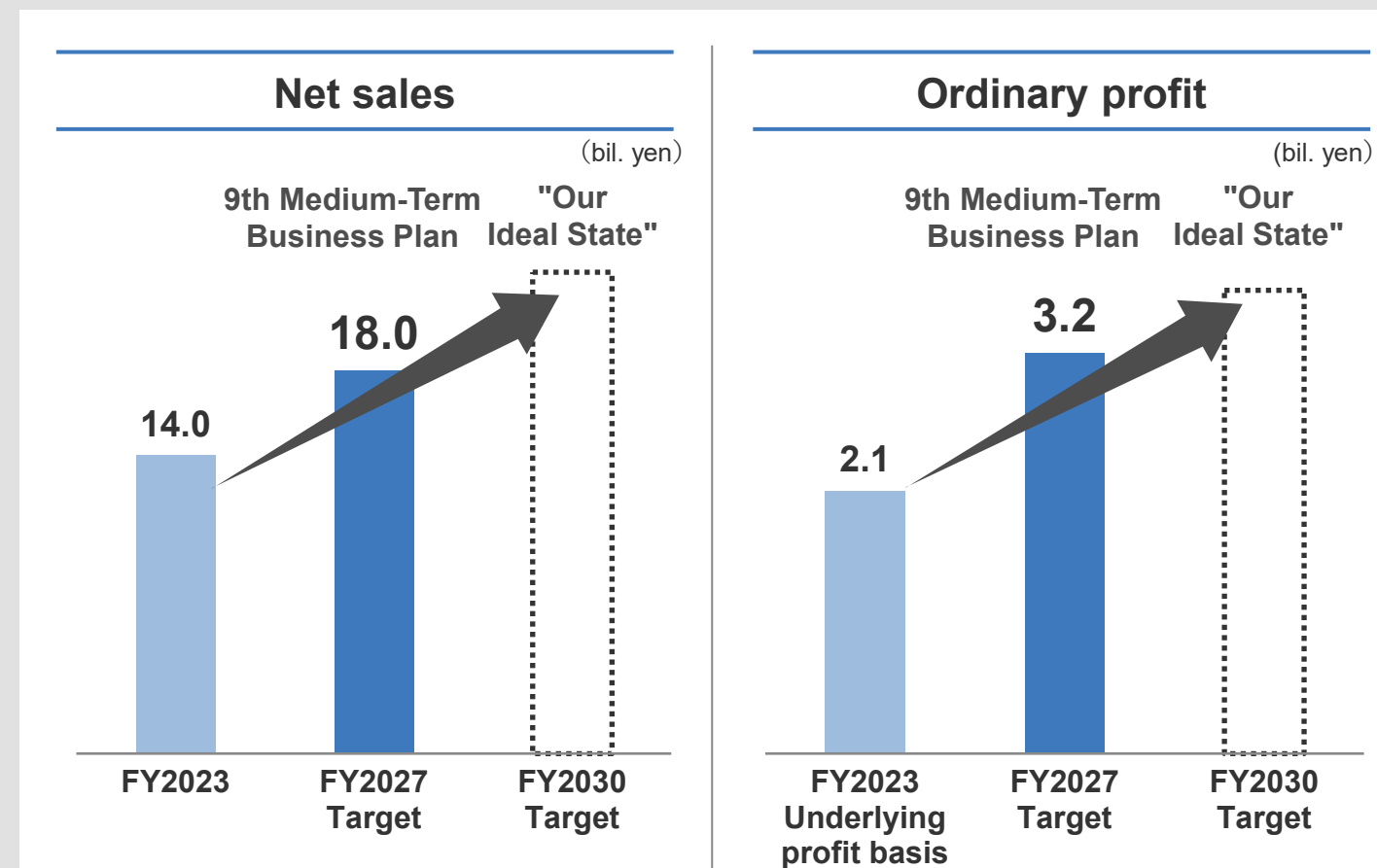
\*Multilayer ceramic capacitors

### 2. Expansion of domestic and overseas sales of high-value-added, domestically produced one-of-a-kind products in the Japanese market

- Domestically produced one-of-a-kind products in the Japanese market:  
Ferroboron, boron oxide, and manganese carbonates

### 3. New product development through R&D

- To enhance added value by developing high-performance zirconium oxide
- To release new battery materials through development and mass production



# 4. Five Business Strategies (2) <Functional Materials>

## Market trends surrounding our products and our response

Markets	Applications	Our products	Market position (competition)	Market trends	Our response
Advancement of mobility fields	Electrification and digitalization of automobiles	Zirconium oxide	Domestically produced one-of-a-kind product in the Japanese market partly for specific applications	↗ Demand for battery material components increased due to the development of the mobility field In addition, demand for electronic components increased due to the development of battery control and advanced communication technologies and the use of electronic components in automobiles	Strengthening production capacity (40% increase)
		Ferroboron	Domestically produced one-of-a-kind product in the Japanese market (The sole manufacturer excluding China)	↗ Increase in demand for neodymium magnets due to the growth of demand for motors for power generation	Expand domestic and overseas sales
		Manganese carbonates	Domestically produced one-of-a-kind product in the Japanese market	↗ Demand for battery material components increased due to the development of the mobility field In addition, demand for electronic components increased due to the development of battery control and advanced communication technologies and the use of electronic components in automobiles	Considering increasing production capacity
Solving supply chain challenges and strengthening	Automotive battery	Cathode materials for lithium-ion batteries	Several companies	↗ Although the automotive battery market is expected to expand, the increase in domestic production is uncertain due to global production competition for secondary batteries	Continuation of OEM (Considering increase depending on the situation)
		Metal hydride alloys	Several companies	→ For the time being, the demand for nickel hydrogen batteries for HVs remains steady	Continuation of stable production
	Glass panels	Boron oxide	Domestically produced one-of-a-kind product in the Japanese market	→ Slowdown from peak demand for telework-related products, but expected to remain unchanged due to the demand for larger displays	Continuation of stable production Improvement of profitability
	Electronic components	High-performance zirconium oxide	—	Development and supply of high-performance, high-quality materials that support the sophistication and miniaturization of electronic components thanks to increased demand accompanying the development of advanced communication technologies	R&D • Quality characteristics improvement
	Battery materials	New battery materials	—	Development and supply of new products with improved characteristics (higher capacity, miniaturization, etc.) of battery materials as demand for a wide range of secondary batteries expands in addition to those required for the electrification of automobiles	R&D • Development of next-generation secondary battery materials

# 4. Five Business Strategies (3) <Incineration Ash Recycling>

Possessing the largest melting and solidification capacity in Japan

Perfect recycling of incineration ash (recovery of valuable metals + slag resource utilization)

## Our mission <Solving social issues>

- Social infrastructure for a recycling-oriented society
  - Recycling through recovery of valuable metals (urban mining)
  - Coping with the shortage of landfill sites

## Direction of our medium/long-term business strategy <Enhancing corporate value>

- Expanding processing capacity on a large scale through the promotion of the recycling of incineration ash by strengthening collaboration with municipalities and local communities

Considering an absorption-type merger of Chuo Denki Kogyo Co., Ltd. (a wholly-owned subsidiary) in order to strengthen initiatives in the growth field of the Incineration Ash Recycling Business

## Specific measures (9th Medium-Term Business Plan)

### Reinforcement of incineration ash melting furnaces

- Gradually increase the number of incineration ash melting furnaces from No. 5 (scheduled to start operation in 2027) to No. 7 (scheduled to start operation in 2030)

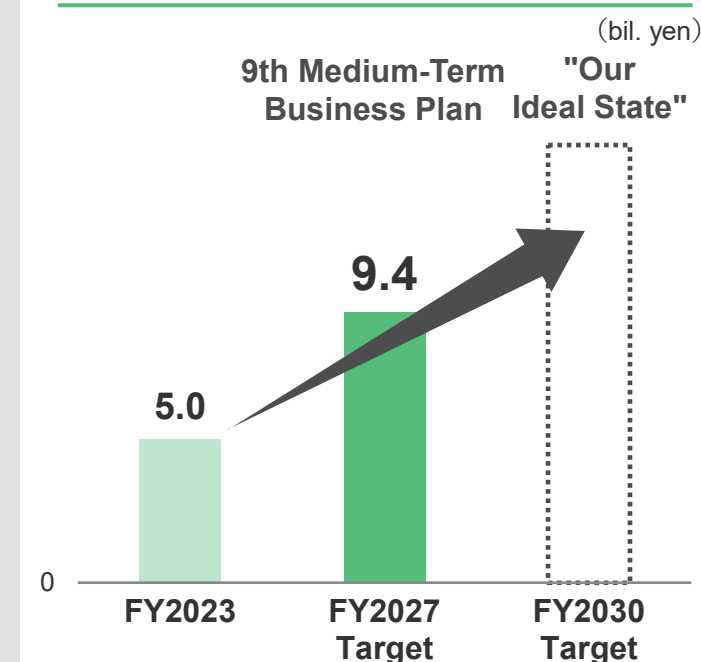


70% increase from our current capacity

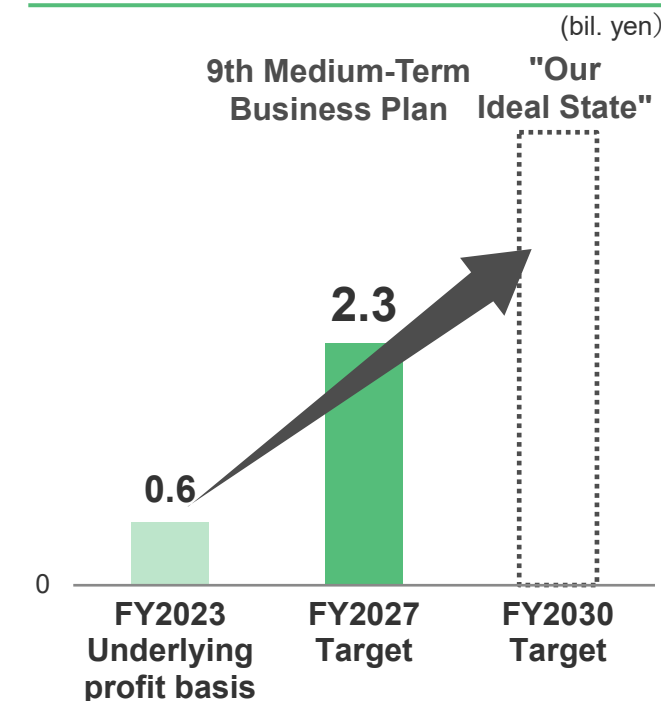
**FY2023** 130 thousand tons/year  
(Incineration ash melting furnaces No. 1 to No. 4)

**FY2030** 220 thousand tons/year  
(Incineration ash melting furnaces No. 1 to No. 7)

### Net sales



### Ordinary profit

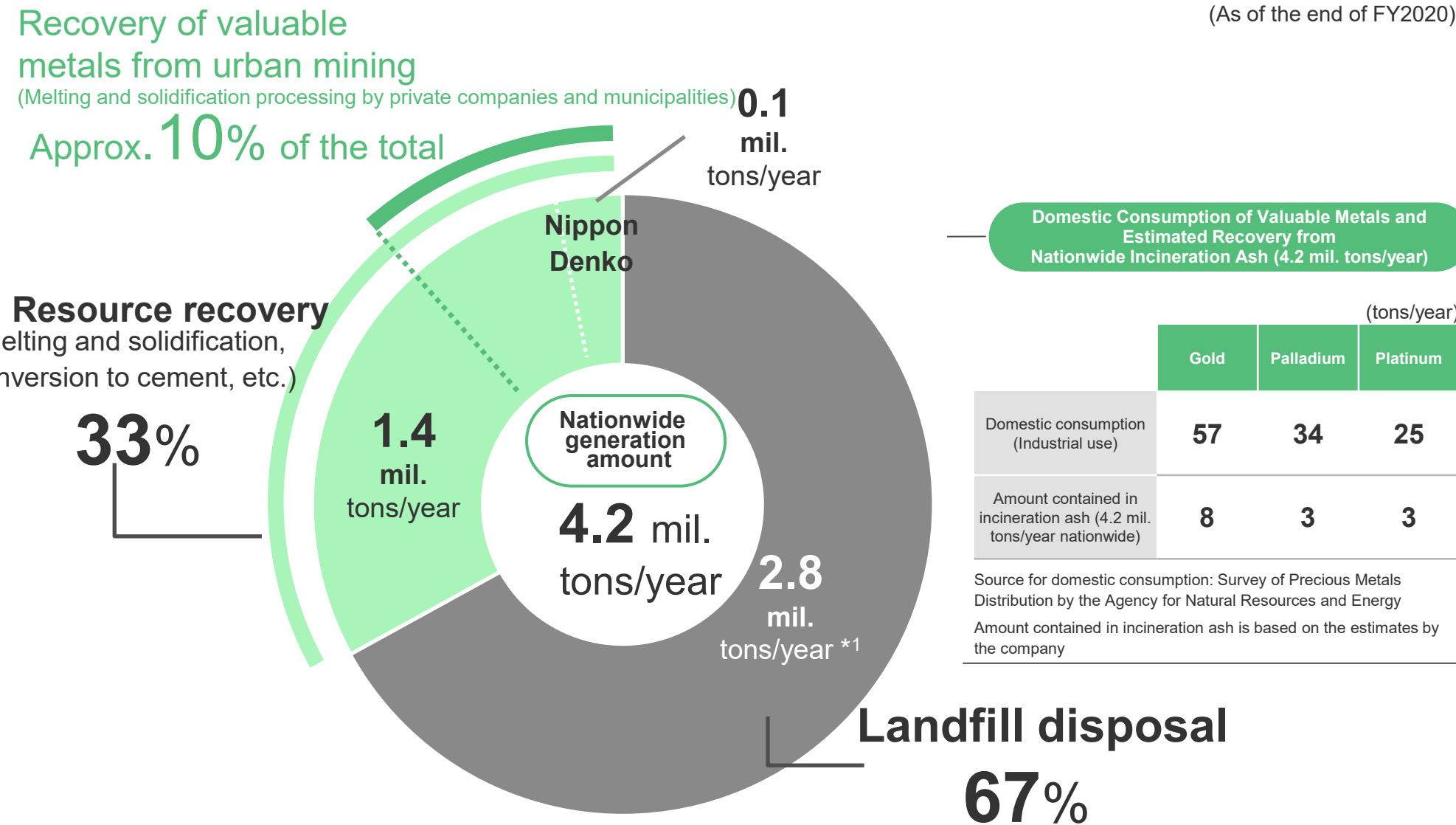


# 4. Five Business Strategies (3) <Incineration Ash Recycling>

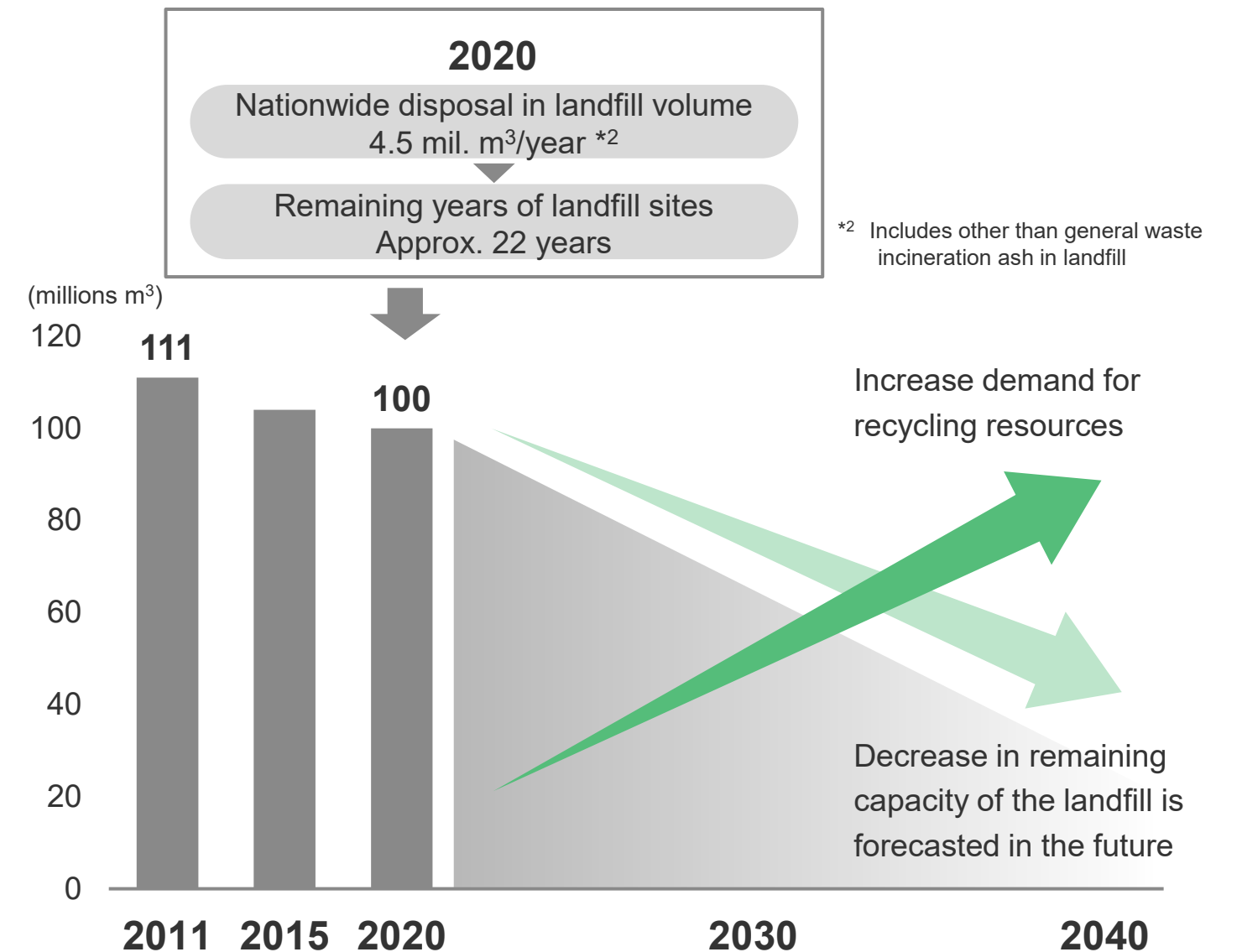
## (Nationwide) Amount of general waste incineration ash, and remaining capacity of landfill sites

Demand for resource utilization will increase as the remaining capacity of landfill sites for waste (incineration ash, etc.) will decrease in the future. We will contribute to the creation of a recycling-oriented society through perfect recycling (recovery of valuable metals + slag resource utilization) by our technology for melting and solidifying incineration ash

### Nationwide general waste incineration ash volume & disposal status



### Nationwide residual capacity of landfill sites



Source: Survey Results of Actual General Waste Disposal by the Ministry of the Environment  
\*1 (Reference) Amount of disposal in landfill: Approx. 3.5 million m<sup>3</sup>/year

# 4. Five Business Strategies (4) <Aqua Solutions>

Purification and reuse of wastewater, recycling through the adsorption-type recovery of valuables, and contribution to clean energy

## Our mission <Solving social issues>

- Contributing to a recycling-oriented society by purifying wastewater and recovering valuable materials
- Contributing to the achievement of a hydrogen society by providing pure water production system

## Direction of our medium/long-term business strategy <Enhancing corporate value>

- To expand business by developing new products in anticipation of new demand amid stricter regulations on wastewater
- To expand sales of pure water production system

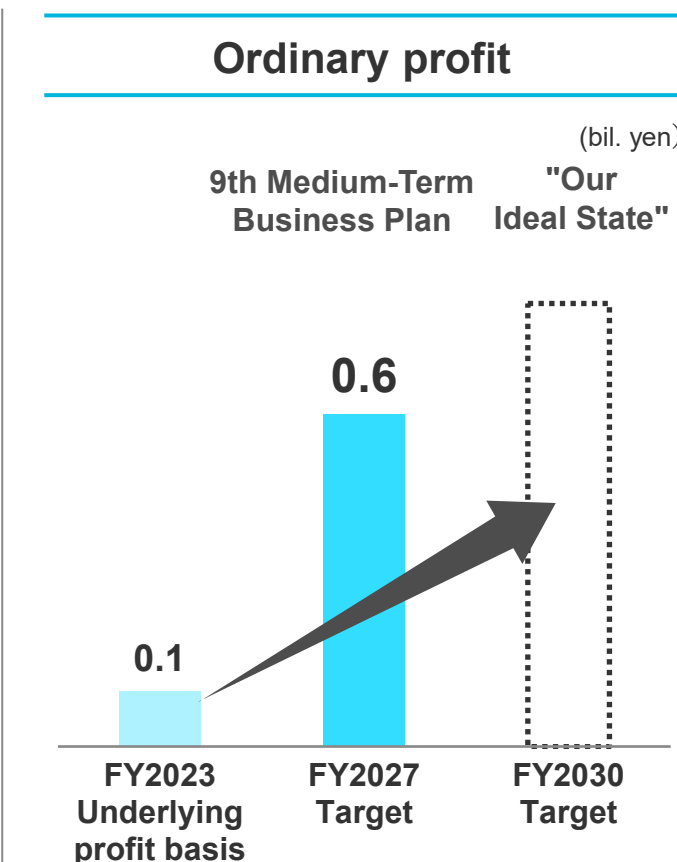
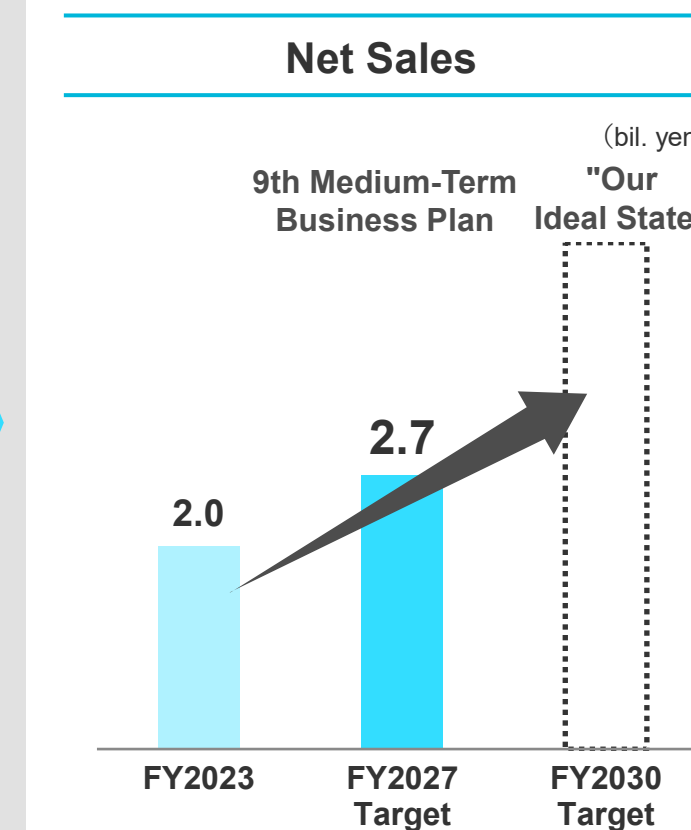
## Specific measures (9th Medium-Term Business Plan)

### 1. Expansion of Wastewater Treatment Business

- Capacity enhancement of boron-adsorption resin recycling and recovery facilities (scheduled to start operation in 2026)
  - Increase in demand for the removal of boron contained in seeping water from landfill sites
- Strengthening the lineup of impurities which can be removed from wastewater by R&D
  - Launch of new adsorbents (inorganic adsorbents) through development and mass production
  - New product development (capturing the demand for heavy metal recycling)

### 2. Expansion of sales of pure water production system

- To expand sales for hydrogen stations, methanation, etc.
- To expand sales for biomass power generation (applications: trial operation, maintenance, etc.)



# 4. Five Business Strategies (5) <Electric Power>

Stable supply of green electricity through the largest dam in the private sector

## Our mission <Solving social issues>

- Contributing to carbon neutrality by stable supply of green electricity

## Direction of our medium/long-term business strategy <Enhancing corporate value>

- Creation of further value after FIT (after 2037) while utilizing a stable earning structure by FIT

## Specific measures (9th Medium-Term Business Plan)

### 1. To improve the reliability of power generation facilities based on long-term plans

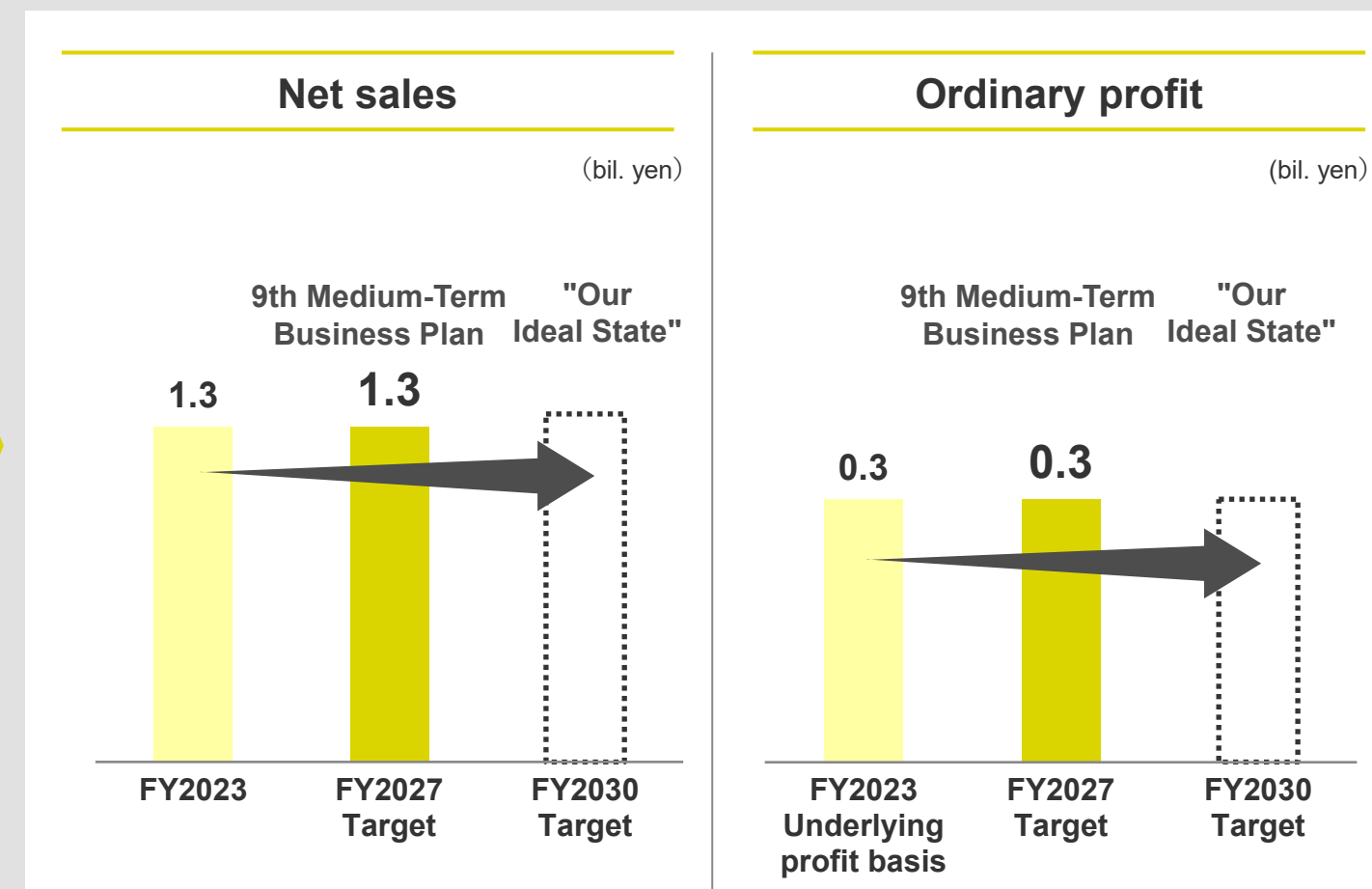
- Steady execution of preventive maintenance

### 2. Response to natural disasters

- Measures to minimize damage during dam overflow caused by heavy rains

### 3. Utilization of environmental value in hydropower generation

- Leveraging our FIT non-fossil certificates with tracking, derived from our hydroelectric power, we contribute to our company's overall carbon neutrality
- Collection of information on renewable energy development projects such as hydroelectric power generation of other companies





## 1. Summary

### "Our Ideal State" in 2030

"A company on a constant quest for a better future by supporting people's lives through materials and the environment"

### Basic Policy

Balancing "Solving social issues through business activities" and "Enhancing corporate value through sustainable growth"

### Four Targets for Realizing "Our Ideal State"

- Growth Strategy
- To Improve and Stabilize Profitability
- Financial Strategy
- Sustainability-Related Measures

## 2. Projections (consolidated)

	Projection for FY2027 (9th Medium-Term Business Plan)*1	"Our Ideal State" in 2030	(Ref.) Projection for FY2023
Net sales	¥95.0 bil.	¥110.0 bil. or larger	¥78.0 bil.
Ordinary profit	¥10.0 bil.	¥13.0 bil. or larger	¥2.5 bil. Underlying profit basis*2: ¥5.7 bil.
ROE	10%	10% or higher	4% Underlying profit basis*2: 7%

\*1 9th Medium-Term Business Plan (FY2024 to FY2027), with FY2027 as the final year

\*2 Earnings excluding inventory impact and one-time factors



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