



Nippon Steel Integrated Report 2022

Nippon Steel Corporation Integrated Report 2022 (April 2021 to March 2022)



NIPPON STEEL CORPORATION

Printed in Japan

Aiming to become the best steelmaker with world-leading capabilities

Contribute to sustainable development goals (SDGs) in society by providing excellent products and services

Lead the global steel industry by pursuing cutting-edge technology and product capabilities

Be there to support Japanese industries' competitiveness

Realize a virtuous cycle of environmental sustainability and corporate growth

Promote diversity & inclusion and create a company where diverse employees are empowered, and feel proud and fulfilled

Introduction

Editorial Policy

In this Integrated Report 2022, in addition to updating it with the changes from the 2021 version, such as the progress of our Medium-Long-term Management Plan (released in March 2021), we have prepared this report from the following two perspectives:

- 1 - The first half presents Nippon Steel's business strategy and financial strategy mainly through the progress of the Medium- to Long-term Management Plan. The latter half explains the value creation process by showing the flow of the value chain, and the explanation for each of the Engineering & Construction, Chemicals & Materials, and System Solutions business segments is expanded.
- 2 - Concerning the information on sustainability, the key points of environmental and social themes are presented in terms of materiality and in relation to factors in the value creation process as stated in this Integrated Report, while details on initiatives are presented in the Nippon Steel Sustainability Report 2022.

We sincerely hope that this Integrated Report helps stakeholders better understand Nippon Steel. Your comments and feedback are welcome as we intend to continue to improve the Integrated Report to make it easier to read and richer in content.

Period covered

Fiscal 2021 (April 1, 2021 – March 31, 2022)

Organizations covered

Nippon Steel Corporation and Nippon Steel Group companies (483 companies as of March 31, 2022 comprised of 378 consolidated subsidiaries and 105 equity-method affiliates)

Publication date

September 2022

Reference for guidelines

- The International Integrated Reporting Council (IIRC) International Integrated Reporting Framework
- The Guidance for Collaborative Value Creation (the Ministry of Economy, Trade and Industry)
- Environmental Reporting Guidelines 2018 (the Ministry of the Environment)

In preparing this report, we have referred to the following guidelines and materials in identifying materiality among ESG initiatives.

- Global Reporting Initiative (GRI) Standards
- ISO 26000
- Various ESG ratings and evaluations

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Corporate Philosophy

Our Values

Nippon Steel Corporation Group will pursue worldleading technologies and manufacturing capabilities, and contribute to society by providing excellent products and services.

Management Principles

- 1 We continue to emphasize the importance of integrity and reliability in our actions.
- 2 We provide products and services that benefit society, and grow in partnership with our customers.
- 3 We pursue world-leading technologies and manufacturing capabilities.
- 4 We continually anticipate and address future changes, innovate from within, and pursue unending progress.
- 5 We develop and bring out the best in our people to make our Group rich with energy and enthusiasm.

The Nippon Steel Group's Corporate Philosophy consists of "Our Values," which are our most precious values representing our raison d'être, and "Management Principles," which put down in writing the attitude and policy we emphasize in realizing Our Values. Steel is one of the most familiar materials of which things are made and is indispensable for our daily life. Because of its diverse properties, such as strength and easiness to work with, steel has been chosen as the most superb material for creating social infrastructure. Steel is for here for all of us now and will be with us in the future. We have been leading the world as a steelmaker for many decades, and have supported growth and development of society, by providing this indispensable basic material for all industries and infrastructure building. Along with global population growth and associated economic growth, the world's crude steel production is expected to continue increasing. At the same time, significant long-term structural changes in society and industries are certain to increase demand for steel to provide more advanced performance. This includes advanced functions as material as well as considerations to the environment and society. We are pledged to maximize the potential of steel and enhance its competitiveness as a material. On this basis we intend to deploy our accumulated technology and integrated power, by means such as in combining steel with other materials in new ways, and develop and provide total solutions, which incorporate utilization and processing technology in addition to supply of materials. By doing so, we are determined to contribute to a sustainable development of society – a commitment of us, engaged in steelmaking.

Nippon Steel Group's Brand Mark



As a global steelmaker with origins in Japan, Nippon Steel is incorporating a diversity of DNAs of people and companies, and growing into the future. Keeping that determination in mind, we renamed ourselves as "Nippon Steel Corporation" on April 1, 2019. On that occasion, a common brand mark for Nippon Steel and the Nippon Steel Group companies was adopted in order to unify the branding of the entire group.

The brand mark is a combination of the corporate mark and the English logo. The font used in English is a roundish typeface, representing a strong but yet flexible image of steel.

Our Thoughts incorporated in the corporate logo



Aiming to become the best steelmaker with world-leading capabilities

Aiming at the summit

Representing the unlimited future of steel

The triangle in the logo represents a blast furnace and the people who create steel. It reflects the fact that steel, indispensable for civilization, brightens the world. The center point can be viewed as a peak, which represents the best steelmaker. It can be also viewed as the destination of a road, which represents the unlimited future of steel as a material. The blue color represents leading technology and reliability.



Introduction

Nippon Steel's history of development

Nippon Steel has been growing as a global leading steelmaker for many decades, overcoming changes in the business environment and crises many times through industry consolidation, rationalization efforts, product development, global expansion, and other ways. “We continually anticipate and address future changes, innovate from within, and pursue unending progress,” as defined in our Management Principles. We aim to continually grow to become “the best steelmaker with world-leading capabilities” that contributes to Japan’s industrial competitiveness from the present and into the future. While providing products and solutions that contribute to world sustainable growth, we strive to enhance corporate value and also contribute to realization of the United Nations’ Sustainable Development Goals (SDGs).



Kyushu Works Oita Area (Oita Works)

COURSE50 Project by NEDO and JISF

Hot strip mill of G Steel, Thailand

Risks and opportunities, and business strategy

Risks and opportunities P.11,13-14,77-78

Steel supply/demand environment

Increase in steel demand globally, but mainly in Asia

Growth in demand for high-grade steel, including new demand related to carbon neutrality

Decline in domestic demand and expanded capacity of new steel mills in the coastal area of East Asia, causing intensifying competition and deteriorating export profitability

Increasing market volatility in prices of raw materials and products, driven by the supply/demand trend in China, accounting for the majority of the global market

Climate change

Realization of a carbon neutral society as a major social issue

Establishment of carbon neutral steelmaking technology as opportunity to reestablish advantage in the global steel industry

Business strategy

1 Rebuilding our domestic steel business and strengthening our Group's management

P.15-19

2 Promoting a global strategy to deepen and expand our overseas business

P.20-22

3 Taking on the challenge of Carbon Neutrality

P.23-28

4 Promoting digital transformation strategies

P.29-34

Japanese and global economy



Nippon Steel's response



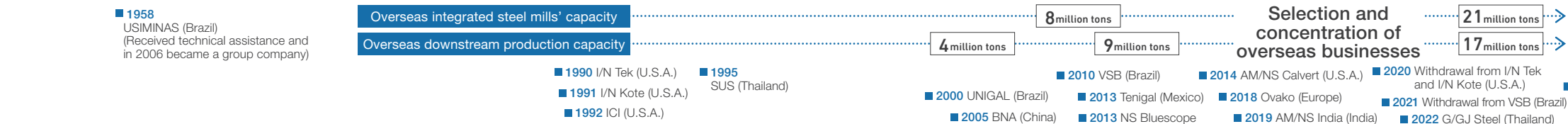
Domestic reorganization



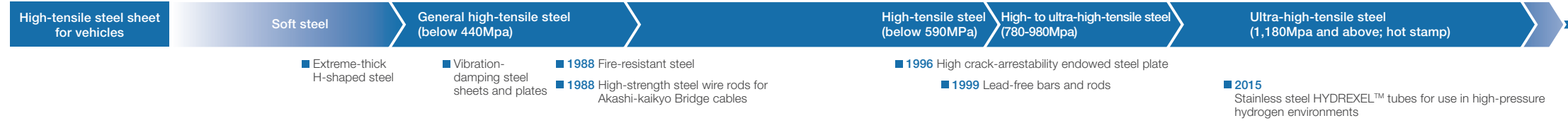
Domestic production framework



Global production framework



Product technology

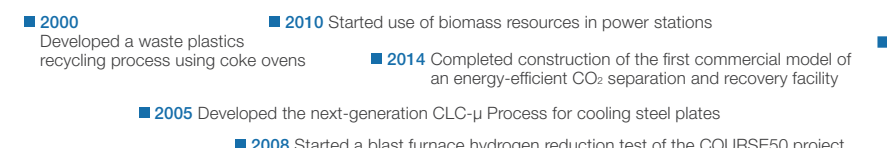


Process technology

Leading the world in process innovation, energy efficiency, and high-grade steel technology



Technology development that supports the “global environmental” era



Message from the President

Nippon Steel has been making steady efforts to realize the four pillars laid out in its Medium- to Long-Term Management Plan: 1) rebuild domestic steel business and strengthen group management, 2) promote a global strategy to deepen and expand overseas business, 3) take on the challenge of carbon neutral steel, and 4) promote digital transformation strategies. To build an integrated group of Japanese mother mills and overseas local mills, which will have a global crude steel capacity of 100 million tons and generate consolidated business profit of ¥1 trillion, we have implemented structural measures for production facilities, acquired overseas mills and made them our consolidated subsidiaries.

At the same time, we announced the “Carbon Neutral Vision 2050” as a part of our Medium- to long-Term Management Plan, in support of the Japanese government’s ambitious plan to realize a carbon-neutral society in 2050. We will provide high-performance steel products and solutions, as well as carbon-neutral steel through the decarbonization of the steelmaking process ahead of other countries, to thereby support our customers’ international competitiveness. We will also strive to improve our corporate value by achieving corporate growth while doing what we can to preserve the environment.

Representative Director and President

Eiji Hashimoto

Efforts to restore profitability to date

Since becoming President in April 2019, swift recovery in profitability has been our first priority and we have made utmost efforts to achieve it, on both the hard side such as equipment, and the soft side such as management.

In fiscal 2020, we ended the first half with a loss due to a significant decline in demand that was caused by the COVID-19 outbreak, but in the second half, we made a significant turnaround to become profitable, due to the effects of various measures, as well as a recovery in demand.

In fiscal 2021, the business environment was extremely difficult, with substantial cost increases mainly in raw materials, and a significant reduction in demand mainly for automobiles, caused by the shortage of semiconductors.

In particular, in our core business, domestic steel crude steel production amounted to less than 39 million tons, which was nearly 10 million tons lower than 48 million tons in fiscal 2014 when we achieved our record high profit.

Overcoming the effects of such a significant volume decline, thanks to the effects of the various measures we have implemented, we increased profit in fiscal 2021, significantly renewing the record-high profit of fiscal 2014. We are pleased to have structurally strengthened profitability and to be able to declare a V-shaped recovery. **Fig. 1**

Our biggest challenge was to rebuild our domestic steel business. Under the policy to selectively concentrate on certain products and facilities, advance toward a sophisticated order mix, upgrade the remaining facilities, and make production more concentrated, we have implemented unprecedented large-scale structural reforms. And have done so ahead of the plan.

With the suspension of operations at four blast furnaces, we have streamlined capacity, which has then enabled us to

carefully choose order intake and to make progress concerning the longstanding issue of improving direct contract-based prices for customers. **Fig. 2**

The implementation of these fundamental measures concerning both production and sales has enabled us to achieve higher profits than in fiscal 2014, even in the face of a worsening business environment.

We have also completed the withdrawal from unprofitable businesses by thoroughly selecting and concentrating our overseas operations.

By focusing on markets where demand is steadily growing, or sectors where our technology and products are being well utilized, profits from overseas operations have expanded significantly.

In addition, our financial and contractual interest in raw materials has also expanded on the background of the high market prices for raw materials, and the combined profit from such interest and the overseas business exceeded the profit of the domestic steel business.

We have thereby improved the profitability of our overall global steel business, at home and abroad.

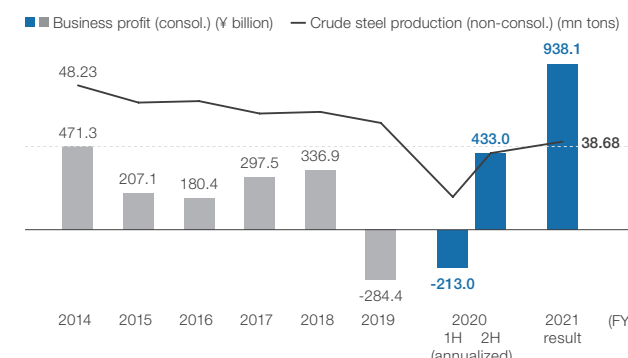
Moreover, both the steel and non-steel group companies have steadily strengthened their profitability. **Fig. 3**

With our future target of achieving ¥1 trillion in consolidated business profit, we are initially focusing on establishing a business structure that will ensure ¥600 billion-level profit regardless of the business environment.

In the core domestic steel business, the biggest challenges continue to be to rebuild stable production capacity at the minimum variable cost, and to maintain and secure appropriate margins in direct contract-based sales*. We will continue to make efforts on these matters.

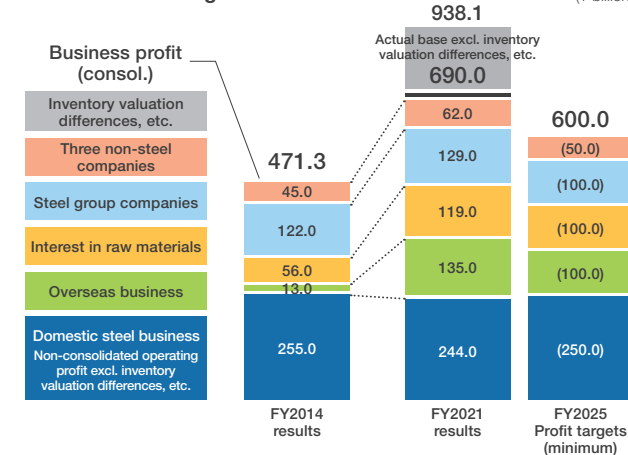
* The price at which steel is produced and sold according to the customer's order.

Figure 1 Nippon Steel's business profit (consol.) and crude steel production (non-consol.)



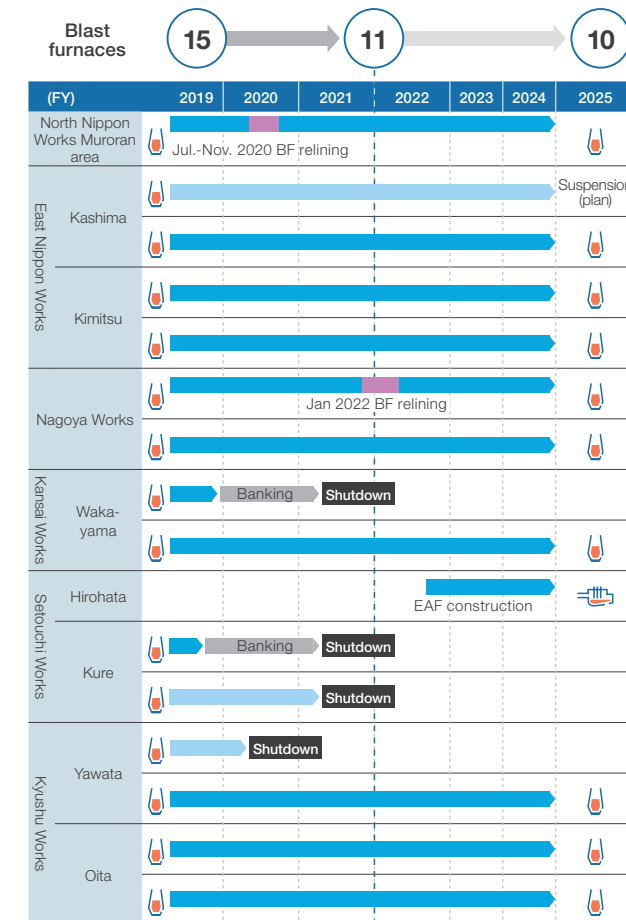
* Up to FY2016: Simple sum of consolidated ordinary profit (JGAAP) of former NSSMC and former Nisshin Steel

Figure 3 Breakdown of business profits excluding one-off factors



2014: Consolidated ordinary profit (JGAAP) of NSSMC and Nisshin Steel
2021: Consolidated business profit (IFRS)

Figure 2 Progress in the structural measures for production facilities



Message from the President

Progress of the Medium- to Long-Term Management Plan

The current situation and the longer-term outlook of the steel industry, and Nippon Steel's efforts

In fiscal 2022, in addition to the continuing risk of slowing economic growth in China, supply constraints, mainly on semiconductor-related goods, and rising energy and resource prices on the back of greenflation, Russia's invasion of Ukraine has been prolonged and widening in its effects, while elsewhere the sharp depreciation of the yen is deteriorating Japan's trade balance. We are thus facing an ever-more harsh business environment.

Despite the extremely uncertain environment, we will continue to strengthen our total management capabilities and maximize profit from the measures we have implemented so far, and aim to achieve a high-level of business profit, as in fiscal 2021.

Over the medium- to long-term, steel demand in Japan is expected to continue declining due to the shrinking and aging population, as well as customers' expanded overseas production.

Moreover, the expansion and infiltration of the "my country first policy" is leading to the review and change of global supply chains, and manufacturing industry is leaning

toward the trend of "local production and local consumption" and "favoring domestic production." The COVID-19 pandemic has further accelerated these moves and there is concern that relations in the global market will undergo widespread and important change.

Further, competition in overseas markets is likely to intensify, mainly because demand in China, which accounts for over 50% of the world's steel production, is peaking.

Looking at the brighter side, from a long-term perspective, global demand for steel is expected to continue growing steadily, particularly in Asia, including India.

In addition, demand for high-grade steel is expected to grow substantially on the back of global efforts toward global carbon neutralization.

By providing products that make use of our technological and commercial capabilities, we are committed to helping reduce CO₂ emissions in society as a whole. We will also steadily capture growing demand and establish ourselves as a leading company in the steel industry.

Four pillars of Medium- to Long-Term Management Plan

1 Rebuild domestic steel business and strengthen group management

Based on three key strategies: 1) shift to a more sophisticated order mix by actively investing in strategic products; 2) renewal and improvement of facilities to ensure that technological capabilities are linked to profits; and 3) strategic selection of products and equipment to streamline the production system and make it more efficient, we strive to establish an optimal production system for our domestic steel business, and strengthen the profit base by reestablishing cost competitiveness that surpasses our competitors and securing proper margins. **Fig. 4**

With regard to the structural measures for production facilities, all upstream facilities of the Setouchi Works Kure Area, the No. 1 blast furnace and related facilities of the Kansai Works Wakayama area, the steel plate mill of the Nagoya Works, and the No. 1 continuous casting machine, the large shape mill, and the UO pipe line of the East Nippon Works Kimitsu Area were shut down and their production was consolidated into competitive mills and lines.

The impact of these structural measures amounted to ¥20 billion in FY2021 (cumulative ¥55 billion since the announcement of the plan, compared to the target of ¥150 billion).

Moreover, we have aggressively invested in strategic products to shift to a more sophisticated order mix, and have also completed the relining of the No. 3 blast furnace of the Nagoya Works, and the investment in measures to increase production capacity and improve quality of electrical steel sheets.

In addition to completing the structural measures for production facilities, we are working on flexibly responding to changes in demand and supply of the global steel market (shortening business cycles) and steadily improving our base operating capacity (cost reduction by continued efforts for more stable operations and facilities, and variable cost reduction through further improvement in operational efficiency, etc.). We also pursue improvement of direct contract-based pricing for customers.

2 Promote a global strategy to deepen and expand overseas business

Overseas business operations have evolved and expanded through progress in selective concentration.

As part of measures toward achieving 100 million tons of global crude steel capacity per annum and ¥1 trillion business profit, we acquired G Steel Public Company Limited and GJ Steel Public Company Limited—the only integrated steel producers with electric arc furnaces and hot strip mills in Thailand—and made them our subsidiaries.

3 Take on the challenge of carbon neutral steel

We are making efforts from two aspects: Provision of high-performance steel products and solutions to reduce CO₂ emission of the society as a whole, and the development of three breakthrough technologies to decarbonize steelmaking process. They are 1) hydrogen reduction in large-sized blast furnaces, 2) 100% hydrogen use in the direct reduction process, and 3) high-grade steel production in large-sized electric arc furnaces.

Our targets are to achieve a 30% reduction in CO₂ emissions in 2030 compared to the level in 2013 and carbon neutrality by 2050. This is consistent with the goal set by the Japanese government and the most ambitious one among our global peers. **Fig. 6**

We have established an organization specifically to promote these initiatives; it is headed by the Executive Vice

4 Promote digital transformation strategies

Digital transformation is another area we are accelerating our efforts, with the aim of becoming a digital advanced company in the global steel industry.

By using our vast and sophisticated data and digital

In India, we are expanding capacity at ArcelorMittal Nippon Steel India as part of efforts aimed at expanding integrated production capacity in overseas areas of demand. These developments have resulted in achieving record-high overseas business profit, which far exceeded the previous record-high and surpassed the projected amount for fiscal 2021, the first year of the Medium- to Long-Term Management Plan. **Fig. 5**

President, and we are actively considering specific measures including the utilization of the government's Green Innovation Fund. We plan to start supplying carbon neutral steel in 2023.

Carbon neutrality cannot be achieved by success in meeting the steel industry's challenges alone.

The governments support for R&D and equipment installation, the establishment of an infrastructure to supply hydrogen, the realization of carbon-free power sources, and the establishment of a system for society as a whole to bear the enormous costs associated with these are all prerequisites. Close collaboration with a wide variety of parties is indispensable.

We will continue making recommendations and requests in various places to realize these.

technology, we will reform our production and business processes, and accelerate decision-making and improve our problem-solving ability from the management level to the front line.

We are determined to steadily execute and follow through regarding materiality in sustainability issues, by checking the Key Performance Indicators (KPI). We will strive to achieving sustainable development goals (SDGs), improving our corporate value, and contributing to the realization of a sustainable world.

I would like to thank all our stakeholders for their continued understanding and support of Nippon Steel.

Figure 4 Optimal production system and shift to a more sophisticated order mix

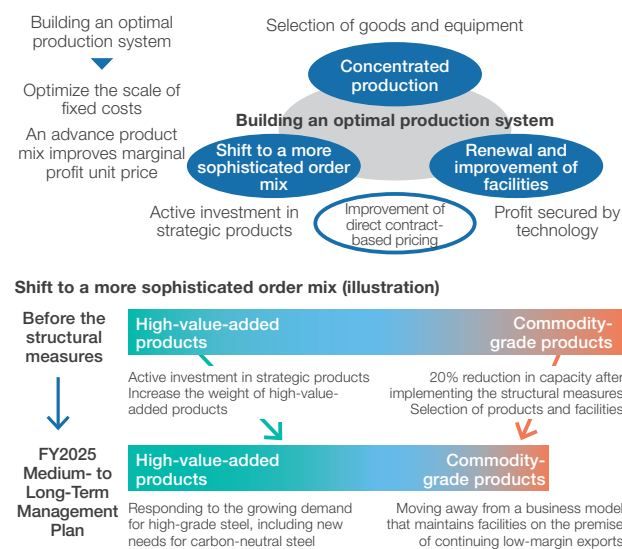


Figure 5 Contribution of the overseas business in consolidated business profit

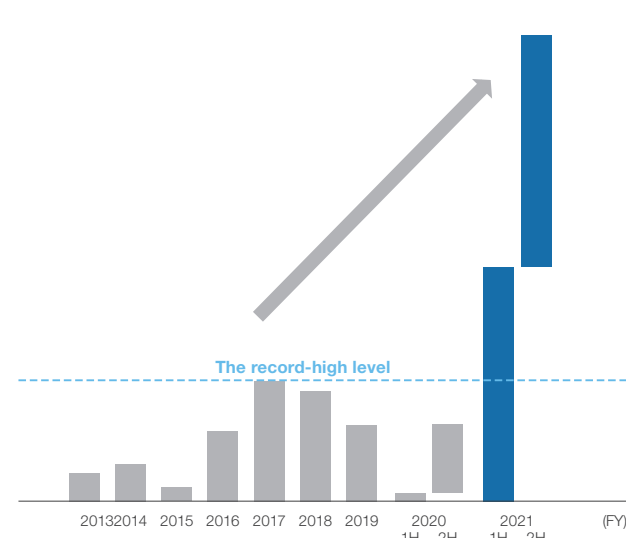
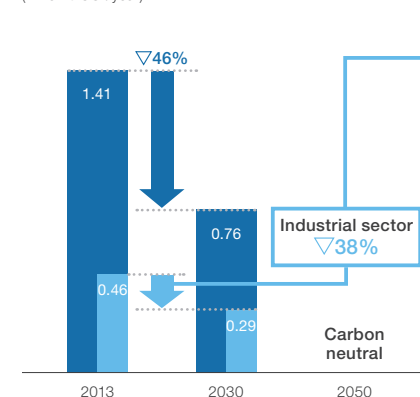
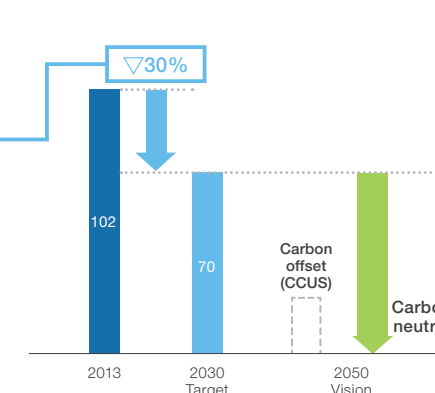


Figure 6 Nippon Steel's contribution to the Japanese government's plan on CO₂ emissions reduction

The Japanese government's plan based on the Global Warming Prevention Act
(Billion t-CO₂/year)



Nippon Steel's CO₂ emissions reduction plan
(Million t-CO₂/year)



Scenario Range: Domestic SCOPE 1+2 (Raw material acceptance to product shipment + purchased power production CO₂)

Nippon Steel's risks, opportunities, and strategies: The Medium- to Long-term Management Plan

With the aim of continually growing to become “the best steelmaker with world-leading capabilities” and contribute to Japan’s industrial competitiveness from the present and into the future, Nippon Steel has adopted a new medium- to long-term management plan in March 2021.

While promptly and flexibly responding to the immediate short-term environmental changes, we are advancing measures to cope with potential risks and opportunities in line with the four pillars of the Medium- to Long-term Management Plan.

Nippon Steel's strategy

Four pillars of the Medium- to Long-term Management Plan

Measures for all four pillars have been implemented according to the roadmap and based on our long-term outlook.

With regard to rebuilding of our domestic steel business and strengthening our group's management, we plan to complete measures by the end of fiscal 2025 in order to establish an efficient and strong production framework at the earliest possible time, and to rebuild the earnings base of our domestic mother mills.

Rebuilding our domestic steel business and strengthening our Group's management

P.15-19

Establishing an optimal production system by strategically selecting products and equipment

Promoting a global strategy to deepen and expand our overseas business

P.20-22

Achieving 100 million tons of global crude steel capacity per annum

Taking up the challenge to achieve carbon neutrality

P.23-28

Provision of high-performance steel products and solutions that contribute to reducing CO₂ emissions in society
Provision of carbon neutral steel through decarbonization in steelmaking process

Promoting digital transformation strategies

P.29-34

Strengthening of decision-making and problem-solving capabilities

Risks / Opportunities

Steel supply/demand environment

P.13-14

- Increase in steel demand globally, but mainly in Asia
- Growth in demand for high-grade steel, including new demand related to carbon neutrality
- Decline in domestic demand and expanded capacity of new steel mills in the coastal area of East Asia, causing intensifying competition and deteriorating export profitability
- Increasing market volatility in prices of raw materials and products, driven by the supply/demand trend in China, accounting for the majority of the global market

Climate change

P.75-78

- Realization of a carbon neutral society as a major social issue
- Establishment of carbon neutral steelmaking technology as an opportunity to reestablish overwhelming superiority in the global steel industry

Status of execution and measures to take

Status of execution

Measures to take

Rebuilding domestic steel business and strengthening group management

Concentrated production

- Implemented nearly a half of the planned facility shut-downs for the production facility structural measures, including 4 blast furnaces (Kokura BF, Kure No. 1 and No. 2 BFs, Wakayama No. 1 BF)
- Reduced annual costs by ¥55 billion cumulative by FY2021 of ¥150 billion planned in the structural measures
- Significantly reduced the scale of fixed cost due to cost reduction efforts, including the structural measures
- Shut down facilities including one BF (Kashima No. 3) in accordance with the roadmap for the structural measures, and consolidate production into competitive facilities
- Steadily reduce the remaining ¥95 billion cost of the structural measures
- Absorb the increase in amortization costs, and maintain a low level of fixed costs by cost reduction efforts, including the structural measures

Shift to a more sophisticated order mix, and renewal and improvement of facilities

- Relined the No. 3 BF at the Nagoya Works (Jan.–June 2022)
- Decided to invest in improving capacity and quality of electrical steel sheets, and further investment is being considered
- Decided to invest in strengthening the supply system of ultra-high-tensile steel sheets (the construction of a next-generation hot strip mill in Nagoya)
- Steadily execute construction and start of capital investment plans to improve strategic product capability and quality, increase the ratio of high-value-added products, and increase marginal profit unit price
- Develop and provide high-value-added products and solutions that meet customer needs

Improvement in direct contract-based pricing for customers

- Improved direct contract pricing
- Revised the business practice of direct contracts
- Promptly reflect the short-term rapid fluctuation of raw material market prices in the sales prices
- Reflect the value of our products and solutions to the sales price

Promoting a global strategy to deepen and expand overseas business

- Acquired G/GJ Steel
- Decided to expand the new steel sheet facilities at AM/NS India's Hazira steel mill in the west and secured renewable energy power
- Expand capacity of AM/NS India (investment in the upstream process of the Hazira steel mill in the west and construction of a new steel mill in the east)
- Explore further opportunities for establishing a 100 million-ton global crude steel capacity

Taking up the challenge of carbon neutral steel

- Established the Green Transformation Promotion Division
- Adopted the assistance by the Green Innovation Fund for the steel industry
- Decided to install a small electric arc furnace and a direct reduction facility at the Hasaki R&D Center
- Decided to invest in increasing capacity and quality of Eco-Products to reduce CO₂ emissions in society (Electrical steel sheets and ultra-high-tensile steel sheets)
- Start supply of carbon neutral steel (from FY2023)
- Develop breakthrough technologies to reduce CO₂ emissions by 30% in 2030 and achieve carbon neutrality by 2050
- Promote measures to increase capacity and quality measures of Eco-Products to contribute to the CO₂ emissions reduction in society

Promoting digital transformation (DX) strategies

- Started prototype application of the integrated production planning simulator
- Advanced utilization of operational and facility data with wireless IoT sensors (NS-IoT)
- Started operation of the unified data platform (NS-Lib).
- Started DX training on two axes: Data science and digital management
- Develop smarter manufacturing
- Advanced use of ICT such as AI and IoT; production support by automation and predictive detection
- Create new data-based business operations using digital technology
- Faster sharing of short cycle management, management information, and KPIs

Potential risks and opportunities in the steel market

In Japan steel demand is expected to continue declining, along with a declining population and overseas expanding production. Worldwide demand for steel, however, is expected to continue growing steadily, particularly in the Asian region including India.

Demand will continue to grow for high-grade steel as it is the kind of product that helps solve social challenges, such as the challenge of ensuring the satisfaction of conditions for the realization of a carbon-neutral society.

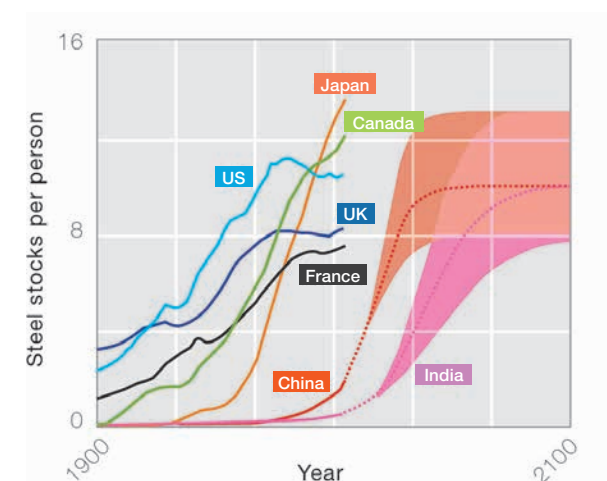
In Japan where demand is shrinking, we have maintained our domestic production capacity by raising our export ratio. However, it is now necessary to assume that the current business model will be difficult to sustain because competition in the overseas market is expected to intensify, mainly as demand in China, which represents 60% of the world's steel production, seems to have already peaked, while we are entering a period which will require our main steelworks to provide large-scale investments for renewal of their aging facilities.

The world's steel demand keeps increasing, mainly in emerging countries

Steel production is indispensable in “leaving no one behind” and realizing an affluent world

Steel products that have been manufactured have been stocked in society in the form of end products, such as in infrastructure (i.e., buildings and bridges), industrial equipment in plants or vessels, and consumer durables (i.e., vehicles and consumer electronics). The aggregate present steel stock per capita is about 4 tons for the world, and about 8 – 12 tons in developed countries. The level of per-capita steel stock can be said as a barometer of an affluent, safe, reliable life. The amount per capita is expected to reach 10 tons in China within the first half of the 21st century and in India by the end of the century.

Steel stock per capita

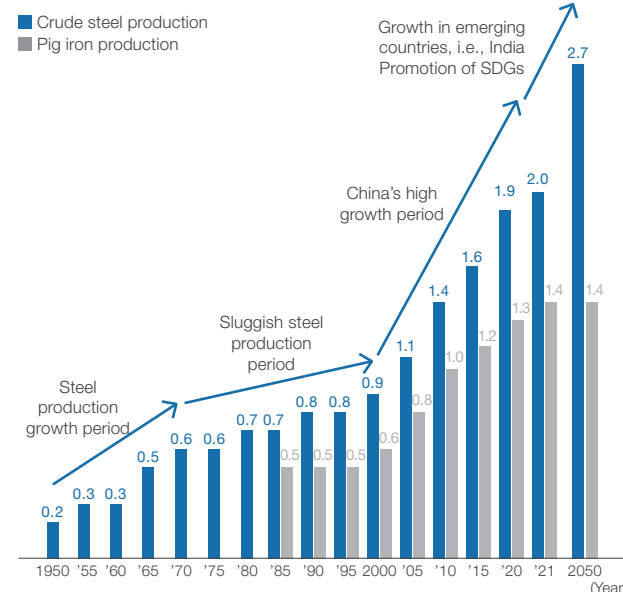


Source: “Sustainable steel: at the core of a green economy”, World Steel Association, 2012

Let's make an estimate. Assuming a global population growth (from approx. 7.9 billion in 2022 to 9.7 billion in 2050), economic growth mainly in emerging countries, implementation of SDG initiatives, and 7 tons in steel stock required per capita in the world, the world's crude steel output that satisfies such demand can be estimated to be approx. 2.7 billion tons per year in 2050.

An increase of this magnitude cannot be satisfied by steelmaking that uses recycled steel scrap and about 1.4 billion tons of steel per year is estimated to be made from iron ore using the blast furnace and other methods even in 2050.

Global crude steel production (billion tons/year)

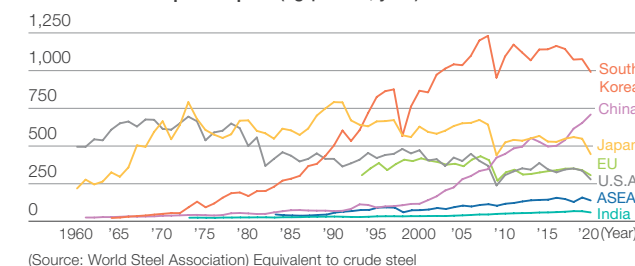


Demand growth in emerging countries

Steel demand for each country or region changes along with economic growth. At the initial stage of economic development, construction demand for infrastructure facilities is robust and industrialization boosts steel demand from the manufacturing industry. In export-oriented countries that ship large quantities of manufactured goods, demand for indirect exports increases and steel demand per capita remains at a high level. In the case of Japan, the annual steel demand per capita increased to approx. 800kg during the high-growth period when infrastructure was being actively built, and since then has been at around 500kg. In South Korea, where the manufacturing industry's export ratio is high, the same steel demand is as high as 1,000kg. China has already reached 500kg, while the U.S. and European countries have declined to about 300kg, along with a decline in the ratio of the manufacturing industry in the overall economy.

In ASEAN countries, India, and other emerging countries, the annual steel demand per capita is about 100–200kg and is expected to increase. Along with population growth, a significant growth in steel demand can be anticipated.

Steel demand per capita (kg/person, year)



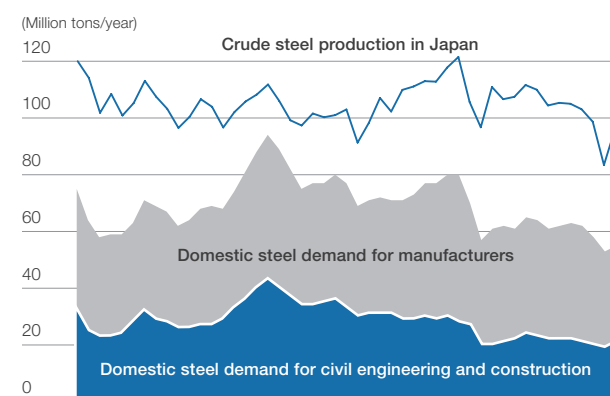
(Source: World Steel Association) Equivalent to crude steel

Japan's steel market anticipates a gradual decline

Domestic demand

Japan's annual crude steel production passed 100 million tons for the first time in 1973 and has been in a range of 100–110 million tons up to now. Domestic steel demand peaked at around 90 million tons per year during the bubble period and has since been on a downtrend due to a fall in demand for civil engineering and construction after the bubble burst, manufacturers' overseas shift in production mainly in the strong-yen period after the 2008-2009 global financial crisis, and other factors. A decline in domestic demand has been offset by an increase in exports of steel products, thereby maintaining steel production at above 100 million tons.

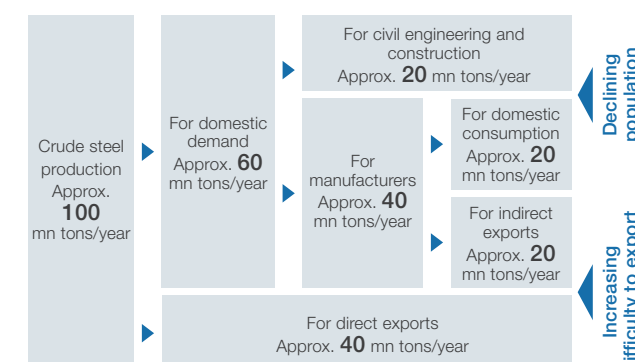
About 100 million tons of steel products produced per year



Increasing difficulty to export

Direct exports of steel products are expected to be difficult in the future, due to intensifying competition with overseas emerging steelmakers and the ongoing trend of “local production and local consumption” and “favoring domestic production.”

The supply chain disruption, caused by the COVID-19, may also speed up the above trend.



Anticipating growth in the high-grade steel market in quality and quantity

High-grade steel products are products which make use of various properties and limitless potential of steel, are designed to meet various specifications for steel quality, depending on the needs of customers, demonstrate superb functionality in use, and contribute to value creation of end products.

Prime examples are Eco Products™, which contribute to realizing a carbon neutral society by preserving resources and energy and reducing environmental impact, and products that provide solutions for national resilience, contributing to the creation of safe, reliable infrastructure, resilient in disasters. Eco Products™ include ultra-high-tensile steel sheets which

help reduce the body weight of vehicles and non-oriented electrical steel sheets which help raise the efficiency of motors for EVs.

As SDG initiatives, including the realization of a carbon neutral society, are making progress and social and industrial structures are changing across the world, properties required for materials are becoming more diversified and advanced, and demand for those high-grade steel products is anticipated to increase both in quality and quantity.

Restructuring of domestic steelmaking business and strengthening of group management

Nippon Steel is earnestly promoting the strengthening of the domestic steelmaking business with emphases based on three key strategies: 1) concentrated production of strategically selected products and equipment; 2) shift to a more sophisticated order mix by actively investing in strategic products; and 3) renewal and improvement of facilities. Our domestic steelworks are positioned as mother mills which play a core role in our global steelmaking business strategy and we aim to establish an optimal production system which enables us to efficiently produce top-class products. We are also strengthening our Group management in order to improve consolidated business profitability and maximize corporate value.

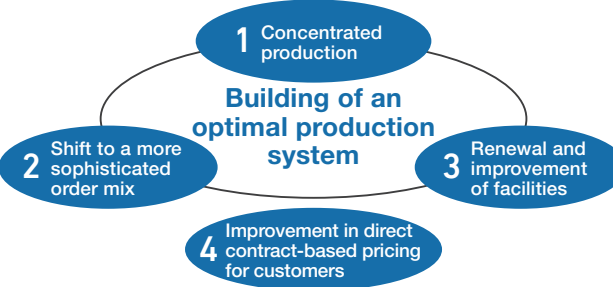
Rebuilding of domestic steel business

At the time when steel demand is expected to decrease in Japan while competition in overseas markets intensifies, we are approaching a time when our main steelworks' aging facilities require large-scale, renewal investment.

This equation would make it difficult for us to continue the current business model of "maintaining the scale of domestic production and offsetting shrinking domestic demand by boosting exports."

Responding to such circumstances, we are vigorously promoting the strengthening of the domestic steel business with emphases based on three key strategies: 1) concentrated production of strategically selected products and equipment; 2) shift to a more sophisticated order mix by actively investing in strategic products; and 3) renewal and improvement of facilities to ensure that technological

Basic policy to rebuild the domestic steel business



1 Concentrated production

Nippon Steel's production facility structural measures aim at concentrating production in competitive facilities while shutting down less-competitive ones, in order to make the production framework to be streamlined and more efficient, and to optimize

Product manufacturing process

With the aim of strengthening the business and making an optimal, more efficient production system, some production lines are being shut down, and production is being

Upstream steelmaking process

With the aim of increasing competitiveness in the integrated steelmaking process, all facilities at the Setouchi Works Kure Area and the No. 1 blast furnace and related facilities at the Kansai Works Wakayama Area were shut down by taking into account each steelworks' competitiveness in terms of integrated production/shipment capacity, cost, product strength, and other factors.

By taking into account the overall situation including

capabilities are linked to profits, as we aim to establish an optimal production system in which domestic steelworks, as mother mills, produce top-grade products and play a core role in our global steel business strategy.

We are thus reestablishing cost competitiveness that surpass our competitors, secure proper margins, and strengthen the profit base of our domestic steel business.

In fact, our steady implementation of production facility structural measures and the improvement in direct contract-based pricing for customers and in related business practices have resulted in great progress in strengthening the profit base of our domestic steel business. This achievement was evident by the end of fiscal 2021.

- 1 Concentrate production in competitive facilities, while shutting down less-competitive ones as per the structural measures for production facilities, thereby streamlining and improving the efficiency of the production system.
- 2 Invest in measures to improve the capacity and quality of strategic products and increase the ratio of higher-value-added products, while reducing the ratio of commodity-grade products.
- 3 Selectively invest in competitive facilities to modernize them, increase productivity and cost competitiveness, and secure stable supply of high-value-added products.
- 4 Improve direct contract-based pricing for customers from the viewpoint of proportionate sharing of the impacts of rising costs of raw materials and fuels in the supply chain, and of the value of the products and solutions provided by us.

the scale of production capacity and fixed cost.

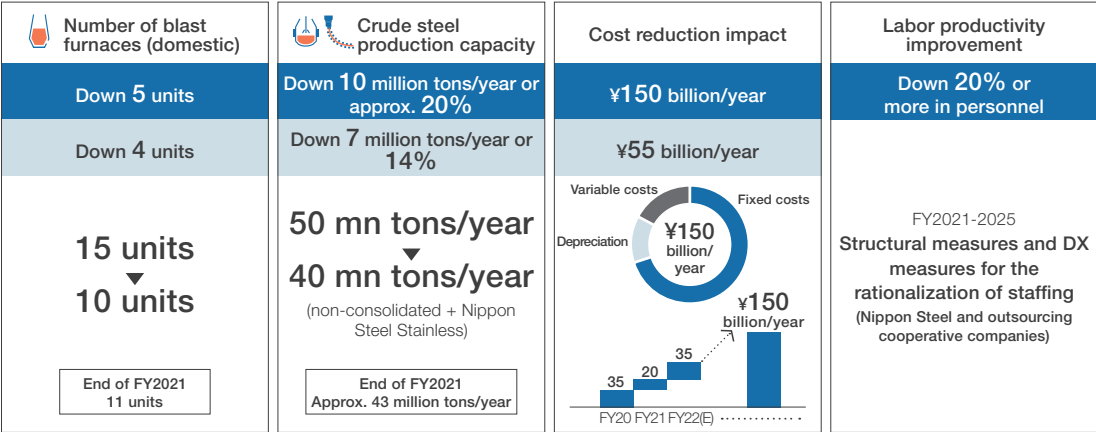
We have already implemented about half of our planned measures by March 2021, significantly reducing fixed cost.

concentrated in lines that are more competitive or closer to centers of demand. We are withdrawing from certain products in light of their medium- to long-term demand trends.

company-wide upstream steelmaking balance and the integrated production/shipment capacity, and cost of the areas where the product manufacturing lines were shut down, the No. 1 continuous casting machine at the Kimitsu Area of the East Nippon Works was shut down and the No. 3 blast furnace and related facilities at the East Nippon Works Kashima Area will also be shut down.

Impacts of the structural measures

Expected impacts by FY2025
Progress up to FY2021



Overview of the production facility structural measures

Steelworks		Facilities for shutdown	Approximate time of shutdown (●: completed)
Upstream facilities	East Nippon Works Kashima Area	One series of upstream facilities (No.3 BF, No.2-A,B,C,D coke ovens, No.3 sintering machine, and No.1 steelmaking plant)	End of FY2024
	East Nippon Works Kimitsu Area	No.1 continuous casting machine	● March 2022
	Kansai Works Wakayama Area	Currently-suspended facilities in one series of upstream facilities (No.1 BF, No.5 coke oven, No.5-1 sintering machine)	● Sep. 2021
		Running facilities in one series of upstream facilities (No.4 coke oven, part of No.3 continuous casting machine)	FY2022 1H
	Setouchi Works Kure Area	All upstream facilities (including BF, sintering, steelmaking)	● Sep. 2021
	Setouchi Works Hirohata Area	Melting furnace (▶ New EAF)	FY2023 1H
Steel plate	Kyushu Works Yawata Area (Kokura)	Upstream facilities (BF, sintering, steelmaking)	● Sep. 2020
	East Nippon Works Kashima Area	Steel plate mill	FY2024 2H
Construction product	Nagoya Works	Steel plate mill	● March 2022
	East Nippon Works Kimitsu Area	Large Shape mill	● March 2022
Pipe & tube	East Nippon Works Kashima Area	Large Shape mill	End of FY2024
	Kansai Works Wakayama Area (Kainan)	Small-diameter seamless pipe mill (West)	End of FY2025
	East Nippon Works Kimitsu Area	UO pipe line	End of FY2021
	East Nippon Works Kashima Area	UO pipe line	● Oct. 2019
Steel sheet	East Nippon Works Kimitsu Area	Small-diameter seamless pipe mill	● May 2020
	East Nippon Works Kashima Area	No.1 hot-dip galvanizing line (No.1 CGL)	End of FY2024
	East Nippon Works Kashima Area	No.1 pickling line	End of FY2022 1H
	Setouchi Works Hanshin Area (Sakai)	No.1 hot-dip galvanizing and aluminizing line (No.1 GAL)	End of FY2022
	Kansai Works Wakayama Area	No.1 hot-dip galvanizing line (No.1 CGL)	End of FY2024
	Kansai Works Wakayama Area	All steel sheet lines	End of FY2024 1H
	Setouchi Works Hanshin Area (Osaka)	All facilities	End of FY2023 1H - end of FY2023
	Setouchi Works Kure Area	Hot strip mill, pickling line	End of FY2023 1H
	Setouchi Works Hanshin Area (Sakai)	Continuous annealing line, electro-galvanizing line, No.1 hot-dip aluminizing line (No.1 CAL)	● End of FY2020
	Setouchi Works Hirohata Area	Tinplate mill	● End of FY2020
Titanium & special stainless steel	East Nippon Works Naoetsu Area	Special stainless steel line	● March 2022
	Kansai Works Osaka Area	Titanium raw material plant	End of FY2022 1H
	Kansai Works Osaka Area	Special equipment for titanium round bar manufacturing	End of FY2022
	Kyushu Works Oita Area (Hikari Pipe & Tube)	Titanium welded pipe production line	● Sep. 2021
Stainless steel	Nippon Steel Stainless Steel Kinuura Works	Hot strip mill/ dedicated facility for production of precision products	● Sep. and Oct. 2020
	Nippon Steel Stainless Steel Kashima Works	All lines (the cold-rolling line and all other lines thereafter)	● March 2022
	Nippon Steel Stainless Steel Kashima Works	A part of annealing lines	● End of June 2021
	Nippon Steel Stainless Steel Shunan Area Yamaguchi Works	A part of cold-rolling and annealing lines	End of March 2021 - end of June 2026
		1 EAF	End of FY2023

Change in major subject lines (Production facility structural measures)

	Shutdown (unit)	Completed by Mar. 2022	Before	As of Mar. 2022	After
BFs	-5	(-4)	15	11	10
Continuous casters	-8	(-5)	32	27	24
Steel plate lines	-2	(-1)	4	3	2
Large shape lines	-2	(-1)	4	3	2
Seamless pipe lines	-2	(-1)	4	3	2
UO pipe lines	-2	(-2)	2	-	-
Hot strip lines	-1	(-)	7	7	6
Cold rolling lines	-2	(-)	17	17	15

	Shutdown (unit)	Completed by Mar. 2022	Before	As of Mar. 2022	After
Galvanizing lines	-5	(-2)	21	19	16
Special stainless steel rolling lines	-2	(-2)	4	2	2
Titanium raw material line	-1	(-)	1	1	-
Titanium round bar line	-1	(-)	1	1	-
Titanium welded pipe line	-1	(-1)	1	-	-
Nippon Steel Stainless Steel cold rolling lines	-4	(-3)	13	10	9
Nippon Steel Stainless Steel EAFs	-1	(-)	4	4	3

Our roadmap to the future

Restructuring of domestic steelmaking business and strengthening of group management

Domestic Steelworks: Upstream Facilities and Products

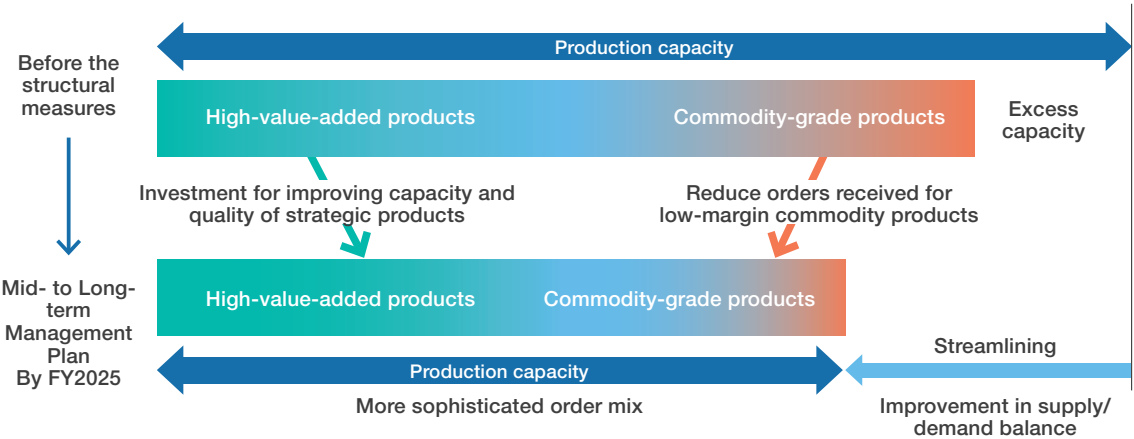
- ◆ All of the related lines are to be or already been shutdown
- ◇ Some of the related lines are to be or already been shutdown

Domestic Steelworks: Upstream Facilities and Products		Upstream facilities (units)				Products														
		BF	BOF	EAF	Continuous caster	Sheets					B/W		Pipes			Construction			Titanium	Special stainless
						Hot strip mill	Cold strip mill	GA	Triplate	Electrical	Bar	Wire	Seamless	UO	ERW	Plates	Shape	Rail		
◆ All of the related lines are to be or already been shutdown	◇ Some of the related lines are to be or already been shutdown																			
North Nippon Works		1	2	1	1						○	○								
Muroran Area	Muroran City	1	2	1	1						○	○								
Kamaishi Area	Kamaishi City																			
East Nippon Works		4→3	10→7		9→6	○	○	◇				○	◆	◆	○	◇	◆		○	○
Kimitsu Area	Kimitsu City	2	5		5→4	○	○	◇				○	◆	◆	○	○	◆		○	
Kashima Area	Kashima City	2→1	5→2		4→2	○	○	○					◆	○	◆	◆	◆			
Naoetsu Area	Joetsu City																		○	◇
Nagoya Works	Tokai City	2	6		3	○	○	○	○						○	◆				
Kansai Works		2→1	3	2	6→5	◆							◇				○		○	◆
Wakayama Area (Wakayama, Kainan, Sakai)	Wakayama City etc.	2→1	3	1	6→5	◆							◇				○			
Osaka Area	Osaka City			1	(▽)													○	◆	
Amagasaki Area	Amagasaki City												○							
Setouchi Works		2→0	6→0	0→1	4→2	◇	◇	◇	◆	○										
Hirohata Area	Himeji City		3→0	0→1	2	○	○		◆	○										
Kure Area ▶ all shutdown	Kure City	2→0	3→0		2→0	◆														
Hanshin Area (Osaka) ▶ all shutdown	Osaka City					◆														
Hanshin Area (Kanzaki)	Amagasaki City					○														
Hanshin Area (Sakai)	Sakai City					○	◇													
Hanshin Area (Toyo)	Saijo City					○	○													
Kyushu Works		4→3	11→7		9→7	○	○	○	○	○	○	○	○	○	○	○	○	○		◇
Yawata Area (Tobata, Kokura, Yahata, Hikari Titanium Production)	Kitakyushu City, etc.	2→1	8→4		6→4	○	○	○	○	○	○	○					○	○	○	
Oita Area (Oita)	Oita City	2	3		3	○														
Oita Area (Hikari Pipe & Tube)	Hikari City												○		○		○			◇
Nippon Steel Stainless Steel Corp.				4→3	4	◇					○	○			○					
Kashima Works	Kashima City					○														
Yamaguchi Works	Shunan City, Hikari City			4→3	4	◇					○	○								
Kinuura Works ▶ all shutdown	Hekinan City					◆														
Yawata Works	Kitakyushu City														○					

2 Shift to a more sophisticated order mix

Demand for high-grade steel products, which help solve certain social issues, is expected to continue to grow. Demand growth is of growing importance in connection with efforts to realize a carbon-neutral society.

These high-end steel products are identified as “strategic products” and we will vigorously invest in facilities to improve their production capacity and quality.

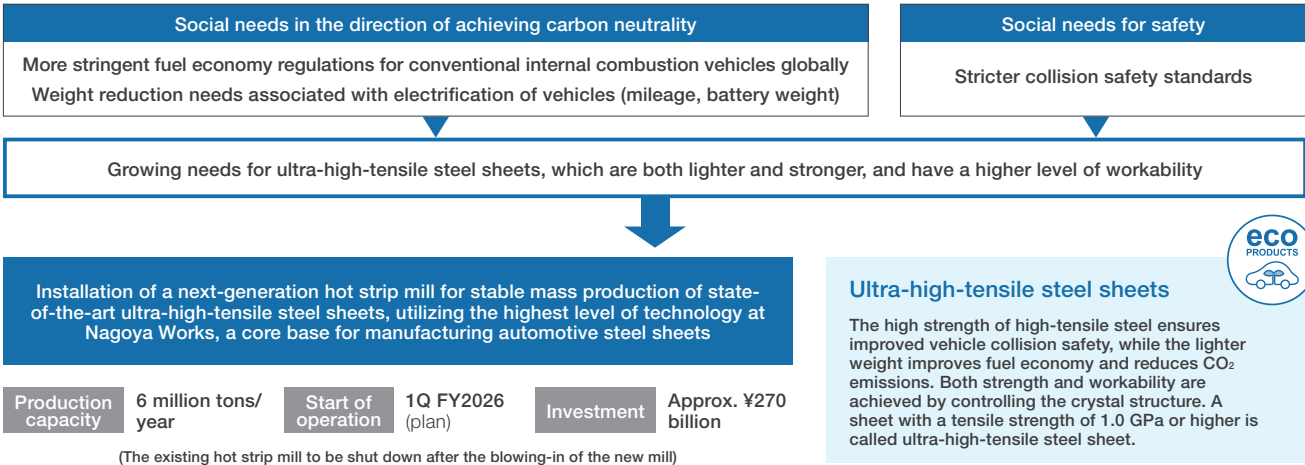


Strategic investment in a next-generation hot strip mill at the Nagoya Works

In the automotive industry, where global environmental regulations are showing a trend of tightening and where collision safety standards are becoming more stringent, demand for high-performance materials is expected to further grow in response to the need for lighter, stronger vehicle bodies. For the foreseeable future, demand for electric and hybrid vehicles will have high growth potential, creating need to reduce vehicle weight and increase body strength, particularly because of problems concerning mileage and battery weight.

In response to these needs, we will establish a next-generation hot strip mill as a means of fundamentally strengthening our production system for ultra-high-tensile steel sheets and other high-grade products at the Nagoya Works – our core base for manufacturing automotive steel sheets.

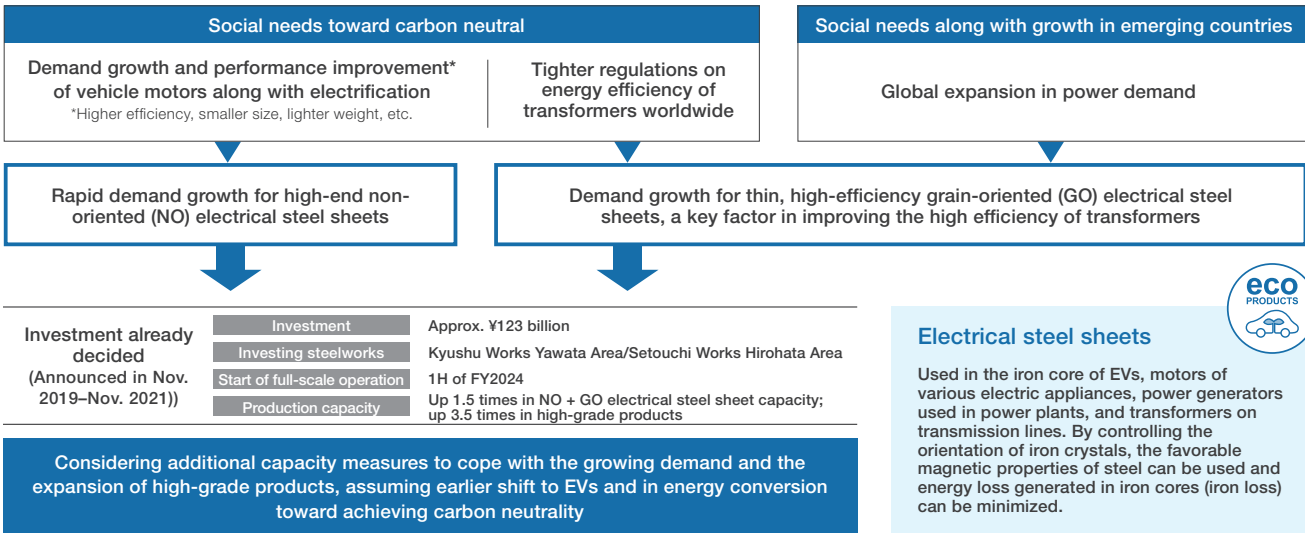
We have developed a specific capital spending plan and have started construction upon the decision made in May 2022 to invest ¥270 billion.



Strengthening the manufacturing system of high-end electrical steel sheets

As the world is rapidly moving toward decarbonization, regulations concerning energy efficiency of transformers have been tightened in a number of countries. With regard to grain-oriented (GO) electrical steel sheets used in the iron core of transformers, the need for higher-grade materials with less energy loss is anticipated to further increase. In the meantime, demand for high-efficiency high-grade non-oriented (NO) electrical steel sheets used in the iron core of motors used in electric vehicles (EVs) is also expected to dramatically increase, driven by accelerated growth in demand for EVs, along with the stricter regulations for CO₂

emissions and average fuel consumption for vehicles. We have started construction as we had already decided by November 2021 to invest ¥123 billion in total for the improvement in capacity and quality of electrical steel sheets at the Setouchi Works Hirohata Area and the Kyushu Works Yawata Area. Our plan is to increase the GO + NO electrical steel sheet capacity by 1.5 times, including an increase of 3.5 times for high-grade products by the first half of fiscal 2024. In addition, we are considering additional capacity measures to cope with the growing demand and the expansion of high-grade carbon-neutral products.



3 Renewal and improvement of facilities

The facilities will be renewed and improved by selectively investing in competitive facilities, including using funds to improve the capacity and quality of strategic products.

We will continue to work at well-timed and accurate

assessment and analysis of demand trends and other factors in order to establish an optimal production system and will develop further measures, if needed.

	Steelworks	Facility	Decision making	Start-up
Blast furnace (BF)	Noth Nippon Works Muroran Area (Hokkai Iron & Coke)	#2 BF relining	Nov. 2018	Nov. 2020
	Nagoya Works	#3 BF relining	June 2020	Aug. 2022
Coke oven (CO)	East Nippon Works Kashima Area	#2E CO capacity increase	Sep. 2015	May 2018
	East Nippon Works Kimitsu Area	#5 CO refurbishment	April 2016	Feb. 2019
	Noth Nippon Works Muroran Area (Hokkai Iron & Coke)	#5 CO refurbishment	June 2017	Sep. 2019
	Nagoya Works	#3 CO refurbishment	Nov. 2018	May 2021
	East Nippon Works Kimitsu Area	#3 CO refurbishment	Feb. 2022	1H 2026
	Kyushu Works Oita Area	#2 CO refurbishment	June 2022	2H 2025
Other	Kyushu Works Yawata Area	Construction of a leading bloom continuous casting machine	March 2016	May 2019
	East Nippon Works Kimitsu Area	Installment of #6 hot-dip galvanizing line	April 2018	Jan. 2021
	Setouchi Works Hirohata Area	Construction of an electric arc furnace	Nov. 2019	2022
	Nagoya Works	Installment of a next-generation hot strip mill		1Q 2026
	Kyushu Works Yawata Area	Improvement of the capacity and quality of electrical steel sheets	Aug. 2019	1H 2023
			May 2020	
			Nov. 2019	
	Setouchi Works Hirohata Area		Nov. 2020	1H 2024
			Nov. 2021	

4 Improvement in direct contract-based pricing for customers and revision of the related business practices

Order-made steel products based on the direct contracts with the features and quality that meet customers' needs account for a majority of our steel products sales. Sales prices for these products are determined through negotiations with customers.

We have asked customers for their understanding of our need to adjust direct contract prices from the viewpoint of proportionate sharing of the impacts of rising costs of raw materials and fuels in the supply chain, and of the value of the products and solutions provided by us.

In FY2021, we gained many customers' understanding and achieved significant improvement.

Prior to the first half of fiscal 2021, there had been many contracts for which the prices were negotiated and finalized after the order intake and production. We then made a proposal to customers to advance the timing of negotiations

and raise the efficiency in this process, so that the price would be fixed before our order intake, which could facilitate our forecast making and coping with longer-term, difficult management issues such as carbon neutrality. Upon discussions, many customers agreed with our proposal.

As a result, most of the direct contract prices for the second half of fiscal 2021 were determined earlier than before in the third quarter, and the prices for April 2022 and after were determined by the end of March 2022.

We have also proposed and discussed shorter contract terms, etc., taking into account different circumstances of each customer, as one of the measures to respond to fluctuating costs of raw materials and fuels.

For customers who have already agreed, we have implemented a shorter cycle since April 2022. We will continue negotiating with other customers.

Strengthening Group Management

In order to improve consolidated business profitability and maximize corporate value, we are working on 1) strengthening the competitiveness and profitability of each Group company, 2) optimizing the structure of the Group by selecting and concentrating businesses, and 3) deepening collaboration among the Company and the Group companies, as well as improving and enhancing the management infrastructure.

As for Group companies in steelmaking, we will continue to further clarify the mission of each company, enhance their profitability consistent with the Company's business divisions of each product type, and "select and concentrate" Group

companies in consideration of sustainability, among other factors.

The Engineering and Construction Business and the Chemical & Materials Business implement measures that are closely aligned with the various measures of the steelmaking business, and will expand profits based on the "selection and concentration" of each company's individual business. The System Solutions Business makes a significant contribution to the development of the DX strategy for the entire Group, based on its accumulated technology and experience, and will continue to grow its business by capturing growing market needs.

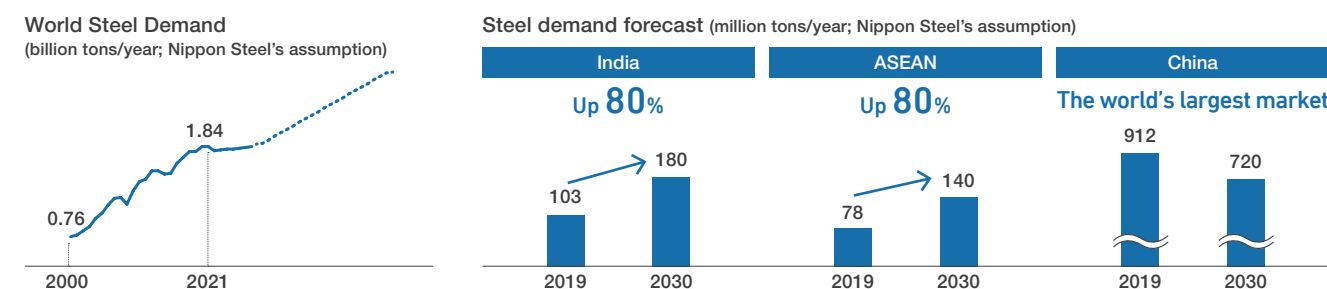
Promoting a global strategy to deepen and expand our overseas business

Nippon Steel's strategy in the overseas steel business is to expand our integrated production framework in the centers of demand, and ensure that local demand is captured in "markets where we see assurance of demand growth potential" and "areas where our technology and product capacity can be used."

By implementing these strategies, our plan is to achieve 100 million tons of global crude steel capacity per annum for the Nippon Steel Group by combining the efforts of our mother mills in Japan and local mills located overseas.

Global crude steel capacity of 100 million tons

Global steel demand is expected to continue to grow at a moderate pace toward 2025, furthermore, 2030. We have developed our business mainly in Asia (especially China, the ASEAN countries and India), whose market size and growth rate are relatively large globally, and we are well positioned to profit from the scale and growth of this market.



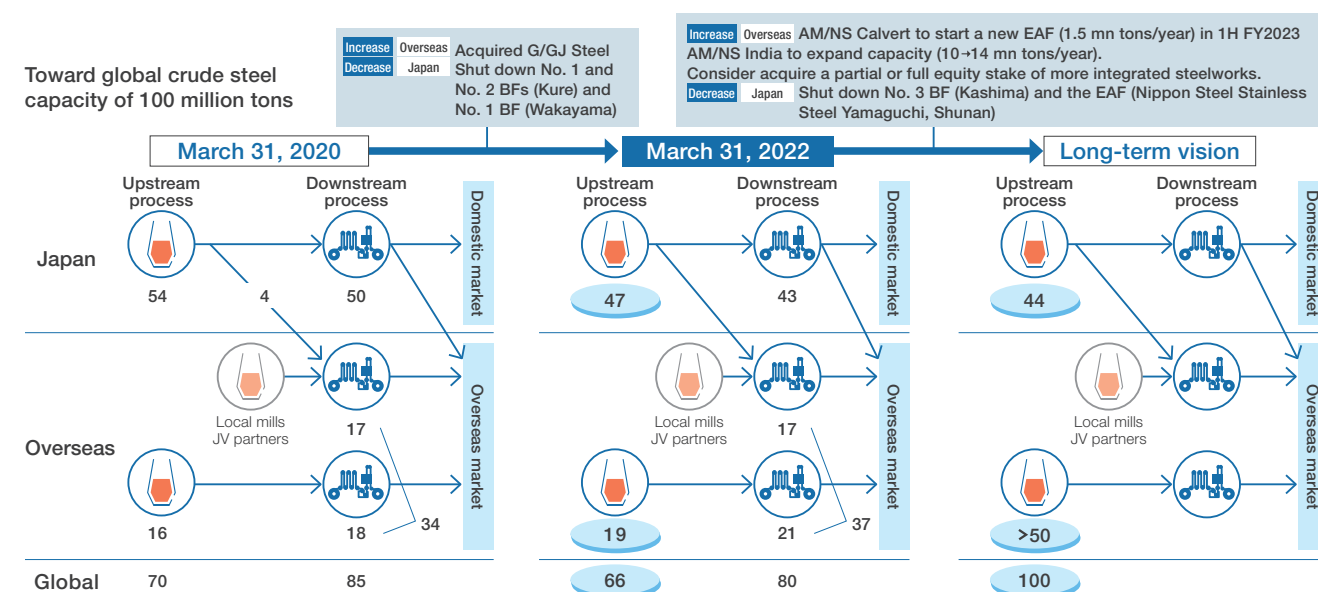
In order to further improve our profitability in this environment, we will maintain our traditional business of exporting steel products, mainly high-grade steel, and supplying by overseas companies in charge of producing predominantly cold-rolled and plating products, and will move toward a full-scale overseas business that enables local demand to be captured in its entirety and provides added value to our products.

Our basic strategy is to make equity participation (brownfield investment) in integrated steel mills in order to maintain a supply/demand balance in the market where excess capacity in crude steel production demands attention, and to avoid the risks associated with a new launch. We acquired Essar Steel (now AM/NS India) in India in December

2019 and G steel and GJ steel in Thailand in March 2022.

Our present overseas crude steel production capacity is 19 million tons per year, and the total global crude steel production capacity, including the domestic capacity, is 66 million tons. [P.57-60](#)

Going forward, we will expand the capacity of AM/NS India, construct an electric arc furnace at AM/NS Calvert in the United States, and search for further opportunities to expand our overseas crude steel production capacity to exceed 50 million tons, with the ultimate aim of achieving a global crude steel production capacity of 100 million tons for the entire Group.



Simple sum of crude steel production at full capacity* (million tons/year)

* Simple sum of crude steel production at full capacity of 1) companies with a 30% or more stake (including USIMINAS) subject to World Steel Association's crude steel production statistics; and 2) an equity method affiliate with less than 30% stake, to which Nippon Steel plays a significant role in supply of materials (AGIS)

Our roadmap to the future

Restructuring of domestic steelmaking business and strengthening of group management

Acquisition of G Steel and GJ Steel

In February 2022 Nippon Steel acquired G Steel Public Company Limited and GJ Steel Public Company Limited, which are integrated steel production mills that produce hot-rolled steel sheets from electric arc furnaces in Thailand, and made them subsidiaries.

Amongst the ASEAN countries, Thailand has been an essential market for us, where we have established product processing bases since the 1960s.

To meet demand for high-grade steel from local automotive and home appliance manufacturers, we had supplied semi-finished products from Japan, which were then further processed locally at our cold-rolling, coating, and other processing facilities and supplied as final products to local manufacturing companies.

In Thailand, demand for commodity-grade steel sheets, which constitute the largest market segment other than high-grade steel, is also expected to grow steadily.

As the trend of “favoring domestic production” accelerates all over the world, it is important to become an insider in order to capture the demand of commodity-grade products in Thailand, and that is why we had considered securing local

integrated steel production through M&A and other means.

Both G Steel and GJ Steel are the only steel companies which have integrated steel production facilities from electric arc furnaces to hot-rolling processes in Thailand, and were engaged in manufacturing and sales of commodity-grade hot-rolled steel products—volume-zone products.

The two companies have a hot-rolled production capacity of approximately 3 million tons in total and have been engaged in sales of general-purpose products for building materials and others in Thailand.

We also found the acquisition to be an attractive meaningful investment for us because the electric arc furnaces are suitable for the demand scale of hot-rolled steel in Thailand, and the companies can become a potential development base for promoting “high-grade steel production in electric arc furnaces”—one of our three strategies of the Carbon Neutral Vision 2050.

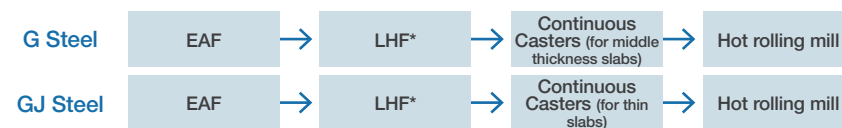
In addition to using the business base of G Steel and GJ Steel for manufacturing and sales, we will work on improving their productivity and quality to capture the steadily-growing hot-rolled steel demand in Thailand.

Company overview

	G Steel	GJ Steel	Total
Company name	G Steel Public Company Limited	GJ Steel Public Company Limited	
Founded	1995 as Siam Strip Mill	1994 as Nakornthai Strip Mill	
Revenue*1 (mn THB/yr)	15,814	18,407	34,221
Sales volume*1 (mn t/yr)	0.59	0.66	1.25
Production capacity (mn t/yr)	1.58	1.50	3.08
Product types manufactured	Hot-rolled coil (Mainly for construction steel pipes, and wholesale)		
Number of employees*2	621	646	1,267
Nippon Steel's ownership	60.23%	57.60%	
Listing Market	Stock Exchange of Thailand		

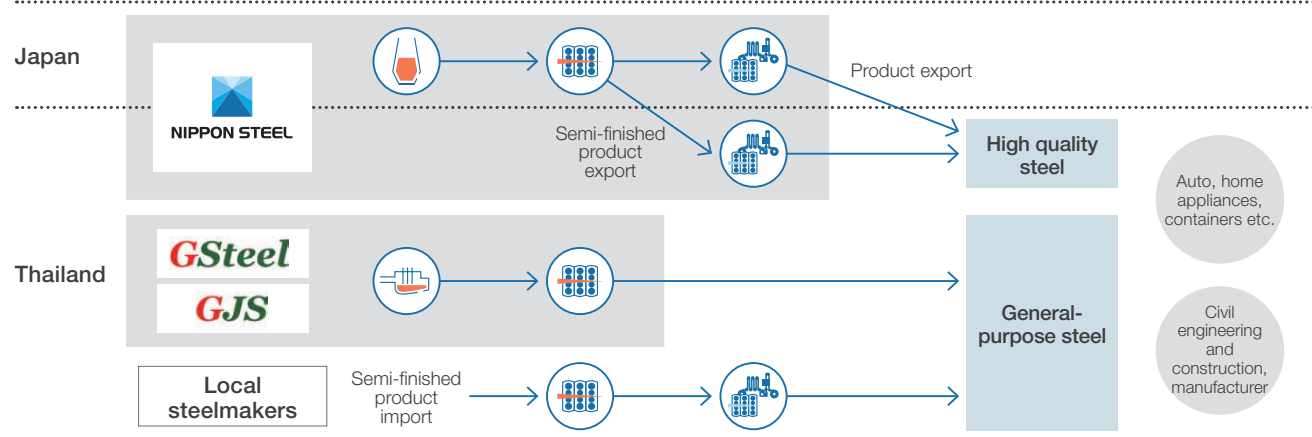
*1 FY2021 actual, unconsolidated *2 As of 2021.12E

Process of manufacturing

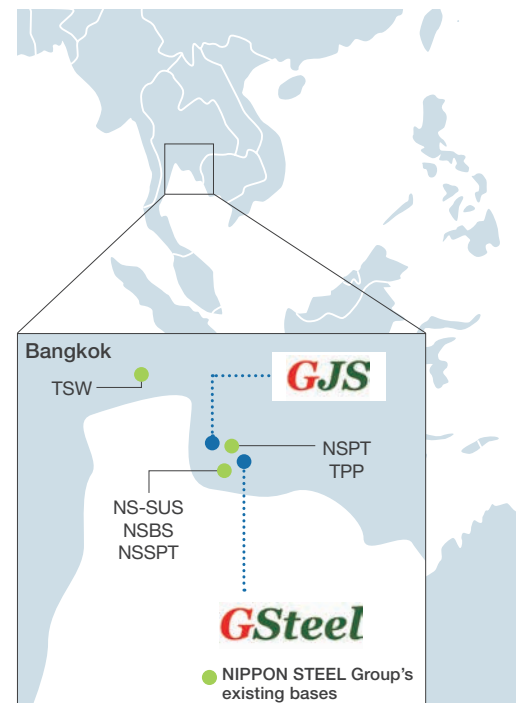


* LHF: Ladle Heating Furnaces

Thailand Market in our Global Business Strategy



Footprints



Efforts to expand capacity of AM/NS India

The population of India is currently about 1.4 billion, and is expected to continue to grow, surpassing China in 2023, and becoming the world's largest population. On the other hand, India's annual steel consumption is currently around 76kg per person per year, and is at a low level compared to industrialized countries such as Japan and China (about 500kg per person per year), the United States and developed countries in Europe (about 300kg), ASEAN countries (about 130kg), and Brazil (about 100kg). In the future, with the progress of industrialization and urbanization, demand for steel materials per person is expected to increase in India, and especially to increase for infrastructure. Due to the synergy between the increase in steel demand per person and the increase in the population, steel demand is expected to increase steadily over the long term.

India's government, under its “Make in India” policy, is resolutely protecting India's steel industry as a key industry, while India's steel market has had a high domestic production rate and has a structure in which Indian insiders enjoy the growth in demand. On the other hand, new integrated steelworks are unlikely to be rapidly constructed in the near future because of restrictions in acquisition and utilization of industrial sites. India's steel market had been fragmented with low concentration in top-tier companies and little progress in industry consolidation. However, since 2016 when the Insolvency and Bankruptcy Code entered into force, a large-scale industry consolidation process has started. Going forward, further concentration into top-tier makers is

expected, together with a possibility for a more stable market.

The Indian steel market is thus anticipating market expansion and tighter supply and demand. In December 2019, we acquired Essar Steel, one of the major four steelmakers in India, jointly with ArcelorMittal, and began operating it as AM/NS India, an equal partnership of both Nippon Steel and ArcelorMittal.

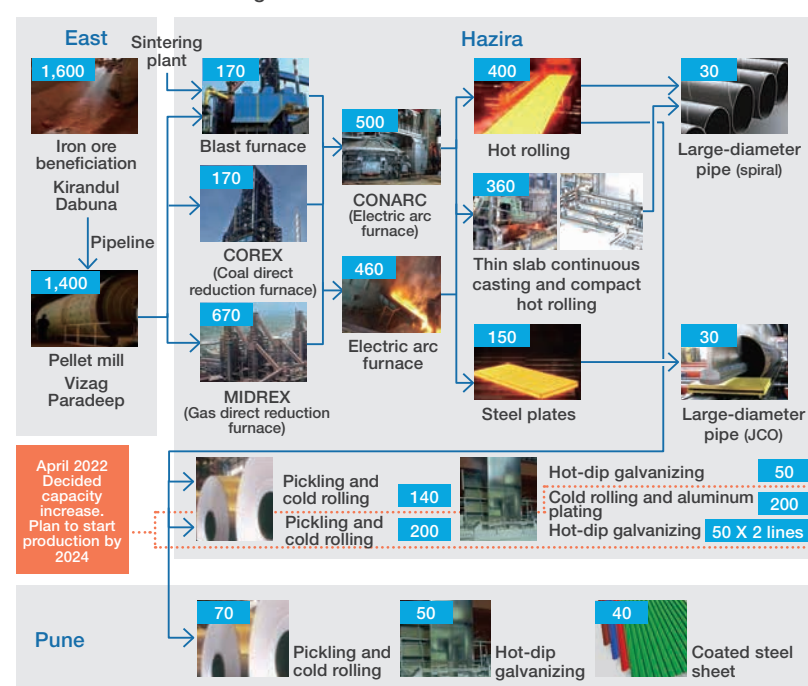
In line with the growth of the Indian steel market, we plan to expand our capacity, with AM/NS India as a core.

At the acquired Hazira steel mill in the west coast of India, we decided to construct leading-edge steel sheet manufacturing facilities (pickling, cold-rolling, and galvanizing) in May 2022 to cope with the growing demand for steel sheets and favoring of domestic production of high-value-added products.

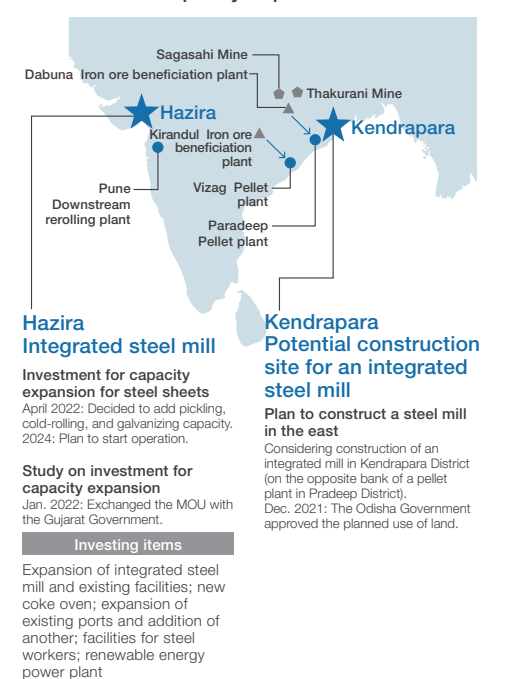
We are also considering capacity expansion of the Hazira steel mill, from 7 million tons per year to over 14 million tons. In January, 2022, AM/NS India exchanged the Memorandum of Understanding (MOU) with the Gujarat Government on the investment plan including expansion of production and port capacity, and renewable energy power generation. The government has agreed to provide support needed for renewable energy and other matters.

Moreover, the construction of a second steel mill in the east coast is under consideration. In December 2021, AM/NS India's proposal on use of land for construction of a new steel mill in Kendrapara District of Odisha State in the east was approved by the Odisha Government.

AM/NS India Steelmaking Process



AM/NS India Capacity Expansion Plan



Measures to enhance profitability of the existing businesses

With regard to existing overseas businesses, we have concentrated operations, and narrowed our focus to certain businesses, as we have almost completed the reorganization of our overseas tinplate business and our withdrawal from VSB and other businesses which would not be economically viable for us to continue. Going forward, we will aim to

increase profits by strengthening the business bases of AM/NS India and OVAKO, which are large-scale acquisitions, and in the case of each overseas business company, by taking advantage of our advanced technology and capturing the growth of the markets as a company in each country.

Our roadmap to the future

Promotion of Carbon Neutral Vision 2050

When Nippon Steel announced its Carbon Neutral Vision 2050 in March 2021, the Company positioned climate change issues as the priority management challenge for the Medium- to Long-Term Management Plan.

We have taken up the challenge to achieve carbon neutrality in 2050, and are striving to reduce CO₂ in our value

chain by providing two types of value: by providing high-performance steel products and solutions that contribute to reducing CO₂ emissions throughout society, and by providing carbon neutral steel through decarbonization of the steelmaking process.

Providing two type of values targeted by the Carbon Neutral Vision 2050



NIPPON STEEL

In support of the ambitious government policy to realize a carbon neutral society in 2050, we announced the Carbon Neutral Vision 2050 as a part of the Medium- to Long-Term Management Plan in March 2021.

Providing two types of values by achieving carbon neutrality

Provision of high-performance steel products and solutions that contribute to reducing CO₂ emissions in society

eco PRODUCTS

Reduce CO₂ emissions at the time of production and processing by customers

Reduce CO₂ emissions at the time of use of our products by end customers

Decarbonization of steelmaking process for providing carbon neutral steel

eco PROCESS

Reduce CO₂ emissions in customers' supply chains

By providing high-performance steel products and solutions, and by decarbonizing steelmaking process ahead of other countries, we are determined to provide carbon neutral steel to our customers (including approximately 6,000 companies in Japan) and support their international competitiveness.



Providing high-performance steel products and solutions that help reduce overall CO₂ emissions

In addition to promoting drastic technological innovation in the steelmaking process, we are contributing to the realization of a carbon neutral society in Japan by providing high-performance steel products (Eco-Products) that help customers save energy and that reduces CO₂ emissions when using final products.

Specifically, in response to the growing demand for electrical steel sheets that reduce energy loss for motors of electric vehicles and transformers, and demand for higher grade steel products, we have decided to implement measures to improve the capacity and quality of electrical steel sheets and are currently investing ¥123 billion in total in the Kyushu

Works Yawata Area and Setouchi Works Hirohata Area.

In addition, in response to the growing demand for ultra-high-tensile steel sheets that improve automobiles by the combination of lighter weight and higher strength, we have also begun to establish a new-generation hot-rolling mill in the Nagoya Works. We will continue to provide high-performance steel products and solutions that are compatible with this carbon neutral initiative, contributing to the reduction of CO₂ emissions in production and processing by our customers and in the use phase of our products by end consumers.

Decarbonization of steelmaking process for providing carbon neutral steel



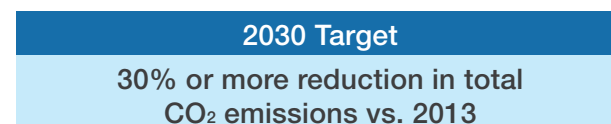
We have formulated a target of reducing total CO₂ emissions by 30% by 2030, compared to the 2013 baseline and of achieving carbon neutrality in 2050. We are working to develop and actually implement breakthrough technologies in steelmaking process ahead of steel companies in other countries.

Our plan is ambitious compared to those of our global peers, and is intended to significantly contribute to the

Japanese government's plan. With the assistance of the Green Innovation Fund*, we are working on specific plans of the roadmap of development and practical implementation.

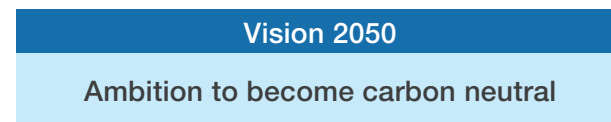
* Commissioned and grant projects of New Energy and Industrial Technology Development Organization (NEDO), which supports companies to carry out projects aimed at achieving ambitious targets for 2030 in focused areas of the Japanese Government's Green Growth Strategy, such as CO₂ emission reduction.

Our CO₂ emissions reduction scenario



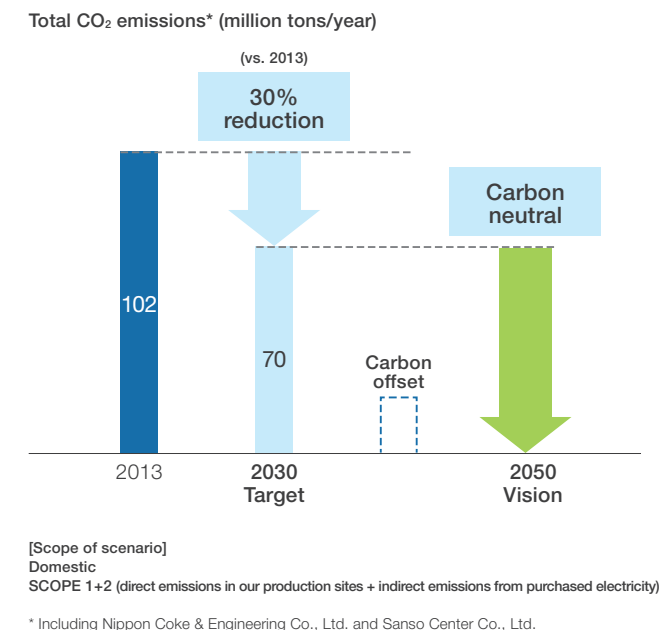
30% reduction in total CO₂ emissions vs. 2013 by implementing the COURSE50* in the existing BF and BOF process, reducing CO₂ emissions in existing processes, and establishing an efficient production framework.

* COURSE50: Abbreviation for CO₂ Ultimate Reduction System for cool Earth 50

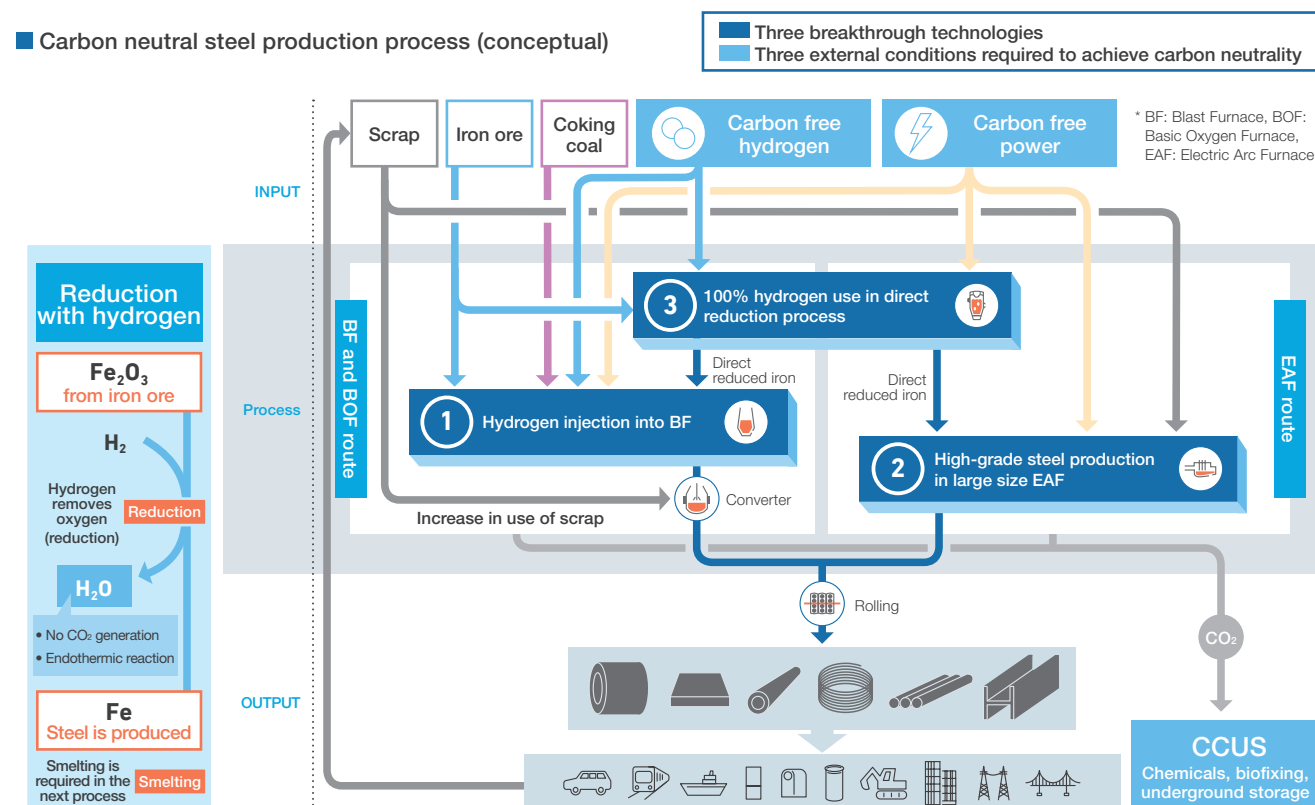


Ambition to become carbon neutral by taking up the challenge to mass produce high-grade steel in large size EAFs and to realize hydrogen steelmaking (i.e., Super COURSE50 use of BF; direct reduction with 100% hydrogen), and with multi-aspect approach, including CCUS* and other carbon offset measures.

* Carbon Capture, Utilization and Storage



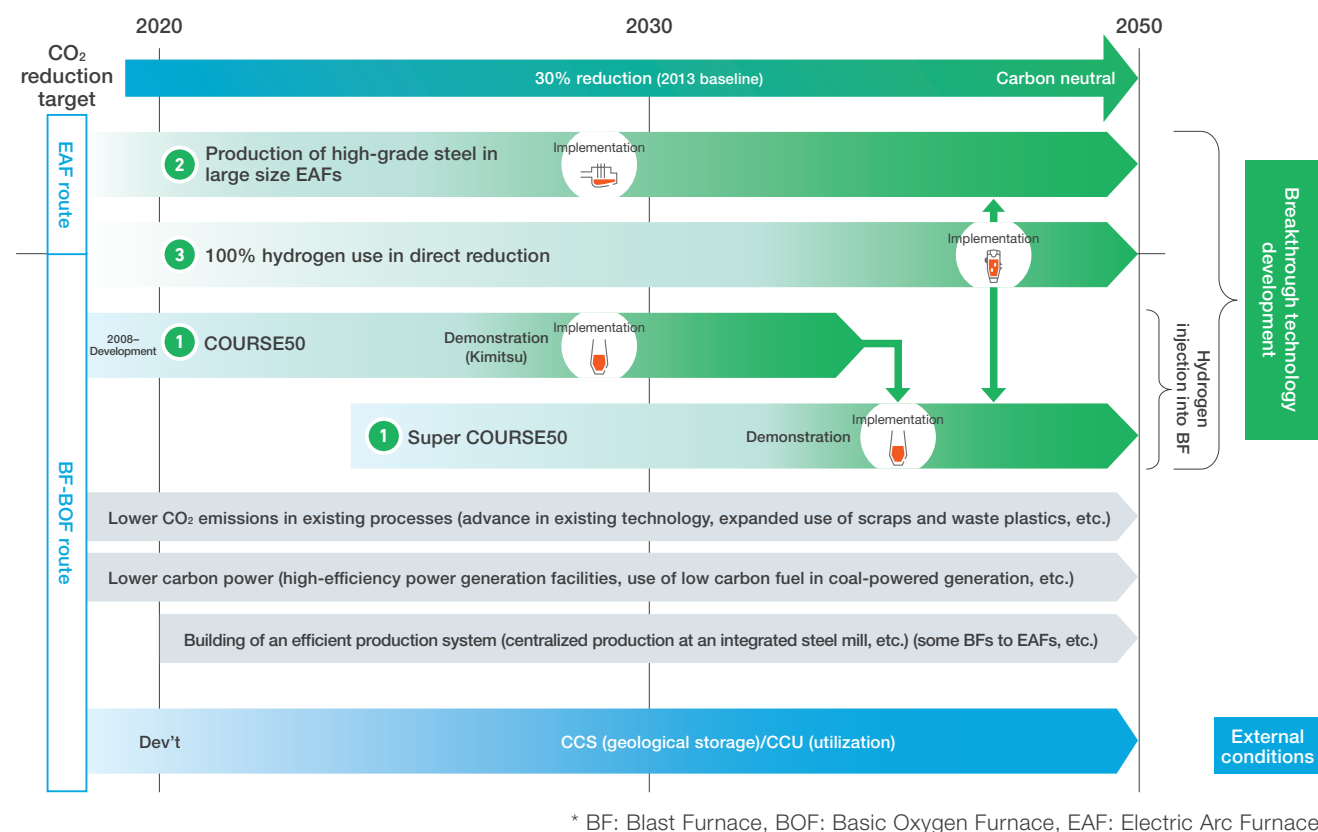
Carbon neutral steel production process (conceptual)



Our roadmap to the future

Challenge of carbon neutrality

Roadmap to achieve the Carbon Neutral Vision



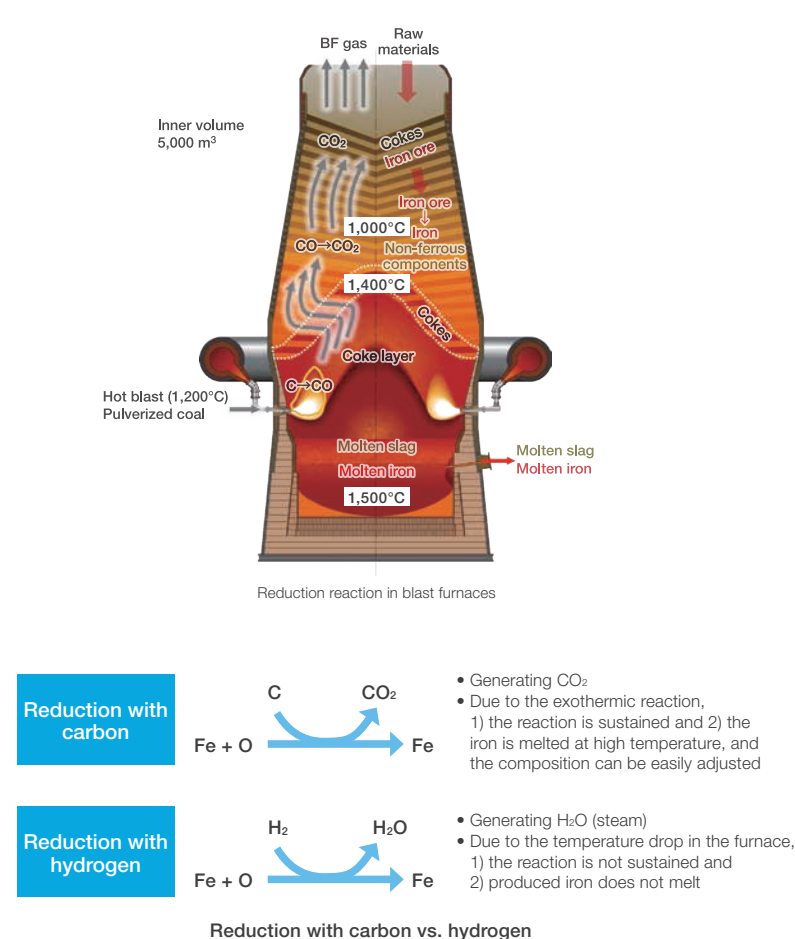
Technical Issues for realizing a carbon-neutral production process

In nature, iron exists as oxidized iron ore. To produce steel products, oxygen must be removed (= reduced) from iron ore. This reduction process has been carried out by the blast furnace (BF) and the basic oxygen furnace (BOF), using carbon such as coal.

In this process, coal (coke) is 1) a reducing agent, 2) a source of heat, and 3) plays a role to support the function of raw materials at high temperature in a solid form while facilitating to maintain ventilation in the furnace. Although the coal (coke) has been utilized in a continuous, efficient steelmaking from iron ore, CO₂ is inevitably generated during the reduction reaction.

We are therefore drastically reviewing this process and plans to reduce CO₂ emissions by replacing coal (coke) as a reducing agent with hydrogen to produce H₂O instead of carbon in the reduction.

However, as reduction with hydrogen is an endothermic reaction, the temperature drop in the furnace causes problems such as the reaction not being sustained and the iron not melting. In order to realize hydrogen steelmaking, we are tackling these problems by development of breakthrough technologies such as 1) high-temperature heating of flammable hydrogen, 2) securing of gas flow in the furnace, 3) additional melting process, and 4) large-scale production for production.



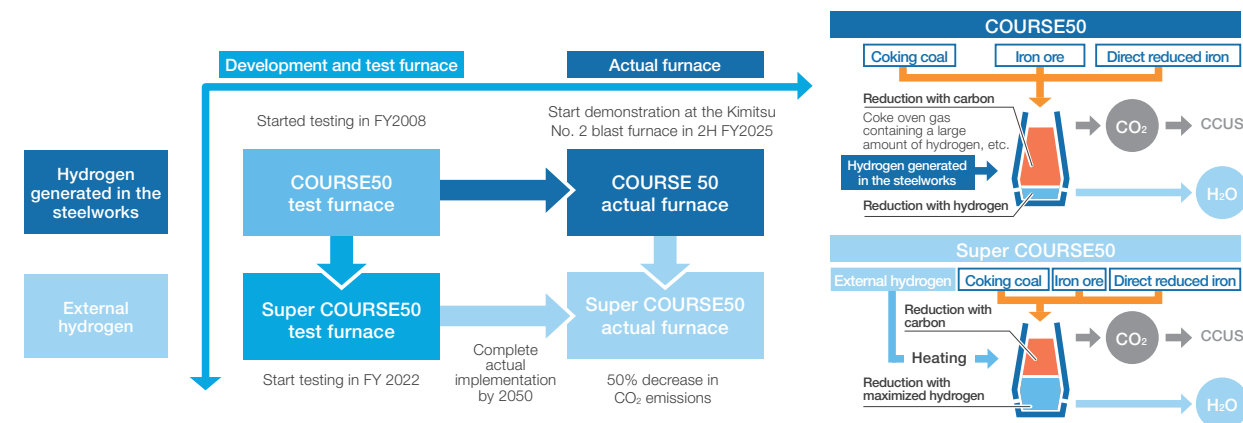
Challenge of developing breakthrough technologies

1 Reduction with hydrogen in blast furnaces

Japan's three blast furnace steelmakers and Nippon Steel Engineering have been developing the COURSE50 blast furnace, which partially replaces carbon used in the furnace as a reducing agent with the hydrogen-rich gas generated in the integrated steel mill. We have already verified that the technology can reduce CO₂ emissions in the test furnace. We plan to start demonstration of the COURSE50 at Kimitsu No. 2 blast furnace in the second half

of fiscal 2025 as a Green Innovation Fund project.

Our subsequent plan is to install a working COURSE50 blast furnace by fiscal 2030, work on solving the issues related to the endothermic reaction and the scale-up of the furnace, and to develop the Super COURSE50 technology so that we can reduce the blast furnace CO₂ emissions by 50% using additional hydrogen from outside. The goal is completion of the implementation by 2050.

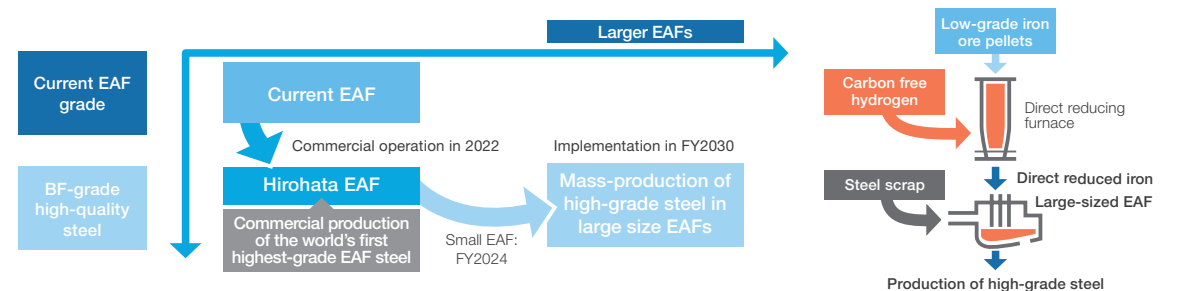


2 High-grade steel production in large-sized EAFs

In fiscal 2022, the new electric arc furnace (EAF) started commercial operation at the Setouchi Works Hirohata Area, and we will accumulate knowledge of high-grade steelmaking in an EAF through the commercial production of electrical steel sheet in this world's first such integrated steelmaking arrangement. At the same time, we are developing high-grade steelmaking technology in large electric furnaces in a Green Innovation Fund project. As a part of the project, we will set up a small EAF (capacity: 10 tons) in

the Hasaki R&D Center and start experiments in fiscal 2024.

Our subsequent plans are to establish technology to produce high-grade steel that can be used for automobile outer panels, by using direct reduced iron with hydrogen from low-grade iron ore and also using steel scrap as materials. By controlling the impurity concentration using a large-sized EAF process (approximately 300 tons in processing volume), similar volume as BF-BOF process, we will establish the technology by fiscal 2030.



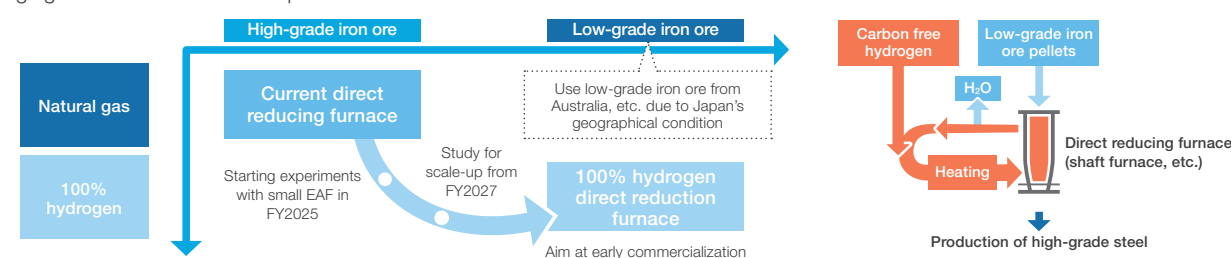
3 100% hydrogen use in direct reduction process

In the 100% hydrogen use in direct reduction, we try zero CO₂ emissions in reduction process by fully using hydrogen as the reducing agent. Since this process produces solid direct reduced iron (DRI), it is necessary to melt it and separate out its gangue component (the material present together with ore) in the subsequent process such as in the blast furnace (BF) or EAF.

Most of the actual direct reduction methods currently use high-grade iron ore, which is not easily broken or stuck to each other, during the reduction process. As the high-grade one is limited to about 10% of iron ore available in the market, we will challenge to use lower-grade iron ore in the process. Current DRI process uses methane (natural gas) as the reducing agent. Methane contains carbon and hence emits CO₂. We try 100% use of hydrogen as the reducing agent in the direct reduction process.

The process, however, has its own high technical issues, too. Since the reduction process with hydrogen is an endothermic reaction, it is necessary to supply heat to maintain the reaction. In addition, in the case of using a shaft furnace, powdering of the raw material pellets, and sticking of produced iron pellets are the problems to be solved.

As a Green Innovation Fund project, we will build a small furnace (10 tons) in the Hasaki R&D Center and start experiments in fiscal 2025. Then, by 2050, we aim to solve issues such as utilization of low-grade iron ore and conversion of reduction material from natural gas to hydrogen, and to commercialize a direct hydrogen reduction reactor using low-grade iron ore from Australia and other countries as feedstock.



■ Efforts to reduce carbon emission in power generation

We generate 89% of the electricity we use at steelworks, 75% of which is from internally generated energy sources such as waste heat and by-product gases. We also use LNG, petroleum, and coal as external-source auxiliary fuels. Therefore, in order to reduce the carbon content of our electric power structure, we will

eliminate all use of inefficient coal-fired power, increase efficiency of thermal power fired by by-products, and utilize CCUS. We will also consider use of non-fossil fuels for external auxiliary fuels (expanded use of zero-emission fuels such as biomass, ammonia, and hydrogen) and purchase of green power.

Issues to consider and promote reducing carbon in the electric power structure

- Total elimination of inefficient coal-fired power
- Increase efficiency in thermal power fired by by-products, utilization of CCUS, and use of non-fossil fuels for external auxiliary fuels (expanded use of zero-emission fuels such as biomass, ammonia, and hydrogen)
- Purchase of green power

■ CCUS technology development

CCUS (Carbon Capture, Utilization and Storage) is a technology that separates, captures, and stores CO₂ in the ground, or directly uses CO₂ or converts it into other materials and utilizes it. In the carbon neutral steel production process, CCUS technology is used to process CO₂ still generated from the steelmaking process even after it has been minimized.

Realization of this technology requires the related technology development as well as preparation of external conditions. The required technologies include development and installment of CO₂ separation and recovery technology (high-

performance chemical adsorption liquid) and development of CO₂-based manufacturing technologies for chemicals and fuels. The necessary external conditions include the securing of the storage space, the establishment of the storage infrastructure for CCS, legislation, and tax incentives, the ensuring of business profitability of chemicals and fuels manufactured by CCU (Carbon Capture and Utilization), and preferential treatment of carbon recycled products. The Nippon Steel Group is aggressively engaged in developing these technologies to help realize social implementation of CCUS.

Nippon Steel Group's CCUS Technology Development Initiatives

■ Capture

CO₂ separation and recovery technologies (subsidized by the Green Innovation Fund)

Nippon Steel Engineering Co. commercialized an energy-saving CO₂ chemical absorption process called ESCAP™ (Energy Saving CO₂ Absorption Process).

■ Transportation

CO₂ transport vessel technologies (subsidized as a NEDO project)

Commenced the R&D and demonstration project related to CO₂ transport vessels, jointly with Japan CCS Co., Engineering Advancement Association of Japan, and ITOCHU Corporation.

■ Storage

CO₂ storage technologies

Signed a joint study agreement regarding a hub project (CStore1) of large-scale offshore floating capturing and transporting of liquefied CO₂, with deepC Store Limited. Supply high-alloy seamless steel pipes to a CCS project in the European North Sea and to the wells in Agano City, Niigata Prefecture (a joint research on CO₂-based technologies for the promotion of crude oil recovery).

■ Utilization

Manufacturing technology of chemical products made from CO₂ (subsidized by the Green Innovation Fund)

Develop a catalytic technology to produce materials for polyester fibers and plastic bottles from CO₂ (joint development with Toyama University).
Develop a catalytic process to synthesize polycarbonate intermediates from CO₂ at normal pressure (joint development with Tohoku University and Osaka City University).

■ Absorption and fixation by marine life

(subsidized as a NEDO project)

Develop and commercialize technology to create a blue carbon ecosystem by using fertilizers made of steel slag, a by-product of steelmaking, in coastal areas.

Collaboration with society, policy proposals, and industry activities to achieve carbon neutrality

Decarbonization of steelmaking is an extremely ambitious challenge. In addition to development of carbon neutral technology options, carbon-free hydrogen and electricity, the CCUS, and other factors of social infrastructure are indispensable.

The realization of carbon neutrality in the steel industry is not just a challenge for steelmakers, given that steel as the basic material underpins international competitiveness in manufacturing. It is a national challenge that the whole nation should take it up, based on the policy of aiming at achieving the industry's international competitiveness and carbon neutrality, as well as the national strategy that provides strong, continuous fiscal and other support.

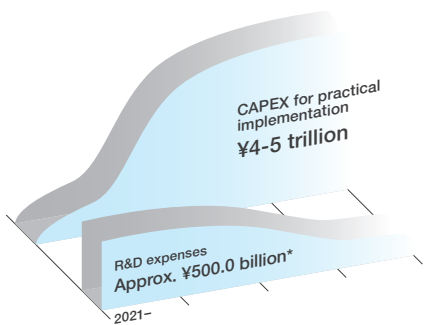
The realization of carbon neutrality in the steel industry requires huge R&D expenditures and capital expenditures for practical use. Nippon Steel alone is expected to roughly require ¥0.5 trillion in R&D expenses and ¥4–5 trillion in capital expenditures. The decarbonizing technology development for the steelmaking process is presenting an appearance of a state-to-state competition. In order to continue to lead the world and maintain and strengthen Japan's overall industrial competitiveness, long-term, continuous government support is indispensable for “discontinuous” innovation and other R&D efforts and equipment implementation.

Europe, the United States, and China have adopted a variety of policies aimed at achieving carbon neutrality on the premise of securing international competitiveness in the steel and

other basic materials industries. Japan also needs to introduce a drastic policy system based on national strategy under strong government leadership in order to achieve carbon neutrality ahead of those countries and to maintain and strengthen the international industrial competitiveness.

For realizing these policies, Nippon Steel is determined to take every opportunity to make various proposals on Japan's climate change measures and energy policies based on the Paris Agreement, and to spearhead activities through industry organizations.

Investments needed for the carbon neutral steel project



* Minimum level estimated to be required for the time being

■ Policy recommendations for realizing a carbon neutral society

President Hashimoto of Nippon Steel is a member of the Strategic Policy Committee, under the Advisory Committee for Natural Resources and Energy of the Ministry of Economy, Trade and Industry (METI), Vice Chairman of Nippon Keidanren (Japan Business Federation), and a member of the Green Transformation (GX) Implementation Council. The Executive Vice President in charge of Environment is also a member of the Central Environment Council of the Ministry of the Environment, representing Keidanren.

In meetings of these government councils and committees and Keidanren, we express and affirm our commitment and determination of the steel industry for achieving carbon neutrality. We also urge for promptly creating Japan's policy package that combines climate change measures and measures to maintain and enhance international competitiveness of industries, led by the government. In particular, during the deliberations on the

government's Clean Energy Strategy, we argued for the need for a policy to change the energy supply structure, including the active promotion of the use of nuclear energy, and to realize carbon neutrality in the materials industry. We have thus contributed to the formulation of the policy. We have strongly advocated the needs for a clear commitment by the government to support the energy-intensive industry, an expansion of the Green Innovation Fund, strong and continuous support in all stages for the decarbonization transition from R&D to equipment implementation, support for the increasing operating costs for hydrogen, electricity, and raw materials, and a roadmap to realize the CCUS.

Moreover, we are actively developing policy proposals to achieve carbon neutrality by making use of all opportunities with the government, relevant ministries and local governments, etc. other than the above-stated councils and committees.

■ Efforts to address climate change through industry organizations

In February 2021, the Japan Iron and Steel Federation (JISF) announced “Japan's Basic Policy on Carbon Neutrality for 2050” in order to promote Japan's efforts to achieve the mid-term goal of the Paris Agreement. Japan's steel industry has also declared its commitment to boldly take up a challenge for achieving carbon neutrality. In March 2022, we set an ambitious goal of reducing CO₂ emissions from energy-derived sources in fiscal 2030 by 30% compared to fiscal 2013 from an international

perspective.

We are also taking a leading role for the JISF to develop climate change measures.

In addition, we participate in climate change action of the global steel industry, which is led by the World Steel Association, and is selected as the worldsteel Climate Action data provider for calculating and reporting CO₂ emissions of steel mills using a common global method.

Our roadmap to the future

Promotion of Digital Transformation Strategy

Nippon Steel is strongly promoting digital transformation (DX). With the aim of becoming a digitally advanced company in the steel industry, we will work to innovate production and business processes by making full use of data and digital technology, and promote measures that will help speed up decision-making and fundamentally strengthen our problem-solving capabilities.

Promotion of Nippon Steel's DX

DX at Nippon Steel means not merely adoption of new digital technologies but “business innovation and DX promotion” to exploit business process innovation and production process innovation.

We believe that it is important to utilize digital technology and enhance our ability to continuously implement innovation, or “the power to change,” without being affected by traditional constraints.

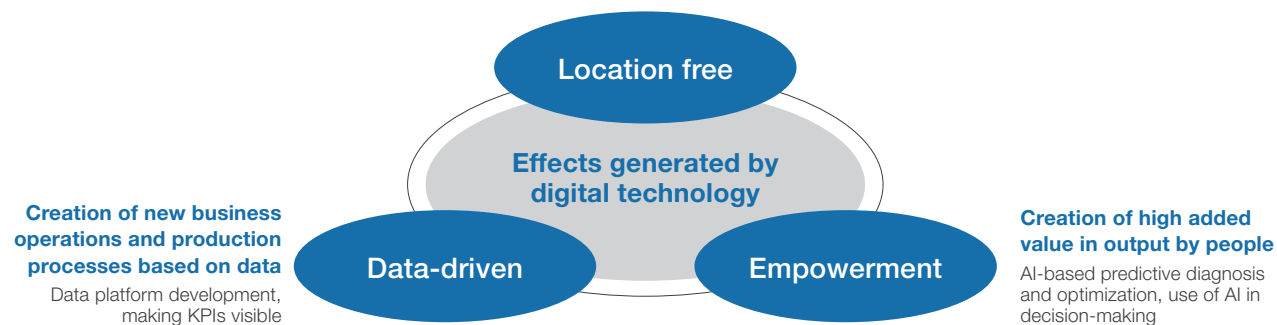
This is because the digital technology enables us to

efficiently standardize and automate current business operations and production processes, and then to create a cycle of new innovation and hence a great value based on the knowledge and resources generated from there.

We will also make a data-based review of our business operations and production processes to make the best decisions from a broader perspective, beyond organizational barriers and hierarchies, rather than making decisions that tend to fall into partial optimizations.

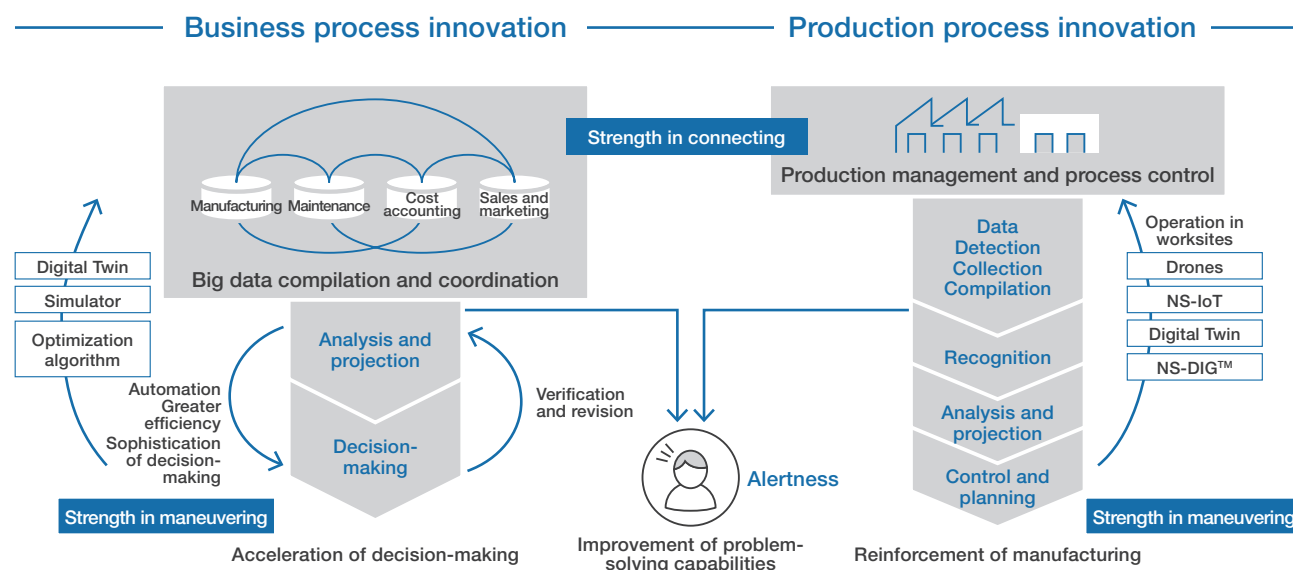
Business execution that is not constrained by location bases or places of performance

Integrated business efficiency enhancement, remote operation, and automation at many sites of head office and steelworks



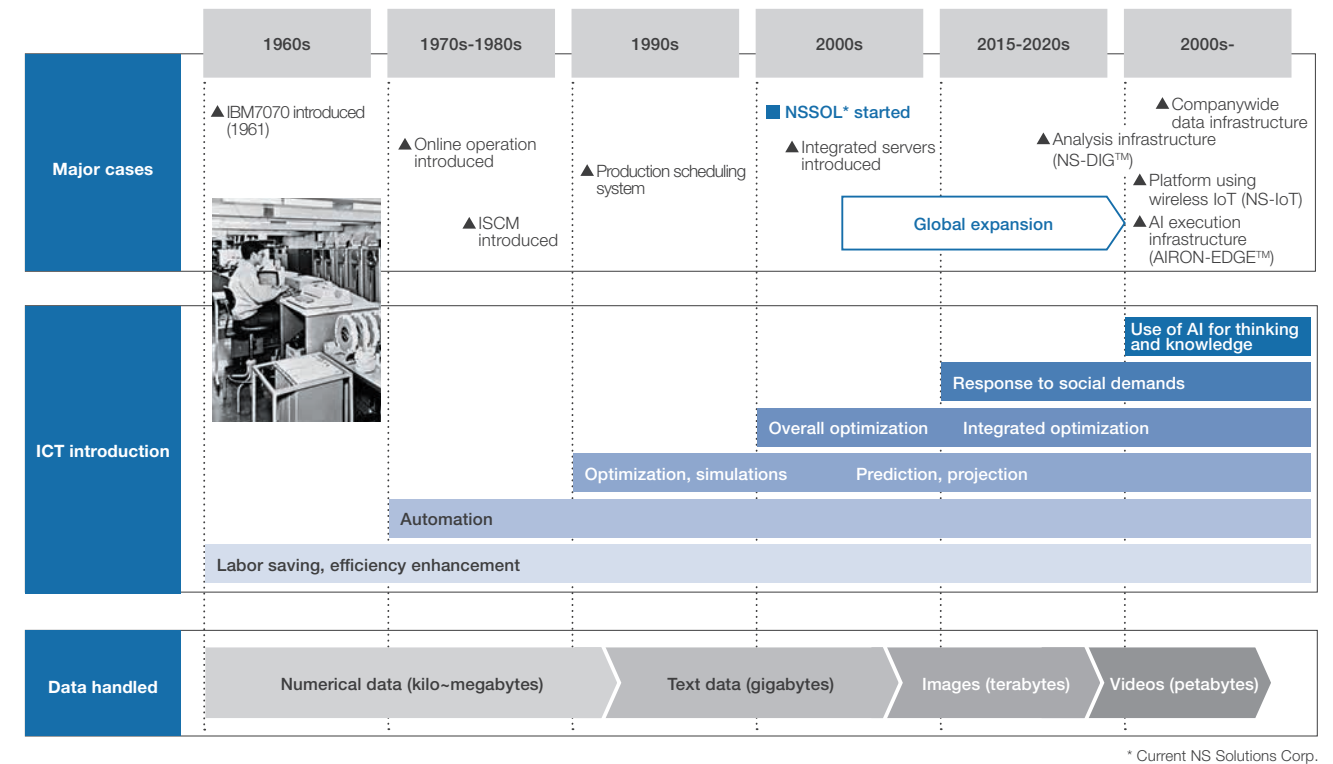
AI alone is not sufficient to create value. In the coming era of digital innovation as well, people will still propose and implement new innovations, and it is important for people to have a higher sense of mission and to chart a course for future-oriented innovation. In addition, we think it is extremely important to utilize digital technology as a means

to turn the cycle of innovation. Specifically, by displaying the three effects of digital technology – “location-free,” “data-driven,” and “empowerment” – we will innovate traditional workstyles and strive to significantly increase productivity, speed up decision-making, and improve problem-solving capabilities.



Nippon Steel has been proactively adopting ICT since the 1960s in a variety of fields, including production, sales, logistics, maintenance, purchasing, and profit management, and one of its major strengths is the large number of business systems it has developed and the vast amount of high-quality data it has accumulated. We will enhance our “strength in maneuvering,” which will enable formidable process control and automation, by bolstering and making advanced use of our “strength in

connecting,” which will entail organically linking valuable data assets that are dispersed in individual departments and factories by utilizing advanced information technology and the latest digital technology. We believe that these strengths will contribute not only to business process innovation and production process innovation, but also to the provision of new value to stakeholders through synergies with measures to enhance our strength in manufacturing and strength in sales and marketing.



* Current NS Solutions Corp.

“Nippon Steel DX,” which realizes strength in connecting and strength in maneuvering, and its vision

Nippon Steel will promote Nippon Steel DX to innovate all steel business processes. In order to achieve the goals outlined in our mid- to long-term management plan, we will realize “smarter manufacturing,” “strengthening of flexible and optimal supply systems,” and “building of business intelligence” through the

integration of our technologies and expertise (competitiveness in the real world) with digital technologies. At the same time, by setting challenging targets through the development of a DX roadmap, we will also enhance our ability to create solutions and innovations to achieve them.

Innovative evolution of strength in manufacturing based on smarter manufacturing

- Develop smarter manufacturing (Cyber Physical Production) through the advanced use of AI, IoT and other digital technologies
- Improvement of labor productivity through the use of automation and predictive detection, etc., and production stabilization and quality improvement through the advancement of production technology
- Ensuring the same level of operations and quality at overseas sites as in Japan

Strengthen customer responsiveness by enhancing flexible and optimal supply system

- Establishment of an integrated production planning platform from order to production to delivery (shortening of lead time, flexible response to changes)
- Linkage with supply chain information, etc., and efforts to contribute to customers and create new value

Global management support through enhancement of business intelligence

- Building an integrated data platform that enables real-time understanding of management information and KPIs for optimal action
- Strengthen business intelligence as a global management platform (Business Intelligence: data-driven management support)
- Accelerate decision-making and improve problem-solving capabilities from the management level to the front line

Nippon Steel DX Specific Initiatives

Innovation of all steel business processes

Nippon Steel DX, which Nippon Steel is promoting, covers the entire series of steel business processes, including production planning, marketing, manufacturing and maintenance, quality control, engineering, research, procurement, and finance.

Categories	Business activities
Manufacturing and maintenance DX	Remote management, prediction monitoring and automation of operation and equipment maintenance through use of IoT and AI
Production planning DX	Linkage with each DX measure based on integration and acceleration of performance management and integrated production planning
Marketing DX	Strengthening of supply chain linkage, acceleration and sophistication of marketing policy decisions
Quality control DX	Design of optimal quality conditions based on big data and advancement of quality control
Research DX	Promotion of R&D utilizing digital technologies
Engineering DX	Design advancement and remote trial running using MR (VR + AR) and wireless technology
Procurement DX	Optimal operation relating to raw material supply and demand and production plan changes, promotion of corporate-wide optimization
Finance DX	Enhancement of response to management environment changes through reinforcement of data infrastructure

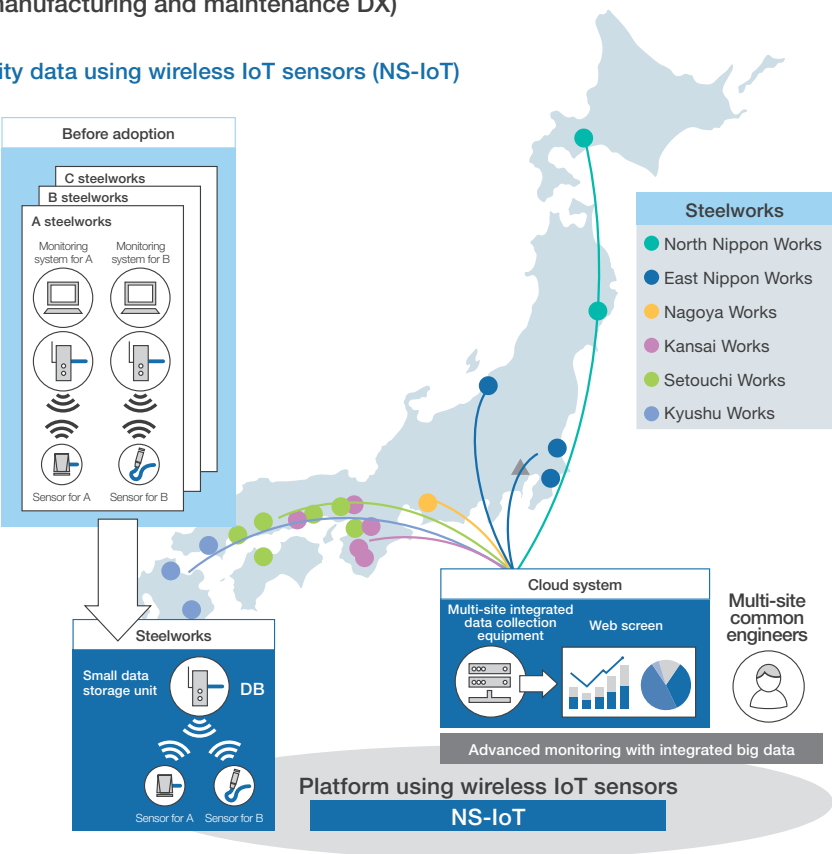
Promotion of smarter manufacturing (manufacturing and maintenance DX)

Advanced utilization of operational and facility data using wireless IoT sensors (NS-IoT)

We have built a wireless Internet of Things (IoT) sensor-utilization platform NS-IoT for centralized management of data from each steelworks site by using LPWA (low power wide area wireless communication) and cloud technology. The system started operations in the Kimitsu and Kashima Areas of East Nippon Works in April 2022.

By centralizing the management of data from sensors and leveraging integrated big data from multiple locations for facility status detection and trend monitoring, the data-driven production process has been achieved.

In the future, we are looking to expand its application to all of our steelworks and group companies, as well as to sell it as a package to other industries.



Cyber Physical Production (CPP)

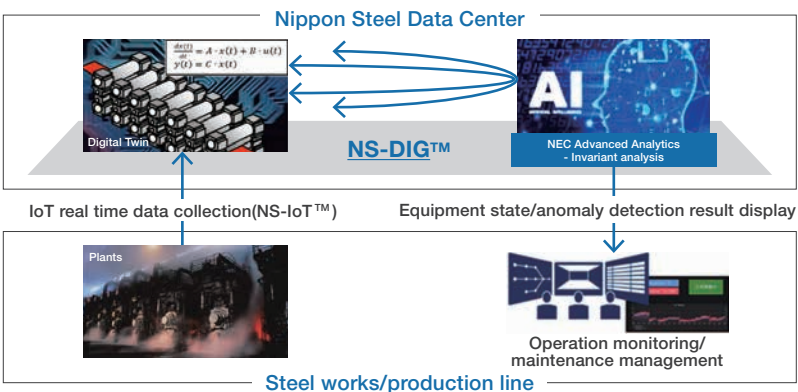
We are adopting CPP to realize sophisticated manufacturing by combining NS-IoT with a Digital Twin which simulates the production and equipment conditions in a digital space.

We are promoting smarter manufacturing by increasing strength in maneuvering, including early detection of changes in operations and prediction of equipment degradation.

In February 2022, we partnered with a leading AI developer to build a data analytic infrastructure that would provide visibility in on-site operations.

We are efficiently implementing skill transfer by indexing actual work and formalizing the skills and know-how of skilled workers.

Cyber Physical Production (CPP)



Company-wide integrated planning and optimization of steel works and product-specific planning (Production Planning DX)

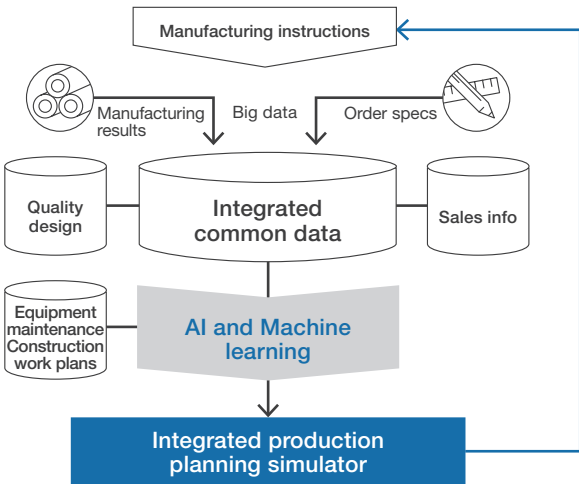
We will build an integrated production planning platform by integrating the actual production data, efficiency improvement results, and detailed order specification information for each process accumulated by each steelworks.

We will use this platform to unify company-wide information and develop an integrated production planning simulator that can accurately respond to customer orders and changes in the raw material procurement environment. We will thereby strengthen production control for the entire company and significantly reduce the workload.

We started applying the prototype in FY2021, accelerating the development-to-release speed using the agile development method and the container technology.

In addition, we are leveraging cloud services that can compute big data at high speed and realize greater computing power and function enhancement.

Integrated production planning platform [production planning DX]

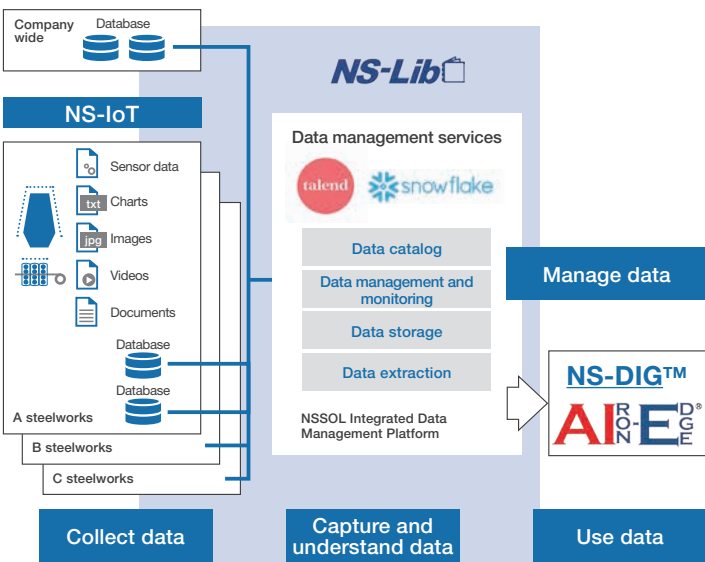


Integrated Data Platform (NS-Lib)

NS-Lib is an integrated data utilization platform built by Nippon Steel and NS Solutions by combining Talend, a data management function, and Snowflake, a data storage and linking function. The platform was put into operation in April 2022.

We will integrate and consolidate data that used to be accumulated individually, such as orders, production plans, instructions, and manufacturing, by "cataloging" the meaning of data and the location of the database in the "NS-Lib" (strength in connecting).

This enables rapid and advanced decision-making and problem-solving based on the same data from the management level to the front line (strength in maneuvering).



New ways of working with digital technology and data

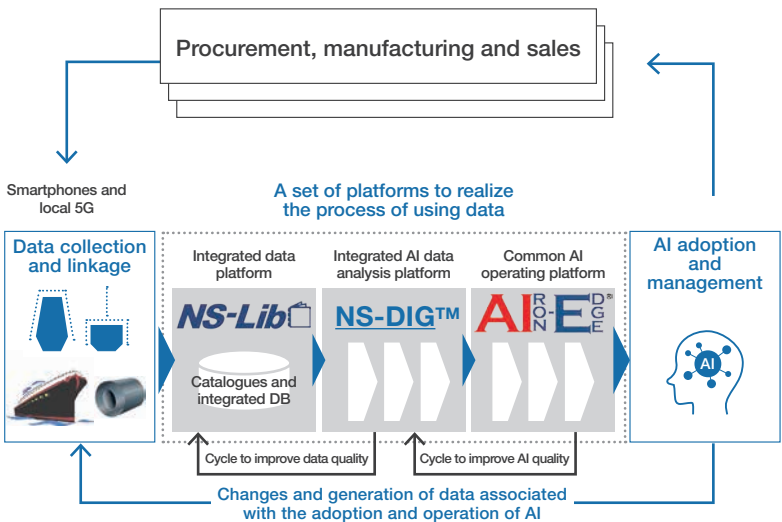
We have completed distributing smartphones that enable around-the-clock data-driven operations to those who work in the manufacturing floors which now fully use mobile devices as a means of data communication.

We intend to further improve data utilization by implementing local 5G for high-speed, high-capacity communications, and by efficiently collecting operational and equipment data using the NS-IoT stated above.

In addition to raising the efficiency of OA work with RPAs and Microsoft 365 and making the work more visible with business intelligence tools such as Tableau, the NS-Lib will be deployed as the foundation for data-driven operations to reduce data analysis time.

In addition, the integrated AI data analysis platform NS-DIG™ and the edge computing platform AIRON-EDGE™ will also make it easy for us to build and implement AI models.

These efforts will create a new way of working that will empower us with the increased value of our time.



System to accelerate Nippon Steel DX and DX human resources development

Data governance, and guideline for AI development and operation

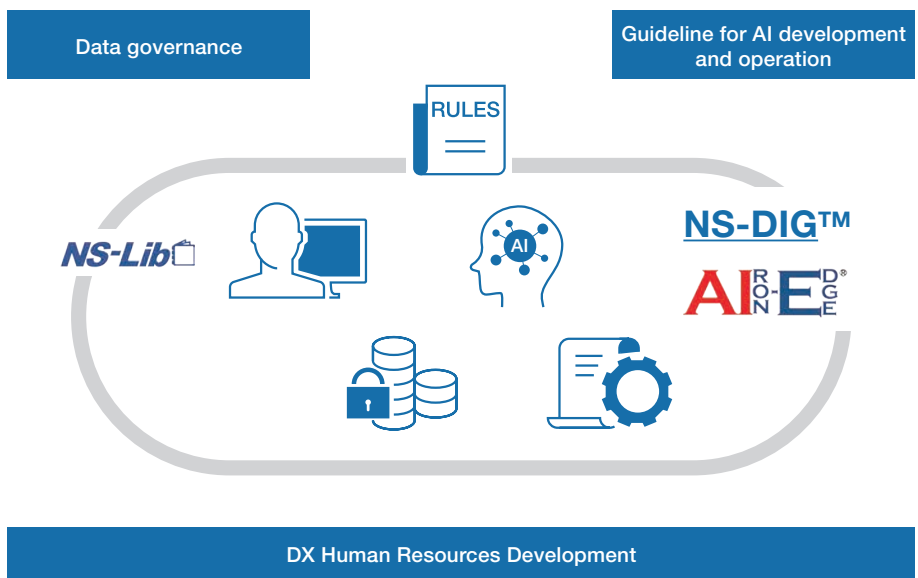
Use of data requires good control, quality, and security.

We have supplemented our existing information management rules in order to define the rule of data management, such as to create, store, use, release, and dispose, and to strengthen our ongoing data governance.

In February 2022, we set up a guideline for AI development

and operation, which compiles various points to consider in using and creating AI.

Through the establishment of rules and human resource development, we aim to create an internal culture in which our employees become actively involved in DX and keep growing.



Cybersecurity

Cybersecurity is becoming ever more important in the new workstyle with ICT as data utilization becomes more active: Information is exchanged in all different forms, in all kinds of situations and fields.

With the increase of IoT devices, data is flowing exponentially from the manufacturing floor.

As teleworking becomes a part of normal business life, mobile devices can all too easily create a torrential flow of data, and that data is stored and analyzed by using the cloud, we find it important to provide a reliable cybersecurity environment for all employees to use data and systems.

In addition to the conventional centralized cybersecurity measures, we are implementing the latest security measures that incorporate the Zero Trust concept to always verify the safety of all communications with important data.

Furthermore, we continue to provide continuous e-learning opportunities on security, and training sessions on targeted attack e-mails, to promote employees' enhanced IT literacy and resultant sensitivity to cybersecurity.

Cybersecurity of the entire Nippon Steel Group must also be ensured.

The Nippon Steel Group – Computer Security Incident Response Team (NSG-CSIRT) is steadily increasing the number of member companies to 20 as of June 2022.

We are also enhancing cybersecurity measures of our

overseas Group companies as well as domestic ones and promoting enhanced IT literacy of their employees through education programs and training sessions, to ensure strong cybersecurity for the entire corporate Group.



DX human resources development in data science and digital management

Nippon Steel defines "those who can extract and solve business problems based on data" as DX human resources, and aims to make all office staff and engineers DX human resources by 2030.

Skills in three areas of business, ICT, and data science are required to drive data-driven operations.

The strength of our Group is that we have a large number of people who are well versed in operations and have skills in business and ICT, including people in NS Solutions. Our business competitiveness will be further enhanced by improvement of our data science skills.

With a target of making about 20% of our office staff and engineers data scientists by 2030, we started a data science

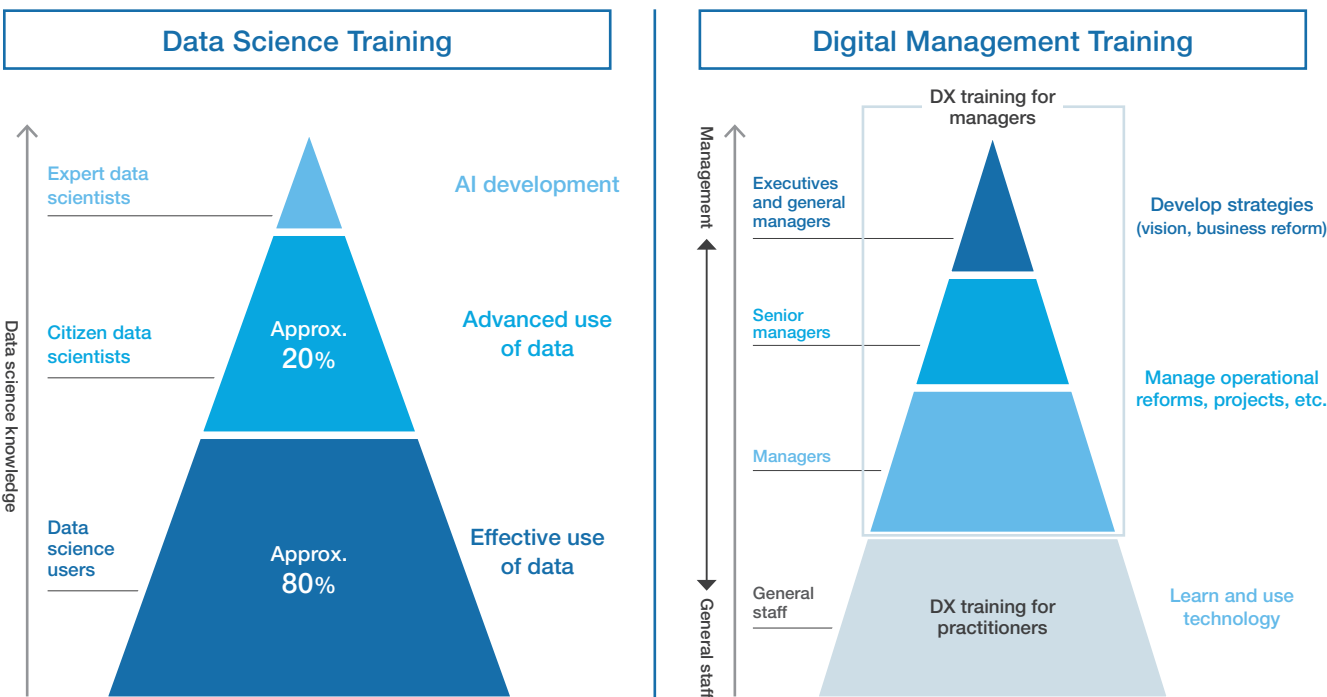
education program in July 2021.

By 2025, we expect to develop more than 1,000 data scientists.

In December 2021, we also launched a new digital management education program with components for different levels or types of manager. Doing this can facilitate business process reform by improvement of knowledge of management using digital technology.

We are working toward the completion of the education courses for all managers by the end of fiscal 2022.

We intend to promote education both in data science and digital management, and accelerate our production and business process reform, using data and digital technology.



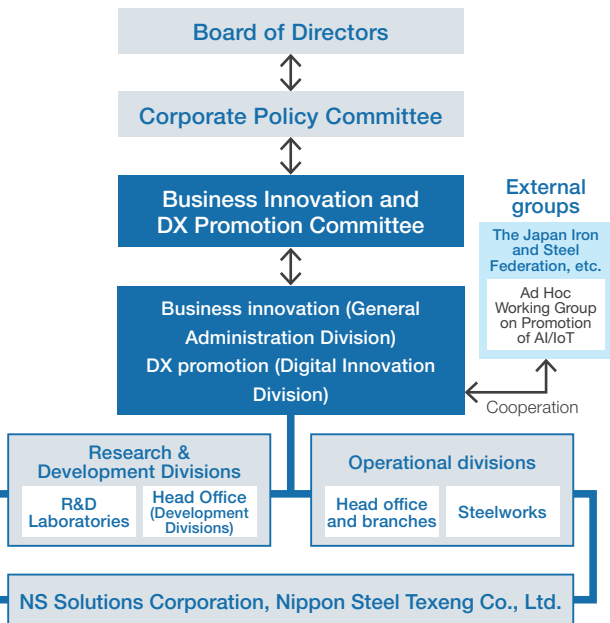
DX promotion organization

With the Digital Innovation Division at the core, the operational divisions and the research and development divisions work together to use digital technology and data-based business management as business and production process innovation in order to strengthen business competitiveness.

Furthermore, we will continue to take on the challenge of advanced initiatives in cooperation with external organizations and with the collective strength of the Nippon Steel Group, including NS Solutions and Nippon Steel Texeng Co.

The Business Innovation and DX Promotion Committee, chaired by the Executive Vice President in charge of business innovation and DX promotion, has been established to discuss company-wide policies and strategies and promote related activities.

Digital innovation promotion organization



Financial Strategy

We aim to achieve 10% in both ROS and ROE by establishing a profit structure that ensures a business profit of ¥600 billion excluding one-off factors regardless of the external environment. We will aggressively make growth investments including capital expenditures to enhance the capacity and quality of strategic products and to renew facilities as well as overseas business investments aimed at establishing a global crude steel capacity of 100 million tons. By setting a hurdle rate for investment and withdrawal conditions, we are ensuring capital efficiency and continuing efforts regarding asset compression to secure sound financial strength.

Investment Plan and Financial Targets of the Medium- to Long-term Management Plan

The Medium- to Long-term Management Plan includes the following investment plan for fiscal 2021-2025 and the financial targets for fiscal 2025.

Investment Plan and Financial Targets

Investment plan (FY2021-2025)	Capital expenditures	¥2,400 billion over 5 years
	Business investments	¥600 billion over 5 years
	Payout ratio	Around 30%

Targets (FY2025)	ROS (Return on Sales)	About 10%
	ROE (Return on Equity)	About 10%
	D/E Ratio	0.7 or less

Assumption Non-consolidated crude steel production of about 38 million tons/year

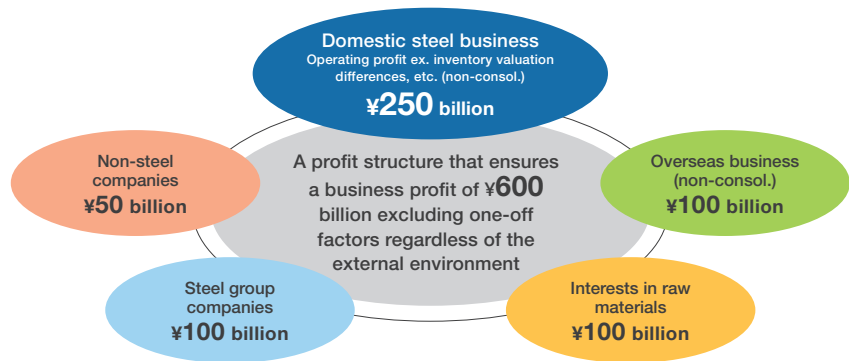
Profit targets

The targets for fiscal 2025 are ROS (Return on Sales) of around 10% and ROE (Return on Equity) of around 10%.

Our stated goal toward 2025 is to establish a profit structure that ensures a business profit of ¥600 billion excluding one-off factors regardless of the external environment. Our ultimate goal is to become a company with

a global crude steel capacity of 100 million tons and a consolidated business profit of ¥1 trillion.

Our immediate target breakdown of profit by 2025 is: ¥250 billion in the domestic steel business; ¥100 billion each in our overseas business, interests in raw materials, and steel group companies; and ¥50 billion for three non-steel companies.



In the main steelmaking business, we intend to drastically improve the breakeven point and establish a profit structure that ensures profit regardless of the production and shipment volume and the market.

For that purpose, we will substantially reduce the fixed cost level, including the impact of the production facility structural measures.

We also plan to increase total marginal profit by securing an appropriate profit margin through an improvement in direct contract-based pricing for customers, making our order mix more sophisticated to raise the ratio of high-value added and high-margin types of products, and improving variable costs.

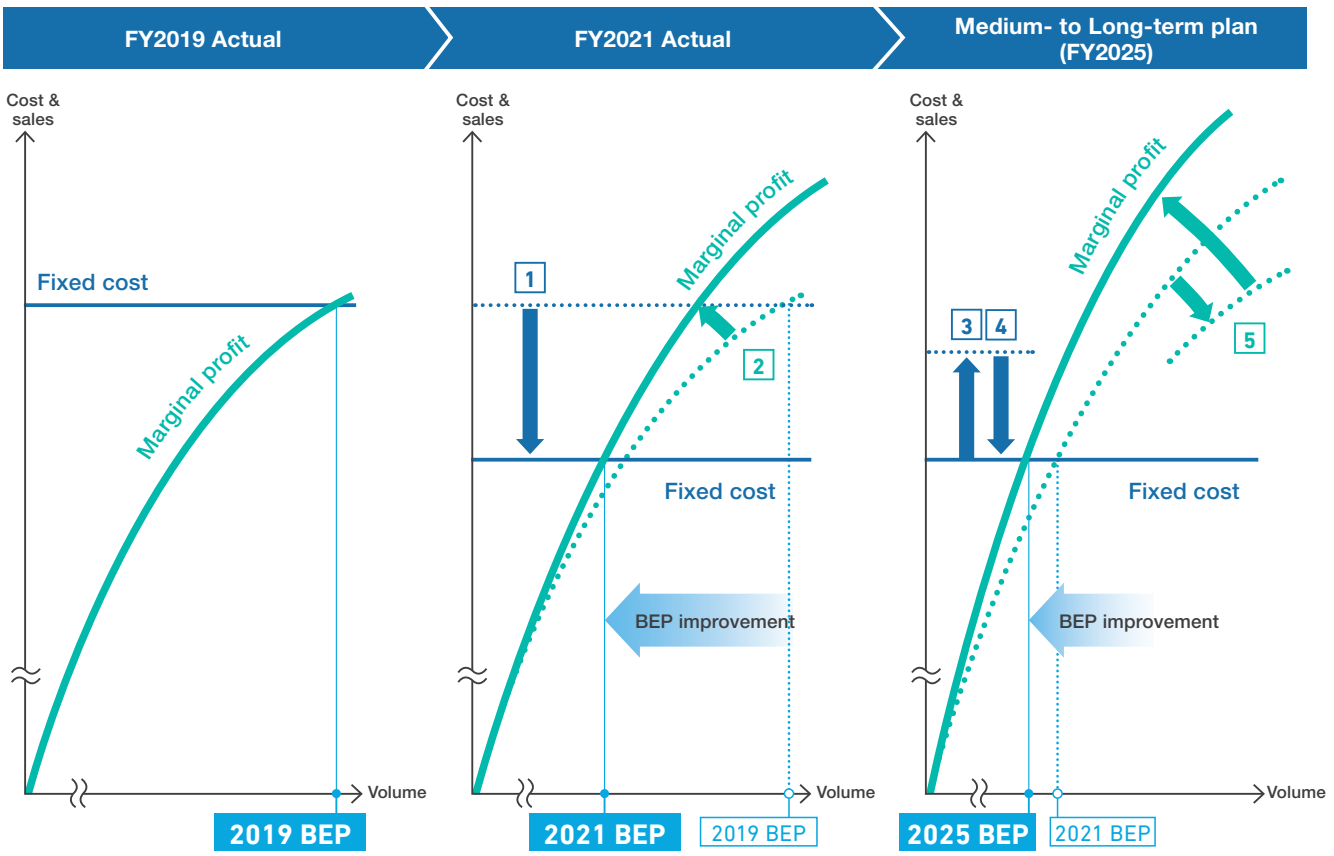
Fixed costs have already been drastically reduced by fiscal 2021. Going forward, we intend to maintain the low level of fixed

costs by implementing fixed cost reduction measures, including the effects of the production facility structural reform, despite an expected increase in depreciation expenses due to investment in facility renewal and the strengthening of strategic product offerings.

As for the improvement in direct-contract based pricing, we made significant progress in fiscal 2021 and intend to continue to do so. We will also continue securing appropriate margin based on the policy to 1) proportionately share the rising external costs of raw materials and others in the supply chain and 2) realize prices that match their value while striving to raise the value of products and services provided by us.

Moreover, we will improve average marginal profit by further advancing the order mix, including the impact of investment to enhance the capacity and quality of strategic products.

Breakeven point



	FY2019 ▶ FY2021	FY2021 ▶ FY2025
Fixed cost reduction	1 Fixed cost (cash basis) reduction (incl. the effect of structural measures) Reduction in depreciation expenses (change in the depreciation method, impairment loss, etc.)	3 Increase in depreciation expenses (growth inv't to advance order mix and renew facilities, inv't for carbon neutrality, and inv't to replace aging facilities, etc.) 4 Fixed cost (cash basis) reduction (incl. the effect of structural measures)
Improvement in average marginal profit	2 Margin improvement in direct contract-based pricing Improvement in the steel market More sophisticated order mix (the effect of selective order acceptance by narrowing down the integrated steelmaking capacity) Reduction in variable cost (incl. the effect of structural measures)	5 Higher level order mix (shift from general-purpose products to strategic products) Margin improvement in direct contract-based pricing Reduction in variable cost (incl. the effect of structural measures)

In the overseas business, we seek to capture demand in "markets where we see assurance of demand growth potential" and "areas where our technology and product capacity can be used" and selectively concentrate on existing competitive overseas businesses in order to expand profit.

As for our steelmaking group companies, efforts are made to 1) strengthen competitiveness and profitability in their domestic Group companies, 2) deepen alliances and strengthen the management base, 3) enhance profitability of the overall Group and Nippon Steel's products business units and 4) optimize the group structure by "selecting and concentrating," with the aim to increase profits.

Three non-steel companies will also make the following efforts to increase profits:

- Engineering and Construction: Expand its stable earnings base in operation and maintenance business, and strengthen the engineering procurement and construction (EPC) business in areas such as renewable energy infrastructure development and renewal.
- Chemicals and Materials: Concentrate resources in the electronic materials field and expand doing business in key products.
- System solutions: Focus on the DX business area and continually grow business.

Investment plan (FY2021-2025)

Capital expenditures

Capital expenditures of ¥2.4 trillion are being implemented over the five years starting from fiscal 2021. Investment for maintenance and upgrades is devoted exclusively to facilities needed such attention. At the same time, aggressive investment is made to upgrade the remaining facilities for achieving higher productivity and cost competitiveness, and to improve the capacity and quality of strategic products and add more value to them. These investments are compliant with our program for production facility structural improvements.

Many of our steelworks were built during Japan's high-growth era and are passing a 50-year milestone. Since construction, the facilities have been appropriately maintained and refurbished and are in good condition but some facilities are in an extremely long refurbishment cycle, as is the case for coke ovens and infrastructure equipment, which are approaching refurbishment time. Due to the concentration of refurbishment investment for these equipment and facilities, capital expenditures will be at a high level for the near term.

Given the assumptions for the future steel market in and out of Japan, we have decided to suspend less-competitive facilities

and consolidate production to competitive ones via the production facility structural measures. [P. 15-19](#)

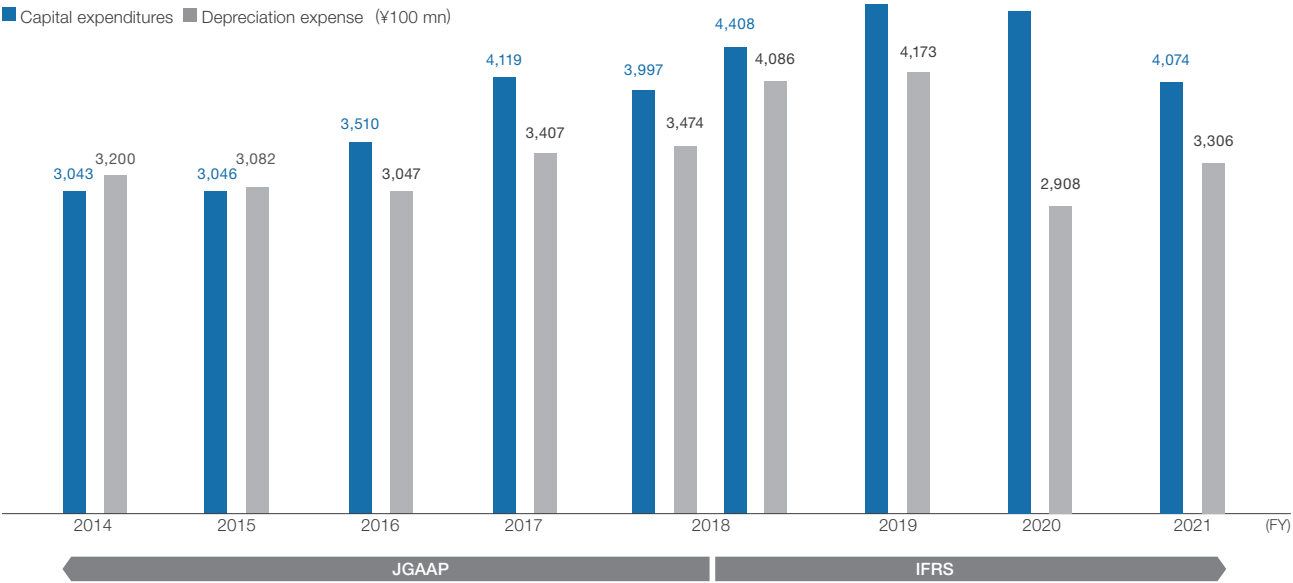
In addition to curbing investment in facilities to be shut down, we are making strategic selective investment in the remaining facilities. We also seek to efficiently inject capital based on the long-term refurbishment plan, aiming for reduction in overall capital expenditures.

We are concurrently making investment to capture demand in growth areas in the context of changes in social and industrial structure.

Up to the present, we have decided to make investment of ¥123 billion for improving the capacity and quality of electrical steel sheets in the Kyushu Works Yawata Area and the Setouchi Works Hirohata Area, and investment of about ¥270 billion for installing a new next-generation hot strip mill at the Nagoya Works. [P. 18](#)

For determining capital expenditures, we set a hurdle rate for collection period of investment aimed at profit improvement and manage to secure that the internal rate of return (IRR) of overall capital expenditures, including spending for replacing aged facilities, exceeds the cost of capital.

Capital expenditures and depreciation expense (consolidated basis)



- The amounts of capital expenditures are construction based (about a 2-year time lag from decision-making basis).
- The scope of investments and depreciation has expanded since fiscal 2018 due to a change in the financial accounting system.
- The method of depreciation was changed from the declining-balance method to the straight-line method in FY2020.

Business investment

Business investments over the five years from FY2021 to FY2025 are expected to be around ¥600 billion. These investments, such as steady investment in AM/NS India for its capacity expansion, and acquisition or equity participation (brownfield investment) of integrated steel mills in ASEAN and other areas, will be made toward establishing a global crude steel capacity of 100 million tons.

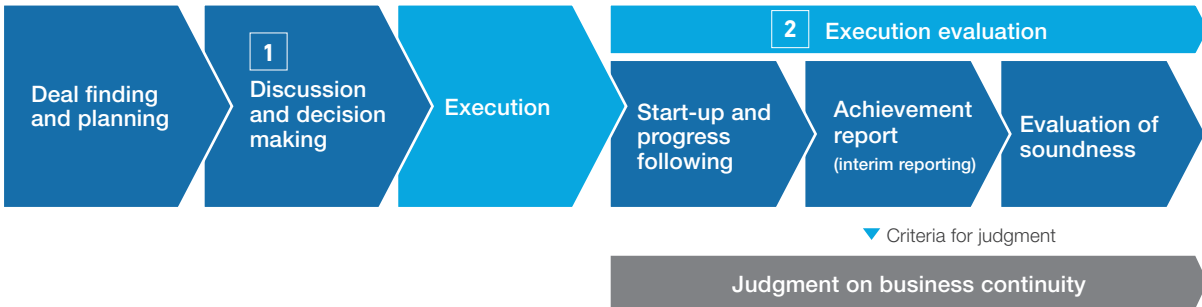
In March 2022, we acquired G Steel and GJ Steel in Thailand (¥55.6 billion in investment amount) and in April 2022, we decided to expand capacity of a steel sheet manufacturing facility of AM/NS India. [P. 21-22](#)

In terms of increasing overseas businesses' profit and reallocation of management resources, we have thoroughly examined past investments and have almost completed asset sale of and withdrawal from businesses that could not move into the black, businesses that had completed their roles, and businesses that lost synergies. We intend to continue improving our asset portfolio.

As for business investment, we set a hurdle rate for the IRR that exceeds the cost of capital, even with consideration of diverse risks and with running a PDCA system, which enables us to track the execution status and make judgment on restructuring, withdrawal, and other options if needed.

Business investment management system

Nippon Steel has embedded in its business investment procedures a management system with a clearly-defined PDCA cycle, in order to (1) make appropriate decisions on business investments, such as for founding and equity investing in companies in Japan and overseas, as well as for M&A deals, (2) identify early and solve promptly issues during the stage of execution of those deals, and (3) share and preserve such know-how within the organization.



1 Discussion and decision making

Proposed projects are considered in terms of significance to business strategy, market growth, competitive landscape, and individual risks (country, partner, foreign exchange, and other risks). In the case of M&A deals, based on due diligence, their risks are to be understood and appropriately hedged. After such a procedure and given consideration to risk scenarios, the certainty of generating return that matches investment is confirmed.

Investment and Loan Committee

The Investment and Loan Committee discusses projects from a professional perspective of each corporate unit and division. The business investment projects are submitted to the Corporate Policy Committee after being discussed at the Investment and Loan Committee. Very important projects are then submitted to the Board of Directors.

2 Execution evaluation

Start-up and progress following

For about three years since start-up, KPIs for operation, production, shipment, financials, and other items are set up for each project, and the corporate division follows its performance relative to the plan once every three months, and reports to the Investment and Loan Committee and the Corporate Policy Committee. The status of particularly important projects is reported to the Board of Directors once a year.

Achievement report

About three years from the start-up, the entire processes from decision making to full-scale operation are reviewed and reported to the Investment and Loan Committee and the Corporate Policy Committee. The status of particularly important projects is reported to the Board of Directors once a year.

Evaluation of soundness

All Group companies in which Nippon Steel has made direct investment are evaluated in terms of financial soundness, based on their financial data, and the results are reported at the Corporate Policy Committee every half year. Those companies in which Nippon Steel has made indirect investment are similarly evaluated but only once a year. They are also reported to the Board of Directors once a year.

Decision on exit or restructuring

Concerning group companies that are determined not contributing to raise the company's corporate value in terms of financial soundness based on quantitative standards (future cash flow, financial position) and qualitative standards (sustainability, compliance, etc.), the Investment and Loan Committee discusses whether to continue business and the status of particularly important project are to be approved by, or reported to, the Corporate Policy Committee to determine whether to exit (or be reorganized) or restructure.

Return to shareholders

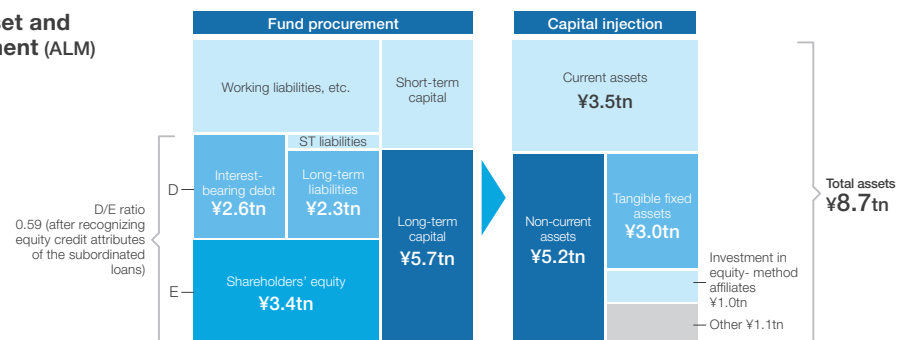
With regard to shareholder return, we will maintain our current dividend distribution policy with the target range of around 30% in consolidated payout ratio, based on the allocation of profits in accordance with operating and

financial performance, and by taking into account funds needed to invest for improving corporate value, performance forecasts, consolidated financial position, and other factors.

Financial strength

The steel industry is a gigantic equipment-based industry, which uses a massive amount of fixed assets, including machinery equipment and other tangible fixed assets, in its business. Procurement for fixed assets is financed by shareholders' equity and long-term borrowings, ensuring financial stability.

Nippon Steel's Asset and Liability Management (ALM) (March 31, 2022)



The debt-to-equity (D/E) ratio is identified as an important benchmark in financial management.

We aim to achieve the D/E ratio of around 0.5, a level that allows us to maintain a long-term A rating by international credit rating agencies over the long term.

During the FY2021-2025 period, investing cash flow is expected to be at a high level due to capital expenditures of ¥2.4 trillion aimed at enhancing the capacity and quality of strategic products and renewing facilities in Japan as well as business investment of ¥0.6 trillion to avoid missing opportunities for overseas growth.

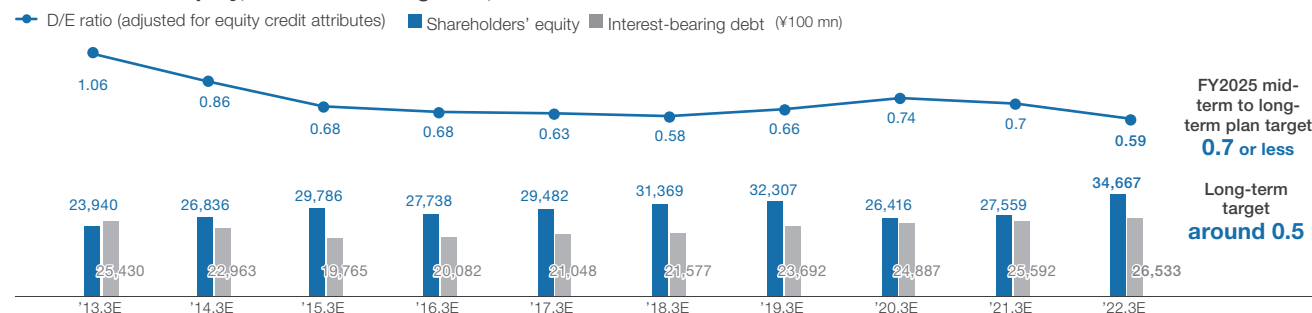
Our next target is to lower or maintain the D/E ratio at

0.7 in fiscal 2025, the same level as March 31, 2021, when the current Management Plan started, even if the business environment further deteriorates.

As of March 31, 2022, the D/E ratio after recognizing equity credit attributes of subordinated loans and subordinated bonds improved to 0.59 due to favorable operating results in fiscal 2021.

We will strive to secure both solid financial strength and financial flexibility so that we can surely and flexibly execute growth investment in Japan and overseas and investment in carbon neutral-related facilities, which will be fully implemented in fiscal 2025 and thereafter.

Shareholders' equity, Interest-bearing debt, and D/E ratio

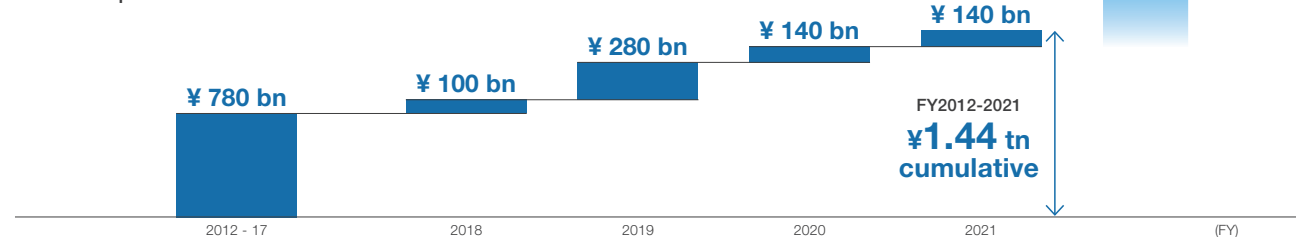


Asset compression

Since the integration of Nippon Steel and Sumitomo Metals in 2012, we have generated ¥1.44 trillion on a cumulative basis in asset compression over the 10 years to fiscal 2021.

Going forward we will continue asset compression.

Asset compression



Asset compression by disposing of strategic shareholdings

Most of the asset compression comes from sale of strategic shareholdings. Strategic shareholdings are judged to contribute to maintaining and strengthening the business foundation such as the business relationships and alliance relationships between Nippon Steel and the investees, enhancing the profitability of both parties, and thereby contributing to sustainable growth and improving mid- to long-term corporate value of Nippon Steel and the Group. However, we dispose of holdings of companies, with whom we confirmed, based on sufficient dialogues with them, that the above objectives could be achieved without holding their shares.

FY2021 Operating Results



Materiality
Corporate value enhancement and profit distribution

Nippon Steel achieved a record-high business profit close to ¥1 trillion in fiscal 2021 (approx. ¥690 billion excluding one-off factors).

We established a profit structure that ensures a business profit of ¥600 billion excluding one-off factors regardless of the external environment.

Nippon Steel's business profit in fiscal 2021 was ¥938.1 billion, which was the highest profit since FY2012 when former Nippon Steel and former Sumitomo Metals merged, and substantially exceeded the previous high of ¥471.3 billion posted in fiscal 2014 (including former Nisshin Steel).

The business profit in fiscal 2021 includes ¥245 billion in

one-time gains such as inventory valuation differences. Actual profit excluding this factor amounted to around ¥690 billion.

We have structurally strengthened profitability, and we achieved a V-shaped recovery from the bottom in the first half of fiscal 2020, when demand was depressed due to the COVID-19 pandemic.

Financial summary (¥ billion)	FY2019	FY2020		FY2020	FY2021		
		1H FY2020	2H FY2020		1H FY2021	2H FY2021	FY2021
Crude steel production (non-consol., 10,000 tons)	418.5 ^{*1}	146.4	183.6	330.0	202.3	184.5	386.8
Steel product shipment (non-consol., 10,000 tons)	387.0 ^{*1}	144.6	167.7	312.2	182.8	172.8	355.6
Revenue	5,921.5	2,241.9	2,587.2	4,829.2	3,163.9	3,644.9	6,808.8
Steel segment	5,257.3	1,965.8	2,262.6	4,228.4	2,851.4	3,302.2	6,153.6
Business profit	76.5 ^{*2}	-106.5	216.5	110.0	477.8	460.2	938.1
ROS	1.3% ^{*2}	-4.8	8.4%	2.3%	15.1%	12.6%	13.8%
Steel segment	35.6 ^{*2}	-116.7	180.2	63.5	448.2	422.7	871.0
Individual disclosure item	-121.7	-42.2	-56.3	-98.6	-49.4	-477	-97.2
Profit attributable to owners of the parent	-431.5	-191.1	158.7	-32.4	298.7	338.5	637.3
ROE	-14.7%	-15.1%	12.2%	-1.2%	20.3%	20.5%	20.5%

*1: NSSMC + Nippon Steel Nisshin Steel *2: Excluding impairment loss, etc.

Business environment

In the first half of fiscal 2021, on the back of an economic pick-up from the slowdown in Japan and overseas caused by the COVID-19 pandemic, demand for steel continued to recover mainly in the manufacturing sector, and steel market prices were at a high level, partly due to the influence of China's policy of reducing steel production.

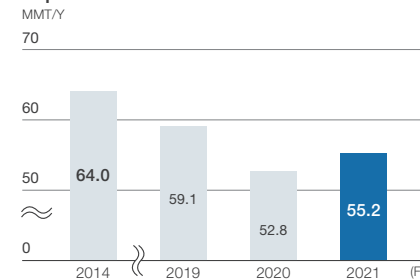
In the second half, the recovery in domestic steel demand slowed down, due to a delay in restoring production in the automotive sector, coupled with supply chain disruptions caused by a shortage of semiconductors and stagnant logistics, as well as a labor shortage associated with the resurgence of COVID-19 infections caused by its variants. China's economic slowdown and other factors also depressed steel market prices in Asia.

Domestic steel demand in fiscal 2021 amounted to about 55.2 million tons/year, up from about 52.8 million tons in fiscal 2020, but less than about 59.1 million in fiscal 2019, before the COVID-19 pandemic.

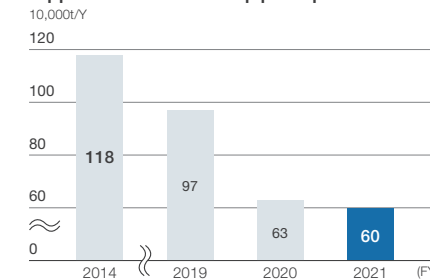
The iron ore market, which had soared to historical high levels since late 2020, fell due to the Chinese government's order to cut production in the second half of 2021. Since the year end, however, the market has risen again due to expectations regarding China's economic stimulus package and an increase in speculative funds.

The coal market has also been at historical high levels since the summer, prompted by the tight supply in China's domestic coal market, and the rise in Australian coal prices.

Japan's steel demand



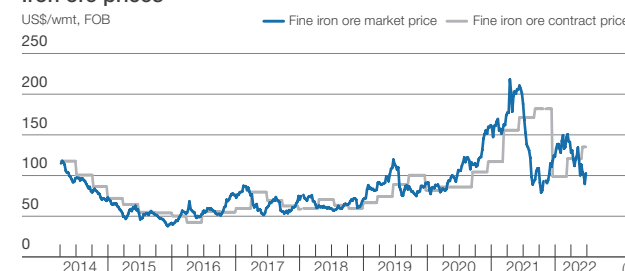
Nippon Steel's seamless pipe shipment volume



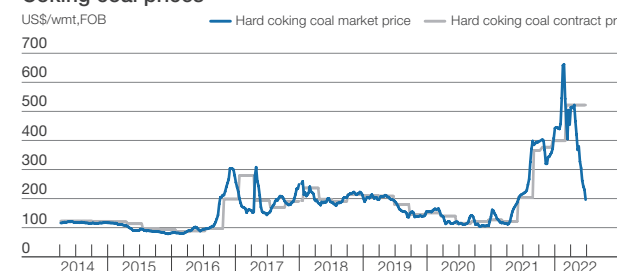
China's hot-rolled coil price



Iron ore prices



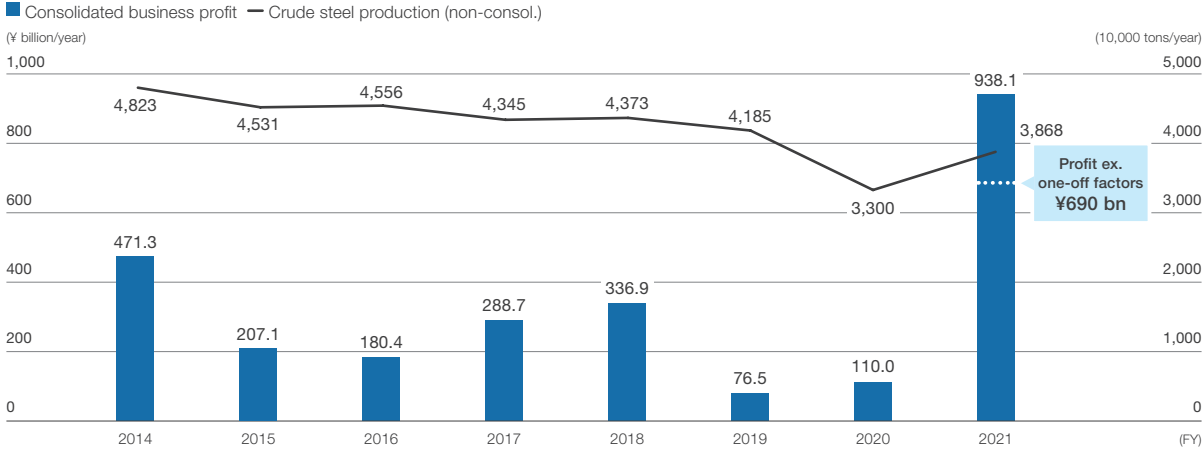
Coking coal prices



Fiscal 2021 operating results

Actions taken in fiscal 2021

Consolidated business profit



* Up to FY2016: Simple sum of consolidated ordinary profit (JGAAP) of former NSSMC and former Nisshin Steel Excluding impairment losses, etc. (¥360.9 billion) for FY2019

Domestic steel demand in fiscal 2021 was 16% lower than in fiscal 2014, when we recorded a previous record-high profit, and our production shipments were about 20% lower than in fiscal 2014.

Moreover, the seamless steel pipe business was a major profit contributor in fiscal 2014, but is currently sluggish due to a significant decline in demand for oil well pipes amid the decarbonization trend.

Consolidated business profit variance

	(¥ billion)
FY2020A	110.0
FY2021A	938.1
Increase (decrease) in consolidated business profit	+828.1
Increase (decrease) in consolidated business profit ex. one-off factors	<+553.1>
Increase (decrease) in production shipment volume	+9.50
Sales prices, product mix and raw material prices	+245.0
Cost reduction	+60.0
Domestic group companies	+40.0
Overseas group companies	+125.0
Non-steel segments	+13.0
Other	-25.0
Inventory valuation differences (incl. Group companies)	+305.0
Impact from blast furnace relining	-30.0

* Ex. impact from blast furnace refurbishment

Steelmaking and Steel Fabrication Business

In the domestic steel business, based on the strategy to focus on selective concentration of products and facilities, shift to a more sophisticated order mix, improve the remaining facilities, and concentrate production, we have been implementing an unprecedented large-scale structural reform earlier than planned.

As a part of the production facility structural measures, we shut down certain facilities including four blast furnaces, which resulted in a drastic reduction in the scale of fixed cost.

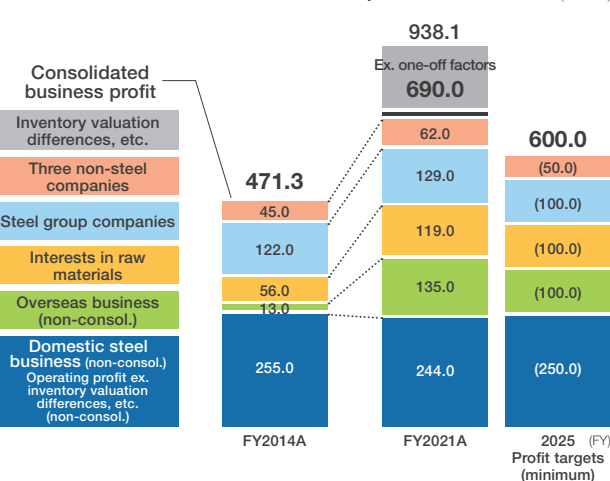
A substantial streamlining of integrated production capacity and a reduction in excess capacity have allowed us to selectively take orders and improve direct contract-based pricing for customers, an issue we have been tackling for many years.

The execution of these drastic measures in both production and sales sides has greatly lowered the breakeven point in the non-consolidated steel business, enabling us to

In this challenging environment, we recorded ¥690 billion yen in profit excluding one-off factors, which was significantly higher than in 2014.

We can say that this is the outcome of our efforts to establish a profit structure that will ensure ¥600 billion in consolidated business profit regardless of the external environment.

Breakdown of consolidated business profit



2014: Consolidated ordinary profit (JGAAP) of NSSMC and Nisshin Steel
2021: Consolidated business profit (IFRS)

generate a higher profit than in fiscal 2014 despite production volume being 20% lower than in fiscal 2014.

In the overseas business, we have also made progress in selective concentration: we have almost completed the withdrawal from unprofitable businesses while AM/NS India, acquired in December 2019, Usiminas in Brazil, and other companies have become major profit contributors. As a result, profit in the overseas business was about 10 times higher in fiscal 2021 than in fiscal 2014.

On the back of rising raw material prices, our interests in raw materials also greatly contributed to profit. The sum of profit in the overseas business and interests in raw materials exceeded the profit generated in the domestic steel business.

Our steelmaking group companies both in Japan and overseas have also made steady growth in enhancing their profitability.

Engineering and Construction Business



Nippon Steel Engineering Co., Ltd. is aiming for growth mainly in projects related to carbon neutrality as well as resilience and upgrading of aging social infrastructure. Orders are increasing particularly for waste energy power generation in the Environment and Energy sector and for seismic isolation devices and bridge products in the Urban Infrastructure sector.

The company's revenue and business profit fell in fiscal 2021 from the previous year, as large projects were subject to a lull in revenue recognition.

By sector, the Steelmaking Plant sector recorded a decrease in revenue to ¥41.5 billion in fiscal 2021 (from ¥56.3 billion in fiscal 2020) due to few completed large-scale construction projects such as blast furnace refurbishment.

The Environment and Energy sector also reported a drop in revenue to ¥182.3 billion (from ¥193.1 billion) because the waste treatment and power generation facility construction business was subject to a lull in revenue recognition despite steady revenues in overseas offshore gas field development projects and subcontracting of waste treatment and power

Chemicals and Materials Business



Nippon Steel Chemical & Material Co., Ltd. was affected by the continuing COVID-19 pandemic, the rise in raw material prices, the global semiconductor shortage, and the disruption in logistics, but recorded a significant increase in revenue and profit compared with fiscal 2020 mainly by passing on the rise in raw material costs to sales prices and taking measures aimed at sales expansion of high-value-added products.

The Coal Chemical business recorded revenue of ¥39 billion in fiscal 2021 (compared to ¥26 billion in fiscal 2020) as demand for needle coke used in graphite electrodes recovered and prices remained firm.

The Chemicals business recorded revenue of ¥120 billion (compared to ¥76 billion) since market conditions for benzene and bisphenol A were generally firm.

The Functional Materials business recorded revenue of ¥71 billion (compared to ¥60 billion) as it maintained favorable sales of semiconductor-related materials, circuit board materials, LCD materials, and organic EL materials.

The Composite Materials business recorded revenue of

System Solutions Business



NS Solutions Corporation has been making corporate-wide efforts to maximize DX needs and expand its business, while deepening relationships with customers, with a view to the full-scale DX deployment of Japanese companies.

In the digital manufacturing area, which is one of the key areas of focus, NS Solutions has integrated its solutions, services, and know-how into a unified brand called "Planetary" to support the promotion of DX for manufacturing customers.

In other areas of focus, the company has expanded sales of digital workplace solutions to meet the IT needs of new working styles and has also promoted internet services as support for platformers and DX in the EC operators and financial services areas.

Customers have been increasing their IT investment on the back of DX promotion, and the segment increased revenue and profit in fiscal 2021 compared to fiscal 2020.

By business segment, the Operational Solutions business increased revenue to ¥175.7 billion in fiscal 2021 (compared to ¥162.2 billion in fiscal 2020). Contributing factors are 1) an increase in revenue for transportation business and platformers in the industrial, distribution, and service sectors;

generation facility management.

The Urban Infrastructure sector posted a decline in revenue to ¥60.3 billion (from ¥76.1 billion) due to a drop in completion of large-scale logistics warehouses in the general construction business despite securing a certain level of revenues in the building steel structure, seismic isolation device, and port steel structure businesses.

(¥ billion)	FY2020	FY2021
Consolidated revenue	324.4	279.2
Steelmaking plants	56.3	41.5
Environment and energy	193.1	182.3
Urban infrastructure	76.1	60.3
Other and adjustments	-1.1	-4.9
Consolidated business profit	17.7	6.3

¥20 billion (compared to ¥17 billion), contributed by expanded sales of epoxy resin for semiconductor package substrates, carbon fiber composite materials for civil engineering and construction reinforcement, industrial rolls, and carbon fiber for the sports and space industries.

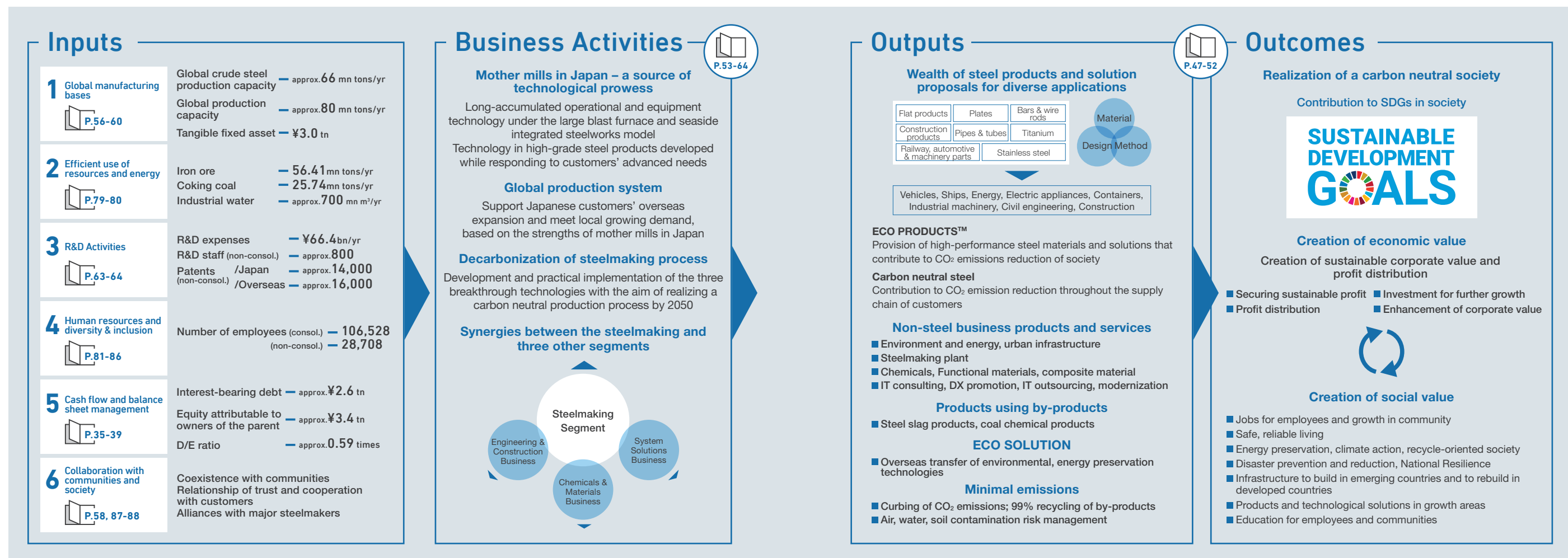
(¥ billion)	FY2020	FY2021
Consolidated revenue	178.6	249.8
Coal chemicals	26.0	39.0
Chemicals	76.0	120.0
Functional materials	60.0	71.0
Composite materials	17.0	20.0
Other and adjustments	-0.3	-0.2
Consolidated business profit	7.6	25.3

2) solid performance of projects required by regulations to undertake and an increase in product sales in the financial sector; 3) an infrastructure project for government agencies in the public sector; and 4) a revenue increase in the telecommunication sector.

The Service Solutions business also increased revenue to ¥94.7 billion in fiscal 2021 (compared to ¥89.7 billion in fiscal 2020), due to an increase in security and product sales in the IT infrastructure sector and an increase in sales to Nippon Steel in the steel sector.

(¥ billion)	FY2020	FY2021
Consolidated revenue	252.4	271.3
Operational solutions	162.2	175.7
Service solutions	89.7	94.7
Other and adjustments	-1.5	1.0
Consolidated business profit	23.9	30.8

The value creation process and Nippon Steel's strengths



Corporate Philosophy (P.03)

Nippon Steel Corporation Group will pursue world-leading technologies and manufacturing capabilities, and contribute to society by providing excellent products and services.

Corporate Governance (P.89-98)

In response to the delegation of responsibilities by and trust of all stakeholders, Nippon Steel has established a corporate governance structure appropriate for the Group's business, for its sound and sustainable growth, and improvement of its corporate value in the mid- to long-term. Nippon Steel has made a transition to a "Company with an Audit & Supervisory Committee" to enhance the supervisory function and to accelerate speed in decision making, responding well to greater, more speedy changes in the business environment.

Materiality of sustainability issues (P.71-88)

- Safety, environment, disaster prevention ● Quality ● Production ● Securing and fostering personnel ● Harmony with local communities and society
- Corporate value enhancement and profit distribution
- Thorough implementation of compliance

History of our development (P.05-06)

Continual growth as a global leading steelmaker, overcoming crises many times.

Established a business model with strengths in terms of "technology," "cost," and "being global," such as Process technology (incl. world top-class energy efficiency), High-grade steel product technology, Global production framework, Four-segment structure (incl. the steelmaking business)

Nippon Steel's strengths

	Technology	Cost	Being global
Global top-level R&D resources as a steelmaker	P.63	●	●
Practical use of advanced technology by R&D centers and steelworks research divisions	P.56	●	●
Joint development with customers based on long relationships of trust	P.54	●	
Rich product portfolio	P.47	●	
The world's top-class energy efficiency	P.80	●	●
Decarbonizing technology development for the steelmaking process	P.26	●	
The top-runner approach in many steelworks	P.56	●	●
Large blast furnace operating technology	P.56	●	●
Stable, mass production technology of high-grade steel	P.56	●	●
Synergy with the non-steel segments	P.62	●	
Global production framework	P.57		●
Alliances with some global leading steelmakers	P.58		●
Presence in the growing Asian market	P.54		●
High domestic shares; No. 4 in the world in production volume	P.54		●

Fiscal 2021 operating results (P.40-42)

Established a profit structure that ensures a business profit of ¥600 billion excluding one-off factors regardless of the external environment

Achieved a record-high profit close to ¥1 trillion (690 billion excluding one-off factors) despite the worse external environment than in fiscal 2014 when the previous record-high profit was achieved

Risks, opportunities, and strategies (P.11-34)

- | | Steel supply/demand environment | Climate change |
|---|---|----------------|
| 1 | Rebuilding our domestic steel business and strengthening our group's management | |
| 2 | Promoting a global strategy to deepen and expand our overseas business | |
| 3 | Taking on the challenge of zero-carbon steel | |
| 4 | Promoting digital transformation strategies | |

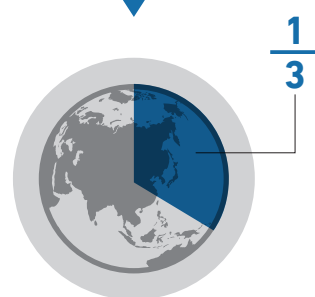
Steel for all of us and the Earth

Attractiveness of Steel

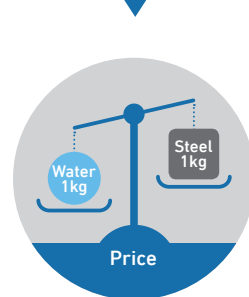
Steel is one of the most familiar materials and is indispensable for our daily lives. Thanks to its diverse properties and infinite potential, steel will continually contribute to a sustainable society.

Steel is an abundant, sustainable material that can be reborn endlessly

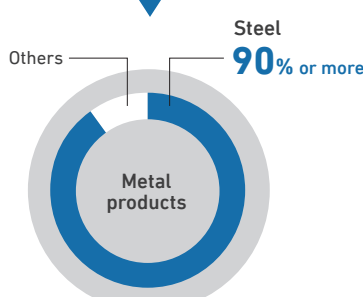
Iron is believed to constitute **one-third** of the Earth's weight.



Steel is an **affordable material** and is cheaper than water in a plastic bottle (in comparing price per unit weight).

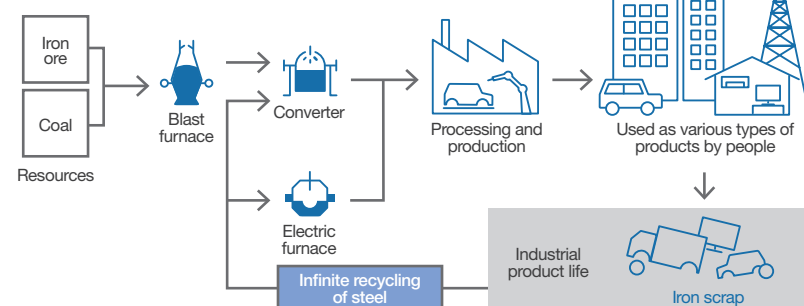


Steel represents **90% or more** of metal products, as steel being abundant, cheap, and having good workability, and has a wide range of applications.



Steel is a sustainable material to be reborn in new steel products endlessly

Steel is easily sorted from a mixture with other materials and can be endlessly recycled without causing deterioration in quality — quite a unique characteristic. Steel is a perfect material for recycling as it can be recycled endlessly into all kinds of steel products after the end of its product life.



Diverse properties and a wide range of applications

Due to diverse advantages such as strength and easiness to work, steel has been used in a wide range of applications and deserves recognition as the most outstanding material for the infrastructure of society, a material that supports people's lives and overall economic development.

Steel is close to us and we cannot live without steel products. Steel is for here for all of us now and will be with us in the future.

Diverse properties that support a wide range of applications

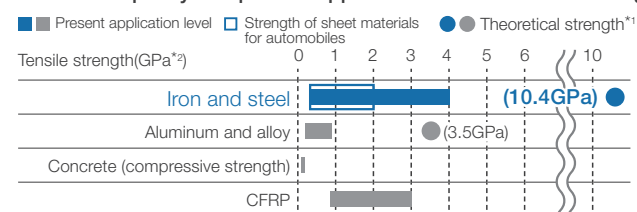
Strength	Weldability	Heat resistance
Toughness	Paintability	Cold resistance
Robustness	Magnetism	Weather resistance
Workability	Corrosion resistance	

Infinite potential

Steel is a material with great potential due, in part, to its having a much higher theoretical strength than other materials.

In addition to adjusting carbon and other content to give a certain steel product specific desired characteristics, steel's properties can be finely controlled to meet function and performance requirements, including requirements that did not exist in the past. We do this by controlling the combination of its temperature and rolling at the manufacturing stage or by adding alloys. Further development in steel and its usage will push the potential horizon further outward.

Potential capacity and present application level of material strength

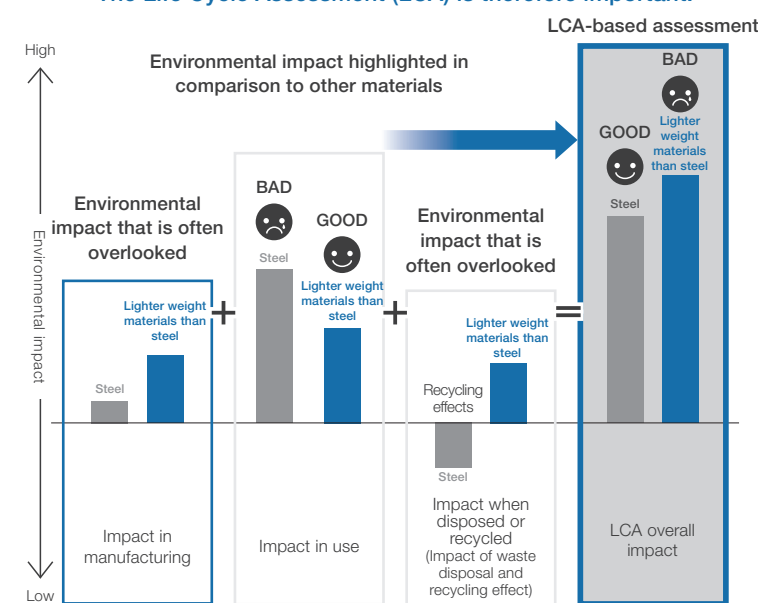


*1 Theoretical strength is said to be 1/5 to 1/7.5 of the modulus of rigidity. The above data uses 1/7.5.
*2 Gigapascal (GPa) is a unit to measure tensile strength. Giga denotes a factor of one billion (10⁹).

Steel is an outstanding material from the Life Cycle Assessment (LCA) perspective

Some materials have low environmental impact in use but may have high environmental impact in the overall life cycle.

The Life Cycle Assessment (LCA) is therefore important.



Comparison of CO₂ emission in producing an automotive part that has the same strength as conventional steel (kg-CO₂)

	Conventional steel materials	High-tensile steel	Aluminum	Carbon fiber reinforced plastics
Functional equivalent weight (kg)	100	75	67	45
CO ₂ emissions per unit (kg, CO ₂ /kg)	2.3	2.3	11.3	22.0

Based on the public data of WorldAutoSteel

Steel's environmental impact in production is extremely lower than other materials, some of which are lighter than steel.

Note: Moreover, high-tensile steel is about 25% lighter than conventional steel and has a lower environmental impact.

Going forward, with the aim to further reduce environmental impact on climate change, Nippon Steel will make development toward carbon neutrality in steelmaking process.

Let's consider the overall life cycle

The Life Cycle Assessment method (LCA) is a way of thinking to evaluate environmental impact of a product over its entire life cycle. While many aspects of environmental impact cannot be seen, the LCA is an attempt to visualize the impact over the life cycle of a product, from production of its raw material to use, disposal and recycling of the end product.

From the LCA perspective, steel's environmental impact can be said to be very low relative to other materials. In order to continue to supply steel as a sustainable material, while taking advantage of its excellent LCA characteristics, we aim to realize Carbon Neutral Steel.

Environmental impacts of steel made via the BF and EAF routes, using an LCA approach

The blast furnace (BF) route to reduce iron ore to make steel may appear to generate a higher environmental impact than the method that melts steel scrap in an electric arc furnace (EAF) to make steel.

However, the BF route creates steel products that generate scrap that, through recycling, has an effect of CO₂ emission reduction.

As that scrap recycling effect offsets the CO₂ emissions in the BF process, environmental impacts of the BF and EAF routes in total terms are the same as steel is repeatedly recycled.

This approach is recognized in the ISO 20915 and the JIS Q 20915 and is becoming a global standard.

Acquisition of the "Eco-Leaf" environmental label

Nippon Steel has obtained the "Eco-Leaf" — an ecolabel certified by the Sustainable Management Promotion Organization (SuMPO), in compliance with the ISO 14025 international standards, for 35 products, which account for over 80% of our products.

The Eco-Leaf is an EPD^{*3} certification program in use in Japan to disclose quantitative environmental information about the entire life cycle of a product, from resource mining and manufacturing to disposal and recycling. This allows customers to assess the environmental impact of the products they use.



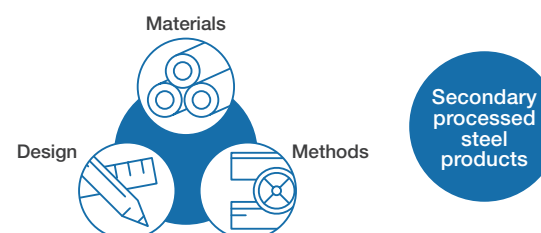
*3 EPD (Environmental Product Declaration): The type III environmental label specified in the ISO 14025 international standard, which is designed to disclose quantitative environmental data certified by a third-party organization.

Products and applications

Diverse properties and infinite potential of steel

Strength	Weldability	Heat resistance
Toughness	Paintability	Cold resistance
Robustness	Magnetism	Weather resistance, etc.
Workability	Corrosion resistance	
Abundant resources		Mass production

Solution provision



Toward realizing a carbon neutral society Contribution to a sustainable growth of society

SUSTAINABLE DEVELOPMENT GOALS

Safe, reliable living	Energy preservation, climate action, recycle-oriented society
Disaster prevention and reduction, National Resilience	
Infrastructure to build in emerging countries and to rebuild in developed countries	Products and technological solutions in growth areas

Value realized by Nippon Steel

Contribution to customers		Supply of steel products	
Energy saving	Reduction in environment impact	Lightweight	Process saving
Safety	Appearance design	Long product life	High yield
Labor saving	Comfort, etc.	No hazardous substance, etc.	
Product competitiveness	Overseas production capability	Long-term stable supply	Global supply system

The Nippon Steel Group manufactures almost all types of steel products manufactured in the world and has a comprehensive supply system, which includes secondary processed products.

Applications also extend to the manufacturing, resources and energy, civil engineering and construction and all other industry sectors.

Steadily, globally, and over a long time we have been providing products and services that respond to customers' needs, contributing to their value creation and to sustainable growth of society. What we offer includes materials that bring out diverse properties and infinite potential of steel, solutions such as for customer-specified component design and production method, and diverse secondary products.

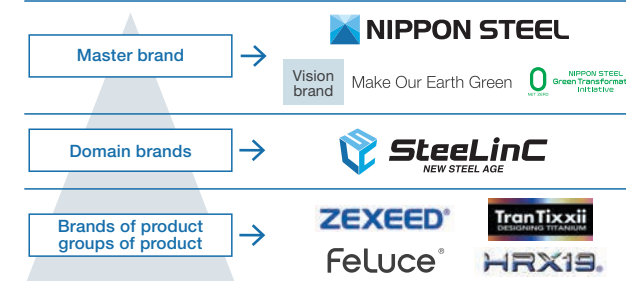
Strategic establishment of brand raising corporate value

We take a strategy to use **NIPPON STEEL** as a master brand to strengthen and disseminate our group identity, and to endorse our domain brand and product brand for the enhancement of the reliability and value of our products.

Concerning the Nippon Steel Carbon Neutral Vision 2050 initiatives, we established an activity logo **NIPPON STEEL Green Transformation Initiative** in order to demonstrate our aggressive efforts for the realization of a carbon neutral society.

We are also strategically establishing brand products with strong user-oriented messages and appealing power so that our customers can accurately recognize the value proposition, advanced technology, and environmental value of the products. The brands include 1) ZEXEED™ high-corrosion resistant coated steel sheet, released in October 2021 and for which we have begun offering a 30-year service life warranty in relation to perforation caused by

corrosion in products; 2) TranTixxi™ designing titanium, which was awarded the Red Dot Design Award 2022, the first in the world as metal material, and 3) FeLuce™ electroplated steel sheet, which was developed by an innovative production method that applies designs directly to plating layers to achieve corrosion resistance.



Wealth of product groups



Product types

Steel sheets	Flat products	Bars & wire rods	Construction products	Pipes and tubes	Railway, automotive and machinery parts	Titanium	Stainless steel (Nippon Steel Stainless Steel)
<p>Hot-rolled steel sheets Cold-rolled steel sheets Electrical steel sheets Galvanized steel sheets Electrolytic tinplates</p>	<p>Plates</p>	<p>Bars Wire rods</p>	<p>Structural shapes Steel pipe piles Rails Steel sheet piles</p>	<p>Welded pipes and tubes Seamless pipes and tubes</p>	<p>Bogie trucks Railway wheels Crankshafts</p>	<p>Titanium sheets Titanium ingots Titanium foil</p>	<p>Sheets Plates Bar and rod materials</p>
<p>Automotive</p> <p>High-tensile steel sheets</p> <ul style="list-style-type: none"> High strength Lightweight Workability <p>Electrical appliances, office equipment</p> <p>VIEWKOTE™ (pre-painted steel sheets)</p> <ul style="list-style-type: none"> Corrosion resistance Appearance design Process saving <p>CANSUPER™ (tin-free steel)</p> <ul style="list-style-type: none"> Corrosion resistance Printability Lacquer adherence <p>Energy</p> <p>Grain-oriented electrical steel sheets</p> <ul style="list-style-type: none"> Low iron loss Energy saving <p>Civil engineering and construction</p> <p>ZEXEED™</p> <ul style="list-style-type: none"> Corrosion resistance Process saving High-corrosion resistance in the plane and end surfaces 	<p>Shipbuilding</p> <p>NSafe™-Hull (highly ductile steel plates)</p> <ul style="list-style-type: none"> Absorbing collision energy Preventing oil spill <p>Industrial machinery</p> <p>ABREX™ (abrasion resistant steel plates)</p> <ul style="list-style-type: none"> Abrasion resistance Workability Weldability <p>Energy</p> <p>7% nickel steel</p> <ul style="list-style-type: none"> Energy saving Ultra-low-temperature strength and toughness <p>Civil engineering and construction</p> <p>CORSPACE™</p> <ul style="list-style-type: none"> Rationalizing of painting Reduction in frequency to paint 	<p>Automotive</p> <p>Steel cords for tires</p> <ul style="list-style-type: none"> Ultra-lightweight High strength Durability <p>Steel for high-strength suspension springs</p> <ul style="list-style-type: none"> High strength Durability Lightweight <p>Industrial machinery</p> <p>Steel for high-function bearings</p> <ul style="list-style-type: none"> Circularity Abrasion resistance Rolling fatigue strength <p>Civil engineering and construction</p> <p>Steel for high-tension bolts</p> <ul style="list-style-type: none"> High strength Durability Lightweight 	<p>Railway</p> <p>150-meter rails</p> <ul style="list-style-type: none"> No need of welding Reduction in rail maintenance Enhanced passenger comfort <p>Civil engineering and construction</p> <p>NSHyper Beam™</p> <ul style="list-style-type: none"> Uniform depth and width within a same size series Design simplification Enhanced processing <p>Hat-type sheet piles</p> <ul style="list-style-type: none"> Space saving Workability Reduction in construction time <p>NM segment</p> <ul style="list-style-type: none"> Structural reliability Reduction in construction time Reduction in waste soil 	<p>Automotive</p> <p>Pipes and tubes for hydroforming (Pipes and tubes for suspensions)</p> <ul style="list-style-type: none"> Closed-section structure High strength Lightweight <p>Energy</p> <p>Pipes & tubes for power generation</p> <ul style="list-style-type: none"> High-temperature strength High-temperature corrosion resistance <p>OCTG, line pipes</p> <ul style="list-style-type: none"> High toughness Durability Corrosion resistance <p>Civil engineering and construction</p> <p>Pipes and tubes for structures</p> <ul style="list-style-type: none"> High strength Corrosion resistance Appearance design 	<p>Railways and aircraft</p> <p>Railway wheels</p> <ul style="list-style-type: none"> High strength Sound insulation Brake heat resistance <p>Bogie trucks</p> <ul style="list-style-type: none"> Durability Comfortable rides Less maintenance <p>Automotive</p> <p>Crankshafts</p> <ul style="list-style-type: none"> High strength Durability Safety <p>Industrial machinery</p> <p>Permanent magnet retarder</p> <ul style="list-style-type: none"> Energy saving Lightweight Safety 	<p>Automotive</p> <p>Titanium alloys for mufflers</p> <ul style="list-style-type: none"> Corrosion resistance Lightweight High strength Workability <p>Aircraft</p> <p>Titanium alloys for aircraft</p> <ul style="list-style-type: none"> Lightweight High-specific strength Corrosion resistance <p>Construction</p> <p>TranTixxi™</p> <ul style="list-style-type: none"> Appearance design Corrosion resistance Lightweight Workability <p>Civil engineering</p> <p>TP method and Titanium foil method</p> <ul style="list-style-type: none"> Corrosion resistance Workability Maintenance free 	<p>Automotive</p> <p>Stainless cold-rolled sheets</p> <ul style="list-style-type: none"> Corrosion resistance High-temperature resistance Lightweight <p>Electrical appliances, office equipment</p> <p>Stainless cold-rolled sheets</p> <ul style="list-style-type: none"> Corrosion resistance Appearance design Workability <p>Energy</p> <p>Stainless plates</p> <ul style="list-style-type: none"> Corrosion resistance High strength <p>Civil engineering and construction</p> <p>Stainless cold-rolled sheets</p> <ul style="list-style-type: none"> Corrosion resistance Lightweight Appearance design

Providing high-performance steel products and solutions that contribute to reducing CO₂ emissions in society as a whole

Products and solutions that design the future of automobiles NSafe™-AutoConcept

In response to the increasing demand for reduction of vehicle body weight and enhanced collision safety, we accelerated research and development, and started to make proposals not just on materials but also on the NSafe™-AutoConcept (NSAC), a comprehensive solution for the development of next-generation steel vehicles, in 2019. An extended version NSafe™-AutoConcept xEV has also been added to the lineup. We are working with our customers to develop advanced vehicles.

Reduction in vehicle body weight has long been desired by automakers but that need has been increasing in recent years, as it can contribute to reducing CO₂ emissions during vehicle production as well as driving. Concerning collision safety, the evaluation method has become diversified, and the advance in material strength and structural design are required more than ever before. Ultra-high-tensile steel sheets such as 1470 MPa high-tensile sheets and 2.0 GPa hot-rolled high-tensile materials for vehicle bodies, and 980 MPa high-strength steel plates for chassis can satisfy such needs.

NSafe™-AutoConcept xEV for electric vehicles

Reflecting efforts toward achieving a carbon-neutral society in 2050, electric vehicles, including hybrid cars, plug-in hybrid cars, and all-electric cars, are rapidly becoming popular.

In order to extend the driving distance of EVs and increase vehicle owners' demand for such automobiles, a number of challenges must be overcome, including further reduction in vehicle body weight and the higher performance of the drive motor.

NSafe™-AutoConcept xEV is an extended version of NSafe™-AutoConcept, providing solutions to these challenges for further dissemination of EVs.

For example, an EV equipped with a large battery presents a variety of challenges, including safety, performance, and cost, that are different from conventional car-making.

Today, aluminum is used in most battery boxes and cell cases of lithium-ion batteries. If aluminum is replaced with high-strength, lightweight steel, the improvement in the safety, and other performances can be enhanced at the same weight.

Drive motors also require improvement in efficiency, weight reduction, miniaturization, and other performance measures that directly link to the extended driving distance of the vehicle.

Nippon Steel's high-performance electrical steel sheets greatly improve the performance of drive motors, contributing to the enhanced product features for customers (see below).

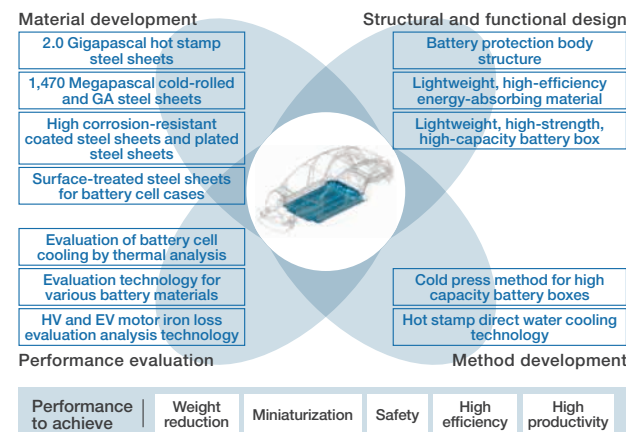
The application of the high-tensile steel products and the proposed structure and processing method have reduced the body weight of steel cars by 30%. This has made the steel car to have the similar weight to that of an all-aluminum car and to provide higher collision safety performance.

Material makers, including ourselves, used to focus on material development but the NSAC is contributing to the car making process in the areas of material development, structural and functional design, process development, and performance evaluation in addition to material development.

Our proposals for safe products with well-balanced features in performance and cost help solve these challenges of EVs.

The adoption of our solution proposal can realize not only improved performance, but also a shorter production period and a lower cost for the development by customers, accelerating the electrification.

NSafe™-AutoConcept xEV



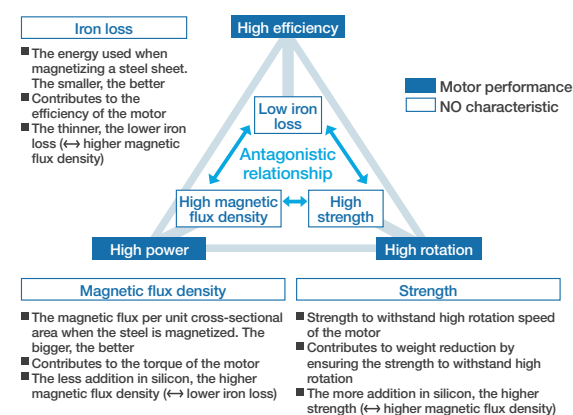
Nippon Steel's non-oriented (NO) electrical steel sheets, which boasts the world's top-level quality

Electrical steel sheets are high-performance materials that take advantage of the ferromagnetic properties of iron. There are two main types: grain-oriented (GO) and non-oriented (NO). They are essential in the electric power conversion field—generators, transformers, and iron cores of electric appliances and motors of EVs. In particular, demand for high-efficiency, high-grade NO electrical steel sheets, used in the iron core of drive motors of EVs, is surging due to the stricter regulations on CO₂ emissions and average fuel consumption. That demand is expected to increase 10 times worldwide by fiscal 2035, compared to fiscal 2020.

Driving motors of EVs require high efficiency, high power, and high speed, which can be translated to low iron loss, high magnetic flux density* and high strength respectively in terms of steel properties. These three antagonistic features are incorporated in Nippon Steel's NO electrical steel sheets in a well-balanced, advanced way and contribute significantly to the improvement of motor performance of EVs and to the reduction of CO₂ emissions.

We are currently working on increasing production capacity and improving quality of NO and GO electrical steel sheets, and the total amount of investment amounts to approximately ¥123 billion. Our plan is to increase production capacity by 1.5 times at full-capacity operation by the first half of 2024, with the aim of strengthening our comprehensive supply of electrical steel sheets.

Three characteristics of non-oriented (NO) electrical steel sheets in the antagonistic relationship



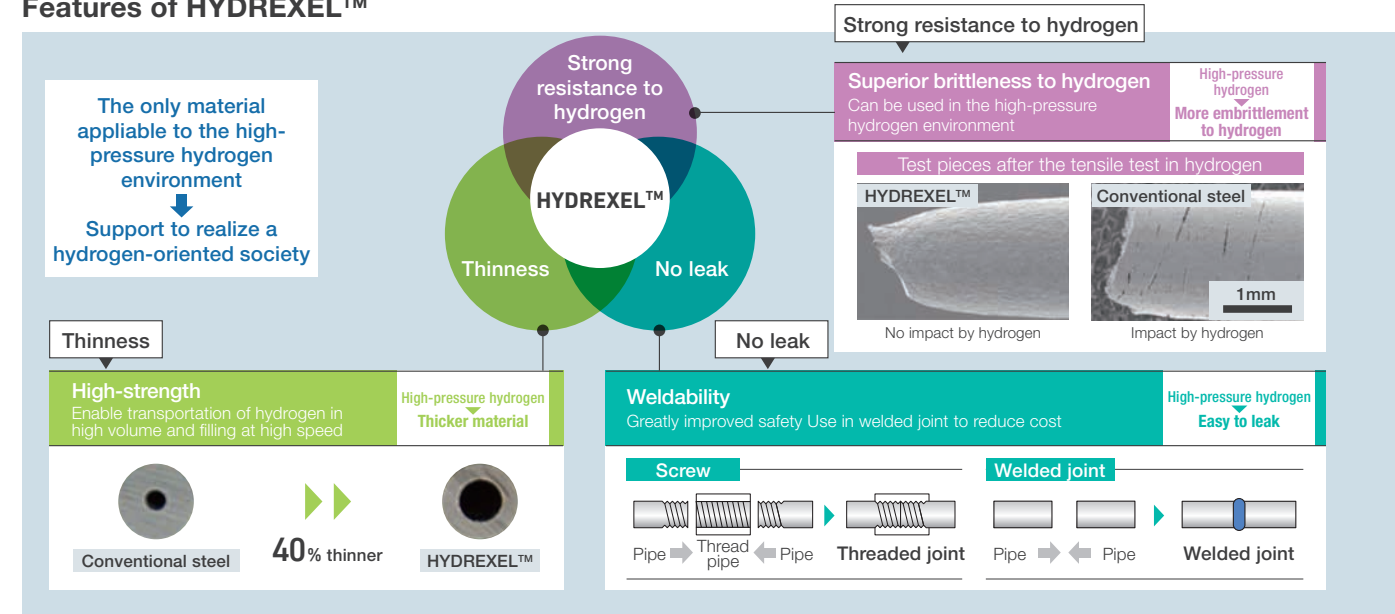
*Magnetic flux density: One of the indicators to describe the characteristics of electrical steel sheets. Electrical steel with a high magnetic flux density is generally considered a good material because it is susceptible to magnetization.

HYDREXEL™, a unique product for tomorrow's hydrogen-oriented society

The development of hydrogen stations is progressing throughout Japan in a planned manner, as fuel cell vehicles (FCVs) using hydrogen are attracting attention as an increasingly popular next-generation clean energy. HYDREXEL™, the world's first high-pressure hydrogen stainless steel developed by Nippon Steel, has been adopted by approximately 60% of hydrogen stations in Japan, and has

won many awards for technology and social contribution, as it has overcome hydrogen brittleness, which occurs in the high-pressure hydrogen gas environment, and as it has high strength and weldability. This sole material adapted to high-pressure hydrogen environments will greatly expand the potential of tomorrow's hydrogen-oriented society and contribute to the further spread of clean energy.

Features of HYDREXEL™



High-alloy seamless oil well pipes contribute to CO₂ reduction by CCS

Carbon dioxide Capture, Utilization and Storage (CCUS) that separates, captures, and stores CO₂ in the ground (CCS), or directly uses CO₂ or converts it into other materials and utilizes it (CCU) is highly expected as a means to reduce CO₂.

The need for CO₂ reduction by CCUS is steadily increasing, and CCUS is expected to represent one-sixth of the total CO₂ reduction by 2070 and to become an indispensable, decisive factor for achieving carbon neutrality.

Nippon Steel produces high-grade steel used in the CCUS process and its demand is also expected to grow.

For example, in CCS, CO₂ emitted from a power plant or factory is separated from other gases and stored and pressed deep into the ground. Steel pipes used in injecting the liquefied CO₂ are required to have high-corrosion resistance because the high-corrosion impurities contained in the emission source cannot be fully eliminated.

The high-alloy OCTG developed by Nippon Steel has been applied for oil and natural gas production in very severe conditions all over the world for many years. It has the world's top market share in this field.

The product, with the world's top-level corrosion resistance, can be used in a highly-concentrated CO₂ environment without causing corrosion.

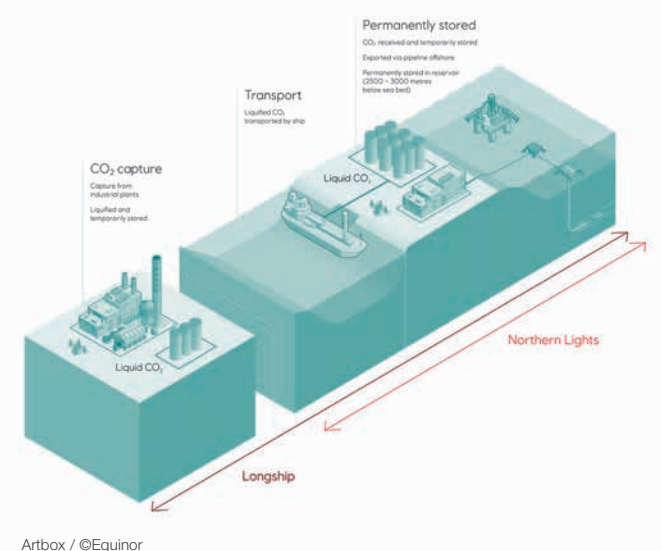
This high-alloy OCTG seamless pipe has been adopted by the Northern Lights Joint Venture, a carbon dioxide capture and storage (CCS) project in the European North Sea, led by Equinor ASA in Norway.

This project aims to commercialize a service to collect CO₂ emitted from cities in Norway and industrial facilities in

the neighboring countries, transport it 100km offshore via pipeline to an intermediate storage facility, and then inject it into a subsurface reservoir 2,600 meters under the seabed.

We have already supplied carbon steel seamless pipes for the JV, but started supplying the high-alloy OCTGs in October 2021.

We will continue to provide high-grade products to help solve climate change issues.



Artbox / ©Equinor

Nippon Steel's eco-friendly products

Our products have advanced or highly specialized functions and reliability, that are based on our technological capabilities, and are widely used in diverse areas of society. They contribute to promote (1) measures against climate change by energy saving and CO₂ emission reduction; (2) creation of a circular economy by prolonging product life and improving recyclability; and (3) environmental risk management by preservation of the environment and control of chemical substances.

Promoting measures against climate change (Saving of energy and a reduction in CO₂ emissions)

Nippon Steel is contributing to reduction in CO₂ emissions through improved fuel efficiency such as by customers' use of high-tensile-strength steel sheets, which are thinner and more lightweight.



Improved construction efficiency for civil engineering
Wire rods for high-strength suspension bridge cables



Energy conservation from lighter, faster-speed railways
Wheels for high-speed railways



Improved construction efficiency for civil engineering
Hat-type steel sheet piles



Promotion of energy conversion
Seamless pipes and tubes for hydrogen refueling stations



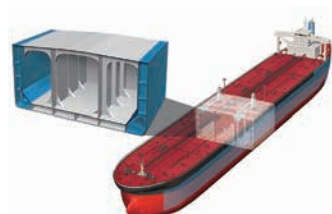
Reduction in power loss
Grain-oriented electrical steel sheets



Weight reduction and better fuel efficiency for automobiles
Steel cords for tires

Promoting environmental risk management (preservation of the environment and control of chemical substances)

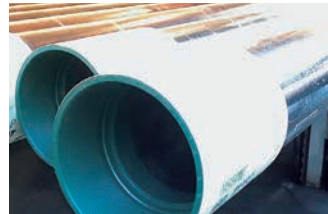
Nippon Steel is contributing to reduction of environmental risks by realizing the same performance, which used to be achieved by adding lead and other substances of concern, without doing so, and by providing steel products that curb noise generation in the use of the products.



Enhanced maritime safety of ships steel plates for enhancing collision safety
NSafe™-Hull



Electrolytic chromatefree zinc-coated steel sheet for home appliances
NS ZINKOTE™ Black



Eco-friendly tubular portal for the energy sector
CLEANWELL™ DRY

Promoting the creation of circular economy (prolonged service life and improved recyclability)

Nippon Steel is contributing to prolonged product lives by providing corrosion-resistant, abrasion-resistant steel products, that respond well to usage and the environment to be used. We are also contributing to promoting a circular economy by adding various functions to steel, which has extremely high recyclability.



Highly recyclability and weight reduction
Ultra-thin tin laminated steel foil (steel cans)



Prolonged service life and enhanced durability and reliability for the construction industry
Titanium roofing



Enhanced corrosion resistance for home appliances and construction products
High corrosion resistance coated steel sheet, ZEXCEED™

Nippon Steel Group's Solutions for National Resilience

In recent years, various disasters caused by global climate change have become more frequent and severer.

The national land and various infrastructure must protect people and their everyday lives from these disasters. In order to accomplish this mission, construction of new facilities and measures for aging facilities are therefore in urgent need.

The Sustainable Development Goals adopted by the United Nations also include a goal to "develop quality, reliable, sustainable and resilient infrastructure, including

regional and transborder infrastructure." The Japanese Government has budgeted around ¥22 trillion cumulative since fiscal 2018 for such measures and has announced accelerating introduction of additional measures.

The Nippon Steel Group is committed to providing various solutions for national resilience, making use of its diverse manufacturing methods, product development capacity, abundant achievements in technology proposals, and supply capacity of a wide range of products.

Application areas of steel products

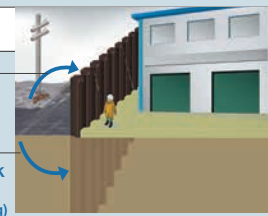


Solution examples

Steel water barrier walls against water for flood prevention

Steel sheet pile walls to protect critical structures from flooding

Cut-off work
(prevention of overdrift)
Water-shielding work
(prevention of boiling and piping)



L145™ high-strength roof

Enhanced windstorm measures of roofs



Steel slit dam AB type

Measures against debris flow and drifting trees



SteelLinC™, a steel bar and wire rod brand of Nippon Steel



Steel bars and wire rods are used in a wide range of fields and products—from automobile suspensions and engines, construction equipment components, civil engineering and building materials, to furniture and office supplies.

As the world's leading manufacturer of bars and wire rods, we produce diverse products from ordinary steel to special steel.

As they are mainly used in the automotive industry, they contribute significantly to the competitiveness of automotive parts.

Nippon Steel and its subsidiaries Sanyo Special Steel and Ovako (Sweden) work together to strengthen our overall capability and global supply system to capture growing overseas demand.

Our bars and wire rods have various distinctive features; 1) a wide range of menu in steel types with optimally-designed carbon content and alloy components to realize various strengths required per application; 2) control of inclusions to reduce non-metallic inclusions to the minimum and to control their form; 3) leading-edge manufacturing facilities and advanced production technology; and 4)

proficient skills in high-precision, stable manufacturing of steel products with delicate design in the production site.

Furthermore, our world-leading bars and wire rods with these features demonstrate their real value after being processed by customers. Each lot is small and varied lots and bars and wire rods are used in the processing work by customers to be incorporated into the final product.

We have launched SteelLinC™, a brand of smart solutions through the multiplication of "steel materials X processing methods" which combines proposals that go even as far as the customers' processing method on the basis of the supply of high-grade steel products and the long-cultivated strength in manufacturing, processing, and application technology.

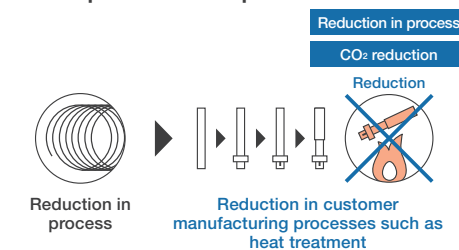
Through SteelLinC™, we are contributing to customers' improvement in product value and productivity, by improvements such as high strength, weight reduction, reduction in processes, and conforming to environmental regulations and carbon neutrality.

Solution example Reduced-process steel bars and wire rods

Reduced-process steel bars and wires are high-performance steel products that can eliminate a part of a variety of steel processing processes (heat treatment, wire drawing, finishing, etc.) at customers. In steel product manufacturing, the steel processing process aimed at producing quality requirements for end products and parts consumes a considerable amount of energy and emits CO₂. In order to solve this problem, we were able to evince certain steel properties through our own heat treatment, special control, and addition of trace elements in manufacturing process, which have enabled customers to omit certain heat treatment processes in their steel processing. It enables us to reduce cost and CO₂ emissions throughout our supply chain, including our customers. In 2022, the steel products, with an extensive lineup, received an "EcoLeaf Environmental Label" from the Sustainable Management Promotion Organization (SuMPO) of Japan. The CO₂ emission reduction action by utilizing the steel allows customers to publicize their own action in GHG Protocol Scope 1* reduction to the market.

* GHG Protocol Scope 1 is the international standard for calculating and reporting greenhouse gas emissions.

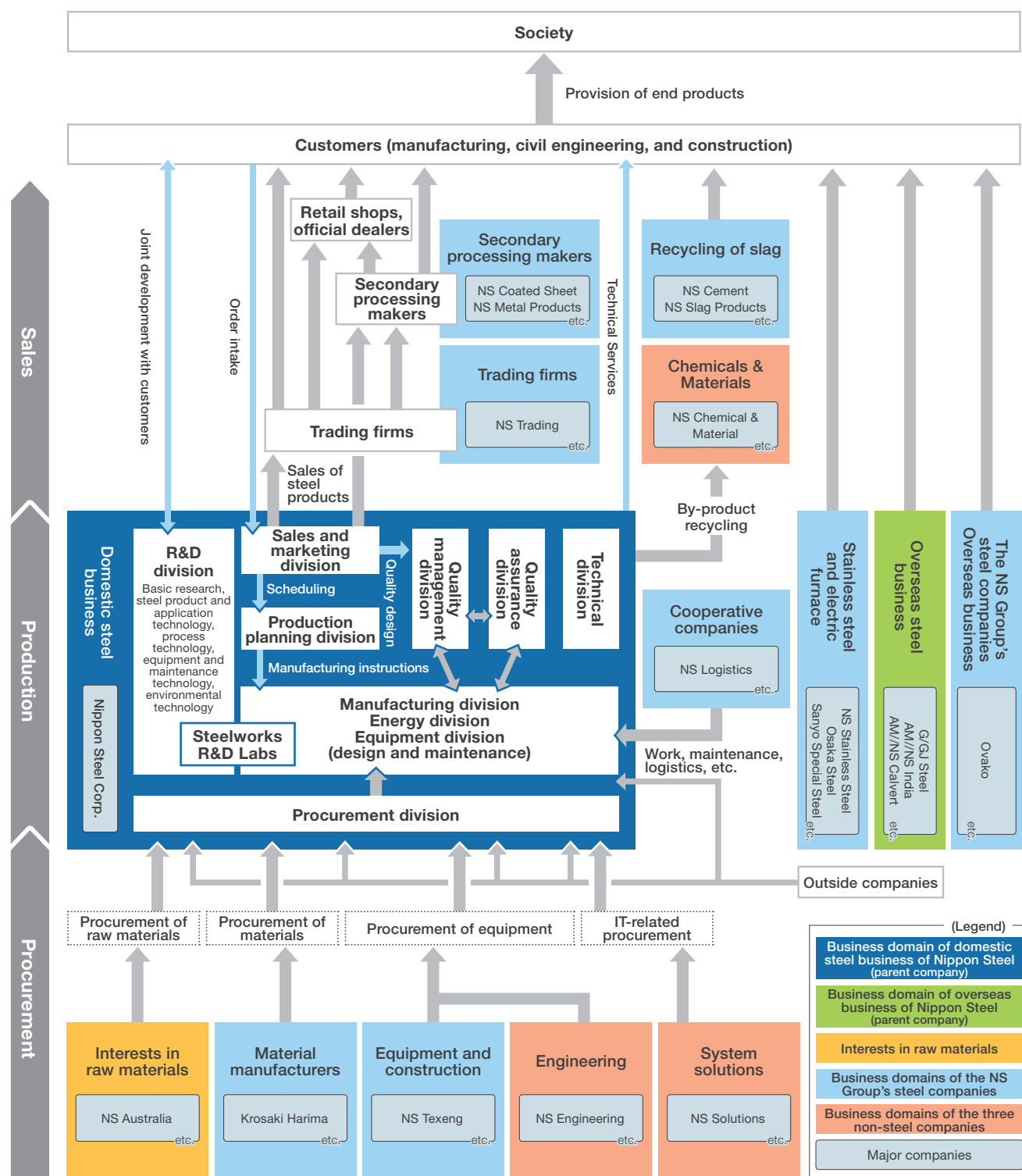
Example of reduced-process steel



Business model

Steelmaking value chain and the Nippon Steel Group's business domains

The Nippon Steel Group's business domains span from upstream to downstream of the steel industry's value chain. Nippon Steel, engaged in integrated steelmaking business, and its group companies, are responsible for each process of the value chain, share important strategies, and aim at maximizing the Group's corporate value.



Broad-based customer base

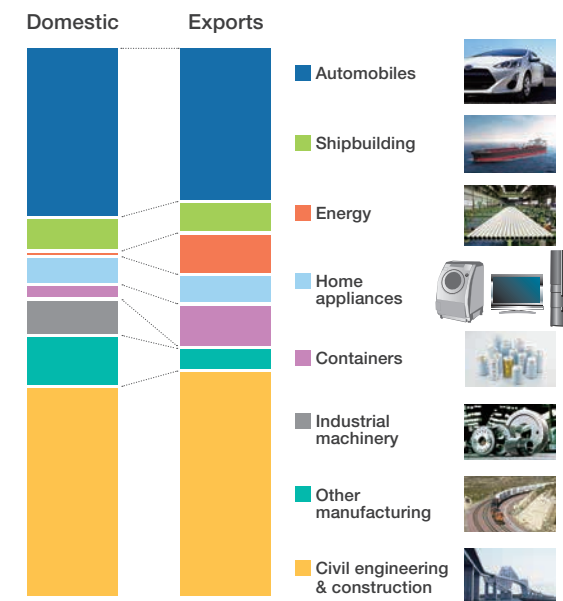


In terms of Nippon Steel's sales by industry, the manufacturing sector represents 60-70%, of which roughly 30% is the automotive sector, and the civil engineering and construction sector occupies the remaining 30-40%.

The sales contracts to the manufacturing sector tend to have a higher portion of direct contract-based sales contracts, based on our long-term business relationships with customers. We carry out R&D activities jointly with these customers, develop and manufacture steel products with high functionality, and make proposals for solutions and improvements, such as relating to component design and manufacturing method, in addition to supply of materials, responding to their needs. Moreover, we have established an overseas supply network of steel products, to satisfy needs arising from the customers' global expansion. We have thus strived hard to be a partner contributing to these customers' value creation.

The high-grade steel product technology and solution proposal capacity of Nippon Steel have been developed by responding to needs of internationally-competitive manufacturers in Japan. Together with our global production framework, which supports the customers' global development, they have become a part of Nippon Steel's strength.

Shipment breakdown by customer sectors



Based on shipment volume (Nippon Steel, non-consolidated, FY2021, excluding semi-finished products)

Sales contracts of steel products

Direct contract-based sale

Contract that a steelmaker produces steel products according to a customer's specified order (price, volume, specifications, etc.) and sells them to the customer via an intermediary trading firm.

Retail sale

Contract that a steelmaker sells steel products to retailers and trading firms without end users being specified. The retailers and trading firms stockpile the steel products which are purchased at their responsibility and risk, and sell them by their own sales efforts, taking into account the market and other conditions.

High presence in growing Asian region



Out of Nippon Steel's steel products produced in Japan, roughly 50-60% are consumed in Japan and the remaining 40-50% are exported. ASEAN countries, South Korea, China, Taiwan, and elsewhere in Asia represent about 70% of the

exports. Being closely located to the Asian market with its high growth potential in steel demand is one of advantages of Nippon Steel.

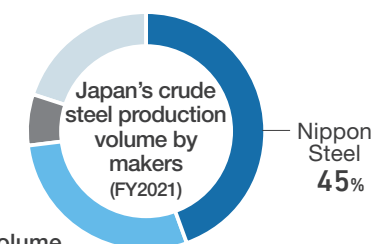
Japan's No. 1 and the world's No. 4 in market share



Nippon Steel is Japan's top steelmaker, dominating roughly half of the market.

In global terms, former Nippon Steel had had the No.1 share from 1970 to 2000 (except 1998 and 1999). Subsequently, there were consolidations and reorganizations of global steelmakers, and emergence, consolidation, and reorganizations of Chinese steelmakers, along with China's rapid growth in steel demand and production volume. In 2021 Nippon Steel became No. 4 in the world.

We now aim at "becoming the best steelmaker with world-leading capabilities," not the largest in scale, by using our three key driving forces, "technology," "cost," and "being global."



World ranking in crude steel production volume

2000: 850 million tons			2007: 1,348 million tons			2021: 1,951 million tons		
1	Nippon Steel	28.4	1	ArcelorMittal	116.4	1	China Baowu Group	120.0
2	POSCO	27.7	2	Nippon Steel	35.7	2	ArcelorMittal	79.3
3	Arbed	24.1	3	JFE	34.0	3	Ansteel Group	55.7
4	LNM	22.4	4	POSCO	31.1	4	Nippon Steel	49.5
5	Usinor	21.0	5	Baosteel	28.6	5	Shagang Group	44.2
6	Corus	20.0	6	TATA	26.5	6	POSCO	43.0
7	ThyssenKrupp	17.7	7	Angang	23.6	7	HBIS Group	41.6
8	Baosteel	17.7	8	Shagang	22.9	8	Jianlong Group	36.7
9	NKK	16.0	9	Tangshan Steel	22.8	9	Shougang Group	35.4
10	Riva	15.6	10	U.S. Steel	21.5	10	TATA	30.6
11	Kawasaki Steel	13.0						
12	Sumitomo Metals	11.6						
	Nisshin Steel	3.3	20	Sumitomo Metals	13.8			
				Nisshin Steel	3.5			

(Source: World Steel Association)

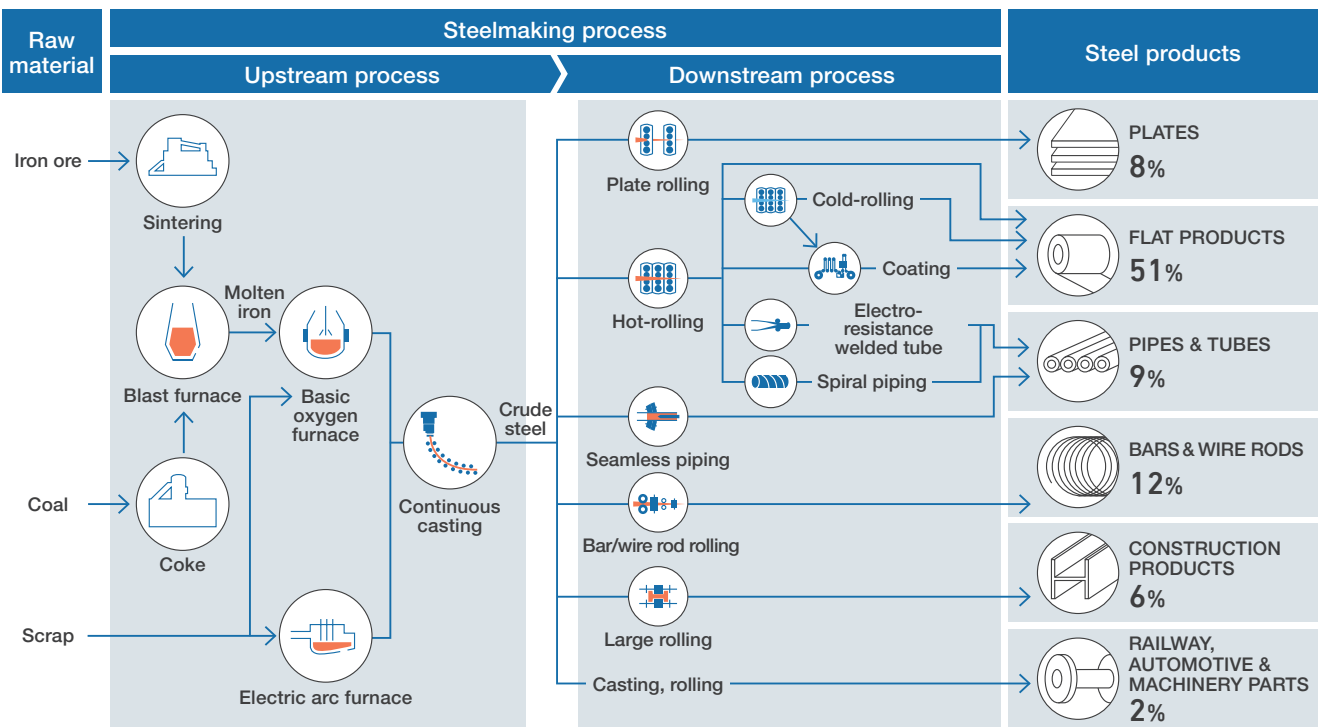
Steel product manufacturing process

Upstream process

The upstream process includes the ironmaking process to produce pig iron which is made mainly in a blast furnace; and the steelmaking process that uses pig iron, scrap, alloys, and other materials to manufacture steel products of diverse features. A large area of level land and a massive amount of initial investment are required for the upstream process, which needs massive upstream facilities for diverse processes including reception of raw materials, distributing a high level of supply of energy, and treatment of by-products. Moreover, a blast furnace once blown in will be kept operating ceaselessly for around 15-20 years, with shutdowns for only a few times of few-day intervals a year. This also means a 24-hour-a-day operation of most other steelmaking facilities as well, which is realized by four teams of workers engaged in three shifts.

Downstream process

The downstream process is divided into processes for rolling, coating, refining and inspection, to name the most important ones, enabling manufacturing of products with features required by customers.



Material yard



Blast furnace



Basic oxygen furnace



Hot-rolling

Domestic steel business

Manufacturing bases in Japan

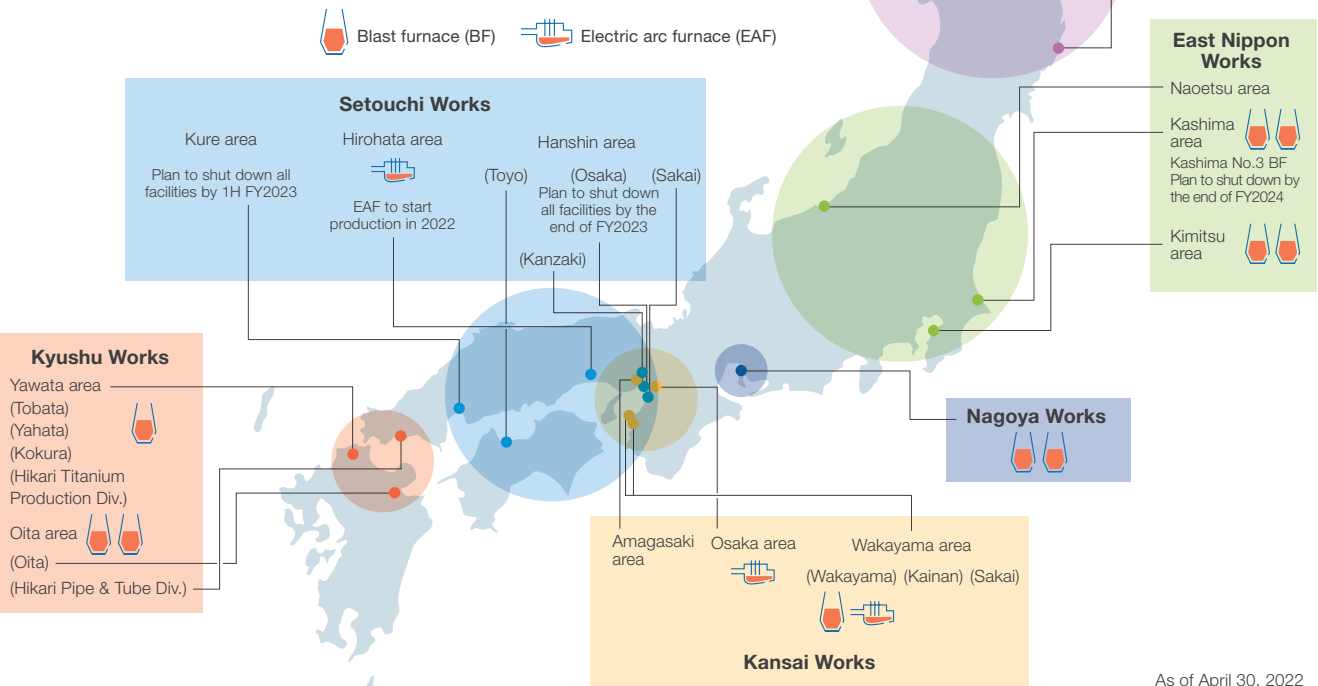


Nippon Steel's strength

In Japan, six steelworks of Nippon Steel Corporation have 14 manufacturing bases, which we call areas, in aggregate. We also have group companies' factories or mills using electric arc furnaces and for secondary processing of steel products. Domestic crude steel production capacity totals about 47 million tons per year.

In addition to three large-scale research centers, R&D laboratories at each steelworks put research outcome from the research centers to practical use in advanced technology, by improving equipment closely with the manufacturing sites and developing products closely with customers.

Nippon Steel's manufacturing bases and R&D bases in Japan have had a close working relationship with customers for many years. They are a source of value creation that is continually generating operational, equipment, and product technologies—our strengths. We call them mother mills, a base of value creation in our business development.



As of April 30, 2022

Efficient, high-grade steel production in large blast furnace, seaside integrated steelworks



Nippon Steel's strength

All of Nippon Steel's large blast furnace integrated steelworks in Japan are located in seaside areas, appropriate locations for import of raw materials and export of product shipments. From raw material landing places to upstream and downstream processing facilities, product warehouses, and shipping quays, all the sites are efficiently laid out to comprise a modern steelworks. Most of our 11 blast furnaces—the main facilities of the upstream process—are immense, having an average furnace capacity of approximately 5,150 m³. In particular, the No. 1 and No. 2 blast furnaces (5,775 m³) in

Oita are among the world's largest.

The large blast furnace integrated steelworks we operate are of a high-efficiency production model, originated in Japan. Our domestic manufacturing bases have established this model, ahead of other countries, and have realized high productivity, cost competitiveness, mass production and stable supply of high-grade steel products, and high quality, using long-accumulated operational and equipment technology, and responding to customers' advanced needs.

The top-runner approach for continuous improvement in technology level



Nippon Steel's strength

Our top-runner approach is that all steelworks share their operational and technical know-how and experience as well as daily and monthly KPI data and arrangements work to have newly set precedents and methods, and groundbreaking advances transferred to and shared by all manufacturing bases. The PDCA system is in place, enabling the

enhancement of technical levels.

All the steelworks are also connected via a common facility management system. Sharing enormous information, such as on the problem occurrence rate, component product life, and installation or engineering work schedule, they seek to achieve more efficient, optimal maintenance and repair.

Overseas steel business P.20-22 Nippon Steel's strength

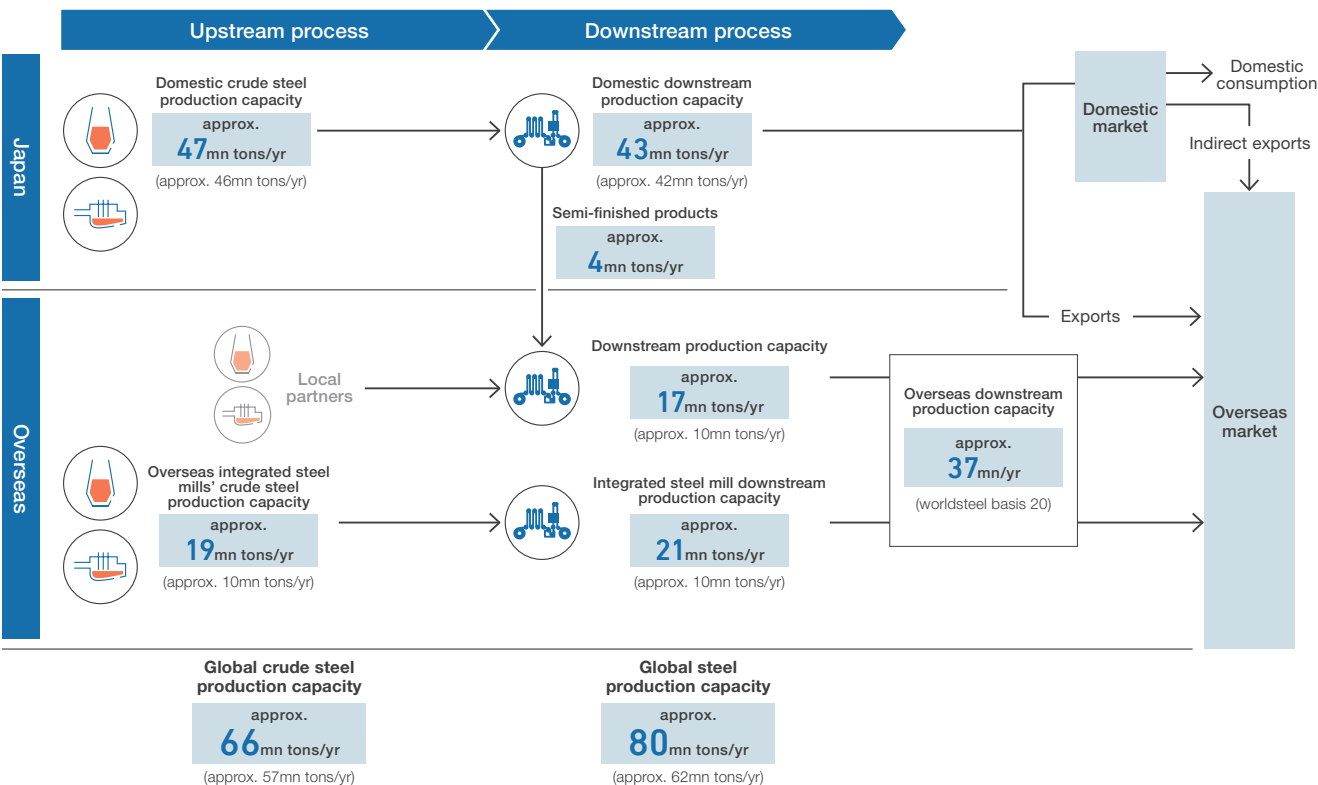
Leveraging our strengths accumulated in the mother mills in Japan, we have developed overseas bases in production and sales, ahead of our peers, in order to support our Japanese customers' overseas expansion and to meet overseas growing demand in "markets where we see assurance of

demand growth potential" and "areas where our technology and product capacity can be used."

At present, the Group's overseas crude steel production capacity is approximately 19 million tons per year and its steel product capacity, approximately 37 million tons.

Global Production Framework*

Figures in parenthesis are the production capacity in proportion to Nippon Steel's equity stakes of equity-method affiliates. Simple sum of production capacity



*Simple sum of crude steel production at full capacity of 1) companies with a 30% or more stake (Incl. USIMINAS), subject to World Steel Association's crude steel production statistics; and 2) an equity-method affiliate with less than 30% stake, to which Nippon Steel plays a significant role in supply of materials (AGIS). Definition base of World Steel Association (worldsteel): Among companies stated in *, calculation at full capacity for the parent company and subsidiaries with more than 50% stake; at pro-rata capacity for companies with a 50% or less stake

Overseas steel production capacity*1 (by region and field)

(10,000 tons/year)

	Integrated steel mill	Automotive					Energy & Resources	Infrastructure	Home appliances, containers, etc.	Downstream processing capacity*3	Total*8
		Flat products	Bars & wire rods	Pipes & tubes	Crankshafts*2						
Overseas total	2,100	1,050	170	45	15	45	440	125		1,700	3,700
ASEAN	308	148	13	25			271	43*4		470	780
China		264	9	5	4				80	360*3	360
India	984	60	24*5	2	4					70	1,050
Middle East						43	40			80	80
North/Central America	20	472	8	11	8		125*6			600*3	620
South America	690	103*7								100	690*8
Europe	110		113*9							5*3	115

As of March 2022

*1: Companies subject to World Steel Association's crude steel production statistics (incl. USIMINAS) and AGIS; *2: Steel conversion value (calculated by basic unit conversion)
*3 Excl. double counting with integrated mills (SSMI, Standard Steel, and OVAKO) and double counting of NS-SUS and formers STP.
*4: Incl. NS-SUS (former STP) 0.24 MMT/Y; *5: SSMI 0.24 MMT/Y; *6: Incl. Standard Steel 0.20 MMT/Y; *7: Incl. UNIGAL 1.03 MMT/Y; *8: Excl. double counting of UNIGAL 1.03 MMT/Y; *9: Incl. Ovako 1.10 MMT/Y

Becoming an insider in a most-suited way by region and product type Nippon Steel's strength

Anywhere in the world, steel demand increases in line with economic development and is initially satisfied by imports. With further economic progress, fostering of the nation's own steel industry becomes a national policy as steel is a basic material of all industries. Steel demand then is filled by domestic production. As a result of this process, steelmakers tend to develop on a country-by-country basis, making global shares of top-tier makers less concentrated compared to other industries. The steel industry therefore can be described as a "gigantic compound local industry."

Downstream bases (Model to use original sheets supplied by Nippon Steel)

In the ASEAN region which is geographically close to Japan and where many of our Japanese customers have production bases, we have built a framework to locally provide similar high-grade steel products to customers as we do in Japan. We have invested substantial capital to establish local bases for downstream production processes which directly link to quality assurance and reliable delivery to customers, while providing semi-finished products from our steel mills in Japan to those local production bases where they are processed to finished products.

Downstream bases (Model to use original sheets of JV partners)

In areas such as North America and China, we have made alliances with major local partners, such as ArcelorMittal and Baowu Steel, to develop local bases for downstream production processes by joint ventures. Those joint ventures supply high-grade steel products by Nippon Steel's technical assistance, using semi-products provided by the partner.

Integrated steel mills

In order to capture the demand for commodity-grade steel products, which make up a volume zone of local demand, in India, ASEAN, and other regions where local demand is expected to increase with economic development, an integrated local production from the upstream is indispensable, given an accelerated trend favoring domestic production.

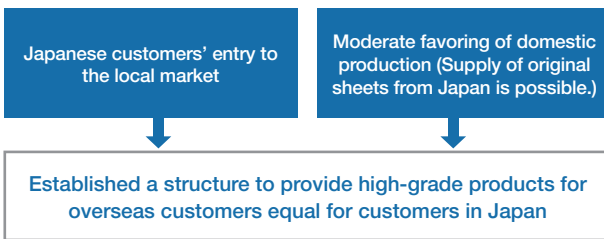
In these regions, our strategy is to become an insider in the local market starting with upstream operation, and to capture added-value of the integrated steelmaking.

Our basic approach is equity participation (brownfield investment) in order to avoid affecting supply and demand and the risks associated with a new launch.

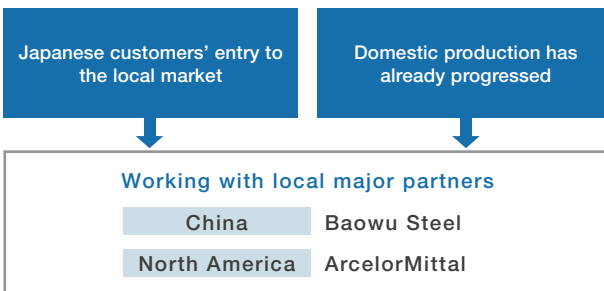
Nippon Steel will continue to expand overseas business operations in "markets where we see assurance of demand growth potential" and "areas where our technology and product capacity can be used."

It is therefore crucial to become an "insider" of a target country or region for Nippon Steel to respond to overseas demand growth and meet quality requirements.

We have been ahead of peers in becoming an insider in various regions in an optimal way by product type or region, by accurately assessing 1) steel market size and growth potential; 2) Japanese customers' expansion in a region; 3) needs of local customers; 4) level of difficulty to enter a market via export ("favoring of domestic production"); 5) level of systematic difficulty to enter a market, etc.

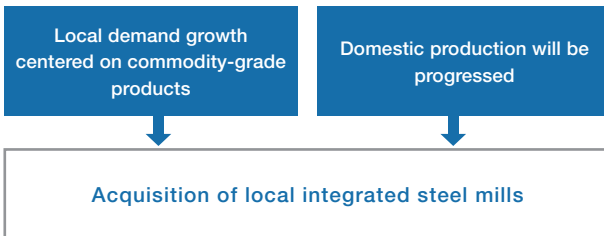


Nippon Steel leads efforts to locally produce final product process (downstream process), which directly affects the quality and delivery
Original sheets are manufactured in Japan and supplied to local production bases



Increase local production, mainly for final product process, which directly affects the quality and delivery, through joint ventures with local partners

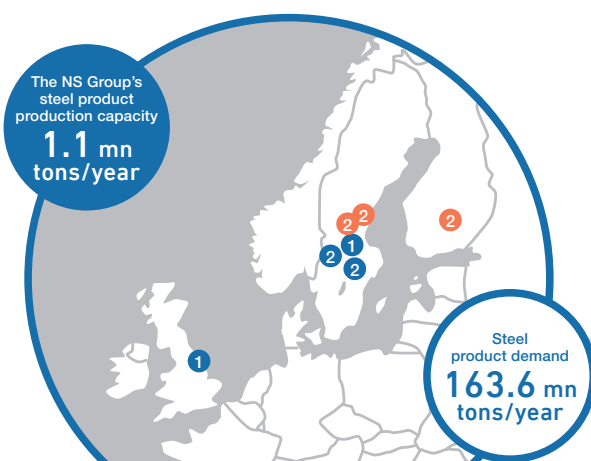
- Technical cooperation from Nippon Steel
- Original sheets are supplied by partners



Become an insider of local markets in integrated steelmaking from upstream operation
Equity participation (brownfield investment)

Business model

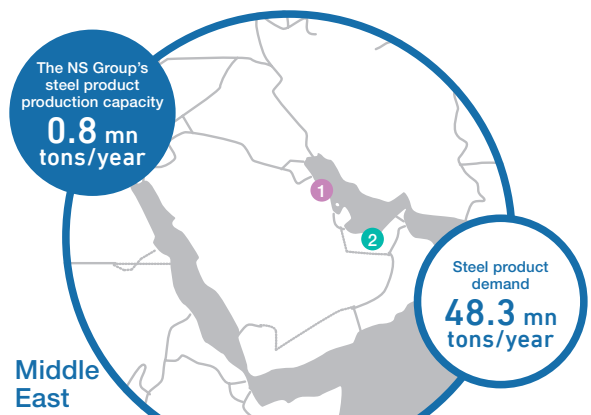
Steelmaking value chain and the Nippon Steel Group's business domains



Europe

Establishment	Company	Sector	Product	Capacity (10,000 tons/year)	Investment ratio:partner(%)
1 2009	Suzuki Garphyttan*	Automotive	Bars & wire rods	3	100
2 2018	Ovako	Integrated steel mill (Automotive)	Bars & wire rods	110	100

* Suzuki Garphyttan includes KTS Wire.

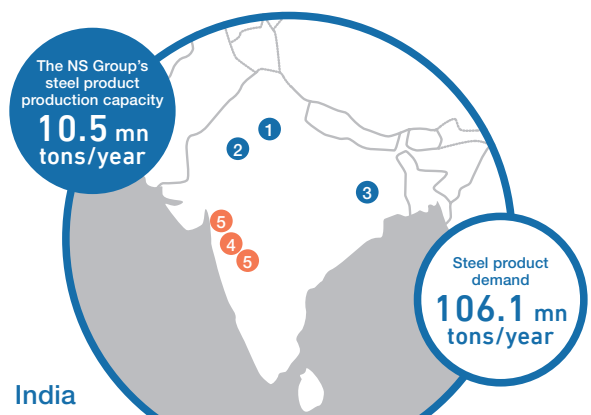


Middle East

Establishment	Company	Country	Sector	Product	Capacity (10,000 tons/year)	Investment ratio:partner(%)
1 1978	NPC	Saudi Arabia	Energy	Pipes & tubes	43	35**
2 2005	AGIS**	UAE	Infrastructure	Flat products	45	20

*1 Effective equity stake

*2 A company to which Nippon Steel plays an important role in supply of semi-finished products is added in the Group's worldsteel-based steel product production capacity.



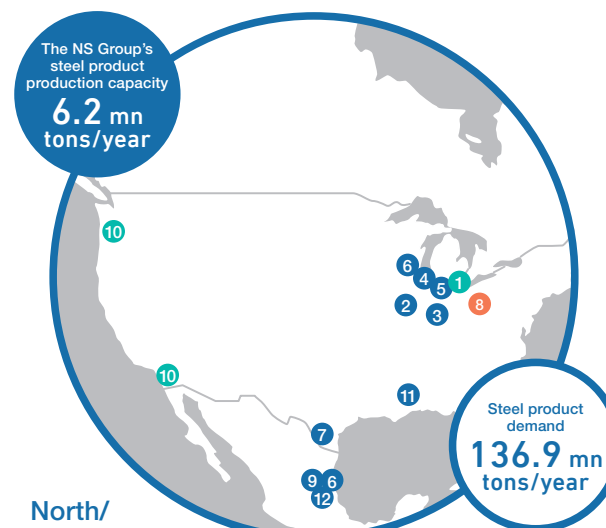
India

Establishment	Company	Sector	Product	Capacity (10,000 tons/year)	Investment ratio:partner(%)
1 2010	SMAC	Automotive	Crankshafts	2.2 mn units	40
2 2010	NSPI	Automotive	Pipes & tubes	2	99
3 2012	JCAPCPL	Automotive	Flat products	60	49
4 2012	SSMI	Integrated steel mill (Automotive)	Special Steel	24	57
5 2019	ArcelorMittal Nippon Steel India	Integrated steel mill	Flat products Plates Pipes & tubes	960	40* ArcelorMittal

* Effective equity stake



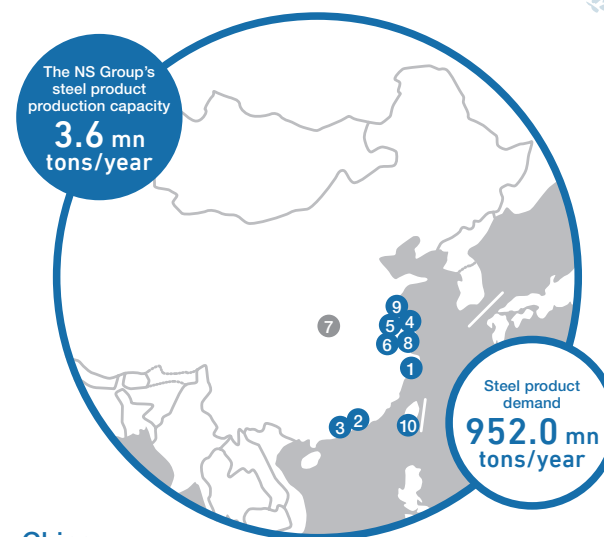
- Integrated steel mill
 - Automotive
 - Energy & Resources
 - Infrastructure
 - Home appliances, containers, etc.
- As of March 31, 2022



North/Central America

Establishment	Company	Sector	Product	Capacity (10,000 tons/year)	Investment ratio:partner(%)
1 1984	Wheeling-Nippon Steel	Infrastructure	Flat products	60	100
2 1989	NSPA	Automotive	Pipes & tubes	8	80
3 1990	ICI	Automotive	Crankshafts	4.0 mn units	80
4 1996	IPF	Automotive	Bars & wire rods	4	100
5 2008	NSI	Automotive	Crankshafts		60
6 2009	Suzuki Garphyttan	Automotive	Bars & wire rods	2	100
7 2010	Tenigal	Automotive	Flat products	40	49 Ternium
8 2011	Standard Steel	Integrated steel mill (Infrastructure)	Railway wheels	20	65*
9 2012	MNSP	Automotive	Pipes & tubes	2	74
10 2013	NSBS	Automotive	Flat products	44	50* NS BlueScope
11 2014	AM/NS Calvert	Infrastructure	Flat products	430	50 ArcelorMittal
12 2015	SMM	Automotive	Bars & wire rods		91

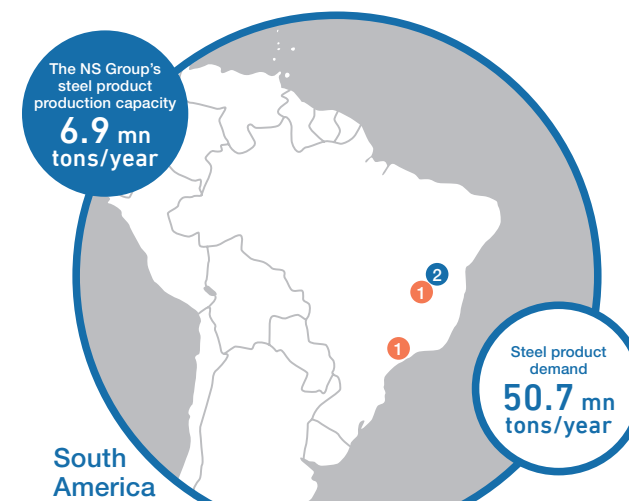
* Effective equity stake



China

Establishment	Company	Sector	Product	Capacity (10,000 tons/year)	Investment ratio:partner(%)
1 2001	Ningbo Sanyo Special Steel Products Co., Ltd.	Automotive	Bars & wire rods	3	89
2 2003	Huizhou Nippon Steel Forging	Automotive	Crankshafts	2.1 mn units	60
3 2003	Nippon Steel Pipe Guangzhou	Automotive	Pipes & tubes	2	66
4 2004	BNA	Automotive	Flat products	262	50 Baowu Steel Group
5 2004	Nippon Steel Pipe Wuxi	Automotive	Pipes & tubes	2	71
6 2006	Suzuki Garphyttan	Automotive	Bars & wire rods	1	100
7 2011	WINSteel	Containers	Tinplates	80	50 Baowu Steel Group
8 2013	NSCh	Automotive	Bars & wire rods	4	48*
9 2013	Nippon Steel Nisshin (Nantong) High-Tech Sheet Co., Ltd.	Automotive	Flat products	1	90
10 2016	Taiwan Nippon Steel Stainless Precision	Automotive	Flat products	1	51

* Sum of investment ratios by Nippon Steel and its subsidiaries



South America

Establishment	Company	Sector	Product	Capacity (10,000 tons/year)	Investment ratio:partner(%)
1 1958	USIMINAS	Integrated steel mill	Flat products Plates	690	31** Ternium
2 1999	UNIGAL**	Automotive	Flat products	103	30 Usiminas

*1 Stock ownership with voting right

*2 Excluding UNIGAL's capacity from the regional total due to semi-finished products being supplied by USIMINAS

The steel product demand for each region is assumed using results for 2021 announced by the World Steel Association as of April 2022. As for indirect equity through subsidiaries, their investment ratios stated here do not take into account the parent company's investment ratio of these subsidiaries unless otherwise stated.

ASEAN

Establishment	Company	Sector	Product	Capacity (10,000 tons/year)	Investment ratio:partner(%)
1 1963	NSPT	Automotive	Pipes & tubes	16	58
2 1995*1	NS-SUS	Automotive Containers	Flat products Tinplates	100	80
3 1997	NSSPT	Automotive	Bars & wire rods	10	67
4 1997	VNSP	Automotive	Pipes & tubes	5	60
5 2005	INSP	Automotive	Pipes & tubes	4	90
6 2006	LATINUSA	Containers	Tinplates	16	35 Krakatau
7 2009	CSVC	Infrastructure	Flat products	120	30 CSC
8 2010	NPV	Infrastructure	Pipes & tubes	6	76
9 2011	TSW	Automotive	Bars & wire rods	2	51
10 2012	TPP	Automotive	Bars & wire rods	1	80
11 2012	KNSS	Automotive	Flat products	48	80 Krakatau
12 2013	NSBS	Infrastructure	Flat products	96	50** NS BlueScope
13 2015	VAM**BRN	Energy	Pipes & tubes		60 Vallourec
14 2017	KOS	Infrastructure	Construction products	50	80 Krakatau
15 2022	G Steel	Integrated steel mill	Flat products	158	60**
16 2022	GJ Steel	Integrated steel mill	Flat products	150	58**3

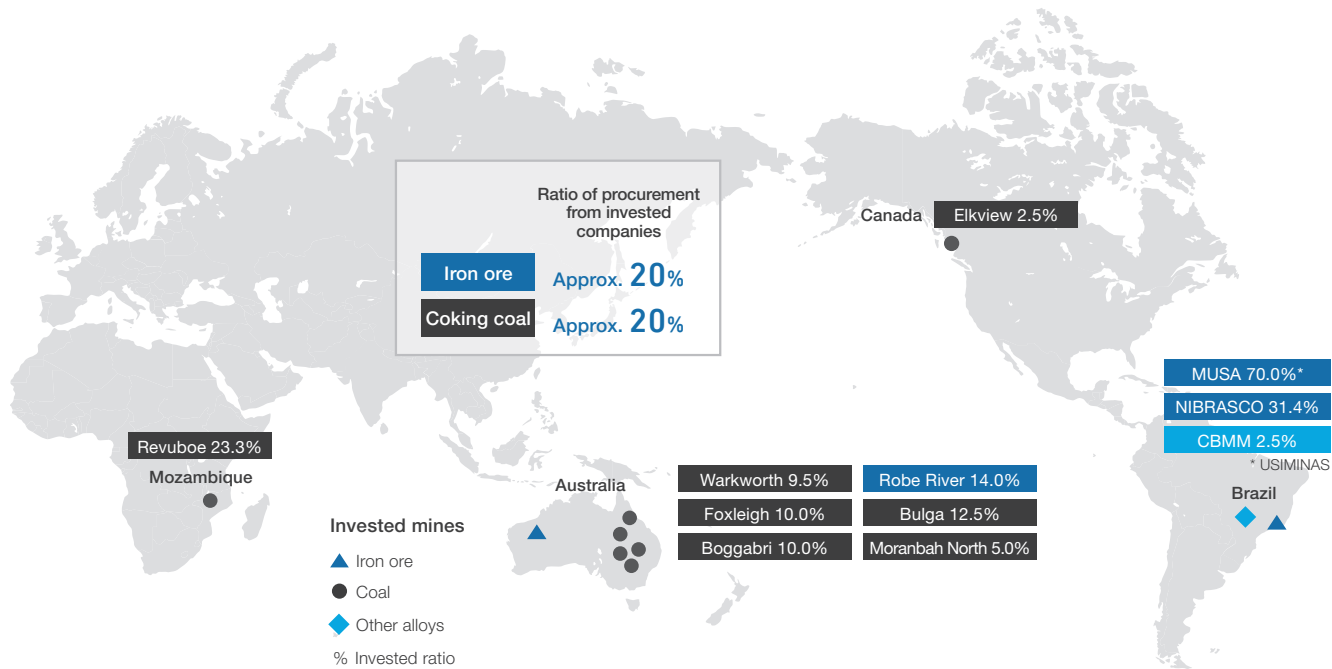
*1 Former STP was established in 1988.

*2 Effective equity stake

*3 Sum of equity stakes of Nippon Steel, its holding company and G Steel

Interests in raw materials

Nippon Steel has invested in raw material mines in order to ensure stable procurement of raw materials. Roughly 20% of iron ore and coking coal used in the steelmaking business is procured from the invested mines.



Steelmaking group companies

Secondary processing companies

Secondary processing companies of the Nippon Steel Group are engaged in manufacturing and sales of higher-value-added secondary processed products, that respond to end customers’ needs, mainly using steel products of Nippon Steel’s parent company as material and the group’s advanced technologies.

Main secondary processing subsidiaries and affiliates	Ownership	Business description
Nippon Steel Coated Sheet	100%	Galvanized sheets, colored galvanized sheets, coated steel sheets, construction materials
Nippon Steel Metal Products	100%	Construction materials, civil engineering materials, colored galvanized sheets
Nippon Steel Pipe	100%	Carbon steel pipes for machine structure, welded stainless steel pipes, carbon steel pipes for building structure
Nippon Steel Drum	100%	Drums
Nippon Steel SG Wire	100%	Piano wires, coated wires, oil tempered wires
Nippon Steel Welding & Engineering	100%	Welding materials, plasma devices, optical fiber products
Nippon Steel Stainless Steel Pipe	100%	Seamless stainless steel pipes
Nippon Steel Bolten	84.96%	High-tension bolts
Nippon Steel Wire	51.04%	Steel wires for cold heading, hard steel wires, high carbon chrome bearing steel wires
Geostr	40.37%	RC segments, steel segments, other civil engineering RC products

Stainless steel and electric arc furnace manufacturers

The electric arc furnace manufacturers of the Nippon Steel Group manufacture and sell distinctive products, and have top-class competitiveness in their respective fields.

Major stainless steel, electric furnace subsidiaries and affiliates	Ownership	Business description
Nippon Steel Stainless Steel	100%	Manufacture and sale of stainless steel
Nippon Steel Structural Shapes	100%	Manufacture and sale of H beams
Osaka Steel	60.62%	Manufacture and sale of equal angles, channels, I beams, round bars, deformed bars, joints for reinforcing bars, rails, elevator guide rails, rim bars, colored angles, etc.
Sanyo Special Steel	52.95%	Manufacture and sale of special steel materials and pipes
Oji Steel	51.49%	Manufacture and sale of flat bars, square bars, and steel blocks

Functional group companies

(materials, facilities and construction, operation, maintenance and logistics, trading companies, by-product recycling)

Nippon Steel’s steel business is supported by a group of companies engaged in the production, logistics and equipment of steel mills.

Major functional subsidiaries and affiliates	Ownership	Business description
Nippon Steel Texeng	100%	Engineering, maintenance, and operation of machinery, electrical instrumentation, systems, and construction of steel production facilities
Krosaki Harima	42.88%	Manufacturing and sales of all refractory materials; and design, installation, building and repair of various kiln furnaces
Nippon Steel Logistics.	100%	Marine transport, factory transport and work subcontracting, port transport, warehousing, truck transportation, and customs services
Nippon Steel Trading	34.49%	Sales, exports and imports of steel products and other products
Nippon Steel Slag Products	100%	Manufacture and sale of steel slag products

Three non-steel companies Nippon Steel's strength

The three business segments, which derived from Nippon Steel’s steel business, support the steel business and create synergies. The accumulated technology, products, and services that these companies acquired are used as appropriate for the benefit of companies outside the Nippon Steel Group.

Each of these companies has approximately ¥200-300 billion in revenue, and aims to achieve top-class profitability P.65-70 in their respective field.

Segment Companies	Ownership	Synergy with Nippon Steel’s steel business	Revenue (FY2021)	The ratio of sales for the steel industry
Nippon Steel Engineering	100%	Design and construction of steelmaking facilities	¥ 279.2 billion	About 10-20%
Nippon Steel Chemical & Material	100%	By-product recycling Use of development seeds and basic technology Multi-material capability	¥ 249.8 billion	Less than 10% (Manufacture of coal chemical products from tar, a by-product of steel mill)
NS Solutions	63.42%	Provision of IT solutions	¥ 271.3 billion	About 20-30%

R&D activities

– Sources of value creation and competitiveness



Nippon Steel is engaged in advancing strategic R&D, aimed at sustainable growth and protection and use of intellectual property.



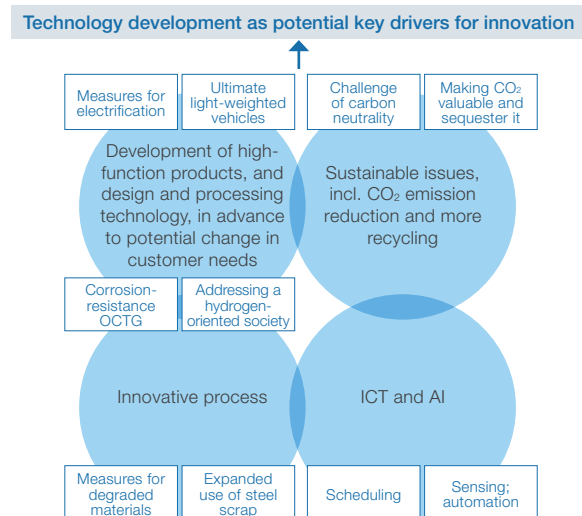
R&D

■ Top-level R&D resources among world steelmakers

Nippon Steel has approximately 800 researchers (non-consolidated basis) working on steel-related projects. No other steel company in the world has such a large research staff. This human resource is allocated according to priority and each project is carried out according to a road map which sets forth milestones, goals, and returns. Five major areas of development that our research emphasizes and that foresees potential change in customer needs are 1) CO₂ emissions reduction measures; 2) response to challenges of sustainability issues, such as expanded recycling; 3) development of high-function products, and related design and processing technology; 4) innovative process development and 5) use of advanced ICT and artificial intelligence (AI). We are resolved in our determination to develop technology which can become key drivers for carbon neutral steel and other innovations, and we are also resolved to continue to lead the world in steel technology in the future.



Nippon Steel's strength



■ R&D organization

Nippon Steel's approximately 800 R&D employees work in three core research centers – Research & Engineering Center (Futtsu in Chiba Prefecture), Amagasaki R&D Center (Amagasaki in Hyogo Prefecture), and Hasaki R&D Center (Kamisu in Ibaraki Prefecture) – as well as in the Plant Engineering and Facility Management Center (Head Office) and R&D laboratories at steelworks across Japan. They collaborate to ensure integrated R&D activities that encompass basic and fundamental research, application development and engineering.

In April 2018, a new R&D unit was established which is central to development of materials and products that respond to steel-user needs for flat product (among other products), and their corresponding advanced application technology development and solutions. We also established the Intelligent Algorithm Research Center which is engaged in enhancing our research on use of advanced IT. The Nippon Steel Group's top-class researchers in this field have been assigned to this new facility, supporting a part of the DX strategy.

Our R&D capabilities feature six strengths:

1) comprehensiveness, facilitated by the integration of R&D and engineering, which we call Research & Engineering (RE), and speed of development; 2) an R&D network having locations near customers; 3) integrated solutions enhanced by Group companies' products and technologies; 4) the ability to address environmental and energy-related concerns with solutions based on steelmaking process technology; 5) collaboration between industry and academic institutions, overseas alliances, and joint research with customers; and 6) an extensive portfolio of fundamental and platform technologies.

Strengths in R&D

Comprehensiveness and speed of development, facilitated by the integration of R&D and engineering

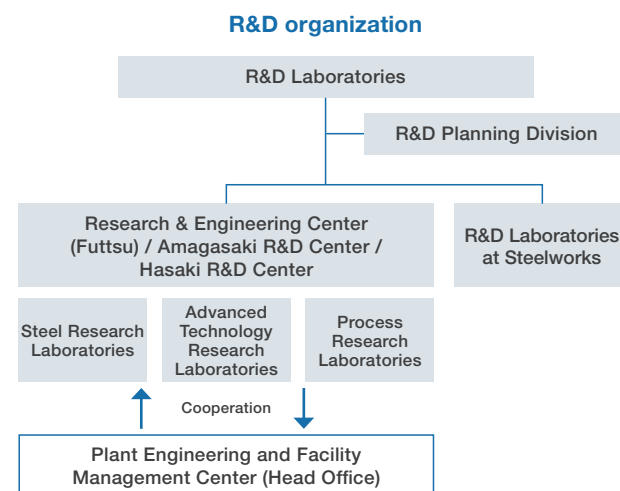
R&D network having locations near customer locations

Integrated solutions enhanced by Group companies' products and technologies

Ability to address environmental and energy-related concerns with solutions based on steelmaking process technology

Collaboration between industry and academic institutions, overseas alliances, and joint research with customers

Extensive portfolio of fundamental and platform technologies



Intellectual property

Nippon Steel secures the most advanced newly created technologies and other proprietary technologies, including carbon neutral steel technologies, as intellectual property (IP) and utilizes them according to its medium- to long-term IP strategy. The Intellectual Property Division collaborates with the business divisions and the R&D divisions to support the

Company's global strategies. We have been focusing on enriching and accumulating IP as "an effective means of leverage to compete with others anywhere in the world" both in terms of quality and quantity of products and have also been enhancing the strategic utilization of our IP.

Specific efforts

- 1 Support the creation of new IP**
 - Plan IP strategy that contributes to the business strategy
 - Build the IP portfolio and plan its strategy
 - Enrich the function of establishing rights for inventions, discoveries, and IP
- 2 Enhance the protection and utilization of IP**
 - Globally protect and actively use IP as a means to differentiate strategic products
 - Actively use IP in strategic alliance with collaborating partners
 - Thoroughly control technical information including business secrets
 - Establish brand strategies with the aim of enhancing corporate value and product value
 - Strictly deal with counterfeit products as well as any violation and illegal use of our IP

Examples of the use of intellectual property for business and environmental protection

Highly ductile thick steel plate for superior collision safety (NSafe™-Hull)

NSafe™-Hull is a highly ductile steel plate for hull structures with high collision safety. In 1997, we invented a highly ductile material based on our basic research, and by 2015, we completed the invention of a hull structure and its design method as application technology for highly ductile materials based on applied research.

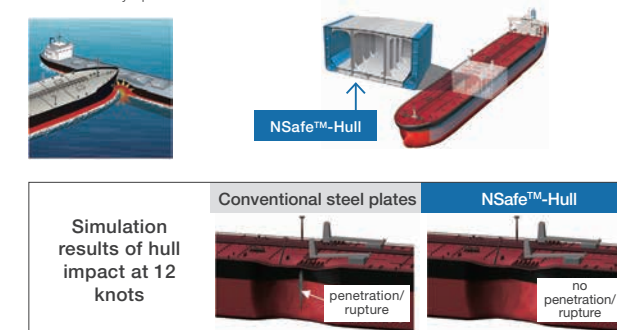
We are developing a global market by obtaining a wide range of patents in Japan and abroad, from materials to their application technologies, to differentiate them, and by obtaining a class certification* for highly ductile materials.

To date, NSafe™-Hull has been adopted for many ships, contributing to Nippon Steel's business profit and the prevention of oil spills and the enhancement of collision safe of ships, which is consistent with one of the UN's SDGs to conserve and sustainably use the oceans.

Jointly with National Institute of Maritime, Port and Aviation Technology, Imabari Shipbuilding Co., and Nippon Kaiji Kyokai, Nippon Steel was awarded the 3rd Japan Open Innovation Grand Prize "Minister of Land, Infrastructure, Transport and Tourism Award" for a series of these efforts.

In May 2022, we were also awarded the National Commendation for Invention jointly with National Institute of Maritime, Port and Aviation Technology, and Imabari Shipbuilding Co.

* The Class Certification is a rating system for the safety of ships, and the classification is given to ships whose safety has been confirmed based on specific criteria by a classification society of each country. Acquisition of the classification is also required in connection with insurance for internationally operated vessels.



		1997-	2003-	2014-	2015-	2016-	2017-	2018-	2019-	2020-	2021-
Patents	Material	Material	Material and manufacturing method								
	Application technology		Hull structure and its design method								
Products				Collision test evaluation method, risk analysis method for marine accidents, etc.							
				Bulk carriers		Limestone carriers		Very large crude oil carriers (VLCC)	Car carriers	Electric tankers	

Business model

Engineering and Construction Business

Nippon Steel Engineering Co., Ltd.

Our Mission, Our Values and Our Vision

Our Mission

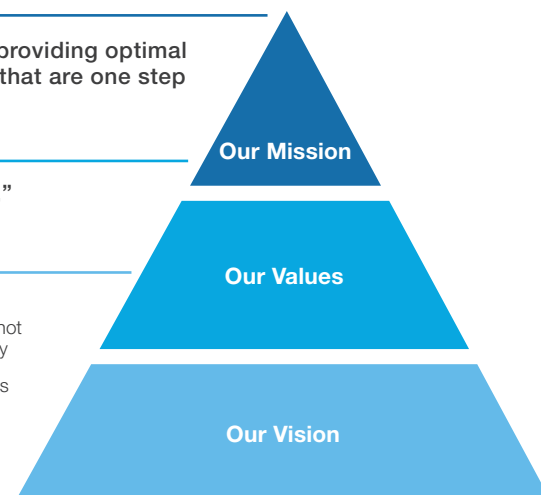
We contribute to the development of global society and industry by providing optimal engineering solutions to our customers with technologies and ideas that are one step ahead of the competition.

Our Values

[Values to be cherished] “On-site,” “Technology,” “Human resources,” and “Fairness”

Our Vision

- | | |
|---|---|
| 1. Provide optimal solutions to social and customer issues | Create and provide optimal solutions that include not only EPC, but also services and component supply |
| 2. Contribute to decarbonization and national resilience | Social implementation of technologies and services for decarbonization and building resilient and disaster-resistant cities |
| 3. Improve productivity and implement business innovation | Every single employee will refine his or her aspirations and continue to improve productivity and implement business innovation |



Our Business

We are involved in numerous projects in Japan and overseas, utilizing our comprehensive engineering skills in the following three strategic sector areas.

Our mission is to actively promote DX and contribute to the realization of a carbon-neutral society and the creation of resilient, disaster-resistant communities through our business activities.

Environment and energy	Urban infrastructure	Steelmaking plants
We are contributing to the creation of a sustainable, circular economy through engineering, procurement and construction (EPC) as well as operation and maintenance (O&M) of environmental and energy-related facilities and plants.	As a steel engineering company with a thorough knowledge of the material steel, we support the creation of resilient and disaster-resistant cities by making full use of “Steel x Ideas = Power”.	We provide plants that realize the three ecos of the steel industry (Eco Process, Eco Products, and Eco Solutions) to customers in Japan and overseas.

Major Group companies of Nippon Steel Engineering Co., Ltd.

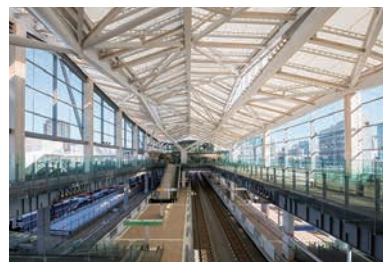
Domestic subsidiaries	Nippon Steel Pipeline & Engineering Co., Ltd., Nippon Steel Environmental & Energy Solutions Corporation, Nippon Steel Steel Structure Co., Ltd.
Overseas subsidiaries	Nippon Steel Plant Engineering (Shanghai) Co., Ltd., Beijing JC Energy & Environment Engineering Co., Ltd. (China), THAI NIPPON STEEL ENGINEERING & CONSTRUCTION CORPORATION, LTD., NS-OG ENERGY SOLUTIONS (THAILAND) LTD., NIPPON STEEL ENGINEERING INDIA PRIVATE LIMITED, PNS ADVANCED STEEL TECHNOLOGY, INC. (Philippines)



Jacketed offshore wind power generation facility under construction in Ishikari Bay, Hokkaido
Photo shows demonstration facility off coast of Kitakyushu City



Wasabizawa geothermal power plant, one of the largest geothermal power plants in Japan, located in Akita Prefecture
The eleventh in Japan is currently under construction.



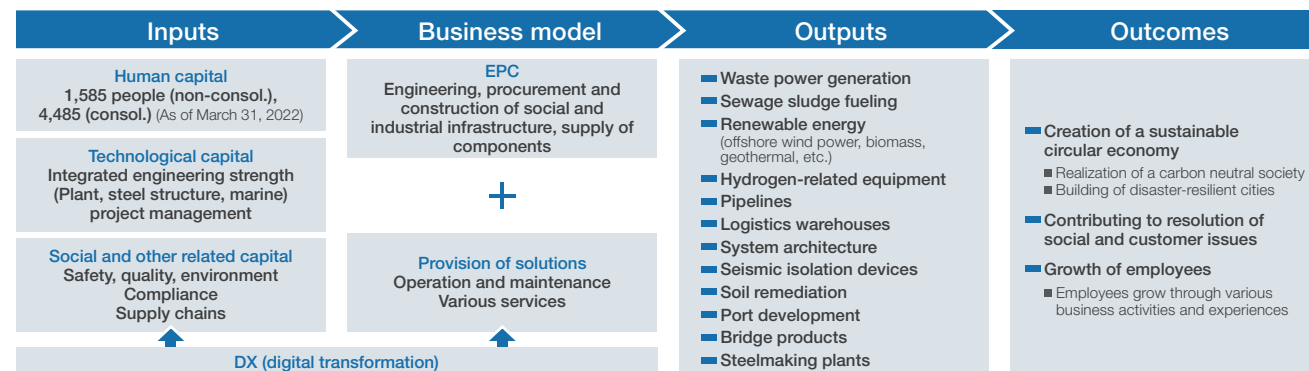
Main roof of Takanawa Gateway Station, a wood/steel hybrid structure™ (Photo provided by East Japan Railway Company)

The value creation process

In the current Medium-term Management Plan (2021-2025), Nippon Steel Engineering has established a policy of focusing on “decarbonization” and “national resilience,” and is contributing to social and industrial development by undertaking numerous domestic and international projects in diverse areas, including environmental and energy-related facilities, pipelines, steelmaking plants, and urban and

marine infrastructure.

In particular, we place emphasis on the speed of social implementation of new social needs, and in addition to advancing technological development and DX by investing our own human and financial resources, we are also actively pursuing initiatives that make use of alliances with other companies.



Synergies in the Nippon Steel Group

- We will support Nippon Steel's various challenges to become the best steelmaker with world-leading capabilities through the construction of steelmaking facilities that will contribute to adding value to steel products and improving competitiveness, and through joint participation in the Nippon Steel Carbon Neutral Vision 2050.
- We will propose solutions to the diverse needs of society and industry by utilizing the steel products, various other products and services of the Nippon Steel Group and our engineering capabilities, including design and construction methods.

Future risks and opportunities, and business strategy

Risks	Opportunities
<ul style="list-style-type: none"> Long-term contraction of domestic market Impact of Japan's declining labor population on the Group's supply chain 	<ul style="list-style-type: none"> Global acceleration of carbon neutral promotion in all kinds of industries Increasing needs for building resilient, disaster-resistant cities and maintaining and renewing aging social and industrial infrastructure Accelerated progress and social implementation of digital technology, rapid changes in all activities of society and industry
Business strategy	
<ul style="list-style-type: none"> Expand decarbonization and low-carbon related businesses (enhancement of renewable energy areas, such as offshore wind and biomass power generation and waste power generation, expansion of related O&M, etc.) Accelerate social implementation of new technology and solutions (diffusion of CO₂ capture and recovery technology (ESCAP™, etc.), practical application of CCU/CCS, development of hydrogen infrastructure, start of social implementation of green hydrogen, blue hydrogen, etc.) Supplement social needs with a focus on resilient urban development and the maintenance and renewal of aging social and industrial infrastructure (asset management support business, including life extension and improvement of customer facilities, expansion of component sales business, including seismic isolation devices, etc.) Reinforce steelmaking facility engineering functions and increase joint development with Nippon Steel. Accelerate smarter engineering operations using digital technology to improve productivity. 	

Sustainability initiatives

We hold meetings of the Sustainability Committee, chaired by the president, four times a year.

Based on the Sustainability Policy (Health & Safety, Quality,

Compliance, Environment, Procurement, Human Resources, and Social Contribution), we are also implementing the PDCA cycle of activities in cooperation with Group companies.

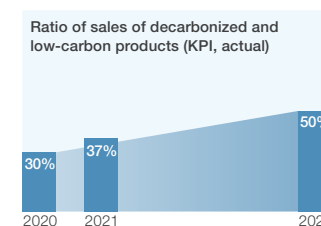
Our six priority SDGs

Among the 17 Sustainable Development Goals (SDGs), we have identified six priority goals that the Nippon Steel Engineering Group can make a significant contribution to through the execution of our business activities.



Contributing to CO₂ emissions reduction through decarbonization and low-carbon products

We have set a goal of achieving a sales composition ratio of more than 50% for decarbonized and low-carbon products by 2025 (in that case, the CO₂ emission reduction equivalent is 32 million tCO₂/year).



Chemicals and Materials Business

Nippon Steel Chemical & Material Co., Ltd.

Our Mission

To realize an affluent society and contribute to the global environment through advanced chemical and material technologies
To realize co-creation and co-prosperity with customers as well as the growth and happiness of employees

The Nippon Steel Chemical and Material Group, created through the business integration in October 2018, is developing its business activities with the basic philosophy of “Master Materials, Pioneer the Future,” aiming to realize an affluent society through advanced chemical and material technologies, contribute to the global environment, and achieve co-creation and co-prosperity with customers and the growth and happiness of employees.

Nippon Steel Chemical & Material Group Mission

Basic Principles

We will contribute to the global environment by providing products and services that enrich people's lives through our own development and accumulation of advanced chemical and material technologies and through the sophisticated and diverse use of materials.

“Master Materials, Pioneer the Future”
— For Your Dream & Happiness —

Management Principles

We will develop corporate activities with emphasis on the following items, conduct fair and transparent management, and continue to grow as a company that is widely trusted by society.

- Contribute to the global environment
- Co-creation and co-prosperity with customers
- Realize a healthy and humane society
- Realize the growth and happiness of employees

Our business and the value creation process

Coal chemicals	Chemical products	Functional materials/composite materials
		
Consolidated net sales (FY2021) ¥39 bn	¥120 bn	¥91 bn
Pitch coke, pitch, naphthalene, phthalic anhydride, carbon black, industrial gases	Aromatic chemicals, styrene monomer, bisphenol A, divinylbenzene, functional chemicals, lubricating materials	Circuit board materials, epoxy resins, display materials, metal foils, metal carriers for exhaust gas purification, fillers for semiconductor encapsulants, bonding wire for semiconductors, carbon fiber composite materials
Major Group company Nippon Steel Carbon Co., Ltd.	Major Group company NS Styrene Monomer Co., Ltd.	Major Group company Nippon Steel Functional Material Manufacturing Co., Ltd., Nippon Steel Epoxy Manufacturing Co., Ltd., Nippon Micrometal Corporation, Nippon Graphite Fiber Co., Ltd.

Inputs	Business activities	Outputs and outcomes
Human capital March 31, 2022: 3,372 employees (consolidated) Intellectual capital R&D expenses FY2021: ¥4.1 bn Patents Domestic: 1,000 approx. Overseas: 1,400 approx. Manufacturing capital Manufacturing bases Domestic: 17, Overseas: 7 Natural capital Amount of energy used in production FY2021: 110,000 KL (crude oil equivalent) Industrial water FY2021: 24 mn m³ Consolidated financial capital March 31, 2022: Interest-bearing debt ¥12.8 bn D/E ratio 0.08 Social and other related capital Coexistence with local communities Co-creation and co-prosperity with customers	Developing a diverse range of chemical and material businesses As companies that handle various materials other than steel within the Nippon Steel Group, we are engaged in a wide variety of chemical and materials businesses. We supply products that are useful to society in a wide range of business areas, including coal chemicals/chemicals through the effective use of steel by-products utilizing our coal chemistry technology, as well as functional materials/ composite materials developed and commercialized through our proprietary technologies.	Diverse product lines/creation of social value Effective use of steel by-products ■ Coal chemicals Production of needle coke for graphite electrodes for electric arc furnaces used in the recycling of steel scrap ■ Chemicals Production of aromatic chemicals used as raw materials for commodity plastics Reduction of environmental impact ■ Functional materials Production of metal carriers for exhaust gas purification Development of social infrastructure ■ Composite materials Repair and reinforcement of highways, steel bridges, tunnels, etc. using carbon fiber composite materials

Synergies in the Nippon Steel Group

Increase in added value through effective use of steel by-products

R&D collaboration utilizing advanced technologies

The Nippon Steel Chemical & Material Group's business history dates back to 1907, soon after the government-run Yawata Steel Works began operating a coke oven to recover by-products and started a coal tar distillation business.

After that, the business was spun off as Yawata Chemical Industry in 1956 and has since continued as the current Nippon Steel Chemical & Material Group.

For more than 100 years, we have been working to increase added value through the effective use of steel

by-products, and our accumulated technologies for utilizing the various active ingredients contained in coal tar are now also used in the technologies of our functional materials and carbon fiber composite materials businesses, which have grown to become our core businesses.

The Group's R&D collaboration has also led to significant results, such as the application of Nippon Steel's superior technologies in advanced computational science to the development of organic EL materials.

Future risks and opportunities, and business strategy

Coal chemicals/chemicals	Functional materials/composite materials
<ul style="list-style-type: none">■ Promote reduction of fuel and energy consumption by improving production processes and utilizing renewable energy, etc. to reduce CO₂ emissions and thereby achieve carbon neutrality.■ To cope with global supply and demand fluctuations of raw materials and products, establish an optimal production and sales system by diversifying raw material sources and improving facilities.	<ul style="list-style-type: none">■ Develop and commercialize low-dielectric circuit board materials for 5G that reduce transmission loss in response to increasingly sophisticated and high-performance market needs, such as higher speeds for various communication devices. In regard to epoxy resins, ceramic spherical particles, and bonding wire as well, strengthen our efforts to develop new technologies and new products in addition to the stable supply of products aimed at the expansion of the 5G market and the market for automotive functional materials.■ Develop repair and reinforcement of highways, steel bridges, tunnels, etc. using carbon fiber composite materials as a measure against aging infrastructure, more than half a century after the era of rapid economic growth.

Sustainability initiatives

Manufacturing that prioritizes safety, the environment, disaster prevention and quality, combined with thorough compliance and strengthening of product safety, to earn stakeholders' trust

As manufacturing companies, the Nippon Steel Chemical & Material Group has clearly established the guiding principle that “safety, environment, disaster prevention, and quality take priority over production, shipments, and cost” and is working to earn the continued trust of all stakeholders, including customers, suppliers, local communities, society, and employees and their families.

Promoting responsible care activities

Responsible Care (RC) activities are activities in which manufacturing companies voluntarily ensure that the environment, safety, and human health are not harmed from product development through manufacturing, distribution, use, and final consumption to disposal, while disclosing the results of their activities and communicating with society.

Each and every employee of the Group is committed to thorough compliance with laws, social rules, and internal standards, as well as to fulfilling our social responsibility as manufacturing companies by strengthening our product safety initiatives.

The Nippon Steel Chemical & Material Group has established the Responsible Care Committee, which deliberates and decides on important matters related to RC activities, including the Environmental Management Policy, RC Activity Policy, and the company-wide RC Activity Promotion Plan, and implements company-wide cross-sectional activities.

RC activity promotion items Occupational safety and health, environmental preservation, security and disaster prevention, and product safety

System Solutions Business

NS Solutions Corporation

Our Purpose

**Thinking about the future together
Opening up new possibilities for society
with technology and passion**

An era in which society continues to undergo significant change and diversity is demanded.

There is no single answer.

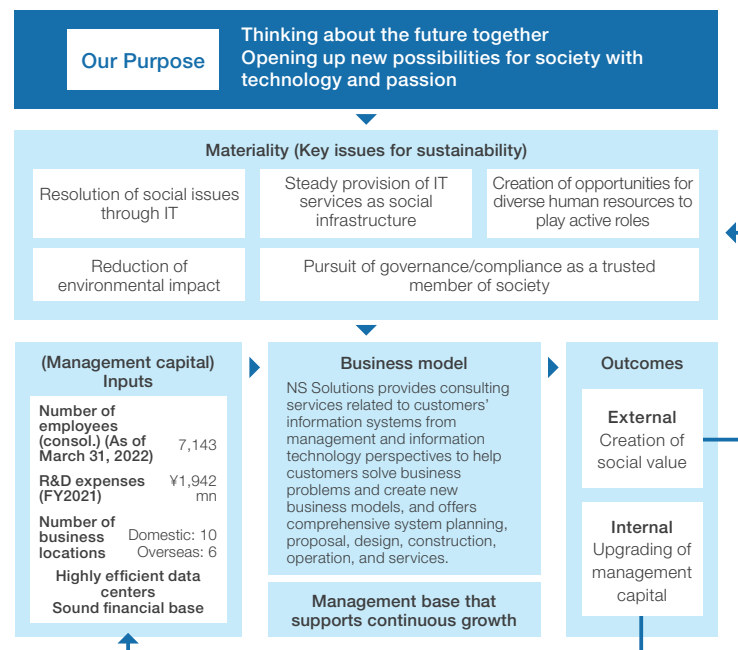
What is needed is the power of change.

It is important for each individual to demonstrate his or her true value and expand the possibilities of society.

At NS Solutions, we share the future that each of us envisions, think together about what is needed, and work together to realize it.

With our accumulated knowledge, the power of technology, and our passion, we will open up new possibilities.

The value creation process



Our Business

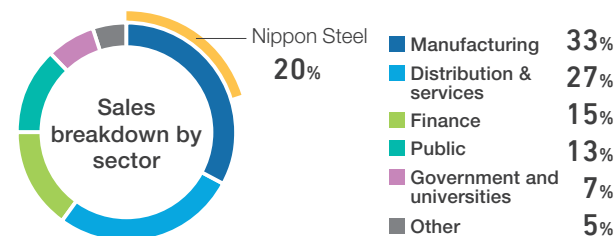
With rapid advances in the technologies and services that make up information systems, coupled with rapid changes in the business environment, digital transformation (DX), which uses IT to transform corporate activities, has become indispensable to the management of client companies.

NS Solutions provides consulting services related to customers' information systems from management and information technology perspectives to help customers solve business problems and create new business models, and offers comprehensive system planning, proposal, design, construction, operation, and services.

Based on our extensive knowledge and experience in industries and business operations, we provide solutions through the total system life cycle to meet the needs of manufacturing, distribution and service industries, financial institutions, public corporations, and government agencies, as well as IT infrastructure solutions and outsourcing services that combine platform construction technology and advanced

operational know-how to meet mission-critical requirements.

Moreover, for Nippon Steel Corporation, we provide full operation and management of production management systems and other systems that support the complex steelmaking process nonstop, as well as full outsourcing services including planning and development of various information systems.



Major Group companies of NS Solutions Corporation

Domestic subsidiaries	Hokkaido NS Solutions Corporation, East Japan NS Solutions Corporation, NS Solutions Chubu Corporation, NS Solutions Kansai Corporation, Kyushu NS Solutions Corporation, NSSLC Service Corporation, Network Value Components Ltd., NS Financial Management Consulting, Inc., Financial Engineering Group, Inc., Act. Inc., NCI Systems Integration, Inc., Nittetsu Hitachi Systems Engineering, Inc.
Overseas subsidiaries	NS Solutions (Shanghai) Co., Ltd., NS Solutions Asia Pacific Pte. Ltd., Thai NS Solutions Co., Ltd., PT. NSSOL SYSTEMS INDONESIA, PT. SAKURA SYSTEM SOLUTIONS, NS Solutions USA Corporation, NS Solutions IT Consulting Europe Ltd.

Four key areas of focus



Digital manufacturing



Platformer support



Digital workplace solutions



IT outsourcing

Synergies in the Nippon Steel Group

For the steelmaking business, computer systems support all business activities, including order intake, production, shipping, and quality control, and are an important base for utilizing a wide variety of data.

Ensuring continuity in the accumulation of know-how and the supply of human resources by NS Solutions is essential for Nippon Steel to differentiate itself in the steel industry and maintain its competitiveness.

In light of this, NS Solutions provides full outsourcing services to Nippon Steel Corporation.

Nippon Steel Corporation accounts for approximately 20% of NS Solutions' consolidated sales, making it the company's largest customer.

NS Solutions is continuing to enhance its corporate value by acquiring clients including Japan's leading global manufacturers, Internet service platform providers, major financial institutions, and government agencies through synergies such as customer trust in the Nippon Steel brand and stable human resource recruitment capabilities, while cultivating its technical capabilities by implementing advanced and cutting-edge IT at Nippon Steel's steelmaking plants.

Future risks and opportunities, and business strategy

NS Solutions has formulated a medium-term business policy for FY2025, in anticipation of the arrival of the digital society around 2030.

We believe that DX needs will further accelerate in the medium to long term in response to the paradigm shift in business in various industries amid "discontinuous" changes such as the global economic impact of the COVID-19 pandemic and behavioral changes in society, in addition to demographic changes and accelerating IT technology development.

We have formulated the following medium-term business policy:

- 1 Steadily capture evolving DX needs.
- 2 Sustainably enhance high-value-added business and overall corporate value.
- 3 Further strengthen acquisition and development of excellent human resources.
- 4 Continue to implement thorough internal controls and risk management as a prerequisite for business operations.

NS Solutions believes that its raison d'être as an IT professional is to contribute to the realization of DX in the

businesses of client companies and the strengthening of their competitiveness, thereby revitalizing industries in general and building an affluent society. This is the concept behind the current medium-term policy toward the year 2025, when DX needs will further accelerate.

NS Solutions aims to build deep relationships with its clients and work together with them as an irreplaceable First DX Partner to overcome the difficulties of DX.

DX means continuing to transform organizations, business processes, and systems across the board through data and digital technology.

In anticipation of full-scale DX deployment by Japanese companies, NS Solutions aims to expand its business by maximizing company-wide efforts to capture the needs associated with DX promotion while deepening its relationships with customers.

In particular, during this mid-term period, we have designated the four areas listed here—digital manufacturing, platformer support, digital workplace solutions, and IT outsourcing—as focus areas that will drive business growth, and we will aggressively invest management resources to accelerate company-wide growth.

Sustainability initiatives

Materiality	Main initiatives	Main SDGs
Resolution of social issues through IT	<ul style="list-style-type: none"> Contribute to pathological image diagnosis support with AI research and development. Use IoT devices to help manage work safety for people with disabilities. Provide a virtual desktop environment (M3DaaS/VDI) conducive to remote work. Establish the Healthcare Solution Business Promotion Center to provide AI-based drug discovery, disease care solutions, etc. 	9 AFFORDABLE AND CLEAN ENERGY
Steady provision of IT services as social infrastructure	<ul style="list-style-type: none"> Provide robust and efficient IT services (NSFITOS). 	12 RESPONSIBLE CONSUMPTION AND PRODUCTION
Creation of opportunities for diverse human resources to play active roles	<ul style="list-style-type: none"> Reform work styles and promote women's empowerment (acquisition of Platinum Kurumin). Implement engagement survey. Introduce role-based pay system for key personnel. 	5 GENDER EQUALITY
Reduction of environmental impact	<ul style="list-style-type: none"> Provide cloud services through highly energy-efficient data centers. Announce provision of Enepharos, a subscription-based power trading and risk management service that contributes to the utilization of clean energy in the wake of electricity deregulation. 	7 AFFORDABLE AND CLEAN ENERGY, 13 CLIMATE ACTION
Pursuit of governance/compliance as a trusted member of society	<ul style="list-style-type: none"> Enforce the NSSOL Group Code of Conduct "Global Business Conduct". Strengthen the risk management system. Transfer to a Company with an Audit & Supervisory Committee (in fiscal 2021). 	16 PEACE, JUSTICE AND STRONG INSTITUTIONS

Materiality of Sustainability Issues

Nippon Steel recognizes that sustainability initiatives are one of the priority issues and form the base that supports the very existence and growth of the company.

Among these initiatives we have identified our materiality in due consideration of requests from stakeholders, the corporate philosophy and values, as well as growth strategy.

Corporate Philosophy

Our Values

Nippon Steel Corporation Group will pursue world-leading technologies and manufacturing capabilities, and contribute to society by providing excellent products and services.

Management Principles

1. We continue to emphasize the importance of integrity and reliability in our actions.
2. We provide products and services that benefit society, and grow in partnership with our customers.
3. We pursue world-leading technologies and manufacturing capabilities.
4. We continually anticipate and address future changes, innovate from within, and pursue unending progress.
5. We develop and bring out the best in our people to make our Group rich with energy and enthusiasm.

Nippon Steel Group's Values

Paying every possible attention to critical matters of safety, environment, disaster prevention, quality, and compliance is basic to our existence as a responsible manufacturing company that delivers excellent products and services.

The development of excellent personnel is a prerequisite for our production of excellent products.

Nippon Steel's Materiality of Sustainability Issues

Safety, environment, disaster prevention

- Industrial Safety and Health
- Environment
- Measures to prevent global warming
- Contributing to construction of Circular Economy
- Environmental risk management
- Disaster prevention

Quality

- Quality control and assurance
- R&D and intellectual property management
- Solutions that result in customer satisfaction

Production

- Stable production and supply

Securing and fostering of personnel

- Respect for human rights
- Diversity & Inclusion
- Utilization and fostering of personnel

Harmony with local communities and society

- Environmental preservation/creation activities in communities
- Contribution to society mainly in the support of education, sports, and arts

Corporate value enhancement and profit distribution

- Generation of profit and corporate value enhancement
- Profit distribution

Thorough implementation of compliance

- Adhering to laws and regulations as a base of all activities

Nippon Steel's Materiality

1 Materiality with due consideration of the corporate philosophy and priorities in manufacturing

Our Corporate Philosophy (Our Values) states: "The Nippon Steel Corporation Group will pursue world-leading technologies and manufacturing capabilities, and contribute to society by providing excellent products and services."

Concerning "provision of excellent products and services," our critical mission as a responsible manufacturing company is to reliably produce and deliver quality products that satisfy customers. Needless to say, the prerequisites to enable this mission include "safety, environment, and disaster prevention" as well as thorough compliance to rules and regulations.

The "world-leading technologies and manufacturing capabilities" are realized by our human capital. Securing and fostering of outstanding personnel is a critical challenge to be overcome in order to strengthen overall manufacturing capabilities. We firmly believe that respect for human rights, diversity & inclusion, and development of human capital are

the basics for our employees to work vigorously.

With regard to the relationship with society, we must maintain good relationship with the community where our steelworks or other facilities are located. This is indispensable for us to continue operating business. We are pledged to operate in an environment-friendly manner and maintain good communication with local communities, as a corporate citizen.

2 Materiality with due consideration of the company's value creating process and potential changes in business environment

Basic to our value creation process is use of a diverse range of financial/non-financial assets and competitive advantages, and provision of products and solutions to customers. In order to reproduce such processes, stable production and continual profit generation are indispensable.

We place the environmental themes as the materiality positioned at the core of management. In order to contribute

to establishing a environment-friendly society, and do so with minimal environmental impact, we are engaged in reducing CO₂ emissions by the three "Eco" initiatives and innovative technology development, increasing effective use of internally-generated resources, and promoting zero emissions. In addition, we make efforts to build a circular economy through recycling of industrial waste (such as plastics) generated in society.

Concerning climate issues which threaten the future of mankind, we are advancing initiatives on two fronts: provision of high-function steel products and solutions for contributing to CO₂ emission reductions of the society; and breakthrough technology development for decarbonizing the steelmaking process. These initiatives are aimed at achieving carbon neutral by 2050.

3 Corporate value enhancement and profit distribution

We are committed to continuing operations as a sustainably growing company by generating profit and

raising corporate value from business activities, including sustainability initiatives. We will also contribute to society by providing excellent products and services, and distributing profit to employees, government, shareholders, and other stakeholders.

4 Thorough compliance

As a responsible leading company, we thoroughly adhere to laws and regulations, which is fundamental to all of our activities.

We believe compliance should be achieved by our independent efforts, based on our corporate philosophy, value, code of conduct and the like.

Process to identify materiality

Consider requests from stakeholders on environmental, social issues and listing candidate issues

Generalize the issues in due consideration of the company's corporate philosophy and values

Verify the issues from the viewpoint of the company's value creation process and strategy

Discuss and approve issues in the Board of Directors meeting

Nippon Steel Group's contribution to SDGs

In keeping with our dedication to the Nippon Steel Group's pursuit of world-leading technologies and manufacturing capabilities, and to contribute to society by providing excellent products and services, we have taken up numerous challenges in order to play an important role supporting social infrastructure through steelmaking. We firmly believe that contributing to the development of a sustainable society through our group's initiatives will also work for achievement of the United Nations' 2030 Agenda for Sustainable Development, featuring Sustainable Development Goals (SDGs).

Nippon Steel's Materiality of Sustainability Issues

Safety, environment, disaster prevention

- Industrial Safety and Health
- Environment
- Measures to prevent global warming
- Contributing to construction of Circular Economy
- Environmental risk management
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Materiality of Sustainability Issues

Initiatives on Safety, Environment, Disaster Prevention and Quality

Sustainability Report
P.57-58

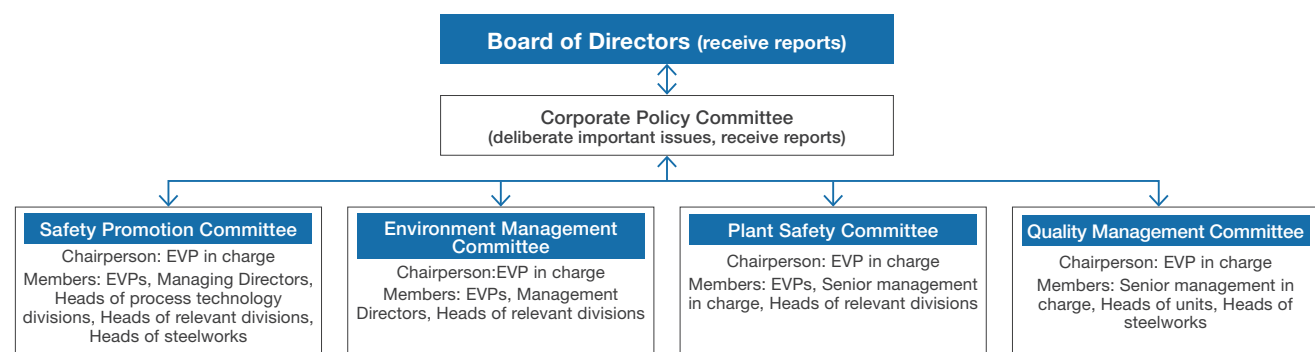
Gigantic movable equipment, high-speed rotating equipment, high-temperature molten materials, and flammable gas are among what are employed in making iron and steel.

Nippon Steel assigns the maximum preventive measures and manages to minimize risks in terms of safety and disaster prevention, and contaminating the air, water, and soil.

Our steelworks are operated under the manufacturing priorities that “Safety, the environment, and protection against disasters are the most valuable factors that take precedence over all other things.”

In addition, quality management is one of the most important aspects in obtaining the trust and satisfaction of customers in the provision of products and services.

These matters are ensured by the management organization which has the Board of Directors at the top.



* See details of the management organization of each committee in Nippon Steel's website.

Safety and health

In keeping with the corporate philosophy that “safety and health are the most valuable factors that take precedence over all other things and they are the basis that supports business development,” we have firmly kept our manufacturing priorities in all of our activities. We have been improving our Occupational

Safety and Health Management System (OSHMS) and strive at making safe and secure workplaces.

The Basic Policy on Safety and Health is applied to Nippon Steel as well as to related or subcontracting companies.

Reducing disaster risks to zero, and group-wide sharing of effective measures

We promote risk assessment and conduct regular safety risk assessments during the planning of new projects and for existing projects to prevent accidents and mitigate risks. We also appropriately analyze actual accidents and promptly make known effective examples of accident-preventive measures. As a result of continuing efforts, our safety performance in 2021 shows that the number of accidents accompanied by lost work time was 6 for company, 10 for our cooperating companies (including fatal cases of zero for the company and 2 for cooperating companies), the comprehensive accident frequency rate was 0.08 (vs. Japan's steel industry average of 0.90), and the intensity ratio was 0.10 (vs. the same average of 0.21).

The goals for safety and health in 2022 are zero death or serious injury, and the comprehensive accident frequency rate of 0.10 or less. We will continue to strengthen our efforts to achieve a safer working environment.

Accident frequency rate	$\frac{\text{Number of accidents and recordable incidents, accompanied by lost work time}}{\text{Total number of hours worked by all employees}} \times 1,000,000$	
Target	Accident frequency rate 0.10 or less	Zero fatalities accidents

Acquisition of ISO (JIS Q) 45001 certificates

FY2019 Kansai Works Wakayama Area
FY2020 Amagasaki Area and Osaka Area of Kansai Works;
 Nagoya Works; Kyushu Works Oita Area; and East Nippon Works Kashima Area
FY2021 Naoetsu Area and Kimitsu Area of East Nippon Works; North Nippon Works Muroran Area; and Setouchi Works Hirohata Area
FY2022 North Nippon Works Kamaishi Area and Kyushu Works Yawata Area



ISO (JIS Q) 45001 Health and Safety certificate of the Kashima Area

Environment

Nippon Steel is promoting management of environmental risk with the aim of continually enhancing preservation of the environment in various regions, with due consideration of

Atmospheric risk management

In order to reduce emissions of sulfur oxides (SOx) and nitrogen oxides (NOx), we are taking measures such as using low-sulfur fuel, adopting low NOx generating burners and installing effective equipment, including equipment that eliminates SOx and NOx emissions. To curb emissions of soot

Water risk management

We use approximately 6 billion m³ of freshwater a year at all of our steelworks and factories combined. Approximately 90% of this is recycled or reused to reduce wastewater discharge. We have also installed devices such as automatic detectors,

Soil risk management

We are taking appropriate measures in compliance with the Soil Contamination Countermeasures Act, guidelines issued by the Ministry of the Environment, local government ordinances, and

Management of discharged chemical substances

We appropriately manage the production, handling, and discharge or disposal of chemical substances in accordance with the laws concerning the management of chemical substances and the voluntary control manual developed by the Japan Iron and Steel Federation (JISF) and ourselves. We developed a voluntary reduction plan of hazardous air pollutants specified in the environmental standard, such as

Disaster prevention

Trust and co-existence with customers, communities and society are of utmost importance to Nippon Steel, and it is important for the sustainability of the Company to avoid accidents that undermine the trust. We have therefore established a system and

Initiatives on reduction in disaster risks

As initiatives on reduction in disaster risks, Nippon Steel's Plant Safety Division undertakes three key initiatives: 1) corporate-wide implementation of measures against risks exposed by disaster to prevent recurrence; 2) identification of disaster occurrence risks based on risk assessment by plant and by each of their process technology divisions; and implementation of measures in software and hardware to reduce risks and control residual risks; and 3) voluntary monitoring concerning appropriate implementation of points 1) and 2) by persons in

Quality management

Quality management is one of the most important aspects in obtaining the trust and satisfaction of customers in the provision of products and services. All of our relevant employees are responsible for thorough quality management.

Activities aimed at strengthening the quality assurance system of the Nippon Steel Group

As a basic policy in line with the Japan Iron and Steel Federation's guideline, aimed at strengthening the quality assurance system, we are promoting 1) the enhancement of education on quality compliance (compliance with laws and regulations), 2) activities to reduce behavioral risks, and 3) advanced internal quality audit. Information on quality-related examples is promptly shared across the Group and at appropriate times measures are launched to resolve issues

environmental risks, which differ by each steelworks and factory, and with due consideration to compliance with Japan's Air Pollution Control Act and other regulations.

and dust, we install dust collectors, windbreak net, and sprinklers and prevent scattering of particles, based on air pollution risk analysis through scientific simulation. We also conduct constant monitoring and regular patrols.

wastewater shut-off gate, and made emergency water storage pits. Our operational bases in Japan are evaluated by the World Resources Institute (WRI) Aqueduct to confirm that we are not prone to high-level water stress.

so on. We report to the local government when performing landform modification work such as excavation which is required to be reported. We conduct pollution surveys when needed.

benzene and volatile organic compounds (VOC). As a result of our undertaking, we have already reached the targets and have maintained the target levels. We also took the lead to promote use of alternatives to steelmaking materials and equipment that contain hazardous materials such as polychlorinated biphenyl (PCB) and mercury.

structure for autonomous and continuous disaster prevention activities. We implement measures to reduce the risk of accidents, while proactively preventing them with the aim of enhancing disaster management.

charge of disaster prevention in each works; understanding of the control status based on the management hearing at the head office and implementation of corrections if needed. We promote essential disaster prevention improvement measures in manufacturing sites, with a goal set at zero serious disaster-related accidents.

Target **Zero** serious disaster-related accidents

Materiality
Quality control and guarantee

In coordination with product units and individual steelworks, the Company's Quality Assurance Department promotes measures to cope with Groupwide quality control and assurance issues.

through standardization, systemization, automatization, and other action. These measures are then implemented to enhance identification management of actual products and to improve reliability of testing and inspection. In addition, the five newly defined basic rules of quality behavior have been made known to all employees, with a focus on improving the awareness in quality compliance and preventing quality problems to occur.

Promotion of Climate Change Measures



Nippon Steel recognizes climate change as a priority problem that threatens survival of the human race. Climate change would also severely affect our business environment and earnings. In order to do our share of actions needed to influence the environment, and at the same time ensure sustainable operations, we are working at energy conservation and CO₂ emissions reduction throughout our supply chain.

Nippon Steel Group's efforts for energy conservation and CO₂ emissions reduction

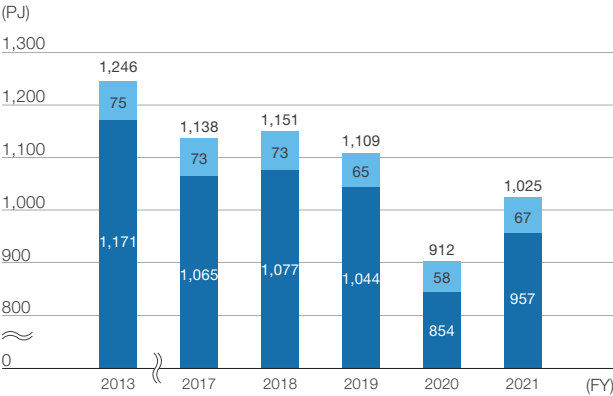
In March 2021, we announced the Nippon Steel Carbon Neutral Vision 2050, in support of the Japanese government's ambitious policy to realize a carbon-neutral society in 2050. Through carbon neutralization, we will offer two types of value: "Provision of high-performance steel products and solutions that contribute to reducing CO₂ emissions in society" and "provision of carbon neutral steel through decarbonizing steelmaking processes." We aim to reduce CO₂ emissions at the time of production and processing by our customers, at the time of use of our products by end consumers; and in the supply chain of our customers.

Nippon Steel Group's energy consumption and energy-derived CO₂ emissions

Nippon Steel has been working on energy conservation from diverse starting points: improving efficient use of energy generated in the steelmaking process (i.e., power generation from recovered by-product gas and waste heat); making operational improvements in each process; renovation of older coke ovens and other equipment; introduction of high-efficiency power generation facilities and oxygen plants; and conversion to regenerative burners in the reheating furnaces.

Energy consumption^{*5}

■ Nippon Steel ■ Group Companies



[Calculation method]
Calculation for the Company and its domestic subsidiaries is based on the Carbon Neutrality Action Plan. Overseas subsidiaries follow local regulations or guidelines for calculation.

[Conversion factor]
The Company and its domestic subsidiaries use the "Table of heat generation and carbon emission coefficient by energy source" (revised January 31, 2020) of the Agency for Natural Resources and Energy, METI. Overseas subsidiaries use relevant emission factors according to local regulations or guidelines.

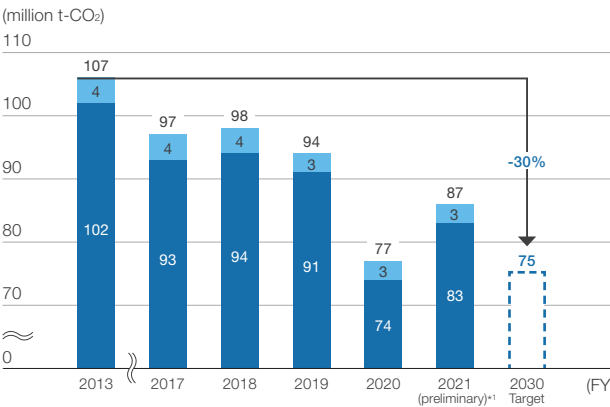
[Boundary of data collection]
Nippon Steel^{*2,3}, associated EAF mills (Osaka Steel, Sanyo Special Steel, Nippon Steel Stainless Steel, Oji Steel, Tokai Special Steel, Nippon Steel Structural Shapes Corporation, Tokyo Kohtetsu, Ovako, Sanyo Special Steel Manufacturing India, and Standard Steel), and three Sanso Center companies^{*4}. The data collection period used is each company's accounting period. As Ovako has changed its fiscal year end, Ovako's fiscal 2021 results cover a period from January 1, 2021 to March 31, 2022 (15 months).

In addition, Nippon Steel by itself as well as the Nippon Steel Group including consolidated crude steelmaking companies that have blast furnaces and electric furnaces with high CO₂ emissions have set a target for 30% reduction in CO₂ emissions in 2030 compared to 2013. Also, our major domestic consolidated subsidiaries aim to be carbon neutral in 2050. Our overall Group will work together to tackle climate change issues.

In fiscal 2020, energy consumption and energy-derived CO₂ emissions decreased significantly mainly due to the impact of the COVID-19 pandemic. In fiscal 2021, as we implemented energy-saving measures while the production volume is recovering, our energy consumption and energy-derived CO₂ emissions increased to 1,025 petajoules (PJ) and 87 million tons (preliminary) respectively.

Energy-derived CO₂ emissions^{*5}

■ Nippon Steel ■ Group Companies



^{*1} Preliminary figure: The amount of CO₂ per unit of purchased electricity from each of general power companies in Japan in fiscal 2021 is assumed to be the same amount as in fiscal 2020.

^{*2} Excluding energy consumption and CO₂ emission associated with the IPP operation by the steelworks

^{*3} The amounts of energy consumption required for production of coke purchased by Nippon Steel and CO₂ emissions are included in the aggregate.

^{*4} Concerning the three Sanso Center companies, the amount of energy consumption required for production of oxygen purchased by Nippon Steel Group and CO₂ emissions are included in the aggregate.

^{*5} According to the change in the boundary of data collection, the amounts of energy consumption and CO₂ emissions in the past years have been revised retroactively.

CO₂ emissions in the value chain

CO₂ emissions originated from energy source and generated in Nippon Steel's manufacturing process (Scope 1 and Scope 2) as well as CO₂ emissions in the value chain

(Scope 3), which are calculated by using the Green Value Chain Platform of the Ministry of the Environment and other methods are as follows.

Scope 1 and 2

	(FY)	CO ₂ emissions (thousand tons-CO ₂)					Calculation method
		2013	2017	2018	2019	2020	2021
Scope 1 Direct emissions from owned sources associated with use of fuel		89,578 ^{*3}	80,728 ^{*3}	81,337 ^{*3}	78,584 ^{*3}	62,987 ^{*3}	71,292
Scope 2 Indirect emissions from the generation of purchased energy		13,825 ^{*3}	12,968 ^{*3}	12,850 ^{*3}	12,091 ^{*3}	11,035 ^{*3}	12,478 ^{*1}
Scope 1 + 2 (Energy consumption per ton of crude steel: t-CO ₂ /t)		103,403 ^{*3} 1.89	93,696 ^{*3} 1.89	94,187 ^{*3} 1.89	90,675 ^{*3} 1.93	74,022 ^{*3} 1.97	83,770 ^{*1} 1.88
Crude steel production (consolidated-base, 10,000 tons)		5,474	4,968	4,990	4,709	3,766	4,445

[Conversion factor]
The Company and its domestic subsidiaries use the "Table of heat generation and carbon emission coefficient by energy source" (revised January 31, 2020) of the Agency for Natural Resources and Energy, METI. Overseas subsidiaries use relevant emission factors according to local rules or guidelines.

[Boundary of data collection]
Nippon Steel⁹ and associated EAF mills (Osaka Steel, Sanyo Special Steel, Nippon Steel Stainless Steel, Oji Steel, Tokai Special Steel, Tokyo Kohtetsu, Nippon Steel Structural Shapes Corporation, Ovako, Sanyo Special Steel Manufacturing India, and Standard Steel). The data collection period used is each company's accounting period. As Ovako has changed its fiscal year end, Ovako's fiscal 2021 results cover a period from January 1, 2021 to March 31, 2022 (15 months).

^{*1} Preliminary figure: The amount of CO₂ per unit of purchased electricity from each of general power companies in Japan in fiscal 2021 is assumed to be the same amount as in fiscal 2020.

^{*2} Excluding CO₂ emission associated with the IPP operation by the steelworks.

^{*3} The breakdown of Scope 1 and Scope 2 of the past years are according to the changed boundary of data collection and retroactively revised.

Scope3

		CO ₂ emissions (thousand tons-CO ₂)			Calculation method
		2019	2020	2021	
Scope 3 All indirect emissions (not included in scope 2) that occur in the value chain of the reporting company					
①	Purchased goods and services	17,063**4	14,379**4	15,994	Calculated using method**5 below for purchased iron ore, coking coal, coke, and oxygen
②	Capital goods	1,656	1,632	1,400	[Amount of capital expenditures] X [Emission factor]
③	Fuel and energy related activities not included in Scope 1 or 2	305	291	338	[Amount of electric power procured and fuel used] X [Emission factor]
④	Upstream Transportation and Distribution	683	629	710	[Transportation distance reported in the Energy Saving Law document] X [Emission factor]
⑤	Waste generated in operations	5	4	5	[Amount of waste] X [Emission factor]
⑥	Business travel	4	4	4	[Number of employees] X [Emission factor]
⑦	Employee commuting	13	14	14	[Number of employees] X [Emission factor]
⑮	Investments	1,208	1,125	1,053	[Emissions by subsidiaries and affiliates that emit GHG of over 10,000 tons] X [Equity stake of each company]

[Source of emission factor]
"Emissions unit value database for accounting of greenhouse gas emissions throughout the supply chain (ver. 3.2)" (March 2022, Ministry of the Environment)
"Table of heat generation and carbon emission coefficient by energy source" (Revised January 31, 2020; METI, Agency for Natural Resources and Energy)

[Boundary of data collection] Nippon Steel
^{*4} Past figures are retroactively revised according to the change in calculation method.
^{*5} Iron ore and coal: [Amount purchased of procured iron ore and coal] X [Emission factor]
Coke: [Amount purchased of procured coal at source] X [Emission factor] + [Amount of energy used in production of coke] X [Emission factor by energy source]
Oxygen: [Amount of energy used in production of oxygen] X [Emission factor by energy source]

Example of Scope 3 efforts: CO₂ emission reduction by raising efficiency in logistics

Nippon Steel maintains a high modal shift rate^{*6} of 97% and works at reducing CO₂ emission by raising efficiency in logistics, such as by use of large vessels. As part of the efforts, we have begun to use "Utashima" — a hybrid-type cargo vessel, equipped with lithium-ion batteries. This vessel was awarded the Small Cargo Vessel Award of the Ship of the Year 2019^{*7}. In March 2022, our three cargo vessels were rated the highest in the Coastal Ship Energy Conservation Rating of the Ministry of Land, Infrastructure, Transport and Tourism.

We have also decided to introduce cargo vessels equipped with a hybrid propulsion system consisting of a natural gas-fueled engine and battery, for marine transportation of domestic raw materials.

We will continue to cooperate with relevant ministries, agencies,



Hybrid Cargo Ship "Utashima" equipped with lithium-ion batteries

and organizations to promote use of ships utilizing alternative fuels, in order to reduce greenhouse gas emissions in marine transportation.

Logistics sector's ton-kilometer^{*8} achievements for FY2021

	Transportation quantity: 10,000 tons/year		Million ton-kilometers/year		g-CO ₂ /ton-kilometers	
		(%)		(%)		(Reference)
Ship	1,861	(56%)	13,407	(91%)	39	
Railway	6	(0%)	39	(0%)	25	
Truck and trailer	1,451	(44%)	1,266	(9%)	211	
Total	3,318	(100%)	14,712	(100%)		

^{*6} Modal shift rate: Modal shift means replacing a means of transport from trucks to trains and ships. The modal shift rate, according to the definition by the Ministry of Land, Infrastructure, Transport and Tourism, is a ratio of volume transported by trains and marine transportation (including ferries) in long distance transport of over 500 km.

^{*7} Award by the Japan Society of Naval Architects and Ocean Engineers

^{*8} Ton-kilometer: Total sum of the weight of load (ton) transported multiplied by transport distance (km). The reference amounts (in grams) of CO₂ emissions per ton-kilometer travelled are the average for all industries (Ministry of Land, Infrastructure, Transport and Tourism)

Efforts to address climate change in the field of resource recycling

1 Recycling of waste plastics

Using coke ovens at seven areas of Nippon Steel's five steelworks, about 200,000 tons of used plastic containers and packaging collected from general households nationwide are recycled 100%, in compliance with the Act for Promotion of Use of Recycled Resources. This contributes to reduction of about 600,000 tons of CO₂ a year.

In order to contribute to Japan's strategy to recycle plastic resources, we are developing technologies to expand waste plastic processing capacity of coke ovens, to densify waste plastic pellets as raw material, and to dechlorinate.

2 Maximum use of steel scrap

Recycling of steel scrap is one of the key measures for achieving carbon neutrality.

We will significantly reduce CO₂ emissions in steelmaking process by maximizing the use of domestic steel scrap.

3 Blast furnace cement

Blast furnace cement is made up of 45% blast furnace slag mixed with conventional cement, which reduces CO₂ emission by 40% (320 kg per ton of cement) compared to ordinary cement production.

4 Blue carbon

Nippon Steel has promoted scientific analysis on usefulness and safety of use of steel slag — a by-product from the steelmaking process. To improve this technology, we began a basic study on blue carbon (CO₂ absorption and fixation in the marine ecosystem), which is getting more attention as a measure against climate change. We started to collect basic data on how much CO₂ can be fixated by using steel slag and creating shallow bottoms, tideland, and seaweed beds. Nippon Steel's approach is to use our own large water tank (sea laboratory), to develop methods for creating tidal flats, shallow bottoms, seaweed beds, etc. by utilizing steel slag, and improve the environment in coastal areas. We started by aggregating basic data in order to find out how much CO₂ can be fixated.



Large water tank Sea Laboratory

installed water storage tanks and some administration offices are built on a piloti structure, which means there is open space with no walls on the ground level. This makes the buildings less vulnerable to tsunami. This is a part of our efforts to be well prepared for emergencies such as flooding and high waves.

Efforts to adapt to climate change

In addition to taking mitigation actions against climate change, we take into account the diverse impact of climate change and appropriately prepare for risks, as adaptive initiatives, and at the same time seek to capture business opportunities.

In addition, our steelworks in Japan and abroad have

Information disclosure according to recommendations of the Task Force on Climate-related Financial Disclosures (TCFD)

Given the international community's commitment to achieving long-term goals of the Paris Agreement, Nippon Steel signed the statement of support for the Task Force on Climate-related Financial Disclosures (TCFD) in May 2019, considering

Scenario analysis

For each transition factor and physical factor, we have identified risks and opportunities that may have a significant impact on our business in the areas of upstream procurement, direct operations, and downstream demand for products and services. We have then considered strategies for each scenario.

In conducting the scenario analysis, we referred to the two scenarios (the below 2°C and 4°C warming scenarios*) of the International Energy Agency (IEA) and evaluated them over a medium- to long-term time period, up to 2050. In addition, the 1.5°C scenario (IEA NZE2050), which assumes progress in reducing and eliminating carbon emissions, was also adopted as a reference scenario in the analysis. At the

* The below 2°C warming scenario is a case wherein much-needed measures will be implemented to keep global average temperature increase below 2°C (1.75°C) compared to pre-Industrial Revolution times.
The 4°C warming scenario is a case that global average temperature will increase by 4 degrees, without taking any economic or additional measures against climate change.

TCFD scenario analysis

Scenario	Factors (risks and opportunities)	Events (expectations and concerns of stakeholders)	Impact to Nippon Steel (opportunities in ■ , risks in ■)	Nippon Steel's strategy (including future responses)
Below 2°C	Transition factor 1 Advance in electric vehicles (EVs)	World EV sales: 65 million units, 60% market share in 2030 (vs. 6.6 million units, 8.6% market share in 2021)*1	Opportunities in demand growth for our steel products ■ Increase in the global total number of cars and resultant increase in steel demand despite a decline in the share of steel demand for cars equipped with internal combustion engines due to the growth of EVs' share of the new car market ■ Increase in demand for high-performance steel products — our area of strengths, such as electrical steel sheets for EVs	■ Capture growing demand by strengthening the global supply of electrical steel sheets
	Transition factor 2 Shift to other lightweight materials, prompted by tighter fuel efficiency regulations, etc. (multi materials)	Shift to other lightweight materials, prompted by tighter fuel efficiency regulations, etc.	Opportunities in demand growth for high-strength steel and capturing of demand for other materials ■ Some possibility of switching to other lightweight materials but little prospect for significant progress since steel excels in environmental evaluation from the LCA perspective, including the production stage and material recycling, and automakers increasingly emphasize the evaluation from the LCA perspective ■ Increase in demand for high-tensile steel, carbon fiber-reinforced plastic (CFRP), titanium, etc.	■ Strive to further popularize the LCA concept through activities to raise customers' understanding and lobby the government for regulatory change ■ Further increase the high-tensile strength of steel and provide the lightweight steel structure technology by proposing a comprehensive automotive solution (NSafe™-AutoConcept) ■ Capture demand for CFRP and other products in cooperation with Nippon Steel Chemical & Material Co.)
	Transition factor 3 Shift to low-carbon steel (steel that generates low CO ₂ emissions in production)	Accelerating shift to low-carbon steel due to change in customers' demand	Opportunities in demand growth for low-carbon steel ■ Some shift to EAF steel with low CO ₂ emissions in production ■ Continued increase in demand for BF steel due to insufficient increase in EAF steel to satisfy growing worldwide demand, caused by the limited supply of scrap	■ Acquire the "EcoLeaf" environmental label for more products ■ Accelerate the Carbon Neutral Vision (breakthrough technology development, including high-grade steel production in large-sized EAFs and hydrogen steelmaking) ■ Promote the use of direct reduced iron and other measures to reduce CO ₂ emissions in existing processes
		Higher needs for decarbonization in steelmaking process	Needs for a fundamental review of the steelmaking process aimed for decarbonization ■ Potential to gain a great competitive advantage if our technological development and investments advance ahead of global peers ■ Increase in investment burden and operating cost for the introduction of new technologies	■ Facilitate the development and implementation of innovative technologies by utilizing government support such as the Green Innovation Fund ■ Consider sharing of cost by society
	Transition factor 4 Higher needs for energy-efficient products and technology	Eco-friendly technology solution to boost demand	Opportunities in demand growth for eco-friendly technology ■ Increased demand for products that realize energy savings in the processing by customers ■ Increased demand for products that contribute to energy savings in use of end products ■ Increase in profits through the provision of the Group's technology solutions that enable energy saving in steelmaking process	■ Expand supply of products that realize energy saving in customer processes, e.g. reduced-process steel bars and wires ■ Expand supply of products that contribute to energy savings in use of end products, e.g. high-tensile steel, and high-efficiency electrical steel sheets ■ Government-private cooperation, technologies customized list, and steelworks diagnosis to provide energy-saving technologies to emerging countries (contribution to the global value chain), e.g. dissemination of CDQ, all of which are handled by Nippon Steel Engineering, into emerging countries
	Transition factor 5 Higher needs for products and solutions associated with a society based on renewable energy and hydrogen	Ratio of renewable energy in world power generation: 88% in 2050 (vs. 28% in 2020) World production of hydrogen: 60EJ and 490 mn tons in 2050 (vs. 11EJ and 90 mn tons in 2020)2	Opportunities in demand growth for products of our Group ■ Profit growth by provision of the Group's products and solutions that support a renewable-energy-oriented society ■ Profit growth by provision of the Group's products and solutions that support a hydrogen-oriented society	■ Enhance the Group's product menu for the renewable-energy society and expand sales in Japan and overseas, e.g. high corrosion-resistant steel sheets for solar power generation mount, steel plates and steel anchor chains for offshore wind power generation, and steel pipes for geothermal and biomass power generation ■ Enhance the Group's product menu for the hydrogen society and expand sales in Japan and overseas, e.g. HYDEREXEL™ stainless steel for high-pressure hydrogen environments
4°C	Transition factor 6 Increase in cost caused by adoption of carbon pricing	Increased cost due to adoption of carbon pricing	Deprivation of funds for R&D, etc. ■ Significant impact of carbon pricing, which is an additional burden and diverts funds for R&D	■ Reduce CO ₂ emissions through the expanded use of direct reduced iron, reduction in CO ₂ emissions in existing processes, and advance in breakthrough technologies such as hydrogen steelmaking and production of high-grade steel using large EAFs ■ Negotiate transfer to the price with customers
	Physical factor 1 Abnormal weather to suspend raw material suppliers' operation	Difficulty in procuring raw materials, caused by abnormal weather	Limited impact by taking measures for risks ■ Limited assumed risk in securing stable procurement of raw materials by taking the following measures: • Material sourcing from multiple regions in the world • Keeping raw material inventories in steelworks and ships	■ Continue multiple sourcing ■ Appropriately manage days of inventory and risks
	Physical factor 2 Abnormal weather to suspend operation and shipment	Difficulty in operation, caused by a natural disaster	Limited impact by taking appropriate measures ■ Adoption of BCP measures. Limited risks in production disruption caused by natural disaster. Excessively abnormal weather may result in suspension of operation, etc.	■ Continually adapt measures in consideration of long-term trends ■ Measures against typhoons and heavy rain, measures to prevent crane overturns, measures against earthquakes and tsunami (securing emergency evacuation places, embankment reinforcement, etc.)
	Physical factor 3 Heightened needs for solutions for "national resilience" against natural disasters	Natural disaster caused by abnormal weather	Demand growth of steel for national land resilience ■ Profit growth by providing products and solutions for national resilience against earthquakes, tsunamis, heavy rain, typhoons, etc.	■ Enhance the Group's product menu and expand sales in Japan and overseas, e.g. steel-slit dams and NS ECO-PILE™ method

*1 Source for EV-related data: the NZE 2050 Scenario of the IEA Global Electric Vehicle Outlook 2022
EVs include battery electric vehicles (BEVs) and plug-in hybrid vehicles (PHVs).
*2 Source for data on renewable energy and hydrogen: the NZE 2050 Scenario of the IEA World Energy Outlook 2021

Eco Process

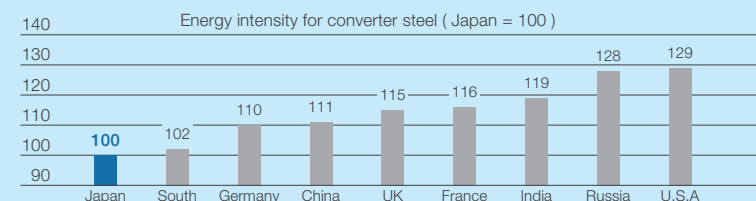
(efficient use of resources and energy)

Nippon Steel strives to efficiently utilize limited resources and energy at every stage of operations. Through this Eco Process approach we have achieved the world's top-class energy efficiency and reduction in environmental impact and cost for a steelmaker.



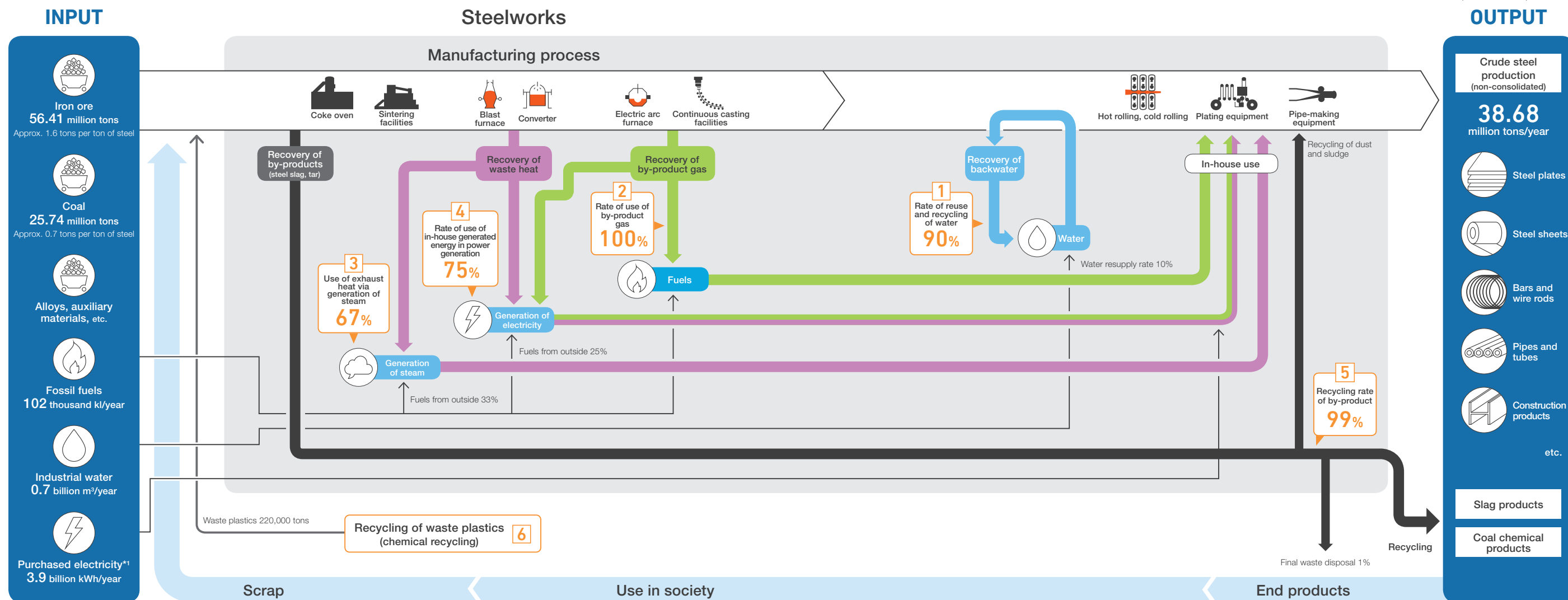
Efforts for efficient use of various resources have resulted in Japan's steel industry achieving the world-leading level in energy efficiency.

Energy efficiency in steelmaking by country (2019)



Source: International Comparisons of Energy Efficiency (Sectors of Electricity Generation, Iron and steel, Cement), RITE (Numerical values were provided by the Japan Iron and Steel Federation (JISF))

Numbers represent FY2021 performance



Efficient use of resources

1 Water resources

Of water used in cooling and cleaning of products and manufacturing facilities, 90% is reprocessed and repeatedly used, while the remaining 10%, which disappears mainly due to evaporation, is replaced.

4 Electricity

Nippon Steel itself generates 89% of the electricity it uses at steelworks, 75% of which is from internally generated energy sources such as exhaust heat and byproduct gases. Toward the way to low-carbon power generation, we will consider highly efficient use of facilities and switching to other fuel sources.

2 By-product gas

By-product gases, such as coke oven gas generated when coal is thermally cracked in an oxygen-free environment in the coke manufacturing process and blast furnace gas generated from blast furnaces, are fully utilized as fuel gas for steel heating furnaces or energy sources for power generation plants on the premises of steelworks.

5 By-products

By-products generated in steelmaking are recycled for reuse in the same process or for commercial use. We thus promote achieving zero emission and contribute to conservation of resources and energy.

3 Use of exhaust heat

Exhaust heat, generated in the blast furnaces, sintering facilities, coke ovens, converters, and other facilities, is recovered and used in steam generation and power generation.

6 Recycling of waste plastics

Nippon Steel recycles 100% of waste plastic containers and packaging that are collected from households, via a chemical recycling method using a coke oven. The collected waste amounts to approximately 0.2 million tons per year, which is equivalent to about 30% of household waste plastic containers and packaging in Japan.

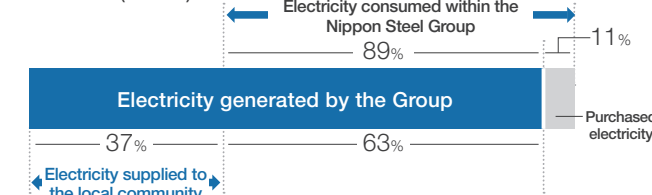
Coke Dry Quenching (CDQ) for large-scale waste heat recovery

The CDQ equipment quenches hot coke made in the coke oven with inert gas, and the heat is used to generate steam for power generation. Compared to the conventional wet quenching, 40% energy saving has been achieved.



CDQ

Nippon Steel Group's*2 Electricity Supply and Demand Balance (FY2021)



■ The Nippon Steel Group internally generates **89%** of electricity consumed.

■ supplies **37%** of its generated electricity to society.

*2 Including Cooperative Thermal Power Companies and related electric furnace companies

Materiality of Sustainability Issues

Human Rights, Diversity & Inclusion, and Human Resources Development

Sustainability Report
P.45-56

Number of employees (consol.) **106,528**
March 31, 2022

Number of employees (non-consol.) **28,708**
March 31, 2022



Through our efforts in promotion of human rights, diversity & inclusion, and human resources development, we are committed to creating a company where diverse employees are empowered, and feel proud and fulfilled.

Respect for human rights

Basic policy

In compliance with the Universal Declaration of Human Rights and other international norms on human rights, the Nippon Steel Group respects our employees' diverse views and fully utilizes their individuality via smooth communication and collaboration so as to create and deliver enhanced value.

Based on the United Nations Guiding Principles on Business and Human Rights, the Nippon Steel Group Code of Conduct has been set. By adhering to the Code, Nippon Steel conducts business ethically, while paying full heed to human rights issues arising with the increasing globalization of the economy.

Addressing human rights risks

From the viewpoint of promoting human rights (HR) awareness activities by assigning human rights awareness advocates at each steelworks and each office, and of implementing corporate-wide human rights awareness activities, we hold a corporate-wide forum of human rights awareness advocates each year. The forum is chaired by a responsible Director and is attended by human resources managers of steelworks and offices. The HR awareness activity policy is decided at the forum and specific activities are implemented in each steelwork and each office.

In addition, our efforts are mirrored by our Group companies in Japan and abroad and we regularly carry out monitoring surveys.

Through these efforts, we are continuously and systematically engaged in activities to prevent human rights abuses.

Human rights awareness education

Based on the policy decided at the "corporate-wide forum of human rights anti-discrimination promotion," information on human rights awareness is incorporated in training courses for all ranks, from new employees to experienced ones. We also provide education on a variety of subjects, including the issues of harassment and anti-discrimination, understanding of LGBTQ, and human rights issues in the conduct of our business.

In addition to the general education, we also address specific human rights abuse risks in formulating and oversight of specific work assignments. Examples include education on

Mechanism of corrective actions

We have clarified whom to contact for consultation on various compliance issues including human rights. This is a part of efforts to establish a groupwide claim handling mechanism

We have also prohibited as unjust the discriminatory treatment of workers based on nationality, race, belief, creed, gender, age, sexual orientation, and disability.

In addition, we give careful consideration to the traditions and culture, business practice, and labor practice of each country or region as we accelerate overseas business development.

Based on these basic ideas concerning respect for human rights, we strive to create a workplace environment where employees can share diverse values and maximize their abilities.

Prevention of forced or child labor

Adhering to international norms concerning forced or child labor, Nippon Steel has the policy of prevention and eradication of both types of labor. We comply with applicable regulations and conduct regular monitoring surveys of our Group companies to prevent such violations in our business activities.

Compliance concerning salaries

In compliance with laws and regulation concerning salary and wages payment, Nippon Steel has set up pay at a higher level than minimum wage stipulated by the country, region, and type of work where we do business. With regard to bonuses, we regularly survey related matters, including the status of each country, region, and type of work, hold meetings with labor representatives, and appropriately reward employees by paying performance-based bonuses linked to company profits.

The number of recipients of training courses by rank on human rights (FY2021)

5,590

fair recruitment selection by employees assigned to the tasks of hiring in order to prevent job discrimination, and education on cross-cultural understanding and communication for those assigned to overseas business in the context of preventing human rights abuses.

that makes it easy for employees and related personnel to ask for consultation, and that enables the Company to understand and identify incidents of discrimination.

Specifically, a Compliance Consultation Room has been established to accept inquiries and reports and give counseling regarding human rights abuses such as harassment, from employees of the Company and Group companies and their families, as well as from employees of business partners and various stakeholders.

Regarding the response to these individual incidents, such as internal reports and consultations, we strive to appropriately resolve the incidents, while making sure to

Communicating with stakeholders

Adhering to laws and the group-company labor agreements, and respecting the rights to organize and to bargain, Nippon Steel strives to maintain sound labor-management relationships.

With a focus on mutual understanding through two-way dialogue, we have a place for discussion with labor unions for the entire Company as well as for each steelworks and each office. There we discuss various matters including the

Labor-management discussions (FY2021) **95** times for the entire Company **942** times at steelworks and offices

Diversity & Inclusion

Basic policy

From the perspective of creating a company where diverse employees are productive, perform at their best, be empowered, and feel proud and fulfilled, we are reinforcing our diversity & inclusion efforts while focusing on the following five areas.

The "Diversity & Inclusion Dept." has been established as a dedicated unit to promote diversity and inclusion efforts.

Promotion of women's participation and career advancement

What we have done so far

We have endeavored to establish a comfortable working environment for female employees. Specific programs include: 1) a childcare leave benefit which is more generous than legally required; 2) a program for employees who rejoin the company after having left it because of childcare or nursing care and other reasons; 3) a leave option to assist overseas relocation of a spouse; and 4) a temporary exemption program for employees who have difficulty in relocation because of childcare or nursing care and other reasons. We have also been implementing measures such as to open 24-hour childcare centers within the steelwork sites.



In-house childcare center (East Nippon Works Kashima Area)

Toward further promoting women's participation in the workplace

We have developed and announced a goal and an action plan to support female employees to continue to demonstrate their abilities through career development, and to promote their empowerment in all workplaces and levels. We target at

protect the privacy of the persons and to ensure that they do not receive unfavorable treatment.

Furthermore, in the event of disputes concerning the interpretation of collective agreements, labor-management agreements or other rules directly related to them, a grievance committee, which has members from both the management and the labor side, is established to resolve the dispute.

operating and financial performance and working conditions.

Our steelworks and offices also regularly set up a place for dialogue with the nearby residents' associations to ask for their understanding of our business operations and listen to opinions and requests from them; this is part of what we do to realize better communication with the local community.

Number of union members and unionized rate (March 31, 2022) **26,429**
(100% unionized)

Materiality diversity & inclusion

- 1 Promote female employee's participation and career advancement
- 2 Realize work life balance so as to enable employees with various backgrounds and circumstances to perform at their best
- 3 Develop health management in order for employees to perform at their best until the retirement age of 65
- 4 Prevent harassment
- 5 Promote empowerment of the elderly and the disabled

Improved hiring and retention

The ratio of women in overall hiring is 15%, and we will continue to expand their hiring. Career assessments for female employees have been conducted to facilitate flexible placement and development based on the understanding of individual circumstances and to improve retention rates.

At the same time, we will continue to make changes to enhance the working environment, including improvement of the environment for expanding work placement for women especially in steel mills.

The ratio of women in overall hiring (Average ratio for FY2020–FY2022) **Office staff and engineers 25%**
Operators and maintenance personnel 10%
Overall hiring 15%

least doubling and possibly tripling the number of female employees in management positions by 2025 from 36 in 2020, and an increase by at least four times and possibly seven times by 2030.

Materiality of Sustainability Issues

Human Rights, Diversity & Inclusion, and Human Resources Development

Support for employees’ career development and work-life balance

We facilitate the development of female employees by providing them with opportunities for growth through proactive efforts in anticipation of their various life events, and by actively promoting their advancement to managerial positions. As a development policy for the appointment of employees to managerial positions, we have established new respective career training programs for young and middle-class employees since fiscal 2022. We encourage employees to interact, and not to shy away from challenges arising from their work experience and life events; we also make them acquire mindset skills for better mutual understanding with the

company and self-realization. We will create a workplace culture where work and home life are comfortably balanced by making various programs well known to employees, through improvement and dissemination of brochures which explain the programs. We also provide to managers training concerning unconscious bias and diversity management. With the aim of encouraging male employees with young children to actively participate in childcare, since the second half of fiscal 2021 we have been encouraging them to take childcare and related leave.

■ Realizing the work life balance as a means to enable people with diverse situations perform well in the workplace

Enabling flexible ways of working

All human resources with their diverse attributes and circumstances, such as age, gender, and restrictions on work time and workplace due to childcare and nursing care, ideally should make the most of their finite time available and perform at their best. From this viewpoint, we are expanding our work system to move away from traditionally-set ways of working and pursue more flexible and diverse ways of working in accordance with the nature of work at any given time and

fluctuation in workload flow of operations needed at that time, and the circumstances of each individual. Specifically, we are actively utilizing the telework system and expanding workplaces that use the “coreless flexible system,” which eliminated the core time — an essential time period to be in the office. Based on these systems, we aim to achieve improved productivity and employees’ work-life balance, while pursuing ways in which individuals can perform at their best.

Realization of a flexible way to take time off from work

We have been establishing the environment for our employees so that it facilitates a flexibility in the ways to take time off from work, tailored to the circumstances of individual employees and their life stage. Annual paid holidays can be taken on a half-day basis to meet employees’ needs. The head office, for example, sets every Friday in August as an “Eco-paid leave day,” and recommends making it easier for employees there not needing to attend meetings and other events on those days to take off. Concerning childcare leave, in addition to providing a longer period than the statutory limit, the expired annual leave days accrued by each individual can be recovered to paid off-days for parental leave. Currently, we are focusing on clarifying the corporate policies, fostering a workplace culture that encourages employees’ use of the system, and promoting the use of parental leave and childcare-related leave benefits by all male employees who are entitled to childcare leave so that they can get actively involved in childcare. Matched to the ongoing aging of Japanese society, programs for nursing care leave and time off for nursing care

have been established to help employees continue working while attending to nursing care. The expired leave days that have been accrued can be used for nursing care purposes, as part of our efforts to provide an environment in which employees can work with peace of mind while providing care. The expired annual leave days can also be utilized for childcare and nursing care as well as sick leave, care of elementary school children, volunteer work, and infertility treatment. From this year, it can also be utilized for prenatal checkups and recurrent education. For the latter, we have established a leave system for obtaining a degree at a university or another educational institution. To promote the use of these programs, we distributed a brochure that summarizes each type of work and vacation program applicable for each life stage. We try to make the programs better known through various training programs.



■ Health management aimed for employees to work at their best up to the age of 65

Basic policy

We aim at ensuring that all employee work at their best from the time of joining the company to retirement, which has been extended to the age of 65. To accomplish this, we assist them to maintain and enhance both mental and physical health. We conduct health promotion measures focusing on disease prevention as well as early detection and treatment. We are committed to providing advanced health checkups including cancer or mental disorder screening and encouraging employees to get regular checkups, and provide consultation

or counseling about lifestyle or stress coping by health care professionals, as needed. Employees are expected to also be committed to implementing measures for their own health maintenance, such as getting various checkups and improve their daily lifestyle. We believe that such efforts by both the Nippon Steel Group and its employees become a source of motivation for work. They are encouraged to balance their work and health and they try not to get sick and, in case they get sick, they continue working while undergoing treatment.

Promoting physical wellness

Cancer disease control
Various cancer screening (including non-statutory exams) based on age and gender are incorporated in our health checkups. In particular, regarding exams for gastric and colon cancer, which are high risk diseases, we set the evidence-based priority target age and screening frequency for the examination. We also set our target rate of exam-taking and encourage employees to take exams for early detection and treatment of cancer.

Promoting mental wellness

Aiming for each employee in the Nippon Steel Group to enjoy a vigorous life on and off the job, we provide a consulting service for prevention and early detection in the area of mental health. For general employees, we have incorporated the issue of mental health in various in-house seminars and offer education on how to be aware of one’s own stress and to deal with it. For managers, we offer education on how to care for their subordinates and manage their teams, and how to coordinate with the corporate health care professionals (occupational physicians, health nurses, and other staff). Moreover, we provide stress checks through a workplace stress survey every fall. Occupational health care professionals give guidance for

■ Preventing harassment

In order for all Nippon Steel employees to work with vigor, it is extremely important to respond appropriately to harassment issues, and we are strengthening our efforts to prevent them. Specifically, we have clarified our internal policies to prevent harassment, and have also prepared and distributed leaflets to promote awareness among all employees. In addition, we engage in education through e-learning for all officers and employees, and incorporate our awareness

■ Empowerment of the elderly and the disabled

Employment for the elderly

With regard to the promotion of the empowerment of the elderly, we extended the retirement age to 65 from 60 in fiscal 2021, after consultation with labor unions, and taking into account the declining working population, the response to the extended starting age of the pension system, and the maintenance and improvement of our workplaces. Assuming that the same work will be carried out, even after the age of 60, the employment scheme as well as the salary and bonus scheme will remain the same up to the age of 65. Under this new system, hopefully, all generations, up to 65 years of age, will continue to perform at their best at the front lines of our workplaces, while also invigorating the skill transfer process and communication within the workplace between generations, thereby creating a vibrant company.

Cerebral cardiovascular disease control
We have established a unique company-wide system that enables us to assess and manage the risk of diseases based on the results of health checkups. We provide health guidance according to risk factors or control the frequency of health checkups. It is important that workers with high risk of cardiovascular disease improve their lifestyle. We will improve the implementation rate of specified health guidance, which aimed at improving the dietary and exercise habits of workers, by setting a target rate and promoting medical visits. We cooperate with the Health Insurance Union for achieving the goal.

improvement by teams and individuals based on the result of the stress check. In contributing to a vigorous work environment, managers implement necessary measures according to the issues of a team or an individual, coordinating with the personnel department and the health department. Because early detection and early response are important in the treatment of mental illness, we identify those who are at risk at the Health Consulting Contact by various measures in association with the Company’s mental health e-learning and questionnaire event conducted every June. Occupational health care professionals swiftly respond to the findings of the events to foster mental wellbeing.

of the matter of unconscious bias into our training programs. In keeping with this we sponsor lectures on harassment at milestone training events, for all of us, from new employees to higher management. Each of the contact points takes individual actions and makes sure not to disbenefit anyone for reporting or cooperating. After investigating and confirming the existence of a problem, we take strict measures in accordance with employment rules and other regulations.

Employment for the disadvantaged

Recognizing employment of the disabled as an important social challenge, we are implementing an action plan for their employment and providing a friendly working environment. Since 2007, we have established special-purpose companies to expand employment opportunities. As of June 2022, at four special subsidiaries of NS Heartful Service East Nippon Ltd., NS Heartful Service Tokai Ltd., NS Heartful Service Kansai Ltd., and NS Heartful Service Kyushu Ltd., over 100 people are actively engaged mainly in various outsourced work from Nippon Steel. The work includes data input and printing of written documents, cleaning of the steelworks premises, cleaning and management of the welfare facilities, and cleaning of work clothes.



Materiality of Sustainability Issues

Human Rights, Diversity & Inclusion, and Human Resources Development

Human Resources Development

Based on the belief that the development of excellent personnel is a prerequisite for the development of excellent technologies and the production of excellent products, Nippon Steel is striving to enhance workplace strength and technological advancement and to improve its overall manufacturing capabilities.

Basic policy

Recognizing that the source of competitiveness is the power of people, Nippon Steel's Management Principles state that “we develop and bring out the best in our people to make our Group rich with energy and enthusiasm,” positioning human resource (HR) development as a priority theme. A goal of HR development is to create people who can understand and implement our Corporate Philosophy and our Employee Action Guidelines. With this in mind, each employee shares in taking the lead in HR development.

Personnel development of operators and maintenance staff

The operators and maintenance staff put into practice their accumulated skills in steelmaking and maintenance, starting from joining the Company, on the assumption of continued long-term employment to retirement. They thus fundamentally support the Company's manufacturing worksites. Smooth transmission of technology and skills from veterans to younger workers is essential and a system that facilitates this is needed. Therefore, after identifying, through a supervisor-subordinate dialogue, the skill or skills to be acquired, a skill development plan is developed and carried out. Training is conducted mainly through On-the-Job Training (OJT), and the HR Development PDCA is kept up to date for use by repeatedly revising and implementing the development plan based on the progress of individuals.

Off-the-job training (OFF-JT), which complements OJT, is used throughout the Company by organizing the minimum skills and knowledge required by each rank of employees of Nippon Steel into a company-wide standard system. Through this, we work at education of workplace leaders to further increase their ability to add to and improve our knowledge base from the field (“field technology”) and at measures to maintain and improve motivation of the elderly to continue working with health and motivation.

We are also actively promoting cooperation in HR development with partner companies, which play an important role in our steelmaking, from the perspective of deepening and expanding our partnerships. Specifically, in addition to the training of each partner companies, the training programs for various ranks of employees of these partner companies, such as newcomers, young staff, job leaders, and line managers are provided with Nippon Steel's employees as instructors. Through these efforts, we support the HR development of our partner companies, encourage exchanges between our on-site employees and their employees, and establish a foundation for smooth business execution.

Another area we focus on is to diversify recruitment sources (especially for female employees and mid-career recruitment), and we strive to create a workplace climate in which diverse personnel can be motivated and collaborate with each other through human rights awareness and harassment prevention.

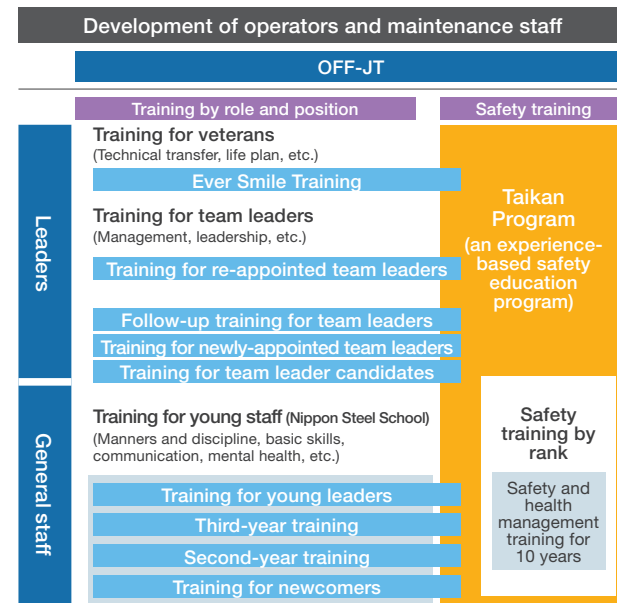
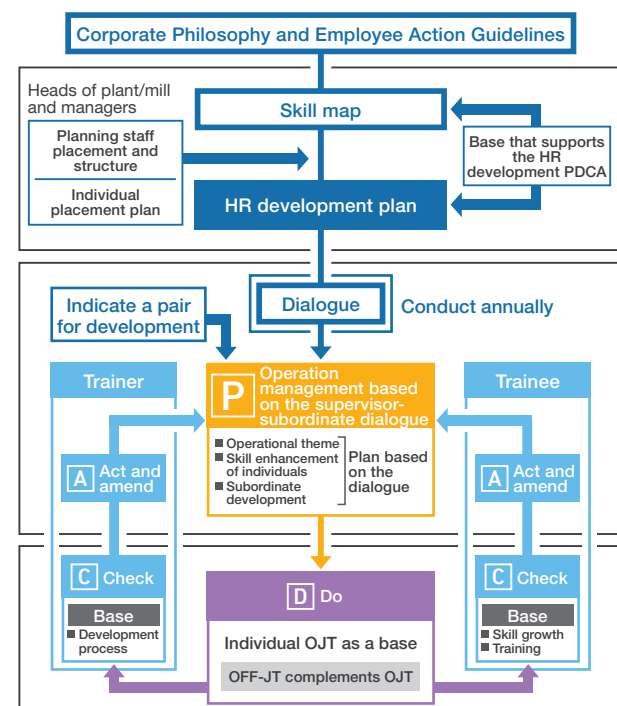


Basic Policy for Human Resource Development

- 1 HR development is the job itself, and supervisors play an important role in HR development.
- 2 OJT training is a basis of HR development and is complemented by off-the-job training.
- 3 Supervisors share objectives and outcomes of HR development clearly with their subordinates.
- 4 Each individual strives for continual personal improvement for further growth.

Number of training/learning hours (FY2021) **0.54 million hours/year**
(19 hours/year per employee)

Human resource development PDCA (conceptual rendering)



Note: In addition to the above, training to impart and improve knowledge and skills needed for partner companies' employees by rank (newcomers, young staff, team leaders, job leaders, and line managers) with Nippon Steel's employees as instructors is available.

Personnel development of office staff and engineers

Following the Basic Policy for HR Development, Nippon Steel uses a HR Development PDCA for office staff and engineers, who implement OJT-based HR development plans. Specifically, development plans are formulated for each person based on the Corporate Philosophy, Employee Action Guidelines, and organizational strategies. Based on a concrete one-year plan, a supervisor and a subordinate have an extended dialogue throughout the OJT period, review the development situation at year-end, and formulate the next year's plan.

The OFF-JT is also being enhanced to complement the OJT. Various training programs are aimed at acquiring the knowledge

Development of managers

The training courses are provided to managers to match the managers' qualification and position, and are given so that they can acquire proper understanding of their responsibilities and authority as managers; knowledge, skills, and mindset that contribute to enhancing their management as supervisors; and group management capabilities. In recent years, we have given increased attention to management education. We added new courses including one for line manager candidates to enhance line management skills on the manufacturing field, and one for new managers to ensure they have a correct understanding of their roles and responsibilities as managers, and acquire the risk management and job and organizational management skills.

Global personnel development

For our employees to effectively work in any country where we are active, we provide pre-assignment training aimed for them to acquire basic knowledge to do business in the country and understand cultural differences.

We have also set standards for English language skills to be reached by each level, and are working to raise the overall level of our group. For those whose job requires English skills, there is a program aimed at raising their proficiency level in English so that they can perform their jobs overseas without need for translators or interpreters.

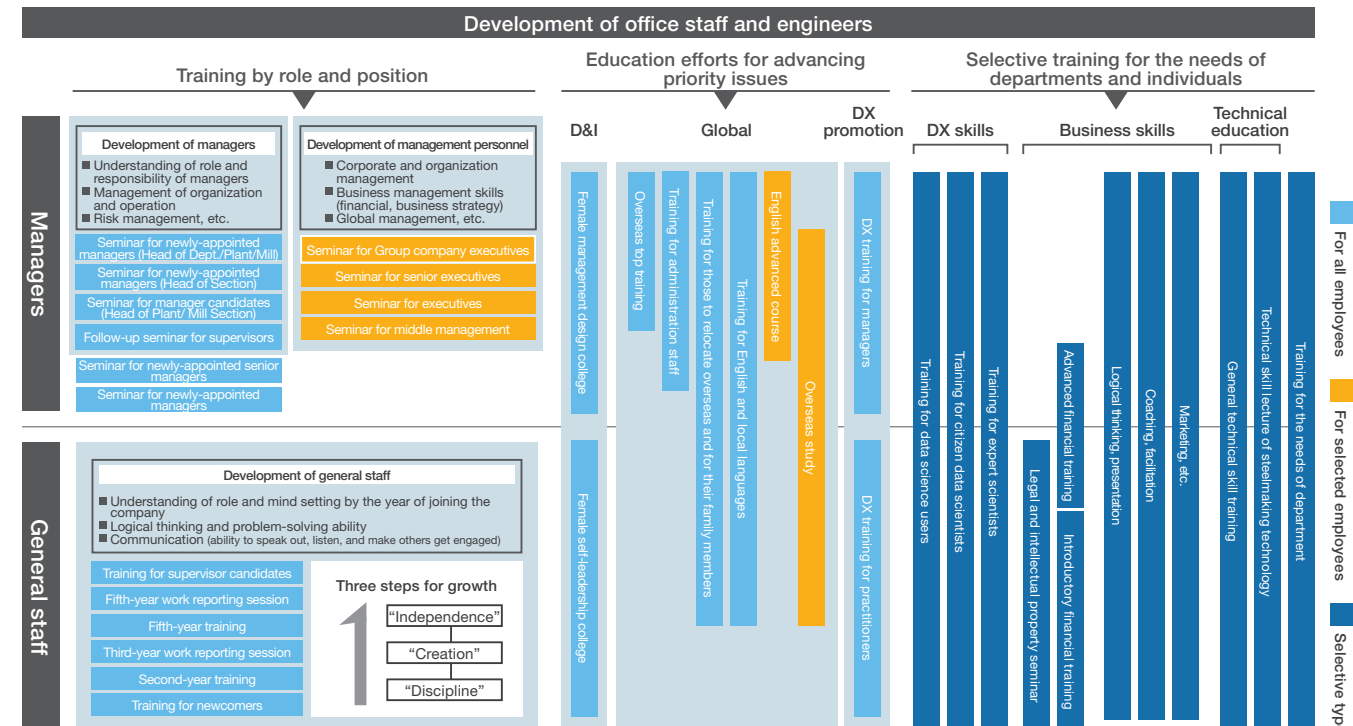
and skills required for each qualification and position. An employee's period of time from joining the Company to becoming a manager is divided into three steps: “Discipline”, “Creation” and “Independence”. Work reporting sessions and training by rank are carried out at the milestones of the 2nd, 3rd, or 5th anniversaries of the start of employment. In addition, selective training to improve the skills needed for work, and technical education programs to systematically learn the knowledge needed for our engineers are available. These can be taken based on individual development needs upon the supervisor-subordinate dialogue.

Development of staff who support technological advancement

In order to train human resources that achieve world-leading technologies and manufacturing capabilities, courses to learn the essential knowledge and technologies for steelmaking engineers are prepared. In particular, the content of courses classified as steelmaking process-specific technologies is at the core of Nippon Steel's technology. We have developed an environment in which we can learn from basic technologies to advanced technologies, with excellent in-house engineers as instructors.

Development of staff who drive DX

We provide digital management education to all managers to make them understand their role in promoting DX and encourage them to change their mindset when the situation so warrants. We have also established a DX skills training program as data science education intended to develop data science users who can effectively use data, and citizen data scientists who can make advanced use of data.



Together with others in society



Materiality
Harmony with local
communities and society

Having many manufacturing bases all over Japan, Nippon Steel has a long history of being engaged in business activities rooted in local communities and supported by local residents.

In accordance with our attitude of maintaining harmony with local communities and society, we have implemented distinctive social contribution programs, in collaboration with numerous government bodies and various organizations, and mainly through promotion of environmental preservation, and through education, music, and sports.

Initiatives on conservation of biodiversity and environmental preservation activities in collaboration with local communities

As a member of Nippon Keidanren (Japan Business Federation), Nippon Steel has affirmed the Declaration of Biodiversity by Keidanren and Action Policy (revised in October 2018) and has accordingly taken initiatives on biodiversity preservation under that policy.

Among the initiatives, interesting programs thus far are “Creation of Hometown Forests” and “Creation of Sea Forests,” the world-leading pioneer projects. The “Creation of Hometown Forests” began in the Kyushu Works in 1970 and our forests in aggregate have grown to total around 830 ha (about the size of 180 Yankee Stadiums). “Creation of Sea Forests” is to use the iron content of steel slag to stop loss of sea weeds caused by sea desertification in the coast in various parts of Japan. The project has been launched in 38 spots in Japan and shown some positive effects. (Details on the Sustainability Report)

We are also a regular corporate member of the NPO, Mori wa Umi no Koibito (The forest is longing for the sea, the sea is longing for the forest), represented by Mr. Shigeatsu Hatakeyama, a fisherman raising oysters and scallops in Kesennuma City, Miyagi Prefecture, who received the Forest Heroes award from the United Nations in 2012. Since 2012 we participated in the NPO's tree planting activity at Murone Mountain in Iwate Prefecture, which began in 1989, based on the theory that the chain of forests, villages, and the sea nurtures the blessings of the sea.

Moreover, Nippon Steel is a co-sponsor of an NPO, “green bird”, and participates in its garbage pickup events. Many steelworks also voluntarily carry out diverse cleaning activities of their surrounding areas.



Creation of Hometown Forests



Creation of Sea Forests



Mori wa Umi no Koibito

Monodzukuri and environmental education

With the aim of showing the joy of product-manufacturing, Nippon Steel holds demonstrations on “tatara ironmaking” — Japan's indigenous ironmaking technique. Every year we also host approximately 130,000 people to our plant visits in order to make Nippon Steel as well as the steel industry to be better understood. In fiscal 2021 as well as in fiscal 2020, the

COVID-19 pandemic made it difficult to undertake these programs. We therefore sent lecturers from steelworks or branch offices to special occasions in the local communities upon requests. On-line learning sessions were provided in the East Nippon Works Kashima Area and on-line training program for educators was also carried out.



On-line training program for educators (Osaka Area)



On-line learning sessions (Kashima Area)



School visit and lecture (Nagoya)



Social contribution through art, music, and sports

We are active in corporate philanthropy activities in the support of music, particularly through the work of the Nippon Steel Arts Foundation. The Foundation manages Kioi Hall in Tokyo, organizing performances of its resident chamber orchestra and promoting Japanese traditional music. We also give the annual Nippon Steel Music Awards, established in 1990, to young classical music performers and to those who have contributed to the development of classical music.

Nippon Steel manages or supports sports teams in local communities of its steelworks. All of these teams contribute to their local community through such various activities as sports classes for children and making our athletic facilities available to local residents. Together with local residents who support our teams, we strive to provide renewed vigor to our local communities, and at the same time to support their healthy lifestyle.



Baseball class (Muran Area)



Participating the Oita Yumeiro Music Festival (Oita Area)



Nippon Steel Music Awards recipients (Mr. Isao Hirowatari, left, and Mr. Haruma Sato, right)

Suggestions on public policies, opinions as the industry, and cooperation with government

Over the years, Nippon Steel has provided personnel to key positions of the Japan Federation of Economic Organizations (Keidanren) and the Japan Iron and Steel Federation (JISF), and through the activities of these organizations, has expressed opinions and urged them to take action on

deregulation matters and the implementation of institutional reforms aimed at improving the Japanese economy.

In the local communities, we also strive to cooperate with various organizations such as the local government and the local chamber of commerce and industry.

- Voicing opinions on deregulation and institutional reform aimed at maintaining and improving the vitality of the Japanese economy
- Participation in public policy studies, such as infrastructure development, revision of the Corporate Governance Code, tax reform, Sustainability Standards Board of Japan (SSBJ), Digital Transformation (DX), workstyle reform and regional revitalization
- Recommendations on national strategy to achieve a “virtuous cycle of environmental sustainability and economic growth,” the need for policies that will strengthen the international competitiveness of industries, and energy policy
- Promotion of voluntary initiatives by industry to achieve Japan's medium- to long-term targets based on the Paris Agreement (Carbon Neutral Action Plan)
- Participation in the JISF's formulation of Basic Policies for the Japanese Steel Industry on Carbon Neutral in 2050

Corporate governance structure

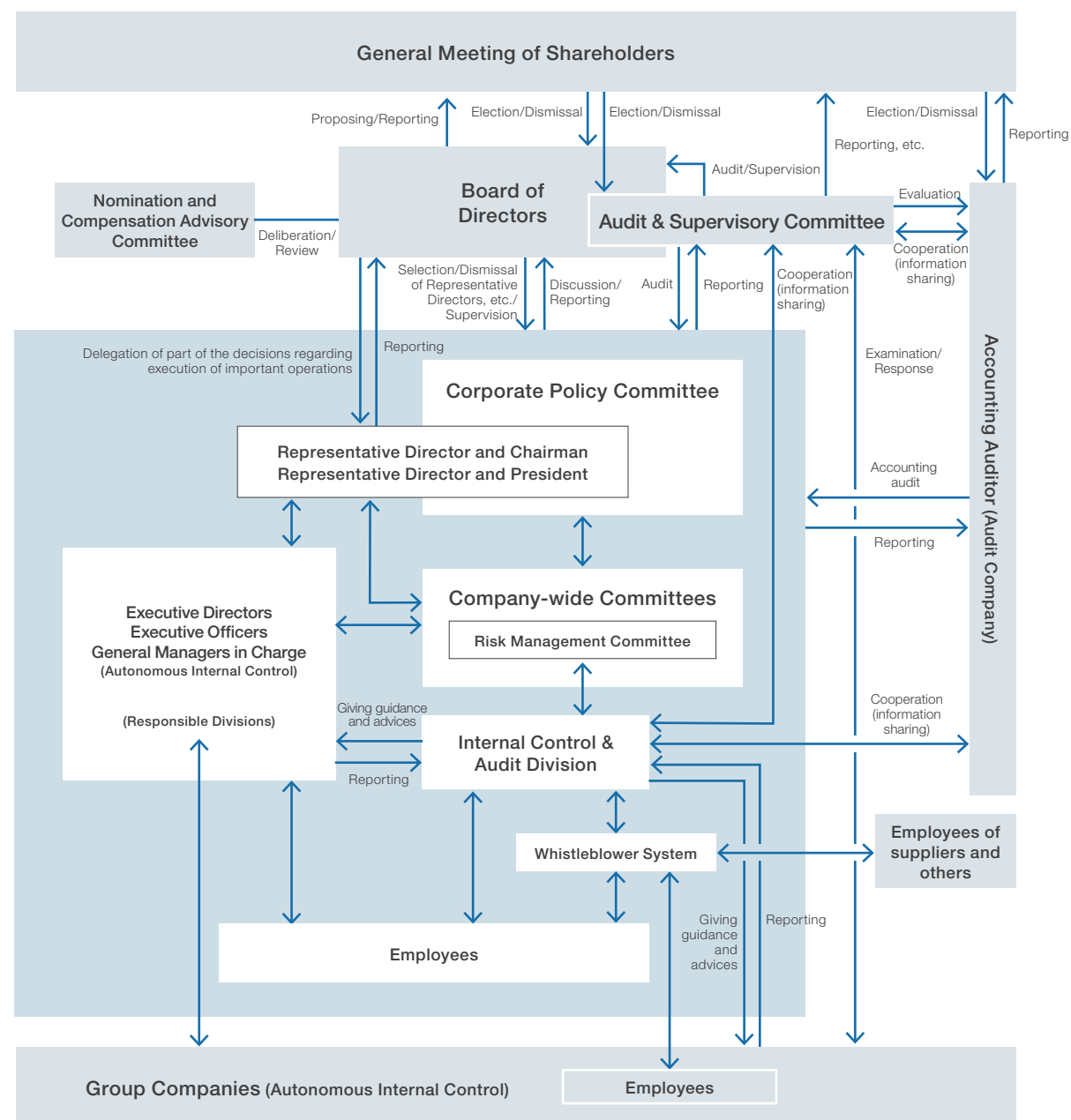
The Nippon Steel Group is engaged in business activities based on its Corporate Philosophy – that we will pursue world-leading technologies and manufacturing capabilities, and contribute to society by providing excellent products and services.

Heeding that Philosophy, the Nippon Steel Group has established a corporate governance system suited to the businesses of the Nippon Steel Group in order to achieve the sound and sustainable growth of the Nippon Steel Group and increase its corporate value over the medium- to long-term, in response to the delegation of responsibilities by and trust of all stakeholders, including its shareholders and business partners.

Basic views on corporate governance

Nippon Steel has adopted a company structure with an Audit & Supervisory Committee for the purpose of , among others, expediting management decision-making, enhancing discussions by the Board of Directors relating to matters such

as the formulation of management policies and strategies by limiting the number of items for deliberation by the Board of Directors, and strengthening the supervisory function of the Board of Directors over management.



Board of Directors

The Board of Directors of Nippon Steel is comprised of fourteen (14) members, of whom nine (9) are Directors (excluding Directors who are Audit & Supervisory Committee Members) and five (5) are Directors who are Audit & Supervisory Committee Members, and is chaired by the Representative Director and President. Independent Outside Directors account for more than one-third (5 out of 14, including one female Director) of all members of the Company's Board of Directors. The Board of Directors meetings were held 13 times in fiscal 2021.

By all Directors appropriately fulfilling their respective roles and responsibilities, prompt decision-making is achieved corresponding to changes in the management environment, and multifaceted deliberations and objective and transparent decision-making by the Board of Directors are secured. In addition, Directors who are Audit & Supervisory Committee Members have voting rights on the Board of Directors regarding decisions on proposals for the election and dismissal of Directors as well as on election and dismissal of Representative

Audit & Supervisory Committee

The Audit & Supervisory Committee acts with the obligation of contributing to the establishment of a high-quality corporate governance system that enables sound and sustainable growth of Nippon Steel and its Group companies, by supervising the performance of responsibilities by Directors and acting as part of

Nomination and Compensation Advisory Committee

The Nomination and Compensation Advisory Committee has been established to conduct discussions and deliberations on a wide range of topics relating to the nomination and compensation of the Directors in general, including the compositions of the entire Board of Directors and the Audit & Supervisory Committee, the system and levels of the Directors' compensation, and other topics. The Committee comprises five members: the Representative Director

Corporate Policy Committee

The Corporate Policy Committee comprises the Representative Director and Chairman, Representative Director and President, Representative Directors and Executive Vice Presidents, and other members, and is held once a week, in principle. The execution of important matters concerning the management of Nippon Steel

Company-wide committees

As corporate organizations engaging in deliberations before the Corporate Policy Committee and the Board of Directors, there are 22 company-wide committees in total, which are established by purpose and area, and chaired by Representative Directors and Executive Vice Presidents. The

Directors, and other decisions in general regarding business execution (excluding decisions that have been delegated to Directors). The Audit & Supervisory Committee has the authority to give its opinions at the General Meeting of Shareholders regarding the election, compensation, etc. of Directors, excluding Directors who are Audit & Supervisory Committee Members. This structure strengthens the supervisory function of the Board of Directors over management.

Furthermore, the Board of Directors delegates part of the decisions regarding execution of important operations (excluding matters listed in each item of Article 399-13, Paragraph 5 of the Companies Act) to the Representative Director and Chairman and Representative Director and President, thereby expediting management decision-making, while enhancing discussions by the Board of Directors relating to matters, such as the formulation of management policies and strategies, important business strategic issues, safety, environmental issues, disaster prevention, and quality assurance.

the Company's oversight function, as an independent organ fulfilling its roles and responsibilities that are recently expected, in response to the delegation of responsibilities by the shareholders, and social trust.

and Chairman, Kosei Shindo, the Representative Director and President, Eiji Hashimoto, and Outside Directors Tetsuro Tomita, Kuniko Urano and Masato Kitera. The Representative Director and President serves as the chairman of the Committee. The Nomination and Compensation Advisory Committee, as a general rule, is held twice a year. In fiscal 2021 the Committee meeting was held in May and December.

and the Nippon Steel Group is determined at the Board of Directors after deliberations in the Corporate Policy Committee.

In addition, Nippon Steel has introduced an Executive Officer system for setting clear responsibilities and improving management efficiency by more prompt decision-making.

committees include the Ordinary Budget Committee, the Plant and Equipment Investment Budget Committee, the Investment and Financing Committee, the Risk Management Committee, the Environment Management Committee, and the Green Transformation Promotion Committee (as of April 1, 2022).

Measures implemented to enhance corporate governance

June 2006

- Reduction of the number of directors in the Articles of Incorporation from 48 to 15* (* Increase to 20 when Nippon Steel & Sumitomo Metal Corporation was established in 2012)
- Adoption of the Executive Management System
- Adoption of a limited liability contract with External Auditors

June 2014

- Appointment of Outside Directors (two)
- Adoption of a limited liability contract with Outside Directors

June 2015

- Adoption of a limited liability contract with full-time Audit & Supervisory Board Members

October 2015

- Establishment of the Nomination and Compensation Advisory Committee

June 2018

- Increase the number of Outside Directors to three (appointment of a female director)

June 2020

- Transition to a Company with an Audit & Supervisory Committee

Internal control system

Nippon Steel has established internal control and risk management systems, based on autonomous activities by internal divisions and group companies, according to the Basic Policy on Internal Control System, which was resolved by the Board of Directors, and the Internal Control Basic Rules. The Internal Control & Audit Division cooperates closely with each area's functional division in charge of risk management, develops annual plans concerning internal control and risk management, prepares a scheme for check and review, regularly ascertains the status of internal control across the entire Group, and works at continual improvement.

Recognizing that creation of a sound and open organization is indispensable in raising efficiency of internal control, Nippon Steel emphasizes dialogues in and out of workplaces and regularly conducts awareness surveys regarding internal controls to all employees. By doing these, the Company checks the employees' awareness on the compliance and internal control

Risk management

The Risk Management Committee, chaired by the Executive Vice President in charge of the Internal Control & Audit Division, receives regular reports from the Division on the development and execution status of the internal control annual plan, the compliance status of laws and regulations, and the matters related to risk management, which include adherence to the Code of Conduct of Nippon Steel Group Company and other company rules as well as ESG risks, such as labor safety, workplace sexual or power harassment and other abuse of human rights, environmental issues, disaster prevention, quality assurance, financial reporting, and information security. The

activities, carries out education and enlightenment through the survey, and complements the internal control system. Based on these results, the effectiveness of the internal control system is regularly reviewed for achieving greater efficiency in management and is incorporated in an internal control plan of the next year.

As a whistleblower system, the Compliance Consulting Room was established to receive information not only from officers and employees of Nippon Steel and the Group companies, but also from their families, and others. The Room receives reports and consultation on a wide range of subjects – from violation of laws, regulations, or company rules to ascertaining of rules thought to be needed for operations. It is also positioned as one of the bodies that monitors the status of internal control activities, in addition to its functions on compliance and optimization of operations, such as to prevent accidents and violation of laws, and to improve operations. In fiscal 2021, there were 437 cases of internal reporting and consultations.

Committee then deliberates and checks the status of measures taken. What was deliberated and ascertained by the Risk Management Committee, including important risks, is reported and deliberated by the Corporate Policy Committee, attended by the Representative Director and Chairman and Representative Director and President among other members.

The Board of Directors evaluates effectiveness of supervision of risk management and internal control by receiving regular reports on managerial important risks, including those originated by the Risk Management Committee and the Corporate Policy Committee.



Business risks, etc. are stated in the Securities Report, p.21-26.

https://www.nipponsteel.com/ir/pdf/nipponsteel_jp_br_2021_all.pdf

Activities of the Audit & Supervisory Committee

The Audit & Supervisory Committee Members who are mutually elected by the Committee cooperate closely with the department in charge of internal audits, and proceed with daily supervisory activities in a planned way, with a main focus on the development and operation of the internal control system, the development of business infrastructure, and the progress of various measures for management plans, in accordance with, among others, the standards for the Audit & Supervisory Committee's audits, the policies and plans of audit and supervision, and assignment of duties as set forth by the Audit & Supervisory Committee. In addition, the Audit & Supervisory Committee Members attend important meetings, such as meetings of the Board of Directors, and conduct onsite audits of steelworks and other facilities. Further, the Audit & Supervisory Committee Members ask Executive Directors and employees, among others, to explain the performance of their responsibilities, and other related matters, and actively express opinions.

For the Group companies, the Audit & Supervisory Committee Members of Nippon Steel exchange opinions and information with the Directors of such Group companies and the Directors, etc. of the responsible divisions of Nippon Steel, and as necessary, receive business reports from them and ask them for explanations. Further, the Audit & Supervisory Committee Members of Nippon Steel seek to improve the quality of the supervisory activities as the whole Group, by establishing close cooperation with the Group companies' audit & supervisory board members, through liaison conferences and other opportunities.

The full-time Directors who are Audit & Supervisory Committee Members, as the Members selected by the Audit & Supervisory Committee, strive to exchange opinions with the department in

charge of internal audits and other departments, collect information, and prepares the audit environment, pursuant to the audit policy and plan stipulated by the Audit & Supervisory Committee. They also attend the Board of Directors, the Corporate Policy Committee, and other meetings, interview relevant people on the agenda or matters to be reported and discussed and on other important matters, receive reports from the Accounting Auditor, and conduct surveys on the status of business and assets in the headquarters, steelworks, and other places.

The Outside Directors who are Audit & Supervisory Committee Members contribute to Nippon Steel's sound and fair management by, among other tasks, expressing their respective opinions independently at the Board of Directors, the Audit & Supervisory Committee, and other opportunities, and performing supervisory activities, including audits on the business and affairs and the status of assets at major steelworks, etc. and hearing of reports from the Accounting Auditor, as Audit & Supervisory Committee Members selected by the Audit & Supervisory Committee, based on their vast experience in, and deep insights into, such areas as laws, public administration, public finances, corporate accounting and economies. The Audit & Supervisory Committee reviews matters such as selection of and compensation for Directors (excluding Directors who are Audit & Supervisory Committee Members) in compliance with the standards set by the Audit & Supervisory Committee and by taking account of the overview of discussions of the Nomination and Compensation Advisory Committee. The Audit & Supervisory Committee then forms its opinion, which may be expressed at the Board of Directors meeting or the General Meeting of Shareholders, if necessary.

Policies on and procedures in the nomination of director candidates and the appointment and dismissal of senior management

Policies on the nomination of director candidates and the appointment of senior management

For the nomination of Director candidates, and the appointment of senior management, Nippon Steel's policy is to consider not only each individual's experience, insight, and expertise, but also the size of each of the Board of Directors and the Audit & Supervisory Committee as a whole, and the balance of candidates comprising these respective boards (including the number of Outside Directors) so that Nippon Steel will establish an optimum board composition in which each individual is able to appropriately fulfill its role and responsibilities and properly respond to the management challenges of the Group's business.

Nippon Steel believes the appointment of the President and other senior management to be one of the most important roles/functions of the Board of Directors. To ensure that optimum human resources who are capable of realizing the sustainable growth of the entire Group and the mid- to long-term improvement of its corporate value are appointed to the office of President and other senior management in a timely manner, Nippon Steel provides various opportunities for Directors and Executive Officers who are to become successor candidates to improve their credentials by strategically assigning and rotating them to various positions, and by other means as well.

Procedures in the nomination of director candidates and the appointment of senior management

The nomination of Director candidates and the appointment of senior management are resolved at the Board of Directors after discussion at

Policies in determining the compensation for directors

Changes in the policies

The Policies regarding the Decisions on the Amount of Compensation, etc. for Directors of Nippon Steel are as detailed below. Nippon Steel abolished its retirement benefits

Directors (excluding Directors who are Audit & Supervisory Committee Members)

Basic policy

Nippon Steel sets the base amount of compensation for each position as it deems appropriate in consideration of the skills and responsibilities it requires of each Director. This base amount varies within a certain range based on Nippon Steel's consolidated performance. The Company then determines the amount of monthly compensation for each Director within the limit approved by the General Meeting of Shareholders.

Policy on performance-linked compensation

In accordance with the "Basic Policy" above, compensation for Directors (excluding Directors who are Audit & Supervisory Committee Members and Outside Directors) consists solely of monthly compensation, and the amount of compensation is wholly based upon the performance of Nippon Steel, in order to give incentives for the sustainable growth of Nippon Steel's group and improvement of its corporate value. As indicators for performance-linked compensation, Nippon Steel uses consolidated annual

Directors who are Audit & Supervisory Committee Members

Nippon Steel determines the monthly compensation for each Director who is Audit & Supervisory Committee Member, within the limit approved by the General Meeting of Shareholders, by considering the duties of the Director's position and whether the Director is full-time or part-time.

Methods of determining the policies

The policies described above are determined by resolution of the Board of Directors, after the deliberation of the Nomination and Compensation Advisory Committee, for Directors (excluding Directors who are Audit & Supervisory Committee Members) and by discussion of Directors who are Audit & Supervisory Committee Members for Directors who are Audit & Supervisory Committee Members.

The Nomination and Compensation Advisory Committee conducts discussions on a wide range of topics including the system of Directors' compensation and the appropriateness of the compensation levels by position, taking into account the survey results of directors' compensation levels of other companies obtained from third-party research organizations.

the Nomination and Compensation Advisory Committee. The Nomination and Compensation Advisory Committee conducts discussions and deliberations from various perspectives, in accordance with the policies stated above, taking into account, among others, the sizes of the entire Board of Directors and the Audit & Supervisory Committee and the balance among the candidates who will comprise the members.

The nomination of candidates for Directors who are Audit & Supervisory Committee Members is to be submitted to the Board of Directors for deliberation, after the approval at the Audit & Supervisory Committee.

Procedures in the dismissal of the President and other senior management

In the event that any disqualification for Directors as stipulated by laws and regulations occurs to the President or other senior management, Nippon Steel shall dismiss him or her from the President or other managerial positions by the resolution of the Board of Directors. In addition, in the event that the President or other senior management has engaged in any acts suspected of committing fraud or breach of trust, or in the occurrence of an incident to the President or other senior management that has caused significant hindrance to the continuation of duties, etc., Nippon Steel may dismiss him or her from the President or other managerial positions by the resolution of the Board of Directors, while also taking into account discussions and deliberations at the Nomination and Compensation Advisory Committee as necessary.

for Directors in 2006. In addition, the policies relating to their bonuses were removed from the Policies in 2013.

profit/loss (however, corrections are made for the sake of fair remuneration commensurate with earnings for the term by excluding the portion of gains/losses from reorganization for production facility structural measures; hereinafter the same in this section), which clearly indicates its business performance and earnings power, and consolidated EBITDA, while taking into account other factors including the revenue targets in the Medium- to Long-term Management Plan.

Compensation for Outside Directors (excluding Directors who are Audit & Supervisory Committee Members) consists solely of monthly compensation, and fixed compensation in principle, but the amount of compensation may be increased or decreased only in the event of significant changes in the consolidated annual profit/loss of Nippon Steel.

Method to determine compensation for each individual

The specific amount of monthly compensation of each Director (excluding Directors who are Audit & Supervisory Committee Members) is determined by the Board of Directors after the deliberation of the Nomination and Compensation Advisory Committee.

Total amounts of compensation for directors (FY2021)

Position	Number of recipients	Total amount (yen)	Total amount by type (yen)		
			Monthly compensation	Non-monetary compensation	Other compensation
Directors (excluding Directors who are Audit & Supervisory Committee Members)	13	657,335,000	657,335,000	-	-
Outside Directors	3	43,200,000	43,200,000	-	-
Directors who are Audit & Supervisory Committee Members	7	211,870,000	211,870,000	-	-
Outside Directors	4	57,600,000	57,600,000	-	-
Total	20	869,205,000	869,205,000	-	-

The above number of recipients includes two (2) Directors (excluding Directors who are Audit & Supervisory Committee Members) who retired at the conclusion of the 97th General Meeting of Shareholders held on June 23, 2021.

Analysis and evaluation of the effectiveness of the Board of Directors as a whole

At Nippon Steel, the office of the Board of Directors (General Administration Division) conducts quantitative analysis through comparison of the number of the agenda items submitted for deliberation or reported to the Board of Directors and the number of hours of deliberation, as well as the attendance rate and the number of opinions expressed by attendees at meetings of the Board of Directors with these of prior years; and the Board of Directors, taking into account self-assessments and opinions of each member of the Board of Directors on the operation of the Board of Directors obtained through individual interviews with them, annually analyzes and evaluates the effectiveness of the entire Board of Directors and utilizes such analysis and evaluation to improve the future operation and administration of the Board of Directors. In fiscal 2020, Nippon Steel decided to take the opportunity of the transition to a Company with an Audit & Supervisory Committee to establish the Rules of the Board of Directors, enhance discussions by the Board of Directors on matters such as the formulation of management policies and strategies, strengthen the supervisory function of the Board of Directors over management, and devise and improve operation of meetings so as to contribute to these efforts.

The Board of Directors, at its meeting held in June 2022, analyzed and evaluated the effectiveness of the Board of

Directors for fiscal 2021, confirming that the Board of Directors functions effectively based on a comprehensive judgment. It also confirmed that Board meetings were attended by more than a majority of Directors, which is needed for making resolutions, and that all of the matters submitted for deliberation or reported to the Board of Directors pursuant to the Companies Act or Nippon Steel's rules were resolved or confirmed. At each of Board meetings, attended by almost all Directors, all matters on the agenda with relevant information being provided in advance were resolved after questions and answers and discussion among Directors and Audit & Supervisory Board Members from diverse perspectives, in light of the perspective of improving Nippon Steel's corporate value in the mid- to long-term or other various perspectives.

In addition, from the viewpoint of further improving the effectiveness, based on the opinions of each director in the FY2021 effectiveness evaluation, Nippon Steel will continue to devote time to discussion on the basic policies of management and key issues such as progress and important individual matters. Nippon Steel will also continue to provide information through exchanges of opinions outside the Board of Directors and Outside Directors' visits to our internal bases. The Board of Directors will make further improvements in the structure, content and delivery method of the materials.

Audit & Supervisory Committee Members, both of whom were employees of Nippon Steel, their responsibilities under important applicable laws and regulations such as the Companies Act, and Nippon Steel's rules, upon the assumption of their positions. Moreover, Nippon Steel provides opportunities for Directors to attend exchanges of opinions with outside experts and executives of other companies, as well as lectures and seminars.

Significance of having listed subsidiaries

Based on the Nippon Steel Group Corporate Philosophy, Nippon Steel aims to achieve a company that is trusted by society, while promoting sound and sustainable growth and improving medium- to long-term corporate value of the Nippon Steel Group.

In addition, in order to comply with relevant laws and regulations and to ensure the reliability of financial reporting and the effectiveness and efficiency of operations, Nippon Steel has developed and is appropriately operating an internal control system suitable for the Group's business operations, and is making efforts to continuously improve it.

Based on this basic policy, Nippon Steel and its Group companies share business strategies and manage the Group as a whole, while taking into account the business characteristics of each Group company.

With respect to control of the Group companies, Nippon Steel sets forth basic rules in the Rules for Control of Group Companies, and ensures their appropriate application, while each Group company builds and maintains its internal control system based on autonomous internal controls, and seeks to improve measures relating to internal controls based on support, guidance, and advice from Nippon Steel.

Strategic shareholdings

Policy on strategic shareholdings

Nippon Steel, from the standpoint of sustainable growth and improvement of its corporate value in the mid- to long-term, believes that it is extremely important to maintain and develop the relationships of trust and alliance with its extensive range of business partners and alliance partners both in Japan and overseas, which have been cultivated through its business activities over the years. Accordingly, Nippon Steel shall continue to hold strategic shareholdings which are judged to contribute to maintaining and strengthening its business

foundation such as the business relationships and alliance relationships between Nippon Steel and the investees, enhancing the profitability of both parties, and thereby improving the corporate value of Nippon Steel and the Group. Regarding companies for which Nippon Steel confirms, after sufficient dialogues, to be able to achieve the objectives described above without holding their shares, the Company intends to proceed with the sale of shares in such companies.

Examination of the appropriateness of the strategic shareholdings

Nippon Steel confirms the appropriateness of its strategic shareholdings by specifically examining all shareholdings to determine, among others, whether the purpose of each shareholding is appropriate and whether the benefit and risk associated with each shareholding is commensurate with the cost of capital. The total market value of the shareholdings examined at the Board of Directors accounts for approximately 90% of the total market value of the strategic

shareholdings held by Nippon Steel on a consolidated basis (as of March 31, 2022).

The number of stocks held as strategic shareholdings by Nippon Steel on a non-consolidated basis was 495, as of October 1, 2012, when Nippon Steel & Sumitomo Metal Corporation was founded, while 284 stocks were held as of March 31, 2022 (the total value on the balance sheet was ¥255.9 billion).

Basic policy on exercise of voting rights concerning strategic Shareholdings

Regarding the voting rights concerning each strategic shareholding, Nippon Steel exercises its voting rights upon comprehensively evaluating whether the agenda of the General Meeting of Shareholders of the investee company contributes to the improvement of the respective corporate values of Nippon Steel and the investee company.

Specifically, Nippon Steel formulates criteria for the

exercise of voting rights which set forth guidelines for judgment according to the type of agenda items such as the appropriation of surplus, the election of Directors and Audit & Supervisory Board Members, etc., and exercises its voting rights based on these criteria together with the results of the examination of the appropriateness of the strategic shareholdings mentioned above.

Policy for dialogues with shareholders and investors

With a view to achieving sustainable growth and improvement of Nippon Steel's corporate value in the mid- to long-term, Nippon Steel takes various measures to enhance constructive dialogues with the shareholders. The dialogues with the shareholders and investors are generally supervised by the Director responsible for General Administration and the Director responsible for Accounting and Finance, and the General Administration Division and the Accounting & Finance Division work in conjunction with other divisions of Nippon Steel to enhance the measures. Opinions and other comments received from the shareholders and investors are reported and fed back to the Board of Directors and others responsible for the dialogues with the shareholders and investors on a regular basis.

“Nippon Steel Corporate Disclosure and Dialogue Policy”

Nippon Steel's website



<https://www.nipponsteel.com/ir/management/disclosure.html>

Please see details on corporate governance in Nippon Steel's Corporate Governance Report and Securities Report.

Corporate Governance Report



https://www.nipponsteel.com/csr/governance/pdf/cg_report_2022.pdf

Securities Report



https://www.nipponsteel.com/ir/pdf/nipponsteel_jp_br_2021_all.pdf

Board of Directors (As of July 2022)

Directors



Representative Director and Chairman

Kosei Shindo

Attendance at Board of Directors meetings: 13 of 13
Attendance at Nomination and Compensation Advisory Committee meetings: 2 of 2



Representative Director and President

Eiji Hashimoto

Attendance at Board of Directors meetings: 13 of 13
Attendance at Nomination and Compensation Advisory Committee meetings: 2 of 2



Representative Director and Executive Vice President

Akio Migita

Attendance at Board of Directors meetings: 13 of 13



Representative Director and Executive Vice President

Naoki Sato

Attendance at Board of Directors meetings: 10 of 10^{*2}



Representative Director and Executive Vice President

Takahiro Mori

Attendance at Board of Directors meetings: 10 of 10^{*2}



Representative Director and Executive Vice President

Takashi Hirose

Attendance at Board of Directors meetings: NA^{*3}



Managing Director, Member of the Board

Tadashi Imai

Attendance at Board of Directors meetings: 13 of 13



Outside Director Independent Director

Director, Member of the Board

Tetsuro Tomita^{*1}

Attendance at Board of Directors meetings: 13 of 13
Attendance at Nomination and Compensation Advisory Committee meeting: 2 of 2



Outside Director Independent Director

Director, Member of the Board

Kuniko Urano^{*1}

Attendance at Board of Directors meetings: NA^{*3}
Attendance at Nomination and Compensation Advisory Committee meetings: NA^{*3}

Directors who are Audit & Supervisory Committee Members



Director, Member of the Board (Senior Audit & Supervisory Committee Member)(Full time)

Shozo Furumoto

Attendance at Board of Directors meetings: 13 of 13
Attendance at Audit & Supervisory Committee meetings: 18 of 18



Director, Member of the Board (Audit & Supervisory Committee Member)(Full time)

Masayoshi Murase

Attendance at Board of Directors meetings: NA^{*3}
Attendance at Audit & Supervisory Committee meetings: NA^{*3}



Outside Director Independent Director

Director, Member of the Board (Audit & Supervisory Committee Member)

Seiichiro Azuma^{*1}

Attendance at Board of Directors meetings: 13 of 13
Attendance at Audit & Supervisory Committee meetings: 18 of 18



Outside Director Independent Director

Director, Member of the Board (Audit & Supervisory Committee Member)

Hiroshi Yoshikawa^{*1}

Attendance at Board of Directors meetings: 13 of 13
Attendance at Audit & Supervisory Committee meetings: 18 of 18



Outside Director Independent Director

Director, Member of the Board (Audit & Supervisory Committee Member)

Masato Kitera^{*1}

Attendance at Board of Directors meetings: 13 of 13^{*4}
Attendance at Audit & Supervisory Committee meetings: NA^{*3}
Attendance at Nomination and Compensation Advisory Committee meetings: 2 of 2

^{*1}: Outside Director as provided for in the Article 2-15 of the Companies Act, and registered as Independent Director at the Financial Instruments Exchanges in Japan
^{*2}: Assumed the post on June 23, 2021
^{*3}: Assumed the post on June 23, 2022
^{*4}: Attendance at Board of Directors meetings as Director who is not an Audit & Supervisory Committee Member

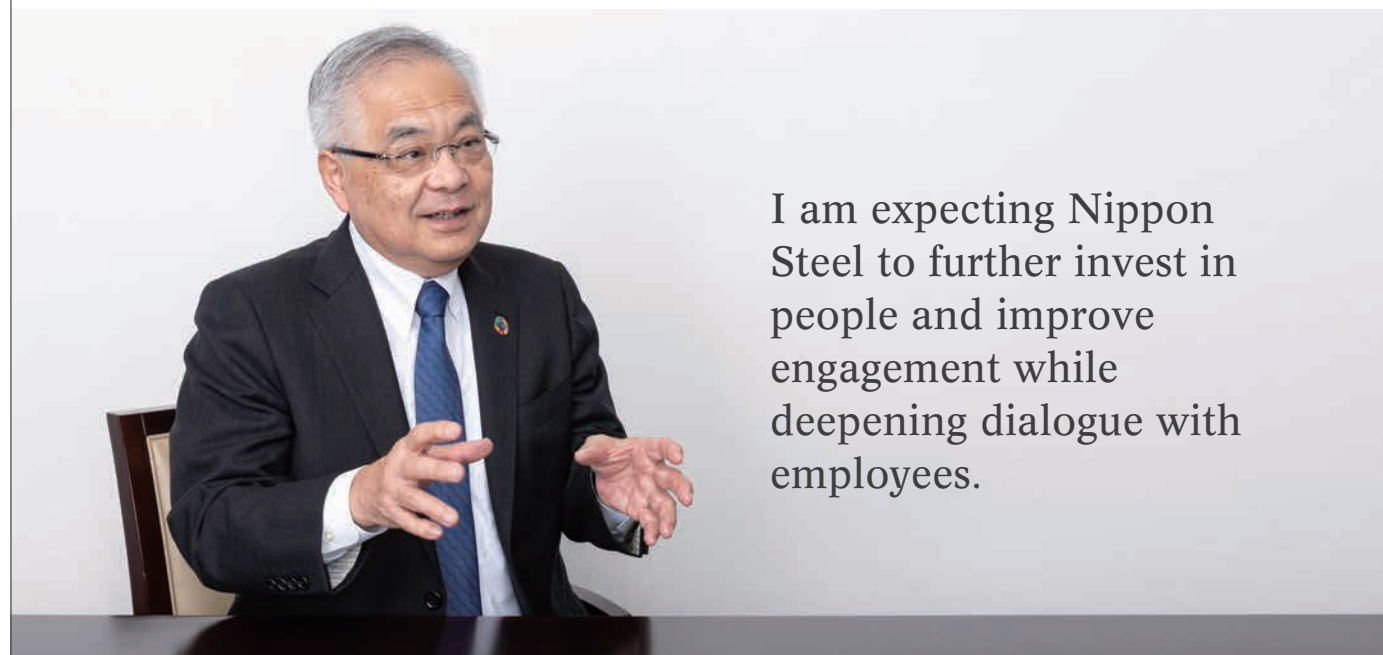
Skill Matrix of Directors

Nippon Steel believes that its Board of Directors, as a whole, must have the necessary skills and experience based on the Group's corporate philosophy and medium- to long-term management plan, etc. The main skills and experience possessed by each Director are as shown below.

Name	Position (Planned)	Corporate Planning / Business strategy	Finance / Accounting, Monetary / Economy	Personnel / Labor affairs / HR Development	Governance / Risk Management / Legal / Compliance	Technology / R&D	Sales / Purchas / Marketing	Global	Environment / Sustainability	Public Administration / Public Policy
Directors (excluding Directors who are Audit & Supervisory Committee Members)										
Kosei Shindo	Representative Director and Chairman	●		●	●				●	●
Eiji Hashimoto	Representative Director and President	●			●		●	●	●	
Akio Migita	Representative Director and Executive Vice President	●		●	●				●	
Naoki Sato	Representative Director and Executive Vice President				●				●	
Takahiro Mori	Representative Director and Executive Vice President	●	●				●	●		
Takashi Hirose	Representative Director and Executive Vice President	●					●	●		
Tadashi Imai	Managing Director	●			●	●			●	
Tetsuro Tomita	Director	●		●	●			●		
Kuniko Urano	Director			●	●				●	
Directors who are Audit & Supervisory Committee Members										
Shozo Furumoto	Senior Audit & Supervisory Committee Member (full-time)				●			●		●
Masayoshi Murase	Audit & Supervisory Committee Member (full-time)		●	●	●					
Seiichiro Azuma	Audit & Supervisory Committee Member		●		●			●		
Hiroshi Yoshikawa	Audit & Supervisory Committee Member		●		●			●		●
Masato Kitera	Senior Audit & Supervisory Committee Member			●	●			●		●

* The check marks indicate the main skills and experience (up to four in principle) possessed by each Director, based on their career history and experience.

Message from Outside Directors



I am expecting Nippon Steel to further invest in people and improve engagement while deepening dialogue with employees.

I was appointed as Outside Director of Nippon Steel in June 2020. I have previously been involved in management of JR East, which conformed to the perpetual mission of a social infrastructure company to constantly assure safety and reliable service for customers and local communities. At the same time, JR East focused on its “employees’ pursuit of infinite possibilities” to enable the company to achieve sustainable growth.

At Nippon Steel’s Board of Directors meetings and other meetings, I believe I am expected to speak up and give my views based on such a philosophy and experience.

In addition, I strive to convey my candid opinions, such as on the expected role of Nippon Steel, while maintaining the perspective of a citizen who enjoys the multifold benefits of the properties of iron.

I believe that the objective of corporate governance is to help improve corporate value through the accumulation of individual internal control systems.

From this perspective, I find Nippon Steel’s audit reports are not merely compliance, risk management, or negative checks, but are prepared with everyday awareness of the changes in the management environment and social mission of the Company in order to improve the corporate value. I found the reports clearly state the Company’s commitment to solving issues and checking progress in advancing its business. I therefore think that Nippon Steel is very well executing internal control and auditing.

Going forward, I am anticipating Nippon Steel to steadily advance its global strategies and structural reform of production to solve issues such as the long-term shrinking of domestic demand and the aging of facilities. I am also expecting the Company to take up the bold challenges presented by decarbonization, which is becoming increasingly important on a global scale.

The realization of carbon neutrality and Green Transformation or GX beyond that is not easy to accomplish, but precisely because of the high hurdles, I believe that this could become a powerful advantage in increasing Nippon Steel’s corporate value. Above all, the Company is expected to spearhead the revival of Japan as a world-leading nation of science and technology.

In order to strengthen competitiveness, which is also the challenges for Japanese society as a whole, it is essential to create new added value and improve labor productivity.

Along with the development of high-value-added products based on our R&D capabilities, and DX-driven business process innovation and production process innovation, the engagement of our employees is also indispensable. What matters in this regard is to make the employees not only feel comfortable but also for them to find their work meaningful and worthwhile. It will become increasingly important to develop an environment in which our employees can use their abilities and motivation, be able and willing to proactively contribute to their organization and assignment, and work to the fullest every day.

I look forward to Nippon Steel’s further investing in people and improving engagement while deepening dialogue with them.

The business environment is drastically changing in Japan and overseas. The shrinking labor population force in Japan, SDGs, ESG, and other changes in values, global economic stagnation partly driven by the COVID-19 pandemic, energy problems caused by risks in the international situation revolving around the Ukraine crisis, soaring resource prices, and the depreciation of the yen are among the changes we face today.

My impression of Nippon Steel is a company with the power to respond to these changes, and a company that is prepared and committed to responding to them.

I am convinced that this attitude will surely have positive effects on overcoming the management challenges.

In Japan, many companies have focused too much on immediate profits and dividends, which have led to short-term thinking and missed opportunities for future-looking growth.

As the realization of a sustainable and better society has become much stronger in importance, companies must move away from such an excessive shareholder-first mantra and take the initiative in solving a wide range of social issues, such as advancing technological innovation, research and development, and business structural reform.

In keeping with Nippon Steel’s vision of “pursuing world-leading technologies and contributing to the development of society through steelmaking,” I would like to do my best as an outside director to bring together to concentrate its entire group power by seamlessly merging the efforts of the management and employees, and take a leadership role in the revitalization of the Japanese economy.

Director **Tetsuro Tomita**



The proper status of the development and operation of internal control systems and accounting audits is an essential element for the infrastructure that supports all business activities, and is the basis for the promotion of the management plan.

I was appointed as Outside Director and Audit & Supervisory Committee Member of Nippon Steel in June 2020, after serving as its Outside Audit & Supervisory Board Member since 2016.

I understand that, from the fact that I have been involved in the auditing of public companies in all industries for many years, I am expected to play a role based on my experience in the areas of corporate accounting and internal control that supports it as well as risk management and governance.

The main duties of the Audit & Supervisory Committee Member are to audit the execution status of the of the duties of directors, and to confirm the status of the development and operation of the internal control system of the entire Group, and the methods and results of auditing of the financial statements and other related documents by accounting auditors.

In auditing of the development and operation of the internal control system, I and other Outside Directors and Audit & Supervisory Committee Members have regular meetings with each functional department to learn their status of risk management, including identification of significant risks and issues in the safety and health, environment and disaster prevention, and quality control. We also visit steelworks and other bases in Japan and overseas to make field surveys and understand their situation.

Safety, environment and disaster prevention are positioned as the top priority for our manufacturing worksites. In order to avoid disaster risk in the worksites and adhere to the “Six Safety Rules,” the “Activity to Reconsider the Six Rules” has been carried out. Specifically, employees extract high-risk work of their assigned job and have dialogues with their supervisor and others in their workplace.

This process of extracting risk of their own assignment makes these employees become convinced to see the risk issue as their own matter rather than somebody else’s matter, creating a virtuous cycle that enhances the safety in workplace.

I believe that this activity has led to the outstanding results of reducing the number of industrial accidents and the frequency rate in the industry, along with efforts to improve the overall sensitivity of each individual through dialogue for ensuring safety at each workplace level called the “toolbox meetings” (TBM).

These efforts may appear modest and simple but I firmly believe these efforts have greatly contributed to the more resilient operating base that supports the “restructuring of domestic steelmaking business and strengthening of group management” and the “promoting of a global strategy to deepen and expand overseas business”—two of the four pillars of the Medium- to Long-term Management Plan formulated in March 2021.

With regard to audit by accounting auditors, this may be considered as a black box, but this is an important system to ensure the credibility of our financial reporting in the capital market.

Fortunately, as I introduced myself at the beginning, I have sufficient knowledge and insight concerning the quality control system of auditing firms and the development and operation of overall corporate governance. I therefore play a role of facilitating smooth communication between the accounting auditors and the Audit & Supervisory Committee during meetings for reporting and discussion.

Under the Companies Act, the authority to select and dismiss accounting auditors belongs to the Audit & Supervisory Committee, but I believe that mutual trust and appropriate tensions need to be maintained between the parties.

Only when this relationship works effectively will the important goal of financial reporting reliability be secured. Fortunately, such proper relationships has been maintained between our Company and the accounting auditors, in my view.

The adequacy of both the status of the development and operation of the internal control system and the accounting audits of financial and related documents are fairly low-key themes. Nevertheless, they play a role in the infrastructure that supports all business activities, and they are also the foundation for promoting medium- to long-term management plans.

Even from this perspective, I am committed to performing my duties so that my role as Outside Director and Audit & Supervisory Committee Member can contribute as a part of the corporate governance system to the sound and sustainable growth of the Nippon Steel Group and to the improvement of its corporate value over the medium to long term.

Director (Audit & Supervisory Committee Member)
Seiichiro Azuma

Financial information

11-Year Financial Performance

		JGAAP							
FY		2010	2011	2012*6	2013	2014	2015	2016	2017
Operating Results (End of fiscal year) <Millions of yen>									
Net sales	Nippon Steel*1	4,109,774	4,090,936	4,389,922	5,516,180	5,610,030	4,907,429	4,632,890	5,668,663
	Sumitomo Metals	1,402,454	1,473,367	693,601	—	—	—	—	—
Ordinary profit (loss)	Nippon Steel	226,335	143,006	76,931	361,097	451,747	200,929	174,531	297,541
	Sumitomo Metals	34,049	60,803	10,815	—	—	—	—	—
Profit (loss) before income taxes	Nippon Steel	185,377	120,053	(136,970)	399,147	376,188	230,778	181,692	289,860
	Sumitomo Metals	(27,991)	(51,251)	(134,831)	—	—	—	—	—
Profit (loss) attributable to owners of parent	Nippon Steel	93,199	58,471	(124,567)	242,753	214,293	145,419	130,946	195,061
	Sumitomo Metals	(7,144)	(53,799)	(133,849)	—	—	—	—	—
Capital expenditure*2	Nippon Steel	287,236	281,748	355,873	257,019	304,389	304,643	351,038	411,930
	Sumitomo Metals	109,934	115,797	N.A.	—	—	—	—	—
Depreciation and amortization*3	Nippon Steel	291,587	280,940	288,770	331,801	320,046	308,276	304,751	340,719
	Sumitomo Metals	126,267	122,937	49,757	—	—	—	—	—
Research and development costs	Nippon Steel	46,663	48,175	60,071	64,437	62,966	68,493	69,110	73,083
	Sumitomo Metals	22,783	22,842	N.A.	—	—	—	—	—
Financial Position (End of fiscal year) <Millions of yen>									
Total assets	Nippon Steel	5,000,860	4,924,711	7,089,498	7,082,288	7,157,929	6,425,043	7,261,923	7,592,413
	Sumitomo Metals	2,440,761	2,386,158	—	—	—	—	—	—
Shareholders' equity*4	Nippon Steel	1,860,799	1,828,902	2,394,069	2,683,659	2,978,696	2,773,822	2,948,232	3,145,450
	Sumitomo Metals	766,777	709,315	—	—	—	—	—	—
Total net assets*4	Nippon Steel	2,380,925	2,347,343	2,938,283	3,237,995	3,547,059	3,009,075	3,291,015	3,515,501
	Sumitomo Metals	818,080	761,484	—	—	—	—	—	—
Interest-bearing debt*5	Nippon Steel	1,337,851	1,334,512	2,543,061	2,296,326	1,976,591	2,008,263	2,104,842	2,068,996
	Sumitomo Metals	1,173,382	1,172,120	—	—	—	—	—	—
Cash Flows (End of fiscal year) <Millions of yen>									
Cash flows from operating activities	Nippon Steel	369,500	237,414	313,317	574,767	710,998	562,956	484,288	458,846
	Sumitomo Metals	202,340	88,065	N.A.	—	—	—	—	—
Cash flows from investing activities	Nippon Steel	(325,781)	(226,096)	(327,336)	(196,856)	(263,667)	(242,204)	(343,738)	(353,419)
	Sumitomo Metals	(144,009)	(120,110)	N.A.	—	—	—	—	—
Cash flows from financing activities	Nippon Steel	(47,244)	(31,785)	33,332	(367,115)	(451,843)	(337,555)	(135,054)	(89,190)
	Sumitomo Metals	(1,325)	(32,714)	N.A.	—	—	—	—	—
Amounts per Share of Common Stock*7,*8 <yen>									
Profit (loss) attributable to owners of parent per share	Nippon Steel	14.81	9.29	(16.23)	26.67	23.48	158.71*8	147.96	221.00
	Sumitomo Metals	(1.54)	(11.61)	—	—	—	—	—	—
Cash dividends per share	Nippon Steel	3.0	2.5	1.0	5.0	5.5	45.0*9	45	70
	Sumitomo Metals	3.5	2.0	—	—	—	—	—	—

*1 Up to September 2012 for Nippon Steel; October 2012 to March 2019 for Nippon Steel & Sumitomo Metal (NSSMC) ; from April 2019 for Nippon Steel
*2 Only for "Tangible fixed assets," construction base
*3 The amounts stated for "Sumitomo Metals" for fiscal 2011 and before are only for "Tangible fixed assets." The amounts stated for "Nippon Steel" and the amounts for "Sumitomo Metals" for the first half of fiscal 2012 (April 1 to September 30) include "Intangible fixed assets" excluding "Goodwill."
*4 "Shareholders' equity" stated here is the sum of "Shareholders' equity" as stated in the balance sheet and "Accumulated other comprehensive income." The difference between "Shareholders' equity" and "Total net assets" is "Non-controlling interests in consolidated subsidiaries."
*5 The amounts of "Outstanding borrowings" (the sum of "Borrowings," "Corporate bonds," and "Commercial paper") are stated.

*6 The amounts stated for "Nippon Steel" for fiscal 2012 are the sum of Nippon Steel's amounts for the first half (April 1 to September 30) of fiscal 2012 and NSSMC's amounts for the second half (October 1 to March 31) of fiscal 2012. The amounts stated for "Sumitomo Metals" for fiscal 2012 are Sumitomo Metals' amounts for the first half (April 1 to September 30) of fiscal 2012.
*7 On October 1, 2015, NSSMC performed a 1-for-10 share consolidation.
*8 Profit attributable to owners of parent per share for fiscal 2015 is calculated assuming the 1-for-10 share consolidation was performed at the beginning of the year.
*9 The interim dividend for fiscal 2015 would be converted into ¥30 based on this share consolidation, and after adding the fiscal 2015 year-end dividend of ¥15 the annual dividend for fiscal 2015 works out to be ¥45 per share.
Figures in parentheses indicate negative figures.

IFRS				
	2018	2019	2020	2021
Operating Results (End of fiscal year) <Millions of yen>				
Revenue	6,177,947	5,921,525	4,829,272	6,808,890
Business profit	336,941	(284,417)	110,046	938,130
Profit before income tax	248,769	(423,572)	(8,656)	816,583
Profit for the year attributable to owners of parent	251,169	(431,513)	(32,432)	637,321
Capital expenditure	440,830	481,310	474,489	407,448
Depreciation and amortization	408,616	417,339	290,863	330,611
Research and development costs	72,043	77,691	65,336	66,431
Financial Position (End of fiscal year) <Millions of yen>				
Total assets	8,049,528	7,444,965	7,573,946	8,752,346
Total equity attributable to owners of parent	3,230,788	2,641,618	2,759,996	3,466,799
Total equity	3,607,367	2,996,631	3,131,387	3,897,008
Interest-bearing debt	2,369,231	2,488,741	2,559,232	2,653,396
Cash Flows (End of fiscal year) <Millions of yen>				
Cash flows from operating activities	452,341	494,330	403,185	615,635
Cash flows from investing activities	(381,805)	(345,627)	(389,035)	(378,866)
Cash flows from financing activities	(42,900)	(14,582)	52,694	(61,304)
Amounts per Share of Common Stock <yen>				
Basic earnings per share	281.77	(468.74)	(35.22)	692.16
Cash dividends per share	80	10	10	160

Financial information

11-Year Financial Performance

		JGAAP								
FY		2010	2011	2012*8	2013	2014	2015	2016	2017	
Financial Indices										
Return on sales ([(Ordinary profit / Net sales) x 100])	Nippon Steel*1 Sumitomo Metals	5.5% 2.4%	3.5% 4.1%	1.8% —	6.5% —	8.1% —	4.1% —	3.8% —	5.2% —	
Return on equity ([Profit attributable to owners of parent / Shareholders' equity [average for the period]] x 100)	Nippon Steel Sumitomo Metals	5.0% (0.9%)	3.2% (7.3%)	(5.9%) —	9.6% —	7.6% —	5.1% —	4.6% —	6.4% —	
Shareholders' equity ratio ([Shareholders' equity / Total assets] x 100)	Nippon Steel Sumitomo Metals	37.2% 31.4%	37.1% 29.7%	33.8% —	37.9% —	41.6% —	43.2% —	40.6% —	41.4% —	
Number of shares issued as of end of period*2 <In thousands>	Nippon Steel Sumitomo Metals	6,806,980 4,805,974	6,806,980 4,805,974	9,503,214 —	9,503,214 —	9,503,214 —	950,321 —	950,321 —	950,321 —	
Share price at end of period*2 <Yen>	Nippon Steel Sumitomo Metals	266.0 186.0	227.0 167.0	235.0 —	282.0 —	302.5 —	2,162.0 —	2,565.0 —	2,336.5 —	
Net Sales by Industry Segment*3 <Millions of yen>										
Steelmaking and steel fabrication		3,473,495	3,476,855	3,790,450	4,877,909	4,939,239	4,283,923	4,052,261	5,017,245	
Engineering and construction		254,941	248,934	303,002	314,174	348,699	315,727	267,545	294,268	
Urban development		86,556	80,419	—	—	—	—	—	—	
Chemicals		193,896	197,669	195,719	230,130	212,777	181,823	174,227	200,767	
New materials		60,888	54,245	42,211	37,241	36,449	36,280	34,519	37,050	
System solutions		159,708	161,582	171,980	179,856	206,032	218,941	232,512	244,200	
Elimination of inter-segment transactions		(119,711)	(128,769)	(113,442)	(123,132)	(133,168)	(129,267)	(128,175)	(124,868)	
Segment Profit (Loss)*3 <Millions of yen>										
Steelmaking and steel fabrication		181,968	98,846	41,522	321,287	401,987	160,088	138,017	245,708	
Engineering and construction		14,883	12,775	18,189	17,702	18,758	12,163	6,838	9,110	
Urban development		9,273	9,371	—	—	—	—	—	—	
Chemicals		13,244	13,598	9,778	10,057	6,898	1,093	4,518	15,480	
New materials		2,111	607	984	1,391	2,482	3,073	1,786	1,919	
System solutions		11,332	11,215	11,673	12,760	16,565	19,493	22,113	23,292	
Elimination of inter-segment transactions		(6,478)	(3,408)	(5,217)	(2,101)	5,053	5,017	1,256	2,030	
Non-Financial Performance										
Crude steel production <Ten thousands of tons>	Nippon Steel (Consolidated)	3,492	3,244	4,603	4,816	4,732	4,453	4,517	4,682	
	Nippon Steel (Non-consolidated)*4	3,246	3,020	4,355	4,567	4,496	4,217	4,262	4,067	
	Sumitomo Metals (Non-consolidated)*5	1,290	1,272	—	—	—	—	—	—	
Steel products shipments (Non-consolidated) <Ten thousands of tons>	Nippon Steel	3,135	2,909	4,097	4,202	4,188	3,962	3,978	3,779	
	Sumitomo Metals*6	1,172	1,124	—	—	—	—	—	—	
Average steel selling price (Non-consolidated) <Thousands of yen per ton>	Nippon Steel	81.7	86.2	80.1	86.0	87.2	77.1	72.6	84.7	
	Sumitomo Metals*6	94.2	103.5	—	—	—	—	—	—	
Export ratio (Value basis, non-consolidated)*7 <%>	Nippon Steel	40%	39%	44%	46%	47%	45%	42%	41%	
	Sumitomo Metals*6	42%	41%	—	—	—	—	—	—	
Number of employees (Consolidated)	Nippon Steel	59,183	60,508	83,187	84,361	84,447	84,837	92,309	93,557	
	Sumitomo Metals	22,597	23,007	—	—	—	—	—	—	

*1 Up to September 2012 for Nippon Steel; October 2012 to March 2019 for Nippon Steel & Sumitomo Metal (NSSMC) ; from April 2019 for Nippon Steel
*2 On October 1, 2015, NSSMC performed a 1-for-10 share consolidation.
*3 Figures for fiscal 2012 and earlier are for Nippon Steel. Figures in parentheses indicate either negative figures or elimination. Following the business integration of Nippon Steel City Produce, Inc. and Kowa Real Estate Co., Ltd. on October 1, 2012, the business segment classification has been changed to include the results for "Urban development" in "Elimination of inter-segment transactions" for "Net sales by segment" and "Profit (loss) by segment" from fiscal 2012.
*4 "Crude steel production" of Nippon Steel from October 2012 to March 2018 includes that of Nippon Steel & Sumikin Koutetsu Wakayama Corporation.
*5 "Crude steel production" of Sumitomo Metals includes those of Sumitomo Metals (Kokura), Ltd. (merged with Sumitomo Metals on January 1, 2012) and of Sumikin Iron & Steel Corporation.

*6 "Steel products shipments," "Average steel selling price," and "Export ratio" of Sumitomo Metals include those of Sumitomo Metals (Kokura), Ltd. (merged with Sumitomo Metals on January 1, 2012), Sumitomo Metals (Naoetsu), Ltd. (merged with Sumitomo Metals on January 1, 2012), and Sumikin Iron & Steel Corporation.
*7 "Export ratio" of Nippon Steel indicates the ratios of exports to total steel sales. "Export ratio" of Sumitomo Metals indicates the ratios of exports to total net sales.
*8 The amounts of "Sales," "Ordinary profit," and "Net income" used to calculate "Return on sales (ROS)" and "Return on equity (ROE)" are the sum of Nippon Steel's amounts for the first half (April 1 to September 30) of fiscal 2012 and NSSMC's amounts for the second half (October 1 to March 31) of fiscal 2012. "Crude steel production" and "Steel products shipments" for fiscal 2012 are the sum of Nippon Steel's amount for the first half, Sumitomo Metals' amount for the first half, and NSSMC's amount for the second half. At the first half of fiscal 2012, NSSMC's "Average steel selling price" and "Export ratio" are the weighted average of Nippon Steel and Sumitomo Metals.
Figures in parentheses indicate negative figures.

IFRS				
	2018	2019	2020	2021
Financial Indices				
Return on sales	5.5%	(4.8%)	2.3%	13.8%
Return on equity	7.9%	(14.7%)	(1.2%)	20.5%
Ratio of total equity attributable to owners of parent	40.1%	35.5%	36.4%	39.6%
Number of shares issued as of end of period	950,321	950,321	950,321	950,321
Share price at end of period	1,954.0	925.4	1,886.5	2,171.0
Segment revenue <Millions of yen>				
Steelmaking and steel fabrication	5,454,536	5,257,344	4,228,449	6,153,632
Engineering and construction	356,707	340,404	324,468	279,260
Chemicals	247,067	215,733	178,678	249,816
System solutions	267,503	273,294	252,476	271,325
Elimination of inter-segment transactions	(147,867)	(165,251)	(154,799)	(145,144)
Segment profit <Millions of yen>				
Steelmaking and steel fabrication	274,672	(325,341)	63,522	871,051
Engineering and construction	9,474	10,717	17,708	6,302
Chemicals	25,095	18,477	7,631	25,377
System solutions	26,576	26,162	23,948	30,859
Elimination of inter-segment transactions	1,122	(14,433)	(2,764)	4,539
Non-Financial Performance				
Crude steel production (Consolidated)	4,784	4,705	3,765	4,446
Crude steel production (Non-consolidated)	4,100	3,954	3,300	3,868
Steel products shipments (Non-consolidated) <Ten thousands of tons>	3,797	3,631	3,122	3,556
Average steel selling price (Non-consolidated) <Thousands of yen per ton>	89.9	87.3	86.1	117.7
Export ratio (Value basis, non-consolidated)	40%	40%	36%	42%
Number of employees (Consolidated)	105,796	106,599	106,226	106,528

Financial information

Consolidated Statements of Financial Position

	(Millions of yen)	
	March 31, 2021	March 31, 2022
ASSETS		
Current assets		
Cash and cash equivalents	359,465	551,049
Trade and other receivables	805,306	939,406
Inventories	1,349,355	1,756,589
Other financial assets	27,772	41,357
Other current assets	130,786	226,253
Total current assets	2,672,686	3,514,655
Non-current assets		
Property, plant and equipment	2,954,938	3,052,640
Right-of-use assets	88,559	78,162
Goodwill	46,341	61,741
Intangible assets	95,826	130,497
Investments accounted for using the equity method	817,328	1,079,068
Other financial assets	628,226	548,283
Defined benefit assets	110,396	123,563
Deferred tax assets	153,123	158,031
Other non-current assets	6,519	5,701
Total non-current assets	4,901,260	5,237,691
Total assets	7,573,946	8,752,346
LIABILITIES AND EQUITY		
Liabilities		
Current liabilities		
Trade and other payables	1,382,761	1,526,719
Bonds, borrowings and lease liabilities	308,985	344,056
Other financial liabilities	1,250	1,042
Income taxes payable	24,256	109,958
Other current liabilities	54,077	36,852
Total current liabilities	1,771,331	2,018,630
Non-current liabilities		
Bonds, borrowings and lease liabilities	2,250,246	2,309,339
Other financial liabilities	4,784	1,207
Defined benefit liabilities	189,453	188,350
Deferred tax liabilities	37,385	39,805
Other non-current liabilities	189,358	298,005
Total non-current liabilities	2,671,228	2,836,707
Total liabilities	4,442,559	4,855,337
Equity		
Common stock	419,524	419,524
Capital surplus	393,168	393,547
Retained earnings	1,910,333	2,514,775
Treasury stock	(58,342)	(57,977)
Other components of equity	95,311	196,928
Total equity attributable to owners of the parent	2,759,996	3,466,799
Non-controlling interests	371,390	430,209
Total equity	3,131,387	3,897,008
Total liabilities and equity	7,573,946	8,752,346

Consolidated Statements of Profit or Loss

	(Millions of yen)	
	Fiscal 2020	Fiscal 2021
Revenue	4,829,272	6,808,890
Cost of sales	(4,263,940)	(5,587,331)
Gross profit	565,332	1,221,559
Selling, general and administrative expenses	(469,133)	(544,725)
Share of profit in investments accounted for using the equity method	55,220	214,480
Other operating income	49,710	128,417
Other operating expenses	(91,083)	(81,601)
Business profit (loss)	110,046	938,130
Losses on reorganization	(98,665)	(97,229)
Operating profit (loss)	11,381	840,901
Finance income	5,367	1,928
Finance costs	(25,404)	(26,245)
Profit (loss) before income taxes	(8,656)	816,583
Income tax expense	(10,671)	(149,052)
Profit (loss) for the year	(19,327)	667,530
Profit (loss) for the year attributable to		
Owners of the parent	(32,432)	637,321
Non-controlling interests	13,105	30,209
Profit (loss) for the year	(19,327)	667,530
Earnings (loss) per share		
Basic earnings (loss) per share (Yen)	(35.22)	692.16

Consolidated Statements of Comprehensive Income or Loss

	(Millions of yen)	
	Fiscal 2020	Fiscal 2021
Profit (loss) for the year	(19,327)	667,530
Other comprehensive income		
Items that cannot be reclassified to profit or loss		
Changes in fair value of financial assets measured at fair value through other comprehensive income	125,471	(7,962)
Remeasurements of defined benefit plans	42,307	14,324
Share of other comprehensive income of investments accounted for using the equity method	10,062	5,293
Subtotal	177,841	11,655
Items that might be reclassified to profit or loss		
Changes in fair value of cash flow hedges	5,029	11,995
Foreign exchange differences on translation of foreign operations	2,752	56,497
Share of other comprehensive income of investments accounted for using the equity method	(23,062)	68,663
Subtotal	(15,280)	137,156
Total other comprehensive income, net of tax	162,561	148,811
Comprehensive income for the year attributable to:		
Owners of the parent	119,451	779,815
Non-controlling interests	23,781	36,526
Total comprehensive income for the year	143,233	816,342

Investor Information

Total Shareholder Return, Stock Price and Market Cap, and Strategic Shareholdings

	FY	2017	2018	2019	2020	2021
Total shareholder return (TSR) (%) ^{*1}		93.8	82.0	42.3	80.2	97.5
(Comparative indicator: Dividend-included TOPIX; %)		(115.9)	(110.0)	(99.6)	(141.5)	(144.3)
Highest share price (¥) ^{*2}		3,132.0	2,527.0	2,081.0	1,954.0	2,381.0
Lowest share price (¥) ^{*2}		2,228.0	1,794.0	857.0	798.1	1,690.5
Market cap (fiscal year end; ¥ billion)		2,220.4	1,856.9	879.4	1,792.8	2,063.1
Strategic shareholding : Number of issues recorded amount		361	345	308	301	284
Amount reported on the balance sheet (¥ billion)		635.9	464.8	237.8	262.6	255.9
Nikkei Stock Average (fiscal year end; ¥)		21,454.30	21,205.81	18,917.01	29,178.80	27,821.43

^{*1}: Total shareholder return is obtained by dividing return (dividend and capital gains) from stock investment by the invested amount (stock price). Calculated based on Cabinet Office Order on Disclosure of Corporate Affairs.
TSR = (Stock price at end of each fiscal year + Cumulative per-share dividends paid since FY2017/ Price at the end of FY2016
^{*2}: TOPIX tracks all domestic companies listed in the First Section of the Tokyo Stock Exchange.

Investor Information (As of March 31, 2022)

Head Office

2-6-1, Marunouchi, Chiyoda-ku,
Tokyo 100-8071, Japan
Phone: +81-3-6867-4111
URL: <https://www.nipponsteel.com/en/>

Inception

April 1, 1950

Common Stock

¥419,524 million

Stock Code

5401

Common Shares (Issued)

950,321,402 shares

Common Shares (Authorized)

2,000,000,000 shares

Number of Shareholders

466,270

Listings

Tokyo Stock Exchange
Nagoya Stock Exchange
Fukuoka Stock Exchange
Sapporo Securities Exchange

ADR Information

Type: Sponsored Level-1 ADR program
Trading market: OTC (Over-the-counter)
ADR ratio: 1 ADR:1 Share of common stock
Ticker symbol: NPSCY
CUSIP number: 65461T101
Depository Bank: The Bank of New York Mellon
Contact for inquiries regarding our ADR program:
BNYMellon Shareowner Services
P. O. Box 505000 Louisville, KY 40233-5000, USA
U.S. toll Free : 888-BNY-ADRS (888-269-2377)
International Callers : +1-201-680-6825
Email: shrrelations@cpushareownerservices.com
Website: <https://www.adrbnymellon.com/>

Registration Agent

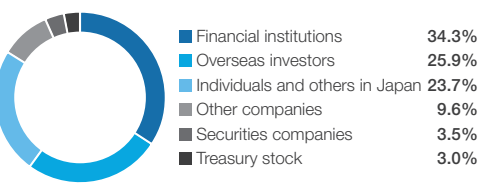
Sumitomo Mitsui Trust Bank, Limited
1-4-1, Marunouchi, Chiyoda-ku,
Tokyo 100-0005, Japan
Phone inquiries 0120-785-401
(Toll-free for domestic phone calls only)
+81-3-3323-7111 (Outside Japan)

Number of Shares per Trading Unit

100 shares

Share Ownership by Category

Ratio of shares held to the total number of common shares (issued)



Principal Shareholders

Name	Shares owned (Thousands)	Shareholding ratio (%) [*]
The Master Trust Bank of Japan, Ltd. (Trust Account)	137,277	14.9
Custody Bank of Japan, Ltd. (Trust Account)	49,772	5.4
Nippon Life Insurance Company	21,465	2.3
STATE STREET BANK WEST CLIENT – TREATY 505234	16,061	1.7
Meiji Yasuda Life Insurance Company	14,064	1.5
Mizuho Bank, Ltd.	12,199	1.3
Nippon Steel Group Employee Shareholding Association	11,245	1.2
JP MORGAN CHASE BANK 385781	10,472	1.1
J.P. Morgan Securities Co., Ltd.	10,433	1.1
Sumitomo Mitsui Banking Corporation	10,252	1.1

^{*} The shareholding ratio is calculated after treasury stock owned by Nippon Steel Corporation is excluded from the number of common shares (issued).

Overview of corporate communication tools



Corporate Website

The website comprehensively describes the nature of company operations, general aspects of the company, IR information, hiring information, and ESG information.

<https://www.nipponsteel.com/en/index.html>



Integrated Report

This report conveys overall business and management information to investors.

https://www.nipponsteel.com/en/ir/library/annual_report.html



Sustainability Report

This report describes Nippon Steel's Environmental, Social, and Governance initiatives.

<https://www.nipponsteel.com/en/csr/report/>

Various reports for investors

- Basic Facts About Nippon Steel
- Financial Results Summary
- Annual Securities Report
- Corporate Governance Report
- Documents related to the General Meeting of Shareholders, etc.

Disclaimer regarding the Integrated Report 2022

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