



# Integrated Report 2024

### Management Philosophy

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

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### Editorial Policy

Nippon Denko Co., Ltd. (hereinafter referred to as the "Company" or "we") published this integrated report to integrate financial information and non-financial information to provide various stakeholders including shareholders and investors with an understanding of our corporate activities aimed at contributing to solving social issues and enhancing our corporate value. We hope to use this report to facilitate communication with our stakeholders, and we will continue to further enhance the content in the future.

### Referenced Guidelines

- IFRS Foundation
- "International Integrated Reporting Framework"
- Ministry of Economy, Trade and Industry "GUIDANCE FOR INTEGRATED CORPORATE DISCLOSURE AND COMPANY-INVESTOR DIALOGUE FOR COLLABORATIVE VALUE CREATION"

### Organizations and Period Covered by the Report

Organizations Nippon Denko Co., Ltd. and Nippon Denko Group companies Covered

### Publication Date

June 2024

### Communication Tools

In order to satisfy the interest of stakeholders, we make efforts to provide corporate information from financial and non-financial aspects by utilizing a variety of information disclosure tools. As shown in the chart below, the "integrated report" is positioned at the core of such disclosure tools, and introduces medium/long-term growth stories of the Nippon Denko Group (hereinafter referred to as the "Group").



### Disclaimer Regarding Forward-Looking Statements

The purpose of this report is to provide information and not solicit the purchase or sale of company shares. In addition, the forward-looking statements in this report were created based on currently available information, the accuracy of such information is not guaranteed and is subject to uncertain factors, and actual performance may differ from forecasts. The Group shall not be liable for any loss or damage resulting from the use of this report



 Financial Stability Board "Recommendations of the Task Force on Climate-Related Financial Disclosures"

Period Covered

January 1, 2023 to December 31, 2023 (includes some information from outside this period)





**Recycling of** incineration ash from waste incineration plants

Smartphones etc. Electronic components

# **Our 99 Years of History**

We will commemorate the 100<sup>th</sup> anniversary of our founding in 2025.

We have been helping create an affluent future through sustainable growth by developing and providing various distinctive products, technologies, and services since we started our business.

At present, we work to solve social issues with our Ferroalloys business, Functional Materials business, Incineration Ash Recycling business, Agua Solutions business, and Electric Power business.



### 1925 Ferroallovs: Our Original Business

Our Group traces its origins to producing ferroalloys using electric furnaces that run on hydropower. We have manufactured manganese ferroallovs from the start, and our high quality products have earned the customers' trust and made us Japan's top supplier

# 1935 Operation to Electric

In the beginning, our electric furnaces ran on hydropower. in 2014, our Horomangawa Hydroelectric Power Plants in

### From Hydropower Plant Power Business

We are promoting initiatives to supply green energy, and Hokkaido were approved for the Japanese government's Feed-In Tariff (FIT) system for renewable energy.



### 1925: Established Nippon Denki Yakin Co., Ltd.

Began ferromanganese production in Ogaki, Gifu Prefecture. Began chromium salt production at the Kuriyama Plant (currently Kuriyama Kosan Co., Ltd.) and ferrochrome production at the Daimon Plant (currently the Toyama Plant, Imizu area).

### 1934: Established Toho Denka Co., Ltd. –

Started hydroelectric power business in the Horomangawa river basin. Began ferrosilicon and silicomanganese production at the Hidaka Plant (currently Hidaka Office) and ferrosilicon production at the Hiwada Plant (currently the Koriyama Plant).

### 1934: Established Chuo Denki Kogyo Co., Ltd.

Began ferroalloy production at the Taguchi Plant (currently the Myoko Plant). Thereafter began production of electrolytic manganese metals, manganese inorganic chemical products, and metal hydride alloys. In 1970, began ferroalloys production at the Kashima Plant, and in 2002, began incineration ash recycling.



### 1960 From Electric Furnace **Operating Technology to**

**Functional Materials** Business We applied the technology to operate our electric

furnaces to branch out into the Functional Materials business. We currently produce a wide array of high-performance materials for electronic parts, batteries, and more.



# 1973

### From Factory Wastewater Treatment to the Aqua Solutions Business

As we handle metals and chemical compounds, we are required to remove harmful components from the factory wastewater. We market our know-how in this area to contribute to recycling water resources and environmental conservation



▶ 1963: Merger to form Nippon Denko Co., Ltd.

In 1963, Nippon Denko Co., Ltd. was formed with the merger of

Nippon Denki Yakin Co., Ltd. and Toho Denka Co., Ltd. In 1970.

oxide, and cathode materials for lithium-ion batteries, as well as

began operation of the Tokushima Plant, main plant of the

Group. Began production and sale of ferroboron, zirconium

the rental and sale of wastewater treatment equipment

### 2002

### From Electric Furnace-Based Waste Treatment to Incineration Ash Recycling Business

We started recycling of incineration ash by channeling the excess capacity of electric furnaces to produce ferroalloys. We have even installed new electric furnaces dedicated for this purpose to help achieve a recycling-oriented society





Business

Pertama Ferroalloys Sdn. Bhd.

2010

2014: Changed the Japanese corporate name — In 2014, Nippon Denko Co., Ltd. made Chuo Denki Kogyo Co., Ltd. a wholly-owned subsidiary and changed the Japanese corporate name. In 2018, the businesses of Chuo Denki Kogyo Co., Ltd., excluding the Incineration Ash Recycling business, were incorporated into Nippon Denko Co., Ltd. In 2021, the production of ferroalloys at the Kashima Plant was discontinued, and transferred to the Tokushima Plant.

### 2012 • 2013 **Overseas Ferroalloys**

In order to pursue the sustainability of the Ferroallovs business, which is our original business, we conduct overseas operations in terms of raw materials and products. In 2012, we invested in Pertama Ferroalloys Sdn. Bhd., which manufactures ferroalloys in Malaysia with the electric power generated at hydroelectric power plants. In 2013, we invested in Kudumane Japan GK, which invests in manganese mines in South Africa and manages them.



Kudumane Manganese Resources

2018 • 2022

### Capacity Enhancement of No. 3 and No. 4 Incineration Ash Melting Furnaces

In response to the growing needs of municipalities for the disposal of incineration ash due to concerns over the securing of new landfill sites, we enlarged our incineration ash melting furnaces. We plan to increase the capacity of incineration ash treatment in a timely manner.



### 2021

### Production Capacity Enhancement of Zirconium Oxide and Boron Oxide

We enhanced the capacity for producing boron oxide by 40% in response to the steady demand for glass substrates for displays such as OLED, and substrates for electronic components for 5G communication. We increased the capacity for producing zirconium oxide by 50%, in response to the growing demand for multilayer ceramic capacitors for automobiles



Equipment for producing boron oxide

Nippon Denko Co., Ltd

2020

Variation in net sales Nippon Denki Yakin Co., Ltd. Toho Denka Co., Ltd. Chuo Denki Kogyo Co., Ltd. Nippon Denko Co., Ltd

### ► 2024: Merged Chuo Denki Kogyo Co., Ltd.

In July 2024, the company merged Chuo Denki Kogyo Co., Ltd., which operates the Incineration Ash Recycling business, to strengthen activities for the business and accelerate growth of the Nippon Denko Group.

**Value Creation Process** 

A company on a constant quest for a  $\bigcirc$ **Our Ideal State** better future by supporting people's lives in 2030 through "materials" and the "environment" **Business Activities** Output Input Manufacture Capital **Materials** Capital investment ¥3.8 bil. **Ferroalloys** Number of production sites 9 sites (in Japan) **Electrification of Automobiles** 2 sites (overseas) **Diverse human Stable Supply of Unique Products** resources who have Ω Incineration **Functional Needs for Green Materials** triggered innovation Ash **Materials Intellectual Capital** Recycling **Utilization of Urban Mines Electric furnace operation** technology based on the ¥0.6 bil. R&D expenses **Hydrogen Society** knowledge of metallurgy nurtured since the R **Purification of Wastewater** inauguration of business Human Capital Number-one and one-of-a-kind products **Environment** 937 Number of employees **Business portfolio** Aqua Electric contributing to a Solutions 5 Power sustainable society **Social Capital** FY2023 FY2027 FY2030 Results Target Target Building trust with (the 9th Medium-Term Business Plan) stakeholders Net sales Net sales Net sales Digital ¥76.4 bil. ¥95 bil. ¥110<sup>bil. or</sup> **Transformation** Natural Capital Energy consumption Underlying Ordinary profit Ordinary profit (crude oil equivalent) ordinary profit\* ¥5.5 bil. Sustainability Management 170,000 kL ¥13<sup>bil. or</sup> larger **¥10**<sub>bil.</sub> Ordinary profits excluding the impact of inventory and one-time factors **a** ROE ROE ROE **Financial Capital Corporate Governance 10**% or higher **6**% 10% ¥71.7 bil. Net assets

> External environment (opportunities and risks)

Changes in the business environment for building a sustainable society







We will actively invest management resources in strengthening our core businesses and creating new businesses to achieve further growth, with a view to "Our Ideal State in 2030."

# Aiming to be "a Better Company," where employees can work with pride

For more than three years since I became President and CEO of Nippon Denko Co., Ltd., I have been working to make our company "a Better Company." I define a good company as one that provides products and services useful to society, generates a proper profit, and allows its employees to work with pride. I have viewed our efforts to make our company "a Better Company" as a commitment to all stakeholders, including shareholders, investors, employees, business partners, and local communities, and have used this as a guideline for management and business development. Looking back on our efforts over the past three years or so, the foundation for value creation has become even stronger. In our core domestic Ferroalloys business, we have strengthened our cost competitiveness by consolidating our domestic manufacturing bases and introduced a new pricing method with major customers to keep margins between product prices and raw material prices within a certain range. The business had experienced high earnings volatility due to product market prices, but through these efforts, we have improved and stabilized earnings. In particular, minimizing the risk of falling into the red was a major achievement.

On the other hand, there are still many challenges that remain for the future. In addition to ferroalloys as its core business, Nippon Denko Group is engaged in businesses that contribute to the creation of an affluent industrial society, such as Functional Materials, Incineration Ash Recycling, Aqua Solutions, and Electric Power. Now that we are on track to stabilize earnings in the domestic Ferroalloys business, our future theme is to grow the other businesses. In our Medium/Long-Term Business Plan, announced in November 2023, we set forth "Our Ideal State in 2030" as "a company on a constant quest for a better future by supporting people's lives through 'materials' and 'the environment.'" We will strive to become "a Better Company," where our employees feel more fulfilled in their work, while solving social issues and enhancing corporate value at the same time.

Focusing on building a corporate structure that is less susceptible to changes in the ferroalloy market and developing new business areas that will become the next source of revenues

The 8<sup>th</sup> Medium-Term Business Plan (2021 to 2023) is based on the basic policy of "the establishment of a foundation for growth that leads to the next 10 years" and has three pillars of "strengthening existing businesses," "tackling new businesses" and "strengthening the corporate structure to adapt to the changing business environment."

As for strengthening existing businesses, the domestic Ferroalloys business has consolidated its manufacturing bases and realized a new pricing method with major customers. Strategic margin setting has enabled us to control the price volatility of ferroalloys and stabilize revenues, which is a major achievement during the 8th Medium-Term Business Plan. Meanwhile, the overseas Ferroalloys business conducted by our affiliated company in Malaysia continues to maintain a high and stable production level through the instructions of our stationed engineers. In the Functional Materials business, we increased production capacity of zirconium oxide, cathode materials for lithium-ion batteries, and boron oxide, and resumed operation of ferroboron in November 2022, which had been halted since March 2020, in order to meet the needs of customers for reshoring. In the Incineration Ash Recycling business, we started operation of our No. 4 incineration ash melting furnace in response to growing demand for our services due to significant restrictions on the construction and expansion of landfill sites by local municipalities.

With regard to tackling new businesses, we have increased our R&D expenses to a total of 1.6 billion yen (over three years), approximately 1.3 times the amount of the previous Medium-Term Business Plan. The number of researchers has also increased, and we are actively pursuing joint research with various universities and outside institutions to accelerate multiple research programs. We were also able to make results in some of our programs, such as the development of new ion-exchange inorganic crystals. We have also decided to invest in a venture capital fund focusing on environmental and technological themes, and are exploring new business opportunities through collaboration with venture companies.

As for strengthening the corporate structure to adapt to the changing business environment, we have worked to establish a robust and sound corporate structure by strengthening corporate governance, promoting GX and DX, and enhancing human capital, which is the driving force behind our growth. In January 2022, we established the Sustainability Committee, of which I am the head, and each task force is working on GX, DX, and human capital management. Specifically, we have created roadmaps for achieving carbon neutrality and for DX by Production, Operation, and Business areas. For each theme, we have clarified the process for progress with the year 2030 in sight, which has been reflected in the medium/long-term business strategy started in 2024.

The 8<sup>th</sup> Medium-Term Business Plan sets quantitative targets of 60 billion yen in consolidated net sales, 6 billion yen in consolidated ordinary profit, and 8% return on equity (ROE). For the fiscal year ended December 31, 2023, the final fiscal year of the plan, underlying ordinary profit (ordinary profit excluding inventory impact and one-time factors) was 5.5 billion yen due to a decline in revenues from the Incineration Ash Recycling business caused by the coronavirus crisis, but net sales were 78 billion yen and ROE remained over 9% on average for the three years. So, we were able to achieve the initial targets as a whole, and believe that we have laid a solid foundation in both our business and management structure over the past three years, which will lead us to "Our Ideal State in 2030."

Pursuing both solutions to social issues and enhancement of corporate value to achieve "Our Ideal State in 2030"

Our medium/long-term business strategy, which ends in 2030, aims to realize our ideal state from four

perspectives: "Growth strategy," "Improve and stabilize profitability," "Financial strategy" and "Sustainability-related measures." First, in terms of "Growth strategy" and "Improve and stabilize profitability," although growth in crude steel production is not expected in the domestic Ferroalloys business, which is our mainstay business, demand is stable as it is an essential material for highgrade steel products, and we will continue to generate stable earnings by refining our highly competitive strength. The overseas Ferroalloys business sees the transition to a decarbonized society as an opportunity, and plans to focus on expanding sales of ferroalloys using green electricity.

The Functional Materials business will contribute to the development of the mobility field, the creation of a decarbonized society, and the optimization of supply chains. We plan to increase production capacity of zirconium oxide, which is used in multilayer ceramic capacitors that are indispensable for the electrification and automation of automobiles, as demand is expected to increase in the future. We will also focus on expanding sales of ferroboron, boron oxide, and manganese carbonate both in Japan and overseas, taking advantage of our position as the only company in Japan that manufactures these products. In the Incineration Ash Recycling business, we have the largest incineration ash recycling capacity in Japan, achieving the perfect recycling of incineration ash. Considering the difficulty in securing new landfill sites and the transition to a recycling-oriented society as opportunities, we plan to increase the number of incineration ash melting furnaces from the current four to seven.

The Aqua Solutions business handles wastewater treatment equipment and pure water production systems. This business also aims to grow by capturing demand from the growing environmental awareness of a recycling-oriented society and a hydrogen society. The Electric Power business is capable of generating stable profits, and we will strive for stable operations while taking advantage of the green electricity generated by hydroelectric power. In terms of "Financial strategy," while maintaining the sound financial structure we have built up so far, we will

make timely future investments and improve ROE by reinforcing non-current assets as a source of profits, appropriate financial leverage, proactively returning profits to shareholders, and improving the efficiency of inventories.

We cannot directly change the stock price, which is the leading indicator of corporate valuation. What we must

do is to focus on improving returns and managing equity appropriately. We believe that our efforts to implement appropriate management strategies and sound financial policies will result in the proper valuation of our company in the capital markets. To achieve these goals, we are required to achieve the goals of net sales of 110 billion yen or larger, ordinary profit of 13 billion yen or larger and ROE of 10% or higher in 2030. We believe that we can reach the targets by investing a total of 45 to 50 billion yen in growth, mainly to increase production capacity for capturing growing markets and to accelerate GX and DX, in order to expand growth and improve profitability.

### Creating new value through further enhancement of human capital, the foundation of innovation

In order for Nippon Denko Group to continue to grow in the future, it is essential to further enhance our human capital, which is our greatest asset and the source of our growth potential. We intend to expand our human resource base in the two aspects of securing human resources and increasing human added value, which will bear fruit in the form of enhanced market competitiveness. We will hire talented people to work at our production and R&D bases in Japan and overseas, and at the same time, we will conduct training to draw out additional capabilities from our existing human resources and increase their value. We will also aim to add value to the duties and responsibilities of our employees by streamlining operations and saving labor through DX.

As we aim to be "a Better Company," where employees can work with pride, the realization of employee well-being and the creation of a productive work environment are also important management themes to ensure the sustainability of our company. We are striving to foster an open corporate culture that respects the autonomy and challenges of our employees based on management that values each and every one of our employees with diverse attributes. In addition to focusing on diversity initiatives, including the support for the advancement of female employees, such as acquisition of the "Kurumin Two-Star" certification, we are also engaged in earnest discussions with the labor union on various issues related to engagement, as well as improvements in compensation and systems. I am also taking the

initiative in stimulating dialogue with employees, and we are making concerted efforts to hone and develop human resources.

Founded in 1925, Nippon Denko has been in business for nearly a century. While anticipating the trends of the times, we have contributed to the development of industry and society by creating new businesses with our outstanding technology development capabilities. We believe that our company's unique DNA is to grasp the changes in the external environment and to accumulate innovations that renew the market, which is the management assets we should pass onto the next generations. And it is our future-oriented employees who are the bearers of innovations as they pursue their daily duties. Nippon Denko Group will continue our efforts to secure human resources and add value to our operations in order to ensure our group's rapid growth in the future.

### To be a company that lives up to the trust of its stakeholders by maintaining a corporate culture of reforms and challenge

The management philosophy of Nippon Denko Group is "to help create an affluent future through sustainable growth by developing and providing distinctive products, technologies, and services." The history of our group, spanning a century, is a history of challenges and reforms to provide new value to industry and society. We have responded to a broad variety of demands of society by providing highly unique products and services that only we, or a very limited number of companies, can offer. This basic management stance will not change in the future. Our policy is to focus on creating innovative products, technologies, and services that will change the conventional industrial structure and the way we live our lives, while constantly improving the quality of our existing products through continuous self-improvement.

We will also focus on upgrading our management structure, which is the foundation for promoting business. In March 2024, we transitioned to a company with an Audit and Supervisory Committee with a view to accelerating decision-making and business execution and further enhancing and strengthening governance. This change has strengthened the supervisory function of the Board of Directors and further enhanced the speed of decision-making and the transparency and



soundness of management. Nippon Denko Group will continue to pursue "Our Ideal State in 2030", based on the strength of its sound financial position, abundant human capital, and outstanding insight into the future of the times. Of course, 2030 is not our ultimate goal. I recognize that it is my mission to maximize corporate value by striving to create a structure that will sustain growth through 2040 to 2050 while managing Nippon Denko Group.

With regard to shareholder return, we intend to repay them for their daily support by achieving a steady profit growth based on strategic investments while maintaining a high level of payout ratio as before. With respect the details, please wait for our announcement to be released in August 2024. In considering the amount of dividends, we intend to enhance stability by taking into account the concept of "underlying profit," which excludes the impact of inventory and other items from profit in the financial results.

The international community is fragmented due to intensifying conflicts in various parts of the world, raw material and fuel prices are soaring, the yen is weakening, and inflation is prolonged. In the fiscal year ending December 31, 2024, we would also face such uncertainties and the future management environment continues to be unclear. Despite these circumstances, Nippon Denko Group will continue to make concerted efforts to vigorously pursue its medium/long-term business strategy and further enhance dialogue with stakeholders, aiming to be a corporate group that earns the trust and meets the expectations of all stakeholders.

We ask for your continued understanding and support of Nippon Denko Group.

### FYE December 2023 Performance



\*Ordinary profit excluding the impact of inventory and one-time factors. The impact of inventory means the effects of prices of raw materials in stock on profit.

Market Upturn

Market Downturn

### What is the impact of inventory?

FY2023 overview

Ferroallovs

[In Japan]

[Overseas]

When the prices of raw materials are rising, raw materials purchased when prices were lower are used, so profit increases. When the prices of raw materials are decreasing, raw materials purchased when prices were higher are used, so profit declines.

### FY**2021** FY2022 FY2022 fy**2023** Utilize low-cost inventory materials Utilize high-cost inventory materials purchased in the previous year purchased in the previous year Turnaround: FY2022 Downturn: FY2023 Ordinary profit [In Japan] [In Japan] Underlying ordinary profit Net sales Ordinary profit (bil. yen) (bil. yen) Despite the negative impacts of margin decline due to the stagnant 58.4 52.9 7.2 high-carbon ferromanganese market and soaring electricity prices, the underlying ordinary profit remained almost at the same level as the previous fiscal year at ¥2.6 billion. This was largely due to the effects 2.6 2.5 of the price formula revision introduced in 2021, which helped mitigate 1.0 the margin decline, as well as our efforts for the price pass-through of the rise in electricity costs for selling prices and optimizing costs. 2022 2023 2022 2023 Ordinary profit The equity-method affiliate Pertama Ferroalloys Sdn. Bhd., where our [Overseas] Underlying ordinary prof Ordinary profit engineers were stationed to provide guidance to the local staff (bil. yen) 1.9 members, achieved stable production. This resulted in the cost optimization. However, the underlying ordinary profit declined by ¥1.5 billion 1.2 year-on-year due to significant margin decline caused by the fall in -1.9 -0.3 2022 2023

### Functional Materials

silicomanganese and ferrosilicon markets.

Zirconium oxide experienced a decrease in sales due to the delayed recovery in demand for automotive electronic components. However, we achieved a revenue increase of ¥2.5 billion year-on-year, thanks to increased sales of cathode materials for lithium-ion batteries, for which we expanded production capacity in 2022, the resumed sales of ferroboron, and other factors. The underlying ordinary profit increased by ¥1.3 billion year-on-year due to steady progress in the price pass-through of the rise in electricity costs for selling prices and the above-mentioned production capacity enhancement.

### Environment

In the Incineration Ash Recycling business, the volume of collected incineration ash increased due to the capacity enhancement. In the Aqua Solutions business, we made steady efforts to implement the price pass-through of the rise in electricity and raw material costs for selling prices. As a result, the underlying ordinary profit increased by ¥0.2 billion vear-on-vear.

Note: Although the accounting treatment of valuable metals was changed in the Incineration Ash Recycling business in FY2024, the figures shown right are presented as they were before the change.

### Electric Power

In the Electric Power business, we efficiently operated two hydroelectric power plants. However, profit decreased by ¥0.1 billion compared to the previous fiscal year when we achieved a record-high profit since the start of the Feed-in Tariff (FIT) operation under the favorable weather conditions.







### The 8<sup>th</sup> Medium-Term Business Plan (2021-2023)



### Variation of Consolidated Financial Results

	2021	2022	2023	Medium-Term Business Plan Target	
Net sales	66.0	79.3	76.4	60.0	
Ordinary profit	6.9	10.4	2.5	6.0	
Underlying ordinary profit	5.2	5.6	5.5	6.0	
ROE	13%	12%	6%	8%	

### (bil. yen) Capital Investment The 8th Medium-Term Business Plan period 6.2 4.9



- (	bil.	ven)



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### Outline of Medium/Long-Term Business Strategies for "Our Ideal State in 2030" (announced in November 2023)



To create a business portfolio that is less susceptible to the ferroalloys market conditions by proactively and strategically investing ¥45-¥50 billion, more than three times the 8th Medium-Term Business Plan, in growing fields.



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

### Strengthen the development of new technologies and products

- Continuously allocating resources to the development of new products utilizing our proprietary technologies
- R&D expenses during the 9<sup>th</sup> Medium-Term Business Plan Total of ¥3.2 bil. (4 years: 2024 to 2027)

ence: The 8th Medium-Term Business Plan; a total of ¥1.6 bil. (3 years: 2021 to 2023

### To explore business opportunities

Investment in venture capital funds

- 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



11		(10 11003	and tons/year)
	Reduce by 45% or more	Carbon Neutrality	
		Reduction	arbon ffsets
2015 Reference yea	2030 ar Target	2050 Vision	



Based on the new financial strategy set forth in the Medium/Long-Term Business Plan, we will pursue both a high level of growth and shareholder return through aggressive investment activities.

Director and Executive Officer Yasuhide Miyake

### My approach to the execution of my duties as an Executive Officer in charge of finance

I am currently in charge of the finance and corporate planning of Nippon Denko Group. In the management of the company, I try to control both the brakes, which are to build a stable financial base by improving financial discipline, and the accelerator, which is an aggressive financial strategy to design the future of the company, in a well-balanced manner.

To execute the financial strategy, we pay attention to ROE, which indicates how effectively we have utilized the funds entrusted to us by our shareholders, as well as the level of debt equity and underlying profit or loss excluding the inventory impact. As the Executive Officer in charge of finance, I recognize that my mission is to support the Group's sustainable growth through the effective utilization of liabilities and net assets while maintaining financial discipline and soundness.

# Initiatives and results of strengthening the financial base in the previous Medium-Term Business Plan

Since its establishment in 1925, the Group has contributed to the development of society by providing indispensable materials for industrial development and has achieved continuous growth. However, the domestic Ferroalloys business, which accounts for about 70% of net sales of the Group, is susceptible to market conditions, and due to the high volatility of its performance, we have had to be conscious of enriching our net assets and engaging in cautious investment activities. Consequently, as a manufacturing industry, it ended up with an excessively stable balance sheet, with a low ratio of non-current assets and a low net debt-toequity ratio.

However, in the midst of drastic changes in the economic and social environments surrounding the Group, we are unable to achieve further growth and increase corporate value with a conventional financial strategy focused on stability. Therefore, during the period of the previous Medium-Term Business Plan from 2021 to 2023, we worked to improve production efficiency by manufacturing ferroalloys mainly at the Tokushima Plant and have changed the pricing method between us and major customers so that it is less susceptible to market conditions, thereby establishing a system that can generate stable profits.

### Four targets of the Medium/Long-Term Business Plan (2024 to 2030)

A new Medium/Long-Term Business Plan was launched in 2024. Our basic policy is to make every possible effort to implement business strategies to solve social issues and enhance corporate value while focusing on "Our Ideal State in 2030," which is to become "a company on a constant quest for a better future by supporting people's lives through 'Materials' and 'Environment.'" To realize the ideal state, we have set four themes, namely "Growth strategy," "Improve and stabilize profitability," "Financial strategy" and "Sustainability-related measures." Our numerical targets for 2030 are net sales of 110 billion yen or larger, ordinary profit of 13 billion yen or larger, and ROE of 10% or higher.

### Pursuing further growth through a shift in financial strategy from stability to growth

Having successfully stabilized revenues during the previous Medium-Term Business Plan period, we will shift to an aggressive financial strategy at an accelerated pace in 2024. We will implement four measures: reinforcement of non-current assets as a source of profits, appropriate financial leverage, proactive shareholder return, and improvement of the efficiency of inventories. Specifically, we will reinforce non-current assets by aggressively investing in growing areas, and at the same time, we will return profits to shareholders more proactively than ever before. In order to achieve both a high level of growth through capital investment and a high level of return to shareholders, we intend to utilize financial leverage by increasing external liabilities, which are lower than the cost of shareholders' equity. Our current net debt-toequity ratio of 0.15 is substantially lower than the average of 0.40 in the Japanese manufacturing industry (listed on the Prime Market), and our financial soundness is outstanding in the industry as well. This is the result of capital investment and shareholder return within the range of operating cash flow during the previous Medium-Term Business Plan period. However, while the growth of net assets has increased stability, it has also had the demerit of making the cost of investment higher than that of a typical manufacturing company with respect to the revenue generated. Going forward, we aim to raise net debt-to-equity ratio to a level of 0.30 to 0.45 by the end of 2030 by making timely capital investments in growing areas through the active use of external liabilities, thereby achieving both high levels of growth and shareholder return.

We believe that the recognition of the cost of capital and the shift to a more proactive financial strategy will contribute to the enhancement of corporate value and shareholder value of Nippon Denko Group. We plan to allocate a total of about 45 to 50 billion yen to new investments by 2030, mainly for the development of growing areas and sustainability measures. In addition, we will accelerate growth by increasing R&D expenses by 1.5 times from the previous Medium-Term Business Plan.

### Aiming to be a valuable corporate group trusted by stakeholders

Nippon Denko Group has helped create an affluent future through sustainable growth by developing and providing distinctive products, technologies, and services. On the other hand, in recent years, the market has been demanding measures for realizing management that is conscious of the cost of capital and stock price, and the demands about management are also changing. Our company must accept the current situation where PBR is regularly below 1 seriously and respond accordingly. We believe that we can become a company that meets stakeholders' expectations by steadily proceeding with the four targets set forth in the Medium/Long-Term Business Plan: implementing growth strategies, stabilizing and boosting profitability, lowering the cost of capital through effective financial leverage, and implementing sustainability-related measures.

In terms of shareholder return, we believe that by reflecting underlying profit or loss, excluding the inventory impact, we will be able to return the results of our efforts under the Medium/Long-Term Business Plan as dividends in a stable and gradual manner. We aim to maximize shareholder value through proactive shareholder return and profit growth accompanying the investment for growth.

The business environment surrounding the manufacturing industry in Japan is expected to remain uncertain due to the recent rise in geopolitical risks and soaring resources and energy prices. Under these circumstances, the Group will intensively allocate our management resources to proceed with the 9th Medium-Term Business Plan (2024 to 2027), the first phase of the Medium/Long-Term Business Plan, while envisioning "Our Ideal State in 2030" and concentrating on further advancement of our profit model by expanding our business foundation and building a next-generation portfolio. We will also continue to operate businesses that contribute to solving social issues and create a corporate group that is trusted and highly valued by all stakeholders. We would like to request that our stakeholders continue to support us with their understanding of our management strategy and the financial strategy which is the base for its promotion.

# **Research and Development / Intellectual Property**

### **R&D** Policy

The Nippon Denko Group strives to develop new products on the strength of technology for smelting and refining metal and manufacturing chemicals in addition to researching environmental technologies that promote environmental conservation and resource recycling.

R&D **Structure** 

The Group has created an effective research system to create new technologies and products swiftly through collaboration among a "Research Group" that carries out research and development, a "New Product and New Business Group" that anticipates customers' needs and explores research topics, and the plants that apply the outcomes of the development. We also engage in activities for creating new business in cooperation with customers, universities, research institutes, and venture firms.

### Medium/Long-Term Business Strategies

The themes of the medium/long-term business strategy until 2030 are "To strengthen the development of new products" and "To explore business opportunities." In the 9th Medium-Term Business Plan (2024 to 2027), we plan to allocate a total of about 3.2 billion ven (1.5 times of the amount in the previous Medium-Term Business Plan) to R&D expenses. We will create new products and businesses that will contribute to solving social issues by continuously allocating resources to the development of new products with our unique technologies.

### To Strengthen the Development of New Technology and Products

Continuously allocating resources to the development of new technologies and 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)
- Decarbonized processes for manufacturing ferroalloys

R&D expenses during the 9<sup>th</sup> Medium-Term Business Plan

Total of ¥3.2 bil. (4 years: 2024 to 2027)

For reference: the 8th Medium-Term Business Plan; a total of ¥1.6 bil. (3 years; 2021 to 2023)

We promote R&D for meeting social needs and supporting the sustainable development and growth of the Group.

### Development of High Value-Added Products

### Vanadium dioxide latent heat storage material

In collaboration with Kansai University, we developed a vanadium dioxide (VO2) latent heat storage material that is capable of responding to the severe temperature changes in outer space, and this material has been adopted in the novel device for stabilizing the power supply temperature of satellites which are advancing rapidly

Satellites less than 100kg are called an ultra-small satellite, and the development and usage of CubeSats, whose standard structures are 10 cm<sup>3</sup>, is rapidly progressing. However, CubeSats are constrained with issues such as limitations on power, weight, and size, and their small heat capacity, thereby still being susceptible to abrupt temperature changes in outer space. Accordingly, when the installed devices and power supplies are exposed to low temperatures, their performance is significantly undermined. In response to this issue, a device with a



This device will be installed on an ultra-small satellite developed by the group led by Kansai University, and a demonstration experiment will be conducted in outer space.

We will contribute to accelerating the advancement of ultra-small satellites through our R&D and to the development of Japan's space industry.

### New ion-exchange inorganic crystal

We have developed a new ion-exchange inorganic crystal in collaboration with Shinshu University and Verne Crystal Inc., which is a venture firm originating from Shinshu University. The developed ion-exchange inorganic crystal has a new water treatment function for trapping phosphorus and nitrogen selectively unlike ion-exchange resin (an organic material). We will proceed with the development of a new water treatment and circulation equipment utilizing this function, make efforts to commercialize it early, and contribute to the development of a circular economy.

### Example of utilization 1 : Circulation and reuse of factory wastewater

The factory wastewater has been treated with ion-exchange resin for trapping all ions and then discharged. Meanwhile, the newly developed ion-exchange inorganic crystal can trap ions selectively, so it can leave useful ions untouched by trapping unnecessary ions only. We are developing water treatment equipment that can circulate and reuse factory wastewater instead of discharging the wastewater.



### Example of utilization 2 : Extension of lifespans of plating solutions

Electroless nickel plating is adopted broadly for automobile parts, electronic components, etc. When the useful hypophosphite ions decrease and the unnecessary phosphite ions increase in a plating solution, the solution needs to be discarded. However, there remain some useful hypophosphite ions in the plating solution to be discarded. By trapping only unnecessary phosphite ions with the newly developed ion-exchange inorganic crystal, it is possible to reuse the plating solution, extending its lifespan.

Useful ions -

Intellectual Property

The Group endeavors to secure intellectual property rights for newly developed technology and ensure that the rights strengthen its competitiveness and serve as a source of new business. We are also committed to rigorously managing operational and technological information and taking other steps to protect our intellectual property rights.

### Message from the Executive Officer in Charge

The company has been developing and providing highly unique products while sophisticating our core technologies for smelting and refining metal and manufacturing chemicals, and contributed to the growth of society. In the 9<sup>th</sup> Medium-Term Business Plan, we increased R&D expenses about 1.5 times from the 8th Medium-Term Business Plan for tackling new businesses, and accelerated development of high valueadded products by increasing researchers and enhancing collaborative research with universities and external organizations, while endeavoring to develop decarbonized processes for manufacturing ferroalloys in order to help realize a carbon-neutral society.

In order to realize "Our Ideal State in 2030", we will create innovative technologies and products in a speedy manner, solve social issues, meet clients' requests, and contribute to the development of a sustainable society.







Director and Senior Managing Executive Officer Yoshimi Yamadera

# Safety / Environment / **Disaster Prevention / Product Quality**

### Safety and Health

The Nippon Denko Group is augmenting its occupational safety and health management system and engaging in activities to ensure the safety and health of its employees under the safety and health basic policy.

### Basic Policy

- · Respect human life in the execution of all operations under the assumption that ensuring safety and health is the utmost priority
- · Strive to prevent work-related accidents under the belief that prevention is the foundation of safety and health management activities

### Creating Safe, Secure Workplace

We believe that it is important to predict and mitigate risks in order to prevent work-related accidents, and considers "reliably predicting hazards" and "identifying and addressing risks" as important measures for safety activities. In 2023, in addition to the regular safety activities, we installed a virtual reality (VR)-based risk experience device to maintain and improve risk sensitivity of employees who work at plants, so that workers can experience and learn danger through more realistic sensations. We will continue measures for securing the safety of employees by adopting new educational content.

Furthermore, we conduct internal safety audits to further improve our safety activities and promptly share and disseminate examples of accidents at other companies to prevent similar accidents from occurring within our group. In 2023, we experienced two work-related accidents that forced the injured employees to take days off. In 2024, we will promote initiatives with the goal of decreasing the number of such work-related accidents to zero.

Target

Number of disaster response incidents: ()

### Acquiring Certification from Third-Party Organizations

The Group uses its ISO 45001 management system to create a structure for eliminating work-related accidents and other forms of risk with the aim of creating work environments where employees can work with a sense of safety and security. We obtained the certification for the Myoko Plant in August 2023 and for the Toyama Plant in April 2024 for a total of 4 plants including the already certified the Tokushima Plant and the Kashima Plant. We will make continuous efforts to get the certification for all of our plants.

### Creating Comfortable Workplaces and Promoting Physical and Mental Health

The Group promotes new 5S training and makes other efforts to ensure and maintain comfortable work environments, and steadily implements measures to improve facilities with the aim of preventing occupational diseases. We also promote employee health care through measures such as coordinating with industrial physicians to accommodate work style reform, conducting stress checks and promoting measures for mental health, and raising awareness about the many ways to prevent lifestyle-related illnesses, lower back pain syndrome, and the loss of physical capacity.

- Contribute to the development of a sustainable society on a foundation of environmental management · Establish and strive to continuously improve an environmental management system in addition to educating people and raising awareness of the environment
- Make efforts to reduce environmental impact in all aspects of manufacturing activities
- · Develop and supply society with products that help reduce environmental impact
- · Proactively promote environmental business that contributes to society

### Environmental Risk Management

The Group uses its ISO 14001 Management System to undertake proper responses to environmental risks in addition to continuously promoting environmental conservation activities. Regarding the air, water, land, waste disposal, and other relevant matters, we conduct environmental impact assessments tailored to the materials we handle, our facilities, and more, and undertake necessary and proper measures to reduce environmental impact.

### Environmental education

Environment

Basic

Policy

We make efforts to enhance education and training to prevent accidents, for example by regularly providing our employees with education and practical training on environmental management. We aim to decrease the number of environmental incidents to zero through these initiatives.

Target	Number of environmental incidents:



The Group has established systems for disaster prevention management and disaster response and banded together to engage in other disaster prevention activities to enhance each and every employee's capacity for disaster prevention with the aim of eliminating disaster response incidents.

### **Disaster Risk Prevention Activities**

The Group has established manuals and conducts drills for responding to typhoons, earthquakes, tsunami, and other natural disasters, and also takes steps to reduce risk in responding to fires, explosions, and other plant disasters, specifically by conducting risk assessments in each location to identify disaster risks, deploying technical and organizational measures to reduce the risks and managing any residual risks, and conducting various drills (e.g. general disaster prevention drills, first-response drills for fires)



### Quality Management

Under our quality management system, which we established based on ISO 9001, engineers, sales personnel, and plant workers unite to implement quality activities with the aim of ensuring and further improving quality to be worthy of our customers' trust. The product quality assurance departments at our plants take the lead in maintaining and managing quality management systems, and work with head-office divisions to resolve quality-related issues. We also promote education on quality compliance, basic quality rules, and other efforts to increase employees' awareness of quality and prevent quality-related incidents, and conduct internal quality audits and quality evaluation to identify and prevent quality-related risks.

Furthermore, we are steadily implementing standardization and systematization to improve the reliability of our tests and inspections of outgoing products.



Experience-based education about the electric

shock of a power panel

The Group is undertaking activities to contribute to the development of a sustainable society by striving for regional environmental conservation through proper responses to environmental risks under our Basic Environmental Policy and in compliance with laws and regulations.

0

The Group promotes activities to improve quality with the aim of providing products and services that

### **Ferroalloys** Stable supply of ferroalloys, which are indispensable Value provided to society for high-grade steel products Top domestic supplier of manganese ferroalloys · Competitiveness of the Tokushima Plant, which boasts high utilization rate, In Japan high efficiency, and globally high productivity Strength · Stable earning power based on the price formula Environmentally friendly ferroalloys **Overseas** (utilization of electric power generated by hydroelectric power plants)

### Business Models and Characteristics

### Manufacturing and sale of ferroalloys

High-carbon ferromanganese, which is a core product, is an additive used for improving steel's properties, such as strength, toughness, heat resistance, and anti-corrosiveness. We import manganese ores as raw materials mainly from South Africa, and reduce them with an electric furnace, to produce high-carbon ferromanganese. We sell it to steelmakers, mainly Nippon Steel Corporation.

### Product types

Tokushima Plant

High-carbon ferromanganese (production amount: 180,000 tons/year) Low-carbon ferromanganese

### Pertama Ferroalloys

Silicomanganese

Ferrosilicon

Kudumane manganese mining Manganese ore



Tokushima Plant

### Business Environment

- In the Japanese market, the steel demand for the manufacturing, civil engineering, and construction industries is projected to decline due to the shrinkage and aging of the Japanese population. However, the demand for manganese ferroalloys, which are indispensable for high-grade steel, is expected to remain steady.
- The overseas market is forecast to grow in Asia, including India. Pertama Ferroalloys has a factory in Malaysia, adjoining the growing markets.

### Results of the 8th Medium-Term Business Plan

• Stabilization of revenues through the revision of the pricing method

In July 2021, we changed the price formula for major customers. Before the change, the selling prices of ferroalloys were totally linked with the international market, but after the change, we adopted a system for keeping margin within a certain range while prices are linked with the market conditions to some degree. With this system, it is possible to avoid the risk of posting a significant loss due to the conditions of the market prices of products and raw materials.

Strengthening our competitiveness by consolidating our domestic manufacturing bases into the Tokushima Plant We discontinued manufacturing at the Kashima Plant in December 2021, to consolidate production functions into the Tokushima Plant. As a result, the production amount of high-carbon ferromanganese, which is a core product, decreased from 260,000 tons to 180,000 tons per year, but cost competitiveness was enhanced through the improvement in the plant operation rate of the Tokushima Plant.

### Our Ideal State (Medium/long-term business strategies)

### Solving social issues

### In Japan

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

### Overseas

- Building a global supply chain for green ferroalloys. (Pertama Ferroalloys)
- Securing stable manganese ores procurement. (Kudumane manganese mining)

### Specific measures

### In Japan

### Strengthening production capacity

We purchase some products from outside to compensate for the slight decline in production volume due to the consolidation of production functions into the Tokushima Plant. We aim to improve the domestic sales of ferroalloys, by increasing the production volume of high-carbon ferromanganese by 20,000 tons to 200,000 tons per year through measures for increasing the plant operation rate.

### Establishing a stable supply system Ore suitable for production of our manganese

ferroalloys is mainly found in South Africa. We maintain a stable supply by establishing a supply chain while diversifying routes for procuring resources and raw materials in preparation for geopolitical risks and considering social responsibilities such as environmental impact, respect for human rights, etc.

### Development of a carbon-free ferroalloy manufacturing process

The "Study on Carbon-Neutral Energy-Saving Technologies for Ferromanganese Manufacturing" was selected in feasibility study research phase of the NEDO publicly solicited project. In order to achieve carbon neutrality by 2050, we engage in the development of new reduction technologies for manganese ores, such as the wood coke reduction and the hydrogen reduction.

### Overseas

Strengthening of the overseas ferroalloy production system For Pertama Ferroalloys, we have established an optimal production system in response to the needs for carbon neutrality, the avoidance of geopolitical risks, high-grade products, etc., dispatch our engineers, and reduce costs by expanding production stably. In addition, we invested in Kudumane Manganese mine for hedging risks in procurement of manganese ores, to procure raw materials stably.

4.0

### Message from the Executive Officer in Charge

In Japan, we engage in activities for increasing the annual production output of the Tokushima Plant from 180,000 tons to 200,000 tons in order to further enhance the cost competitiveness of high-carbon ferromanganese. In detail, we plan to extend regular repair interval from one year to one and a half years while reconsidering items for repair, to improve the plant operation rate. Outside Japan, we plan to concentrate on the expansion of sales of green ferroalloys from Pertama Ferroalloys, which manufactures and sells ferroalloys by using green electric power, while considering the shift to a decarbonized society as an opportunity. In addition, our manufacturing engineers are stationed in Pertama Ferroalloys, and the interaction between Japanese and overseas personnel is expected to trigger synergetic effects in the development of technologies for carbon neutrality, etc.

### Enhancing corporate value

### In Japan

- Improvement in productivity and the maintenance of a stable earning structure.
- Reduction of CO₂ emissions by 45% or more by 2030. (vs. FY2015)

### Overseas

- Establishment of an optimal production system utilizing low-cost green electricity.
- To move into the black by expanding the volume of products we handle and improving productivity. (Pertama Ferroalloys) Maintaining our stakes in manganese resources.
- (Kudumane manganese mining)



### Overseas



\*Ordinary profit excluding the impact of inventory and one-time factors



Executive Officer Yoshihiro Miyauchi

# **Functional Materials**

Value provided to society

Development of the mobility field Stable supply of one-of-a-kind products

 Manufacture of high-performance, high-quality products using cultivated metallurgical Strength and powder technologies

A lineup of several domestically produced one-of-a-kind product in the Japanese market

### **Business Models and Characteristics**

We manufacture products tailored to customer needs from various raw materials. We strive to ensure a stable supply as some of our products are one-of-a-kind in Japan.

### Zirconium oxide

Zirconium oxide is highly regarded for its ultra-fine particles and high purity and is used primarily as a material for multilayer ceramic capacitors (MLCCs) for automobiles.

Domestically produced one-of-a-kind product Boron oxide in the Japanese market

Boron oxide is characterized by its high quality and high purity with very few impurities and is used as a material for glass substrates for large displays such as LCD and OLED and glass fiber for electronic substrates for 5G communication.

### ✓ One of the largest suppliers in Japan Metal hydride alloys

Metal hydride alloys are used as anode materials for nickel-hydrogen batteries for HEVs and are used in cars manufactured by Toyota Motor Corporation, etc.

✓ Domestically produced one-of-a-kind product in the Japanese market Ferroboron

Ferroboron is used as a material for neodymium magnets in the motors of HEVs and EVs as well as in steel products such as bridge wires, bolts and nuts.

Domestically produced one-of-a-kind product Manganese inorganic in the Japanese market chemical products

We produce a wide variety of manganese inorganic chemical products and possess the technology to refine manganese ore to achieve high purity. They are used as cathode materials for lithium-ion batteries and as additives for MLCCs.

### Cathode materials for lithium-ion batteries

OEM from Sumitomo Metal Mining Co., Ltd.

### **Business Environment**



Zirconium oxide



Metal hydride alloys



Cathode materials for lithium-ion batteries

Applications	Our Products	Market Trends		Our Response
Electrification	Zirconium oxide	Demand for battery material components increased due to the development of the mobility field 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)
and digitalization of	Ferroboron	Increase in demand for neodymium magnets due to the growing demand for motors for EVs and HEVs		Expand domestic and overseas sales
automobiles	Manganese carbonates	Demand for battery material components increased due to the development of the mobility field 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
	Metal hydride alloys	For the time being, the demand for nickel hydrogen batteries for HEVs remains steady		Continuation of stable production
Automotive battery	Cathode materials for lithium-ion batteries	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 (we may consider increasing capacity depending on the situation)
Glass panels	Boron oxide	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

### Results of the 8th Medium-Term Business Plan

### Strengthening production capacity

In response to growing demand, we have increased our production capacity. Specifically, we increased the capacity of our zirconium oxide production facilities by 50% in September 2021, the capacity of our boron oxide production facilities by 40% in February 2022, and the capacity of production facilities for cathode materials for lithium-ion batteries in April 2023.

Resumption of production

With the aim of stabilizing the supply chain against the backdrop of avoiding geopolitical risks, domestic companies have been moving their procurement sources back to Japan. In response to this, we restarted our ferroboron production facility, which was suspended in March 2020, in November 2022.

### Our Ideal State (Medium/long-term business strategies)

### Solving social issues

- Supply of products that contribute to the development of carbon neutrality and mobility sectors.
- Reduction of geopolitical risks for domestic customers by providing one-of-a-kind products in Japan.
- Further development of highly functional materials.

### Specific measures

### Increase of zirconium oxide production capacity We aim to increase our production capacity in response to the strong demand for

- Promotion of the sales of high value-added, one-of-a-kind products in Japan Amid the growing trend of reshoring procurement to the Japanese market to avoid geopolitical risks, we will expand sales of our one-of-a-kind products in Japan (boron oxide, ferroboron, and manganese carbonate). We will consider increasing our production capacity for manganese carbonate, whose demand is expected to increase for battery and electronic materials.
- New product development through R&D Through the development of advanced communication technology, there is a demand for high-performance, high-quality zirconium oxide products that contribute to the high functionality and miniaturization of electronic components. In addition to the electrification of automobiles, the demand for secondary batteries is expanding in a wide range of areas, so it is essential to improve the properties of battery materials. We aim to grow our business by developing new products that contribute to higher capacity and more compact secondary batteries.

### Message from the Executive Officer in Charge

In the Functional Materials business, we have a lineup of high-performance, high-grade, and distinctive products (such as zirconium oxide, boron oxide, automotive battery materials, and ferroboron) based on our accumulated metallurgical and powder technologies, which contribute to the development of the mobility sector (electrification of automobiles), which is essential for building a sustainable society, and to the promotion of a decarbonized society. In particular, we are considering aggressive investments to respond to future increases in demand for zirconium oxide, a material for MLCCs used in the electrification of automobiles. In addition, we aim to further expand sales of one-of-a-kind products in Japan, such as boron oxide and ferroboron, to reduce geopolitical risks and strengthen the supply chain. At the same time, we aim to grow our business and achieve "Our Ideal State in 2030" by developing even more highly functional materials that contribute to social development.

### Enhancing corporate value

- Increase of production capacity to meet growing demand due to the spread of electrification 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.

MLCCs and battery materials due to the spread of electrification of automobiles.



2027 \*Ordinary profit excluding the impact of inventory and

2023



2030

**Executive Officer** Keiichi Nakazato

# **Incineration Ash Recycling**



use of the electric furnace operation technology cultivated in the Ferroalloys business Perfect recycling of incineration ash

### **Business Models and Characteristics**

We accept incineration ash which is often disposed of in landfill sites for a fee from municipalities, and melt and solidify incineration ash, thereby rendering it harmless and recyclable. The molten slag produced by melting is commercialized as ECOLAROCK and reused as civil engineering materials. In addition, molten metal containing valuable metals such as gold, silver, and copper is collected and recycled as resources. Perfect recycling contributes to environmental conservation by reducing the extraction of natural civil engineering materials and the reduction of environmental impact through mining.



### **Business Environment**

According to a survey by the Ministry of the Environment, the current remaining life of landfill sites nationwide at the end of FY2022 is estimated to be 23.4 years. There are concerns about securing new landfill sites, resulting in a growing need for melting and solidification treatment. The survey also showed that approximately 3.96 million tons of incineration ash is generated nationwide annually, of which 67% is disposed of in landfill sites, and only about 10% is melted and solidified. Given this situation, the Incineration Ash Recycling business is expected to grow.



Source: Survey Results of Actual General Waste Disposal by the Ministry of the Environmen

### Results of the 8th Medium-Term Business Plan

In October 2022, we started operation of No. 4 incineration ash melting furnace (EM4), increasing our annual treatment capacity to 130,000 tons. In 2023, treatment volume remained flat as we strove to improve the deterioration of profits due to rising electricity costs, but an increasing environmental awareness is steadily expanding the need to recycle incineration ash as an alternative to landfill.

### Our Ideal State (Medium/long-term business strategies)

### Solving social issues

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

### Specific measures

In response to the need to shift from landfilling to recycling of incineration ash, we plan to increase our treatment capacity to 220,000 tons per year by 2030, and to add facilities stepwise from No. 5 incineration ash melting furnace (scheduled to start operation in 2027) to No. 7 incineration ash melting furnace (scheduled to start operation in 2030). To cope with the increase in the acceptable volume of incineration ash as a result of this expansion plan, a project team has been established. This team will play a pivotal role in strengthening collaboration with municipalities and local communities. In addition, in order to strengthen our efforts in this growing business field, we have decided to merger Chuo Denki Kogyo (wholly-owned subsidiary), which currently operates the business, in July 2024.

### Treatment volume over the past five years and treatment capacity in 2030



### Message from the Executive Officer in Charge

The Incineration Ash Recycling business began in 1995 when our wholly-owned subsidiary, Chuo Denki Kogyo, started processing incineration ash for the first time as a private company. Since then, we have grown to stably process and recycle incineration ash received from approximately 150 business partners. In Japan, it is becoming more and more difficult to secure landfill sites for incineration ash from the viewpoint of environmental conservation, and the government is strongly promoting recycling of waste as resources, and it is expected that the needs for melting and recycling incineration ash will continue to grow.

In order to meet the needs of society, as the first step to strengthen our business initiatives, we will merge Chuo Denki Kogyo in July 2024 and will efficiently and promptly allocate resources to expand the business. As a leader in the "perfect recycling of incineration ash," we intend to contribute to the realization of a sustainable society by increasing our incineration ash treatment capacity.

- Enhancing corporate value
- Strengthened collaboration with municipalities and communities to increase acceptable volume and treatment capacity.





\*1 Ordinary profit excluding the impact of inventory and one-time factors

\*2 As the accounting treatment of valuable metals was changed in the Incineration Ash Recycling business FY2024, the figures for FY2023 are also shown base on them is including the start of the sta



**Executive Officer** Hayato Matsuda

# **Aqua Solutions**

Contributing to a recycling-oriented society Promoting the utilization of hydrogen

- · No need for maintenance work and various chemicals at the customer's side with our mobile equipment
- · Stable and high quality based on advanced ion exchange resin regeneration technology Strenath developed over 50 years
  - Rental (subscription model) service, which is easy to adopt at affordable initial costs
  - · Recycling the absorbed and collected materials into raw materials for our products

### Business Models and Characteristics

Value provided to society

This is a business model in which we rent (subscription model) or sell the wastewater treatment equipment and pure water production system.

Used ion exchange resin is regenerated at our maintenance plants and then reused. In addition, heavy metals adsorbed during this process are recycled at the Toyama Plant and the Kashima Plant.



### Wastewater treatment equipment

Our equipment recovers metals and impurities contained in industrial wastewater from the manufacturing industry such as plating, painting, and automotive ones, and recycles it into deionized water and pure water. The recovered boron is recycled as a boron product (ferroboron), and the recovered nickel is recycled as a raw material for nickel alloys.

### Pure water production system

Our system is used to produce hydrogen and is used in approximately 60% of on-site hydrogen stations in Japan. In addition, high-purity water can be easily produced from tap water for use in surface treatment washing and in boilers and air conditioning at biomass power plants. Demand for high-purity water (for cleaning, blending, and inspection) is increasing along with the sophisticating performance of industrial products, and it is also used for the maintenance of biomass power plants and other industrial purposes.

### **Business Environment**

### Wastewater treatment equipment

Stricter wastewater standards and the progress of the circular economy have increased demand for wastewater treatment and reuse of materials contained in wastewater

### Pure water production system

The Basic Hydrogen Strategy announced by the Japanese government's ministerial councils on renewable energy, hydrogen and related issues in 2023 sets targets for adopting up to 3 million tons of hydrogen in 2030, 12 million tons in 2040, and 20 million tons in 2050. Demand for and use of industrial hydrogen are growing recently for hydrogen stations, methanation, and other applications, and the market is expected to expand further.



### Results of the 8th Medium-Term Business Plan

### Development of a new ion-exchange inorganic crystal

We have developed a new ion-exchange inorganic crystal with water treatment functions that do not exist in ion-exchange resins (organic material) in collaboration with Verne Crystal Inc. and Shinshu University. As this newly-developed inorganic crystal selectively and efficiently absorbs such substances as phosphorus and nitrogen, it is possible to recycle and reuse factory wastewater and to extend the lifespans of plating solutions which are otherwise to be discarded. We will continue to develop wastewater treatment equipment using this newly-developed inorganic crystal and achieve practical application as soon as possible.

### Our Ideal State (Medium/Iong-term business strategies)

### Solving social issues

- Contribution to a recycling-oriented society by purifying wastewater and recovering valuable materials.
- Facilitates the shift to a hydrogen-based society with pure water production system.

### Specific measures

- Increase of the capacity of boron-adsorbent resin recovery and recycling facilities To meet the growing demand for boron removal from leachate at landfill sites, we plan to increase the capacity of our adsorbent resin recovery and recycling facilities (scheduled to start operation in 2026). The recovered boron can be recycled by the company as a raw material for ferroboron.
- Enrichment of our product lineup

We will enrich our product lineup through R&D in anticipation of new demand arising from stricter regulations on wastewater. In addition to developing and mass-producing the new ion-exchange inorganic crystal mentioned above for practical use, we will develop new products to capture the demand for heavy metal recycling.

Catching up with hydrogen-related demand

We will promote sales of the pure water production system that meets the demand for industrial hydrogen utilization for hydrogen stations, methanation and other applications. We will also expand sales for the trial operation and maintenance for biomass power plants by taking advantage of a subscription model that reduces initial investment and is easy to install.

### Biomass power generation (maintenance)



### Message from the Executive Officer in Charge

The Aqua Solutions business contributes to a recycling-oriented society and a hydrogen society with the wastewater treatment equipment and the pure water production system. We started treating wastewater containing chromium in 1973 and have since expanded our product lineup to include systems for adsorbing and recovering boron, nickel, and fluorine in wastewater, in order to provide wastewater treatment equipment that meets the needs of our customers. Our pure water production system is widely used for hydrogen production, biomass power generation, and general industrial purposes.

In addition, we are currently working on the development of new products through joint research with universities and other institutions to expand our business domain. We will continue to develop new products and services while leveraging our 50 years of experience and knowledge in this field to further contribute to our customers' businesses.

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### Enhancing corporate value

- Expansion of business by developing new products in anticipation of new demand amid stricter regulations on wastewater
- Sales expansion of the pure water production system to meet hydrogen-related demand.









\*Ordinary profit excluding the impact of inventory and



Executive Officer Taketoshi Oka

# **Electric Power**

Value provided to society Promoting carbon neutrality

 Stable earning structure through the Feed-in Tariff (FIT) system for renewable energy Strength • Green electricity produced through hydroelectric power generation that does not emit CO2 (annual output: approx. 56,000 MWh)

### **Business Models and Characteristics**

We have two FIT-certified hydroelectric power plants that are now in operation on the Horomangawa river system in the Hidaka region of Hokkaido.

### Results of the 8th Medium-Term Business Plan

Digital transformation of processes for repairing and maintaining equipment as the foundation for stable revenues We have been steadily carrying out repair and maintenance of the dams, which are critical for stable operation, as planned and have maintained stable operation without suspending the operation of equipment. In 2023, drones and thermo-cameras were adopted for repair and maintenance work. Drones have made it easier to inspect power lines, which would be difficult to inspect with the naked eye, while thermo-cameras have been used to measure temperature changes in the dam body, making it possible to understand when inspections should be conducted. The use of digital technology has made inspection work more efficient.

### Our Ideal State (Medium/long-term business strategies)

### Solving social issues

- Promotion of carbon neutrality by stable supply of green electricity.
- Specific measures
- Initiatives for carbon neutrality and utilization of environmental value

In addition to contributing to the promotion of carbon neutrality in society through the supply of green electricity, we will also promote our own carbon neutrality by utilizing the environmental value of the FIT non-fossil certificate with tracking at the Koriyama Plant. We will also gather information on renewable energy development projects, such as hydroelectric power generation by other companies, and explore initiatives to create more value in the field of green electricity.



- Stable earning structure through the FIT system.
- Consideration for further value creation by utilizing know-how of stable operation after the end of the FIT system.



### Message from the Executive Officer in Charge

Hydroelectric power is a form of renewable energy that provides a sustainable power supply not depending on fossil fuels. Furthermore, since hydroelectric power plants use the flow of water to generate electricity, they are characterized by a stable power supply that is not affected by weather and climatic conditions compared to solar and wind power. It is expected to play an even more important role in the future in addressing climate change issues such as global warming and environmental destruction. In order to maintain stable operations, we will continue to proactively introduce advanced technologies, surely implement preventive maintenance of facilities, and work on the automation of facility inspections. By extending the service life of facilities and reducing operating costs, we intend to establish a stable earning structure over the long term.



Tsutomu Kishikawa

# **Sustainability Management**

### Sustainability Management Policy

Our management philosophy is to help create an affluent future through sustainable growth by developing and providing distinctive products, technologies, and services.

Under this philosophy, we consider sustainability to be a key management strategy for achieving the dual aims of "contributing to solving social issues through our business activities" and "increasing our corporate value through sustainable growth." Specifically, we are committed to promoting sustainability in the context of the following material issues.

- Tackle challenges to achieve carbon-neutrality in 2050, aiming at the conservation of a sustainable global environment and realization of a decarbonized society
- Provide products, technologies, and services that contribute to decarbonization and circular economy while creating new business opportunities to contribute to the realization of a sustainable society
- Create values through management focusing on human capital, such as DE&I, and human resource development
- Implement fair and equitable purchasing, ensuring the suppliers' commitment for human rights, environmental protection, etc.
- Increase corporate value over the medium- to long-term through constructive communication with the stakeholders

### Sustainability Committee

We are committed to sustainability-oriented management in order to solve social issues and enhance corporate value in a sustainable manner. In 2022, we established the Sustainability Committee, which is chaired by the President and CEO. Six task forces have been established under this committee, each of which promotes initiatives to address the material issues identified in the sustainability management policy, while the committee discusses each initiative from a comprehensive perspective.



<ul> <li>Climate change risk scenarios</li> <li>Analyzing and responding to the impact of risks and opportunities on our business</li> <li>Basic strategy for reducing CO<sub>2</sub></li> <li>Carbon-free ferroalloys</li> <li>Creating renewable enegy</li> <li>Basic Policy for Sustainable Procurement</li> <li>Evaluate and select suppliers</li> <li>Fair and equitable purchasing</li> <li>Management focused on human capital</li> <li>Respect for diversity</li> <li>Advancement for women and seniors</li> <li>Operational and administrative transformations powered by advanced digital technology</li> <li>Enhancing corporate value by disseminating and disclosing appropriate information</li> </ul>		
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Enhancing corporate value by disseminating and disclosing appropriate information		<ul> <li>Operational and administrative transformations powered by advanced digital technology</li> </ul>
		<ul> <li>Enhancing corporate value by disseminating and disclosing appropriate information</li> </ul>

# Materiality

	Materiality	Risk	Opportunity	Key Activity
Achieving carbon neutrality by 2050	<ul> <li>Conduct initiatives to achieve carbon neutrality (reducing CO<sub>2</sub> emissions)</li> <li>Promote energy-saving</li> <li>Use renewable energy</li> <li>Use carbon offsets flexibly</li> </ul>	<ul> <li>Increased costs due to the introduction of carbon pricing, etc.</li> <li>Increased production costs due to the introduction of decarbonization technology</li> <li>Increased cost of procuring low-carbon raw materials and fuels</li> </ul>	<ul> <li>Enhance marketability by leveraging acclaim for our proactive approach and by responding to changes in market values</li> <li>Promote research and development for decarbonization</li> <li>Conduct activities to improve production efficiency</li> <li>Environmental contribution activities for carbon offsets</li> </ul>	<ul> <li>Participation in the "platform for town development through decarbonization and reconstruction" (Ministry of the Environment)</li> <li>Participation in the GX League (Ministry of Economy, Trade and Industry)</li> <li>Full-scale adoption of virtually CO<sub>2</sub>-free electricity at the Koriyama Plant</li> <li>Research on new reduction technologies for ferroalloy production</li> <li>Adopted in the PS research phase of NEDO publicly solicited project in FY2023</li> </ul>
Providing products, technologies, and services that contribute to a sustainable society	<ul> <li>Contribute to society-wide CO<sub>2</sub> reduction through business activities</li> <li>Expand eco-friendly products</li> <li>Create new businesses toward creating a sustainable society</li> <li>Promote R&amp;D to advance our technical capacity and enhance our ability to meet needs</li> </ul>	<ul> <li>Geopolitical risks in raw material procurement (impediments to dependable supply)</li> <li>Obsolescence of existing technologies</li> <li>Competitive deficits due to delays in accommodating a circular economy</li> </ul>	<ul> <li>Respond to increased environmental focus in purchasing behavior</li> <li>Respond to increased need for recycling technology</li> <li>Respond to expanding demand for materials that help save energy</li> <li>Respond to expanding demand for relevant materials due to electrification of automobiles</li> <li>Provision of products, technologies, and services that contribute to a decarbonized society</li> </ul>	<ul> <li>Allocate resources optimally for creating new businesses</li> <li>Stable operations and production</li> <li>Quality inspections</li> <li>Invest in R&amp;D proactively</li> <li>Consider collaboration through M&amp;As and with other companies, universities, and research institutions</li> </ul>
Management focused on DE&I and human capital	<ul> <li>Hire and cultivate human resources, ensuring consistency between medium- to long-term management strategy and human resources strategy</li> <li>Provide environments in which a wide variety of people can adapt and find their own ways to work with peace of mind</li> <li>Conduct business management with respect for everyone's human rights</li> </ul>	<ul> <li>Reduced production capacity due to turnover and lack of successors</li> <li>Lowered social reputation due to delays in accepting diversity</li> <li>Lost opportunities due to work-related accidents</li> <li>Diminished trust from stakeholders due to a lack of consideration for human rights</li> </ul>	<ul> <li>Strategic hiring of the people the Group needs</li> <li>Cultivation of human resources capable of adapting to changes in the business environment</li> <li>Improvement of retention rates and employees' will to contribute by taking the initiative to exhibit their skills</li> <li>Improvement of corporate value by securing diversity and fostering inclusion in human resourcess</li> </ul>	<ul> <li>Strategically sustain and strengthen the hiring of new graduates and mid-career transferees</li> <li>Improve employee engagement</li> <li>Establish systems and environments that encourage diverse human resources to succeed</li> <li>Efforts to encourage more active participation by women</li> <li>Rigorous occupational safety and health</li> <li>Establish trust-based relationships between labor and management</li> <li>Promote awareness of human rights</li> </ul>
Fair and equitable purchasing considering human rights and the environment	<ul> <li>Raw material procurement with consideration for human rights and the environment</li> <li>Efforts toward sustainable, dependable procurement</li> </ul>	<ul> <li>Difficulties in procurement (due to delays in response to social/ environmental issues)</li> <li>Rising commodity prices</li> <li>Incidents in supply chains caused by lack of consideration for society and the environment</li> <li>Supply chain interruptions and surging raw material prices caused by abnormal/unseasonable weather</li> </ul>	<ul> <li>Strengthen supply chains</li> <li>Increase in opportunities for fair and equitable trade</li> <li>Increased demand for eco-friendly products based on awareness of green procurement</li> <li>Formation of new markets</li> <li>Stronger partnerships with dependable suppliers</li> </ul>	<ul> <li>Request cooperation from suppliers regarding our procurement policy</li> <li>Evaluate and select suppliers</li> <li>Evaluate procured materials (raw/finished materials)</li> </ul>
Constructive communication with stakeholders	<ul> <li>Enhance information pertaining to business policies, business strategies, sustainability, compliance, etc.</li> <li>Improve corporate value through proactive disclosures</li> <li>Disclosures to a broad range of stakeholders</li> </ul>	<ul> <li>Reduced corporate value due to insufficient quality or quantity of disclosures</li> </ul>	<ul> <li>Improvement of stakeholder trust through the enriched disclosure materials and enhanced transparency of disclosures</li> <li>Improvement of corporate value through appropriate disclosures and dialogue</li> <li>Increase in foreign investors through extensive of English language disclosures</li> </ul>	<ul> <li>Release of videos and transcripts of financial results briefing sessions</li> <li>Disclosure regarding "Action to Implement Management that is Conscious of Cost of Capital and Stock Price"</li> <li>Expansion of the range of information disclosed in English (such as brief reports on financial results, reference materials for financial results briefing sessions, and corporate governance reports)</li> </ul>
Our Process for Identi	fying Materiality of environmental changes on our businesses, ref	flecting on our management philosophy	Discussion and approval by management	
Organize environme           for the Group to tac	ental changes closely related to the long-term direction on the second sec	of our business and clarify the material issues	Discuss the lists from Step 2 at the Sustainability Corr	mittee to identify material issues

Consult guidelines and other resources to create exhaustive lists of material issues to accompany those from Step 1

Sustainable development goals (SDGs) **GRI** Standards

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Ministry of the Environment) Participation in the GX League Ministry of Economy, Trade and Industry) ull-scale adoption of virtually CO <sub>2</sub> -free electricity at the Plant Research on new reduction technologies for ferroalloy roduction dopted in the PS research phase of NEDO publicly olicited project in FY2023	
Ilocate resources optimally for creating new businesses table operations and production Quality inspections nvest in R&D proactively Consider collaboration through M&As and with other ompanies, universities, and research institutions	
trategically sustain and strengthen the hiring of new raduates and mid-career transferees nprove employee engagement stablish systems and environments that encourage diverse uman resources to succeed fforts to encourage more active participation by women tigorous occupational safety and health stablish trust-based relationships between labor and hanagement romote awareness of human rights	
lequest cooperation from suppliers regarding our rocurement policy valuate and select suppliers valuate procured materials (raw/finished materials)	

# Measures against Climate Change

### Initiatives to achieve carbon neutrality

The Nippon Denko Group recognizes global climate change as a major threat to the survival of humanity, and thus views bold efforts to achieve carbon neutrality by 2050 to maintain a sustainable global environment and realize decarbonization as a key challenge of sustainability management.

To tackle this key challenge, in 2022, we formulated policy for achieving carbon neutrality by 2050, and are moving forward with business, and R&D to reduce CO<sub>2</sub> emissions.

### CO<sub>2</sub> Emissions Reduction Scenario

Although the Group has engaged in proactive energy-saving activities, transitioned to higher energy efficiency, and made other efforts to reduce CO<sub>2</sub> emissions, the entire Group has launched initiatives to achieve the target of reducing emissions by at least 45% from 2015 levels by 2030 in an effort to achieve carbon neutrality by 2050.



### Roadmap toward Carbon Neutrality



### Efforts to Reduce CO<sub>2</sub> Emissions

The Group produces ferroalloys-namely ferromanganese, one of its main products-by using a reduction reaction that removes oxygen from naturally occurring manganese ore. This reduction reaction inevitably produces CO<sub>2</sub> emissions because coke is currently the optimal reduction agent for the process. The Group will continue transitioning to higher efficiency electricity and gas and converting to green energy in addition to tackling the challenge to develop and commercialize an innovative manufacturing process for reducing CO<sub>2</sub> emissions in the process of manufacturing ferroalloys.



### Research on new reduction technologies

The "Study on Carbon-Neutral Energy-Saving Technologies for Ferromanganese Manufacturing" was selected in feasibility study research phase of the NEDO publicly solicited project. This project is to widely search for new reduction technologies that can replace coal cokes used as a reducing agent in ferroalloy manufacturing, and to investigate processes that are capable of achieving decarbonization and can be expected to have a significant energy-saving effect. We are considering wood cokes, hydrogen, green methane, green synthetic carbon, and molten oxide electrolytic reduction as candidates for reducing agents other than coal cokes and are conducting research in collaboration with universities and external research institutes. In particular, wood cokes have great potential to replace coal cokes, as no significant difference was shown in the reduction test of manganese ore. In the future, we will work on research to improve wood cokes and solve technical issues in actual furnace operation.

### Use renewable energy

We have fully adopted CO<sub>2</sub>-free electricity at the Koriyama Plant. The plant has been using solar power generation facilities since February 2022, and by purchasing a new FIT non-fossil certificate with tracking, which indicates the environmental value of not emitting CO<sub>2</sub>, we have switched the electricity used at the plant to virtually CO<sub>2</sub>-free electricity. The purchased FIT non-fossil certificate with tracking also tracks electricity generated at our hydroelectric power plants.

We also created our own logo to represent this initiative. This logo is attached to the equipment shipped from the Koriyama Plant to highlight the added value of the products manufactured at this plant.

### Internal carbon pricing system

We have adopted an internal carbon pricing system to promote green transformation (GX) investment in 2023. We have set the internal carbon price at 10,000 yen/t-CO<sub>2</sub> (Scopes 1 and 2) and will actively make investments aimed at reducing CO<sub>2</sub> emissions.

### Participation in GX League

Following our endorsement of the "GX League Basic Concept" proposed by the Ministry of Economy, Trade and Industry, we have joined the "GX League," which began full-scale activities in 2023. By participating in the GX League, we will accumulate knowledge and know-how on reducing CO<sub>2</sub> emissions and promote sustainability-oriented management.







### Climate-related disclosures based on TCFD recommendations

The Group recognizes global climate change as a major threat to the survival of humanity, and thus views bold efforts to achieve carbon neutrality by 2050 to maintain a sustainable global environment and realize decarbonization as a key challenge of sustainability management. As part of this initiative, in February 2022, we announced our endorsement of the recommendations of the Task Force on Climate-Related Financial Disclosures (TCFD) and will disclose important information related to climate change in line with the TCFD framework as follows.

### Governance

In January 2022, the Group established the Sustainability Committee as an organization directly under the Board of Directors to promote sustainability initiatives, including the response to climate change, and to further enhance corporate value in the medium/long term. This committee meets once a quarter and is chaired by President and CEO. The Sustainability Committee reviews companywide measures and monitors initiatives (reduction of GHG emissions as a KPI).

In addition, the committee chairperson will report on the matters discussed at the committee to the Board of Directors at least once every six months, and the Board of Directors makes recommendations to the Sustainability Committee on issues related to sustainability and climate change that have been discussed at the committee.

### Structure for coping with climate change



### Strategy

### Analysis process

With reference to respective risk and opportunity items outlined in the TCFD recommendations, we have taken the following steps to review the risks and opportunities that climate change issues pose to our business.

In addition, using two climate change scenarios, the 1.5°C to 2°C scenario and the 4°C scenario, we conducted analyses related to the transition in policies and market trends (transition risks/opportunities) as well as an analysis of physical changes due to disasters (physical risks/opportunities).



### About climate change scenarios

### 1.5°C to 2°C scenario (decarbonization scenario)

This scenario aims to limit the rise of global average temperature to less than 1.5°C to 2°C compared to pre-industrial times, as efforts to achieve carbon neutrality become more active in order to mitigate the impact of climate change. In the 1.5°C scenario, it is assumed that among the transition risks, the impact of policies and regulatory risks will be greater than in the 2°C scenario.

### 4°C scenario (high-emissions scenario)

This scenario assumes that no progress will be made in measures against climate change, and that the global average temperature will rise by approximately 4°C by the end of this century compared to pre-industrial times. It is assumed that the impact of extreme weather events and the risk of rising sea levels will increase in terms of physical risk.

### Assessment of Impacts of Risks and Opportunities and Selection of Countermeasures

### Risk

In the below-2°C scenario, there is a risk of increased costs due to the need to switch to renewable energy and low-carbon materials due to stricter regulations, while in the 4°C scenario, there is a risk of increased costs due to intensifying natural disasters.

Risk	Classification	Factors	Details of the Risk		Impact Level	Countermeasure
Transition risk	Policies/ Legal regulations	Introduction of GHG emission regulations, carbon taxes, and the like	Profitability compromised by the increased cost of fossil fuels and other elements of manufacturing	Medium term	Large	<ul> <li>Use of renewable energy</li> <li>Purchase of non-fossil certificates</li> <li>Promotion of energy conservation</li> </ul>
		Increase in the rate of renewable energy (change in power supply structure)	Rise in electricity costs due to measures by electric power companies to increase the ratio of renewable energy	Medium term	Large	Promotion of energy conservation
	Market	Increase in the cost of procuring manganese ore	Distribution costs increase as mining and transportation are decarbonized	Medium term	Medium	<ul> <li>Price pass-through for product selling prices</li> <li>Consideration of low-carbon transportation</li> </ul>
		Increase in the cost of procuring reducing agents	Increased costs associated with procurement of low-carbon reducing agents (wood cokes, etc.)	Medium term	Medium	Consideration of procurement sources to reduce procurement costs
Physical risk	Acute	Intensifying natural disasters (flooding and storm surges)	Deterioration in earnings due to suspension of business activities resulting from inundations at plants	Long term	Medium	Short/medium term: Expansion of drainage facilities
		Intensifying natural disasters (typhoons)	Deterioration in earnings due to suspension of business activities resulting from typhoon damage	Long term	Medium	Long term: Reinforcement of disaster prevention measures of plant facilities

### Opportunity

Environmentally friendly businesses are expected to expand.

	,	, ,				
Opportunity	Classification	Factors	Details of the Opportunity	Timeline	Impact Level	Countermeasure
	Products and	Consumer preference for low-CO <sub>2</sub> products	Growth of demand for green ferroalloys (Pertama Ferroalloys, an equity-method affiliate, manufactures ferroalloys [green ferroalloys] using hydroelectric power only)	Medium term	Medium	Continuation of stable operations
Opportunity	poportunity Evolution into a hydrogen based society		Growth of demand for pure water production system used in hydrogen production	Medium/ long term	Small	Strengthening R&D
	Market	Spread of EVs	Growth of demand for batteries and electronic components due to the spread of EVs (battery materials, boron oxide, zirconium oxide, ferroboron, etc.)	Medium term	Medium	Continuation of stable operations     Strengthening R&D

Scenarios used: [Transition risks] IEA WE02023 NZE2050 / [Physical risks] IPCC RCP8.5 and IPCC AR6 SSP5-8.5
 Timeline: [Short term] within 1 year [Medium term] till 2030. [Long term] till 2030
 Impact level: [Large] Profit before income taxes of 1 billion yen or larger [Medium] Profit before income taxes of 100 million to less than 1 billion yen [Small] Profit before income taxes of less than 100 million yen

### Risk Management

### Process for identifying and assessing climate-related risks

After the TCFD identifies risks associated with climate change and we report them to the Sustainability Committee, the committee discusses the risks once a year. Risks that are deemed particularly important are reported to the Board of Directors once a year.

- Process for controlling climate-related risks The Sustainability Committee will monitor the identified climate change risks and deliberate countermeasures. After reviewing the countermeasures, the Sustainability Committee will share them with relevant departments and take action to mitigate the risks.
- Integration process for company-wide risk management We have established an Internal Control Committee to manage non-climate-related company-wide risks identified by each department and group company in a unified manner. The Sustainability Committee reports transition risks, physical risks, and countermeasures to the Internal Control Committee, which then reports to the Board of Directors.



### Metrics and Targets

The Group has announced a target to reduce CO<sub>2</sub> emissions by at least 45 by 2030 as described on p. 35. We will continue working to reduce CO<sub>2</sub> er introducing in-house power generation utilizing renewable energy, implement measures, and striving to improve energy efficiency. We will also start fund innovative decarbonized processes for manufacturing carbon-free ferroallot transition to green-energy fuels, and make other efforts to proactively intro-equipment and technology to dramatically improve productivity.

### CDP Score: "B" rating for climate change in

CDP is a UK charity-controlled non-governmental organization (NGO) that operates a global information disclosure system to help investors, companies, nations, regions, and cities manage their own environmental impact.

### Risk review process

5% from 2015 levels	CO2 emiss	sions — s	(10,000 tons/year)
missions by enting energy-saving lamental research on	31	35	29
bys, continue the duce the latest	22	27	23
	2020	2021	2022
2023			

# **Digital Transformation (DX)**

### **DX Vision**

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

The Nippon Denko Group has classified the areas in which DX Vision will be realized into the three categories of "Production," "Operation," and "Business" and we will create new value in each of these areas. Production DX targets plants and strengthens manufacturing competitiveness through the introduction of smart factories. Operation DX targets back-office operations and focuses resources on high value-added services by improving operational efficiency. Business DX promotes the optimal allocation of management resources and creation of new businesses for business growth. We are also building a foundation for DX promotion by developing a system to improve productivity and quality of work, as well as a promotion system to autonomously realize DX while developing workers with specialized skills.



### DX Initiatives

### Operational efficiency improvement through the adoption of generative AI

As part of the digitalization of routine work, we adopted generative AI in August 2023 and started using it company-wide. This is an initiative to improve the efficiency of gathering and organization of information and preparation of documents to concentrate resources on high value-added operations. Specifically, we are working to improve the efficiency of routine work such as the collection of ideas and case studies, the summarization of documents, the preparation of minutes, and the preparation and translation of documents.

### Upgrading plant operations

We are promoting the installation of a traceability system that records the processes from manufacturing to shipment, including production, inspection, and warehouse operations, and digitalizes approval processes. We will also install a system that can analyze the data collected through digitalization from various perspectives to visualize the data in order to reduce inventory and improve operations.

In addition, we have built a system in a cloud-based environment that is highly resistant to disasters and has high security performance. By accumulating and sharing data in such an environment, anyone can immediately obtain necessary information. It has also made it easier to conduct analysis and create graphs, which can be used for project progress management. In this way, we are promoting the transformation of our operations to digital technology-based operations.

### Strengthening the Foundation for DX Promotion

### Development of human resources

In promoting DX, it is essential to develop human resources who can lead related projects. We define "DX Promotion Leaders" who can introduce digital technologies, evaluate data analysis results, and consider subsequent actions, and "Data Scientists" who can identify data to collect and acquire based on the specific challenges and examine improvements based on the data as advanced DX human resources and we are engaged in developing them. We have set a target of having 30% of career-track employees as advanced DX human resources by 2030. In order to achieve this goal, we started education for the improvement of DX literacy in all employees, and e-learning targeted at career-track employees in 2023.



### Purchasing management systems

The purchasing management system adopted at the Tokushima Plant has been installed in other plants. The digitalization of purchasing records improves operational efficiency, strengthens internal control, and reduces purchasing costs. In the future, we will develop our systems so that sales, cost calculation, and other systems can be used in a single system and improve operational efficiency by utilizing data.

### Cybersecurity

In recent years, cyber-attacks against corporate information systems have increased rapidly and have become more specialized and sophisticated in nature. In order to protect our sensitive information assets from such attacks, we are focused on enhancing our cvbersecurity.

Firstly, we have installed advanced firewalls to prevent intrusions and monitor unauthorized access. This prevents unauthorized intrusions and protects information assets.

However, anti-intrusion measures alone are not sufficient. Endpoint detection and response (EDR) was adopted to grasp the intrusion status of the attacker in real time and prevent the risk of spread of intrusion, information leakage, and system destruction even if an intrusion is allowed. This enables us to respond as quickly as possible and minimize the damage. Furthermore, for employees who may face risks on the frontlines, we regularly conduct targeted e-mail training and information security comprehension tests to ensure that they understand security risks and take appropriate action. By raising the security awareness of each and every employee, the security level of the entire group can be improved, and the overall defense capability can be strengthened

Through these efforts, we have established a robust defense system and will continue our efforts to ensure safety.



DX training

# Human Capital Management

Conceptual diagram of our human resource strategy

Linkage

Recruitment DX promotion

•DE&I

•Well-being

Estak

Medium/Long-Term Business Strategies

Human resource strategy targets

Talent acquisition and creation of added value

Measures for

human resource strategy

Strengthening the foundation of

human capital management

•Respect for human rights To enhance engagement

Investment in

human capital

### Basic Policy

In an environment where the working population continues to decline, the Nippon Denko Group considers that securing human resources to support its medium/long-term business strategy and increasing the value of each employee are the urgent issues to be addressed as our management challenges. We will prepare a system designed to enable diverse work styles and promote DE&I to increase engagement and energize recruitment activities.

In order to realize "Our Ideal State in 2030," we will promote initiatives to strengthen the foundation of human capital management, which is a core element of enhancing corporate value through sustainable growth.

### Human resources strategy

Our objectives are to secure human resources who can realize our medium/long-term business strategy and business sustainability and to develop human resources capable of creating added value. To achieve this, we will strive to improve employees' engagement while creating a working environment that emphasizes sustainability, such as DE&I, respect for human rights, diverse work styles, and well-being. By establishing this strategy as part of our corporate culture, we aim to realize our medium/long-term business strategy.

### Targets and measures for human resource strategy

Target			Major Measures in FY2024
Talent	Securing additional personnel in	Enhancement of recruitment capabilities	Establishment of a career-track system for a specific area (promoting diverse work styles)     Improvement in regional presence (implementing measures to increase recognition)
acquisition	response to growth strategies	Expansion of hiring methods	Establishment of referral hiring system (recruitment of skilled workers)     Mid-career recruitment (recruitment of mid-career workers with specialized skills)
	Qualities to carry out growth strategies		<ul> <li>Executive leader development (training and dialogue with President and CEO)</li> <li>Dialogue between all managers and President and CEO to realize "Our Ideal State in 2030"</li> </ul>
Creation of added value for employees	Specialized capabilities for growth strategies	Education and training	<ul> <li>Enrichment of education for division specialists (education for facility-related professionals, etc.)</li> <li>DX talent development required for more efficient and advanced business operations</li> </ul>
	Skills to adapt to business transformation	Creation of growth opportunities	Participation of young employees in the venture collaboration study team
		DE&I	<ul> <li>Securing human resources with diversity and expertise</li> <li>Responses to raise the ratio of female managers (training for developing female leaders)</li> </ul>
the foundation of human capital	Well-being management Diversity promotion	Work-style reform	Improvement of the rate of paid holidays taken (creation of annual plans and management of results)
management		Engagement	Engagement improvement measures (promotion of internal dialogue)     Improvement of working conditions     (securing human resources and promotion of active participation)

### Talent Acquisition

In the context of a rapidly declining workforce, one of the most material issues is to secure excellent human resources in order to realize our growth strategy. We are working to enhance recruitment capabilities through measures to increase recognition, expand hiring methods, and review the personnel system. At the same time, we actively engage in recruitment activities to secure and retain talented human resources.

### Career-track system for a specific area

In March 2024, we established a career-track system for a specific area to encourage career-track employees to work according to their individual preferences and to enable them to work more comfortably. We expect that employees who want to work in a way that does not involve transfers and who want to perform extensive and advanced duties like those of conventional career-track employees will be able to work in a limited area and become highly specialized managers in the future.

### Mid-career recruitment

The speed of social change is increasing, and the expertise of individual operations is becoming more and more specialized. In response, we are actively recruiting mid-career workers to secure necessary human resources with work immediately to expand our businesses in order to realize "Our Idea State." In 2023, 13 employees with specialized skills were hired, and the making use of their respective backgrounds to play an active role in the respective department.

### Creation of Added Value for Employees

Recognizing human resources as the source of our competitiveness, we will create added value by providing education, training, and growth opportunities, mainly through on-the-job training.

Between February and March 2024, President and CEO held a dialogue with all managers to develop common awareness within the company toward the realization of "Our Ideal State in 2030." Managers prepared a report in advance on the theme "How should the company change in order to realize 'Our Ideal State?' How should we change ourselves?" and engaged in dialogue with President and CEO. The members of the group exchanged their opinions on what should be done. In April, President and CEO also held a dialogue with all executives to confirm issues and discuss future measures. In parallel with these efforts, we are promoting information sharing and active communication through dialogue at each workplace and level.

### Various types of learning, including level-based training

We conduct a variety of level-based training to develop human resources who will be responsible for the management of the company. Young employees are encouraged to develop the basic knowledge required of working adults, while mid-level employees are encouraged to develop their abilities necessary for cultivating subordinates and achieving organizational and team goals through leadership and management training. We encourage employees to develop themselves through a variety of training programs. Managers regularly undergo training sessions to learn the roles and attitudes appropriate for their respective positions, including training for newly appointed managers and for candidates for general managers. We also aim to develop candidates for the senior management to build a stable business portfolio and promote sustainability-oriented management. Through such training that involves young employees to managers and senior management, we aim to foster human resources who can put the management philosophy into practice and develop them as integral human resources of the corporate culture.

### DC&M activities

In order to maintain and improve practical capacities that are essential for the sustainable growth of the company, an education and training plan is prepared to promote the acquisition of technologies and skills related to manufacturing and equipment, and the capabilities are checked after the training. DC&M (Denko Circle & Management) activities are implemented throughout the company to foster self-motivated, strong human resources who can trigger "continuous improvement" in response to the increasingly severe changes in the market environment. The aim is to create an activity system that produces results while increasing the engagement of management and matching it with work-style reform.

### Venture collaboration study team

Aiming to find business opportunities through collaboration with venture companies in the fields of raw materials and the environment, we have established a venture collaboration study team. In this team, employees in their 20s and 30s participate in a cross-departmental discussion. During their two-year term, they work with venture companies and venture capitalists to explore business opportunities, learn skills for business expansion through practice, and use these experiences as an opportunity for their own development.

### Strengthening the Foundation of Human Capital Management (well-being management and diversity promotion)

In order to strengthen the foundation of human capital management, we are working on well-being management and diversity promotion through DE&I, work-style reform, and engagement. We are also developing systems and environments in which each employee can play an active role to create a workplace where diverse human resources can work with peace of mind.

### Active participation by women

In 2016, we established a Committee for the Promotion of the Active Participation by Women. Since then, we have continued to improve our in-house systems, provide training, and raise awareness through in-house public relations. Currently, we have set a target of increasing the ratio of female managers to 2% by 2027 and are actively working to provide training for developing female leaders in order to reflect diverse opinions in management.

al re urces In	Number of M	lid-Career Worke	ers Recruited
ho can	2021	2022	2023
ney are	3	8	13

### Realization of flexible work styles

By utilizing digital technology, we have created an environment in which employees can demonstrate their abilities regardless of where they work. We have also adopted a telecommuting system that is easy for employees to use. In addition, we have established a flex-time work system that allows employees to work flexibly without restrictions on time or place. We have also established a career return system that allows employees who have left our company due to childbirth, childcare, nursing care, or relocation of their spouses to re-join our company.

### Realization of flexible leave

We have designed a system that allows employees to take leave according to their individual circumstances and life stages. In order to encourage employees to take paid holidays, we have made it possible for employees to take leave in half-day units. At the same time, we have made it mandatory for employees to take leave six days a year, which exceeds the legal requirement, creating an environment in which it is easy for all employees to take leave. In addition, our childcare leave and nursing care leave programs also exceed the legal requirements. We are encouraging both male and female employees to take childcare leave in order to create a working environment that makes it easier for men to take childcare leave. As a result, the ratio of male employees who have taken childcare leave reached a high level of 90% in 2022. In addition, as a system to support employees to balance childcare and work, we offer shortened working hours for childcare (until the end of the third year of elementary school), work restrictions (overtime, late at night, etc.),

and allowances for babysitting fees. Special leave for caring for a child is paid and is granted for a maximum of 10 days. The nursing care leave program allows employees with family members in need of nursing care to take one year of nursing care leave and up to 10 days of paid nursing care leave.

As a result of these efforts, we obtained the first "Kurumin" certification in 2019 and the second in 2021. We will continue to improve our environment to make it easier to balance work and childcare and nursing care.

### Employee who has taken childcare leave

After I decided to use the childcare leave program, my wife returned to India first, and I returned before her due date. I was very happy that I was able to concentrate on supporting my wife, which allowed her and the family to spend time peace of mind during the childbirth and childcare. In India, I went to the hospital with my wife before childbirth and talked with the doctor. After the birth, I took care of my newborn daughter and accompanied my wife to the hospital for a medical checkup. I hardly had time to rest. On the work side, my boss and colleagues took over and supported my research activities and proceeded with them regardless of my leave. Thanks to the support of the people at the research laboratory, I was able to spend this precious period in my life, the birth of my child, with my family at ease. I am grateful for their support.

### Active participation by people with disabilities

We are working to promote employment and create a productive workplace environment for people with disabilities, as we consider that this is an important social issue. In May 2024, we held an in-house seminar on this theme to deepen awareness of the employment of people with disabilities. We will continue to recruit and maintain those employees and create an environment in which they can play an active role.

### Raising the mandatory retirement age to 65

In 2022, the mandatory retirement age was raised from 60 to 65 in order to respond to the external environment, such as a decrease in the workforce and the postponement of eligibility for public pension payments, to maintain and strengthen practical capacities, and to ensure stable employment and life after the age of 60. Even when we postpone the mandatory retirement age, the salary and bonus system does not change until the age of 65 under a consistent employment system on the premise that employees will continue to perform the same work after the age of 60.

### Health-oriented management

We provide allowances for medical checkups and follow up on the results so that employees can work in good physical and mental health and maximize their performance. In addition to regular medical checkups, we bear a part of the cost of complete physical examinations to prevent and detect diseases at an early stage. We also bear the full cost of certain medical examinations that lead to the early treatment of diseases, such as cancers specific to women, in an effort to encourage employees to undergo medical examinations and promote health. Allowances for the cost of vaccinations are also provided.

As mental health care measures, we conduct stress checks and strive to prevent health problems caused by overwork. We analyze the results of mental health checkups and take measures based on feedback. We have established a system for enabling employees to promptly conduct an interview with an industrial physician when it is determined that they are overworked. In addition, we have set up a consultation desk consisting of external specialists as a stress reduction measure, which employees can use when necessary.

### To enhance engagement

In 2023, we conducted an engagement survey among all our employees to visualize their willingness to contribute to the company, their attachment to the company, and other organizational strengths. In 2024, based on the results of an engagement survey, we interviewed with employees in their 30s at the Tokushima Plant and Chuo Denki Kogyo, which are large-scale plants. The interviews were conducted by the Personnel Department to learn about their efforts in daily work, a sense of fulfillment through work, and what we need to do to create a productive workplace. We aim to improve engagement by examining the issues that were identified through interviews and linking them to future HR measures and improvements at the plants.

### Improvement of working conditions

Amid changes such as intensifying recruitment competition due to workforce shortages and the accelerating mobility of the labor force in recent years, we believe that it is important to improve working conditions of employees in order to realize a virtuous cycle of securing human resources, investing in human capital, and achieving business growth. In the spring labor offensive in 2024, we raised the base pay of all employees by 21,000 yen, fully satisfying the labor union's request. We will continue our efforts to realize a virtuous cycle of the growth of employees and business.

### Chairperson of the Central Executive Committee of the labor union

The labor union is responsible for creating and realizing the value companies aspire to, and we are engaged in a variety of activities to ensure that not only our union members, but also all of our employees continue to work safely and vibrantly. At the spring labor offensive in 2024, both labor and management earnestly discussed "Our Ideal State in 2030" and what the labor union envisions for workers who want to continue working with pride. As a result of multiple rounds of collective negotiations on an equal footing on issues such as dealing with rising prices of commodities, securing and retaining talented human resources, and strengthening secure and safe work styles, we were able to receive an answer in response to the union's request regarding wage increases. We take this as a sign of the strong determination of the company and its employees to support each other and move forward together. We will continue to support Nippon Denko's human capital management and improve their well-being through union activities.

### Respecting Human Rights

We recognize that compliance with laws and regulations and respect for human rights are not only social responsibilities companies must fulfill, but also essential ethical standards in realizing our management philosophy. In October 2022, we established the Basic Policy on Human Rights based on norms about human rights such as the International Bill of Human Rights and the United Nations Guiding Principles on Business and Human Rights and are promoting initiatives to respect human rights.

Nippon Denko Group' **Basic Policy on** Human Rights

- 1. Respecting Human Rig
- 2. Eliminating discrimination
- 3. Prohibiting harassment
- 4. Prohibiting forced and

### Message from the Executive Officer in Charge

For realizing "Our Ideal State in 2030," we consider the creation of value through management focused on human capital as a material issue. Based on this basic policy, we are promoting plans for human resource strategies. In order to secure human resources, we are working to enhance recruitment capabilities and diversify our recruitment methods to cope with the declining working population caused by the declining birthrate and the aging population, and the accelerating mobility of the labor force. Regarding the development of human resources responsible for growth strategies and business continuity, we aim to develop human resources who take on challenges voluntarily and actively by providing opportunities for external training and self-development centered on on-the-job training. We will further strengthen the foundation of human capital management by promoting work-style reforms, DE&I, and well-being management to create a comfortable working environment where employees feel motivated to work.



Rate of Paid Holidays Taken

FY2027 Target 70% or higher

Ratio of Male Employees Who have Taken Childcare Leave

FY2023 Results 76.0%

FY2022 Results 90.0%

Development Group Kalita Golap



lhts	5.	Ensuring occupational safety and health
ion	6.	Relief efforts
t	7.	Education and training
child labor	8.	Disclosure of information



Director and Managing Executive Officer Masakazu Tsumoda

# **Communication with Stakeholders**

### Shareholders and Investors

We disclose important information for investment decisions in a timely and appropriate manner, and promote understanding of Nippon Denko Group through various engagement activities. In addition to 1-on-1 meetings with institutional investors and securities analysts (29 times in 2023) held on a regular basis, President and CEO Aoki appeared as a speaker at financial results briefing sessions held in February and August, and provided explanations to institutional investors and securities analysts. From 2023, archived videos and transcripts of the briefing sessions have become available for those who were unable to attend the session, as well as for individual investors. In addition, we focus on information dissemination on our website, which was selected as an excellent website in the section of the iron and steel industry in the "All Japanese Listed Companies' Website Ranking in 2023" conducted by Nikko Investor Relations Co., Ltd.

In the Medium/Long-Term Business Plan announced in November 2023, the company set the goal of achieving an ROE of 10% or higher, exceeding cost of shareholder's equity, and announced that we aim to improve corporate value through continuous efforts as a response to action to implement management that is conscious of cost of capital and stock price.

### Employees

Human resources are the source of our competitiveness and we promote initiatives in human capital management. As employee engagement improvement measures, we conducted an engagement survey for all employees in 2023, and we interviewed with employees at the Tokushima Plant and Chuo Denki Kogyo based on the results. In addition, we have been improving working conditions and in the spring labor offensive in 2024, we realized a uniform base pay increase for all employees, fully satisfying the labor union's request.

We are also putting our efforts into creating a secure and safe working environment. At our plant, we installed a virtual reality (VR)-based risk experience device to maintain and improve risk sensitivity and to ensure employees' safety. For mental and physical health, we provide allowances for medical checkups, physical examinations, and vaccinations, as well as mental care measures such as consultations with industrial physicians and a consultation desk consisting of external specialists

We are also working on the career development of employees to realize growth strategies, and are providing growth opportunities through level-based training, DC&M activities (refer to p.42), venture collaboration study teams, and other programs.

### Business Partners

The Group promotes collaboration, coexistence, and mutual prosperity throughout its supply chains based on the "Partnership-Building Declaration," and engages in fair and equitable trade based on its management philosophy. Additionally, based on our basic policy for procurement, we work with our suppliers to engage in procurement activities that account for compliance, reducing environmental impact, respecting human rights, standards, and other social responsibilities, and to promote efforts to combat climate change and other environmental issues, respect human rights, and resolve other social issues.

### **Basic Policy for Sustainable Procurement**

· Rigorous compliance

 Consideration for reducing the environmental impact of procurement activities · Respecting human rights, consideration for work environments · Providing opportunities for competition through fair and equitable trade · Ensuring the safety and competitiveness of our products and services Responsible mineral procurement · Establishing trust-based relationships

### Local Communities

### Ocean liner excursion for local elementary school students

Each year, our Tokushima Plant provides local elementary school students with the opportunity to go on an excursion to see the ocean liners that carry manganese ore from mines. On these excursions, we not only allow the students to board the ocean liners, but also set up events for them to interact with the foreign crewmembers, prepare samples of our ores and ferroalloy products, and more.

### Participation in local events

In an effort to foster deeper communication with the local community, we actively participate in various local events and activities. One such event is Awa Odori, a dance festival held in Tokushima Prefecture every August. For more than 30 years, we have participated in Awa Odori under the name "Denko-ren." We also participate in the Kashima Festival held in October in Ibaraki Prefecture by displaying our exhibition booth

### Support for victims of the 2024 Noto Peninsula Earthquake

We donated 10 million yen through the Japanese Red Cross Society to provide assistance for the relief efforts in the entire disaster-stricken area and to the locations of our plants (Toyama and Niigata prefectures)

### Donation of books to elementary schools in Kashima City and Kamisu City

The Incineration Ash Recycling business was featured in a book published by Gakken, entitled "Study of Garbage and the Environment Starting with "Why?,' Vol. 3: "Incineration Plants." And we took this opportunity to present the books to Kashima City and Kamisu City, where our Kashima Plant is located, and they were donated to elementary schools and public libraries in the cities.

### Club partner of Kashima Antlers FC

We became a club partner of Kashima Antlers FC in September 2023. We have a plant in Kashima City, the home of the Kashima Antlers, and have decided to be a club partner to contribute to the community through the team. In December, we also set an exhibition booth at the KASHIMA SOCCER STADIUM alongside the final home match. We will continue to engage with local residents actively and contribute to the community.



Ocean liner excursion for elementary school students who live near the Tokushima Plan



Participating in the Awa Odori Festival under the name "Denko-ren



@1992 K A FC

Emblem of Kashima Antlers



### Basic Views

The Company is enhancing its corporate governance by seeking sustainable growth and striving to improve its corporate value over the medium/long-term through the establishment of systems that facilitate transparent, fair, rapid, and resolute decisions and the demonstration of entrepreneurial spirit based on the Management Philosophy, all without losing sight of its fiduciary responsibility as an entity entrusted by its shareholders with business management in addition to its responsibilities to them as well as its employees, customers, business partners, creditors, local communities, and other stakeholders.

### Organizational structure chart



### Board of Directors

In Nippon Denko, the Board of Directors, which is composed of 11 Directors (including 6 Outside Directors), makes important decisions about overall business administration and supervises overall business execution. So that the Board of Directors could make decisions appropriately from diverse viewpoints and strengthen the supervising function, 6 Outside Directors were appointed at the 124th Annual General Meeting of Shareholders held on March 28, 2024, and 5 Directors among them were registered as independent officers at Tokyo Stock Exchange. We believe that corporate governance can be tightened by enhancing the supervising and overseeing functions of independent Outside Directors.



The Audit and Supervisory Committee monitors the business operation of Directors and the status of governance from neutral and fair perspectives. to secure the sound growth of the Nippon Denko Group based on an appropriate corporate governance system. The Audit and Supervisory Committee is composed of 5 Directors, who are all Outside Directors. Four among them were registered as independent officers at Tokyo Stock Exchange.



### Corporate Governance System

The Company makes continuous efforts to tighten corporate governance with the aim of achieving sustainable growth and improving corporate value. We chose to be "a company with the Audit and Supervisory Committee" in order to streamline decision making and business execution processes by transferring part of decision-making authority for the execution of important operations from the Board of Directors to Directors. deepen discussions on medium/long-term management policies, and strengthen the supervisory functions of the Board of Directors, thus tightening corporate governance and improving corporate value further

### Progress of Risk Management Systems and Internal Control Systems

The Nippon Denko Group has formulated the Corporate Conduct Charter of the Nippon Denko Group and the Employee Conduct Guidelines of the Nippon Denko Group in order to establish corporate ethics, observe the laws in Japan and overseas and the spirit thereof, and earn trust as a good corporate citizen. We have set up a permanent Internal Control Committee with the aim of promoting company-wide compliance activities and established a help desk for receiving inquiries and reports so that we can identify and correct wrongdoings as swiftly as possible, if any. In addition, the Internal Control Committee is an overseeing organization which controls and mitigates management risks, and shares and analyzes information on various risks that may arise throughout business with the Audit and Supervisory Committee. The results of risk analysis and countermeasures are reported or written opinions are submitted to the Board of Directors on a regular basis or when necessary, thus establishing a risk management system. In the unlikely event of a business crisis that could result in significant losses, we will immediately set up a Crisis Management Headquarters and put in place procedures to promptly take the necessary actions to minimize damage and impact.

Policy and Procedures Used by the Board of Directors for Determining the Remuneration of the Senior Management and Directors

### a. Policy for determining remuneration

- (a) As a basic policy, remuneration for senior management and Directors (excluding Directors who belong to the Audit and Supervisory Committee and Outside Directors, same as in the policies mentioned below) shall be an appropriate level based on the position in charge and performance of the Company.
- In detail, the remuneration for the senior management and Directors shall be composed of fixed monetary remuneration, performance-linked monetary remuneration and stock remuneration. For Outside Directors, who have the supervising function, the Company pays only fixed monetary remuneration, while considering their duties.
- (b) Fixed monetary remuneration shall be paid on a monthly basis, and its amount shall be determined in accordance with the Company's standards, which stipulate that remuneration shall be paid while considering the positions and managerial tasks of the senior management and Directors, corporate business performance, and so on.
- (c) Performance-linked monetary remuneration shall be bonuses, which are paid while considering the business performance in the previous fiscal year, etc. The total amount shall be determined with reference to consolidated ordinary profit of the Company, which is an indicator of results of business activities, allocated according to the positions of the senior management and Directors, and paid in a specified period every year.

Non-monetary remuneration shall be the shares of the Company (with restrictions on transfer) for giving an incentive to improve the corporate value of the Company sustainably and sharing value with shareholders further, and its amount shall be determined in accordance with the Company's standards, which stipulate that the number of shares of the Company to be given shall be determined while considering the positions and managerial tasks of the senior management and Directors, corporate performance, and so on, and provided in a specified period every year.

- (d) Regarding the composition of remuneration for the senior management and Directors, fixed monetary remuneration is mainly paid, while performance-linked monetary remuneration and non-monetary remuneration are added with appropriate ratios while considering their business types and categories.
- (e) For Directors who belong to the Audit and Supervisory Committee, the Company shall pay only fixed monetary remuneration while considering their duties.
- (f) Regarding monetary remuneration and stock remuneration, the total amount was determined at the 124<sup>th</sup> Annual General Meeting of Shareholders held on March 28, 2024. As of March 2008, Nippon Denko abolished a retirement benefit plan for Directors.

### b. Procedure for determining remuneration

Monetary remuneration of senior management and Directors shall be determined based on the aforementioned policies by the President & CEO under the supervision of the Board of Directors including independent Outside Directors and with the authority of the Board of Directors.

Non-monetary remuneration of senior management and executive directors shall be determined by the Board of Directors including independent Directors based on the aforementioned policies.

### c. Review body for matters related to remuneration

Nippon Denko established the "Executive Personnel and Remuneration Meeting," in which Outside Directors constitute the majority, and said meeting discusses the appropriateness of the amount of remuneration for each position and each person, with reference to external data, and considers revising the remuneration levels, calculation methods, etc. according to changes in the business environment as appropriate. The Board of Directors and the President & CEO shall revise the executive remuneration standards appropriately based on the results of the review by the Executive Personnel and Remuneration Meeting.

### The Board of Directors' Policy and Procedures for Nominating Candidate Directors, Appointing and Dismissing Senior Management

### Policy for appointing and dismissing senior management and nominating candidate directors

When appointing senior management and nominating candidate directors of the Company, the Board of Directors conducts deliberations and makes decisions while taking into account the details of the Nippon Denko Group's businesses, issues to be addressed, and the experience, knowledge, etc. of each person, to realize optimal scale and composition for the consolidated management of the Company from the viewpoint of improvement in medium/long-term corporate value. The Board of Directors of the Company is composed of Directors who had worked for the Company and possess specialized capabilities and knowledge for each business of the Company and Outside Directors who possess the experience and knowledge of diverse businesses, expertise, insight, and a neutral, objective perspective, so as to realize diversity and a good balance. We think that the current scale is appropriate for making decisions swiftly in response to changes in the business environment and developing an effective corporate governance system.

### b. Nomination of candidate directors and appointment of directors at executive posts

The nomination of candidate directors and appointment of directors at executive posts shall be determined by the Board of Directors, while comprehensively considering abilities, qualities, leadership, past business performance, etc.

### c. Nomination of candidate directors who belong to the Audit and Supervisory Committee

The nomination of candidate directors who belong to the Audit and Supervisory Committee shall be determined by the Board of Directors while comprehensively considering fairness, universality, independence, the composition of the Audit and Supervisory Committee after appointment, etc. in addition to the above-mentioned items after obtaining the consent of the Audit and Supervisory Committee.

### d. Appointment of executive officers (excluding directors at executive posts)

The appointment of executive officers (excluding directors at executive posts) shall be determined by the President & CEO who was authorized by the Board of Directors in accordance with the Regulations for Executive Officers, while comprehensively considering abilities, qualities, leadership, past business performance, etc., and the results shall be reported to the Board of Directors.

### e. Dismissal of senior management

Internal regulations stipulate the requirements for dismissing senior management. When a senior management member satisfies said requirements, he/she will be dismissed through a resolution of the Board of Directors.

### f. Organization for discussing items regarding personnel affairs of the senior management and Directors

As an organization for broadly discussing items regarding personnel affairs of the senior management and Directors, the Company established the Executive Personnel and Remuneration Meeting, which is composed of independent Outside Directors and the President & CEO. Said meeting shall be chaired by the President & CEO, who collects appropriate opinions from independent Outside Directors when necessary.

### Policy on Cross-Shareholdings

Nippon Denko holds cross-shareholdings (all shares other than the Company's shares) for the purpose of improving corporate value of the Company over the medium/long-term by maintaining and strengthening business relationships, maintaining and developing partnerships, and ensuring smooth execution of business activities. Regarding the cross-shareholdings, the Board of Directors evaluates the performance and financial strength of the investee company as well as their significance of shareholding regularly on an annual basis and examines the appropriateness of shareholding including its reduction.

### Training for Directors

Both inside and outside Directors and Audit & Supervisory Board Members take trainings on the matters required to execute their roles, responsibilities, and performing duties. Regarding outside Directors and outside Audit & Supervisory Board Members in particular, we make efforts to provide instruction on the management philosophy and lines of business of the Group at the time of their assuming office and promote an understanding of the business of the Group even during their term of office, and the Board of Directors uses the evaluation of effectiveness of the Board of Directors to determine whether a proper response is taken.

### Skills Matrix

				FIE	ela			
Name	Corporate planning Business strategy	Finance and accounting Financial and economics	Personnel and labor Human resources development	Governance and risk management Legal and compliance	Production and technology Research and development	Sales and purchasing Marketing	Global	Environment Sustainability
Yasushi Aoki	•		•			•	•	•
Yoshimi Yamadera					•		•	•
Jiro Kobayashi	•					٠	•	
Masakazu Tsumoda			•	•		•		
Yasuhide Miyake	•	•						•
Kazutoshi Ohmi	•					•	•	
Kazunari Itami	•		•	•				•
Hokuto Nakano		•				•	•	
Masahiro Tani			•		•		•	
Hiroaki Kimura						•	•	
Aogi Suemura		•	•	•				

### Evaluation of the Effectiveness of the Board of Directors

Based on a questionnaire survey targeted at all Directors and Audit & Supervisory Board Members, the analysis of the results and the exchange of opinions, Nippon Denko evaluated the effectiveness of the Board of Directors in FY2023 at the meeting of the Board of Directors held in February 2024.

As a result, it was confirmed that all of the operation of the Board of Directors, resolutions, reports, and deliberation time were appropriate. In addition, it was concluded that the effectiveness of the Board of Directors of the Company has been secured from a comprehensive viewpoint, because discussions were held openly and vigorously from the diverse perspectives of Directors and Audit & Supervisory Board Members from inside and outside the Company.

On the other hand, we will discuss measures for dealing with the issues extracted through the evaluation of the effectiveness of the Board of Directors, such as "strengthening of the supervision of the business portfolio and the deepening of discussions thereof" and "strengthening of the supervision of sustainability and the deepening of discussions thereof."

An outside organization creates, collects, and analyzes part of the evaluation questionnaire on the effectiveness of the Board of Directors to ensure transparency and effectiveness. We use the results of our annual evaluations to continue to improve governance on an ongoing basis.

### Policy for Dialogues with Shareholders

We make efforts to promote constructive dialogue with our shareholders from the perspectives of achieving sustainable growth and improving corporate value over the medium/longterm. The Director in charge of the General Affairs Department oversees dialogues, and the various internal departments including the General Affairs Department collectively share information and work to improve measures. Specifically, we work to proactively provide information and meticulous Q&As to shareholders in General Meeting of Shareholders, and hold financial results briefing sessions and individual interviews for investors. Furthermore, we develop systems to provide feedback from shareholders and investors to the Board of Directors in a timely and appropriate manner as needed and to prevent leaks of insider information in dialogues.

# Executive Management (as of April 1, 2024)

### Directors





Jiro Kobayashi

Senior Managing Executive Officer

In charge of matters relating to Corporate

Planning and Overseas Business Managemen

Director and





Masakazu Tsumoda

Director and Managing Executive Officer In charge of matters relating to Personne General Affairs, Internal Control & Audit ointed as the General Manager of the nan Resources Development & Perso ruitment Cente



Kazutoshi Ohmi

(Independent Officer)

Tsutomu Kishikawa

Managing Executive Officer

Yoshihiro Miyauchi

Executive Officer

In charge of matters relating to the Electric

Appointed as the General Manager of the

Appointed as the General Manager of the Production Engineering Department Assists Senior Managing Executive Officier Yamadera with Capital Investment Planning, Safety and Environment, Research and Development, and Information System

In charge of matters relating to the Ferroalloy business Assists Senior Managing Executive Officer Kobayashi with Overseas Business Management

Outside Directo

Yasuhide Miyake

Director and Executive Officer In charge of matters relating to Accounting & Finance Appointed as the General Manager of the Corporate Planning Department Assists Managing Executive Officer Tsumoda with General Affairs Assists Senior Managing Executive Officer Kobavashi with Overse as Business Managemen

### Executive Officers

### Kiyoaki Nishio

Managing Executive Officer as the Head of the Tokushima Plant

### Keiichi Nakazato

Executive Officer In charge of matters relating to the Functional Materials business and the Incineration Ash Recycling business



# In charge of matters relating to Production Engineering, Capital Investment Planning, Safety and Information System



Kazunari Itami

(Independent Officer)

Outside Director as Audit &

Supervisory Committee Member

Masahiro Tani Outside Director as Audit & Supervisory Committee Member



Outside Director as Audit & Supervisory Committee Member (Independent Officer)

### Toru Tanaka

Executive Officer Appointed as the General Manager of the neral Affairs Department ists Managing Executive Officer Tsumoda

### Hayato Matsuda

Executive Officer Cooperating with Senior Managing Executive Officer Kobayashi in Corporate Planning Assists Executive Officer Nakazato with the Incineration Ash Recycling business Executive Officer n charge of matters relating to the Agua Solutions business and the Osaka Office Appointed as the General Manager of the Aqua Solutions Business Development and Promotion Department

Taketoshi Oka



Hokuto Nakano

(Independent Officer)

Outside Director as Audit &

Supervisory Committee Member



### Kazutoshi Ohmi

future growth strategies

Our Board of Directors is composed of experienced internal executives and a group of outside executives with diverse backgrounds, including manufacturers, banks, trading companies, and accounting firms. Based on the information obtained from the thorough preliminary briefing and the knowledge of each person, outside executives ask questions and express opinions from various perspectives, to which the executive team and internal executives respond sincerely, leading to open and constructive discussions. We feel they are linked to the enhancement of corporate value. On the other hand, there are some cases where substantive decisions are made at the executive committee, etc., and approval by the Board of Directors is perceived as a formality. We would like to take the opportunity of the transition to a company with an Audit and Supervisory Committee to address this issue and enhance the effectiveness of the Board of Directors

In terms of business, we continue to position our mainstay domestic Ferroalloys business as our important business and are working to further stabilize earnings, reduce costs, and develop decarbonization technologies, including our overseas production site that uses green electricity. We have positioned areas that contribute to the realization of a sustainable society as the foundation for medium/ long-term growth, and we will leverage the human resources, technology, know-how, and knowledge cultivated over our nearly 100-year history to make intensive investments in functional materials, incineration ash recycling, aqua solutions, and green ferroalloys, which can become indispensable supporting or one-of-a-kind products in the industry. We see great potential in such a balanced portfolio.

### Kazunari Itami

### Evaluation and challenges of our efforts on our human capital management, and future expectations

Looking back on our human capital policy, we have not always been able to take sufficient measures as we have been busy with business restructuring under the severe business environment. However, measures implemented over the past few years have drastically reduced the instability of the business. In 2023, we formulated our Medium/Long-Term Business Plan that clarifies "Our Ideal State in 2030," aiming to solve social issues and sustainably enhance corporate value, and we have begun vigorous efforts to enrich our human capital as the most material issue in this plan.

Such examples are the review of the personnel system and revision of working conditions to increase employees' engagement and achieve well-being, employment and work systems that accommodate diverse values and work styles, improvement of the workplace environment and enhancement of safety and health measures, establishment and review of various training programs tailored to individual employees, and strengthened recruitment of diverse human resources based on these measures. We are rapidly launching and promoting a variety of measures to enrich our human capital. It is noteworthy that our current goal is to treat people as our assets, not as a means. It is extremely significant that we have incorporated sustainability, such as addressing climate change, respecting human rights in the supply chain and ensuring the diversity of our employees, into our management goals, and we believe that our human capital will only be enhanced if we gain the trust of our various stakeholders.

Led by President and CEO, each department and each level of the company are energized to engage in practical dialogue toward the realization of "Our Ideal State." That is the source of vitality that nurtures and attracts human resources. I have high expectations for the continuation of this momentum.

### Aogi Suemura

### Our Board of Directors from a governance perspective and expectations toward active participation by women

At our Board of Directors, lively discussions take place amid a sense of tension. In order to enhance the effectiveness of the Board of Directors, executive officers take seriously the candid evaluations and harsh opinions of Outside Directors, and strive to make improvements. In FY2024, we strengthened the monitoring function after becoming a company with an Audit and Supervisory Committee and reexamined resolution items to enhance the effectiveness of the Board of Directors, thus succeeding in enhancing governance.

The majority of our Audit and Supervisory Committee members are independent Outside Directors with a wealth of experience and knowledge. The members will work as a team to provide effective advice and support to the Board of Directors and strengthen the audit function to improve the reliability and transparency of financial reports. In addition to governance, it is essential to enrich human capital for sustainable growth. We actively hire women, non-Japanese, and experienced workers and focus on creating an environment and a system where they can fully demonstrate their abilities. We are also working diligently to develop female managers, which is a challenge for the company, whose main business is the manufacturing of ferroallovs in the steel field, and we expect to see the effects of our efforts materialize in the near future. We are implementing a variety of measures to enhance our corporate value. I will closely monitor the results of these measures from the perspective of all stakeholders and provide fair and honest opinions in order to contribute to the fostering of good corporate governance and to the active participation by women as an Outside Director and the only female Director of the company.

# Independent Officer)

Directors who belong to the Audit and

Supervisory Committee

### Discussions at the Board of Directors meetings and

### Financial

		(Fiscal Year) 201	4 2015	2016
Net sales	Millions of yen	75,86	4 82,902	58,486
Operating profit	Millions of yen	2,72	0 2,046	1,717
Ordinary profit	Millions of yen	2,28	6 211	1,614
Profit attributable to owners of parent	Millions of yen	10,80	7 (14,181)	(116)
Total assets at end of period	Millions of yen	116,51	1 92,827	84,563
Equity at end of period	Millions of yen	78,37	2 63,596	61,232
Interest-bearing debt at end of period	Millions of yen	13,46	8 10,630	7,891
Equity ratio at end of period	%	67.	3 68.5	72.4
Total number of issued shares	Thousands of shares	146,74	1 146,741	146,741
Number of treasury shares	Thousands of shares	30	4 306	306
Net assets per share	Yen	535.2	0 434.30	418.16
Net income per share	Yen	85.1	7 (96.84)	(0.80)
Dividends per share	Yen	5.0	0 5.00	5.00
Return on equity (ROE)	%	16.	1 (20.0)	(0.2)
Return on assets (ROA)	%	9.	3 (15.3)	(0.1)
Return on sales (ROS)	%	3.	0 0.3	2.8

2017	2018	2019	2020	2021	2022	2023
71,346	73,944	70,477	54,004	65,978	79,341	76,406
9,639	1,701	(5,572)	5,434	8,436	8,815	4,741
9,239	1,947	(6,426)	3,063	6,870	10,367	2,465
7,988	2,352	(14,240)	2,615	7,768	7,949	4,375
98,447	99,786	85,224	86,171	95,888	104,943	101,015
70,702	69,009	54,206	56,367	64,256	69,187	71,701
7,230	12,749	18,704	19,354	17,759	21,052	18,554
71.8	69.2	63.6	65.4	67.0	65.9	71.0
146,741	146,741	146,568	146,775	146,853	146,931	137,217
308	309	1	2	8	7,092	2
482.83	471.28	369.84	384.04	437.58	494.76	522.55
54.55	16.06	(97.20)	17.83	52.91	54.45	31.83
13.00	5.00	_	5.00	16.00	17.00	9.00
12.1	3.4	(23.1)	4.7	12.9	11.9	6.2
8.1	2.4	(16.7)	3.0	8.1	7.6	4.3
13.0	2.6	(9.1)	6.5	10.4	13.1	3.2

### Non-financial indicators

		(Fiscal Year)	2014	2015	2016
Number of employees (consolidated)	People		1,322	1,039	953
Number of female employees (consolidated)	People		70	70	82
Number of employees (non-consolidated)	People		443	455	475
Average years of service (non-consolidated)	Years		16.4	15.7	15.3
Percentage of employees with disabilities (non-consolidated)	%		-	-	-
Rate of paid holidays taken (non-consolidated)	%		_	58.3	60.0
Percentage of childcare leave taken (consolidated)	%		-	-	-

Note: Although the accounting treatment of valuable metals was changed in the Incineration Ash Recycling business in FY2024, the above figures are presented as they were before the change.

2020	2019	2018	2017
976	977	994	957
133	127	123	90
767	783	722	480
14.7	13.4	13.5	18.1
2.1	2.0	1.5	0.7
62.0	66.9	66.6	63.9
92.6	92.3	_	_

### Company profile (as of December 31, 2023)

Name         Nippon Denko Co., Ltd.           Incorporated         December 1934 (founded in October 1925)           Head Office         4th Floor, Tokyo Tatemono Yaesu Building, 1-4-16, Yaesu, Chuo-ku, Tokyo 103-8282, Japan TEL: +81-3-6860-6800 (main)           Ferroalloys, Functional Materials, Incineration Ash Recycling, Aqua Solutions, Electric Power						
Incorporated         December 1934 (founded in October 1925)           Head Office         4th Floor, Tokyo Tatemono Yaesu Building, 1-4-16, Yaesu, Chuo-ku, Tokyo 103-8282, Japan TEL: +81-3-6860-6800 (main)           Ferroalloys, Functional Materials, Incineration Ash Recycling, Aqua Solutions, Electric Power	Name	Nippon Denko Co., Ltd.				
Head Office       4th Floor, Tokyo Tatemono Yaesu Building, 1-4-16, Yaesu, Chuo-ku, Tokyo 103-8282, Japan TEL: +81-3-6860-6800 (main)         Ferroall       11,096 million yen         Lines of business       Ferroalloys, Functional Materials, Incineration Ash Recycling, Aqua Solutions, Electric Power	Incorporated	December 1934 (founded in October 1925)				
Capital     11,096 million yen       Lines of business     Ferroalloys, Functional Materials, Incineration Ash Recycling, Aqua Solutions, Electric Power	Head Office	4th Floor, Tokyo Tatemono Yaesu Building, 1-4-16, Yaesu, Chuo-ku, Tokyo, 103-8282, Japan TEL: +81-3-6860-6800 (main) FAX: +81-3-6860-6832				
Lines of business Ferroalloys, Functional Materials, Incineration Ash Recycling, Aqua Solutions, Electric Power	Capital	11,096 million yen				
	Lines of business	Ferroalloys, Functional Materials, Incineration Ash Recycling, Aqua Solutions, Electric Power				

Matters related to company shares (as of December 31, 2023)

Total number of shares authorized to be issued	300,000,000 shares
Total number of issued shares	137,217,772 shares
Number of shareholders	35,260

### Major shareholders (as of December 31, 2023)

Shareholder Name	Number of Shares Held (thousands of shares)	Shareholding Ratio (%)
NIPPON STEEL CORPORATION	30,314	22.09
The Master Trust Bank of Japan, Ltd. (Trust Account)	11,816	8.61
Mizuho Bank, Ltd.	4,000	2.92
Custody Bank of Japan, Ltd. (Trust Account)	2,703	1.97
Nippon Denko Business Partner Stock Ownership Association	2,248	1.64
Nittetsu Mining Co., Ltd.	2,100	1.53
Custody Bank of Japan, Ltd., Retirement Allowance Trust, Mizuho Trust & Banking Co., Ltd.	1,728	1.26
JP MORGAN CHASE BANK 385781	1,267	0.92
Mizuho Trust & Banking Co., Ltd.	1,250	0.91
Nippon Denko Employees' Shareholding Association	1,239	0.90

Note: Shareholding ratio has been calculated after deducting 2,497 treasury shares.





### Composition of shareholders (as of December 31, 2023)

Government and local governments



### Locations

Ferroboron



Toyama Plant (Imizu area) Main production items Boron oxide



Toyama Plant (Takaoka area) Main production items Cathode materials for lithium-ion batteries



Myoko Plant

Main production items Metal hydride alloys Cathode materials for lithium-ion batteries Manganese inorganic chemical products







Tokushima Plant

Group companies

### Research Laboratory

Main production items High-carbon ferromanganese Low-carbon ferromanganese Zirconium oxide Boron oxide

### Subsidiary Companies Riken Kogyo Co., Ltd. Denko Kosan Co., Ltd. Kuriyama Kosan Co., Ltd. Nichiden Tokushima Co., Ltd. Chuden Kosan Co., Ltd. general waste Group Affiliates Pertama Ferroalloys Sdn. Bhd. Production and sale of ferroalloys Kudumane Investment Holding Ltd. Ownership of manganese mine interests





Kashima Plant Line of business Incineration Ash Recycling

### Lines of Business

Temperature and component measurement, electrical instrumentation, control and related operations of blast furnaces, converter furnaces and electric furnaces

Transportation, warehousing, and sale of materials for steelmaking

Production and sale of polyethylene pipes, bags, nets, sheets, and PVC pipes

In-plant and transport services, ship agency services, and sale of fuels

Collection and haulage of industrial waste, industrial waste subject to special control and

General motor truck transport (Kanjishin No. 2397) and warehousing (Kanunso No. 342)

### Lines of Business