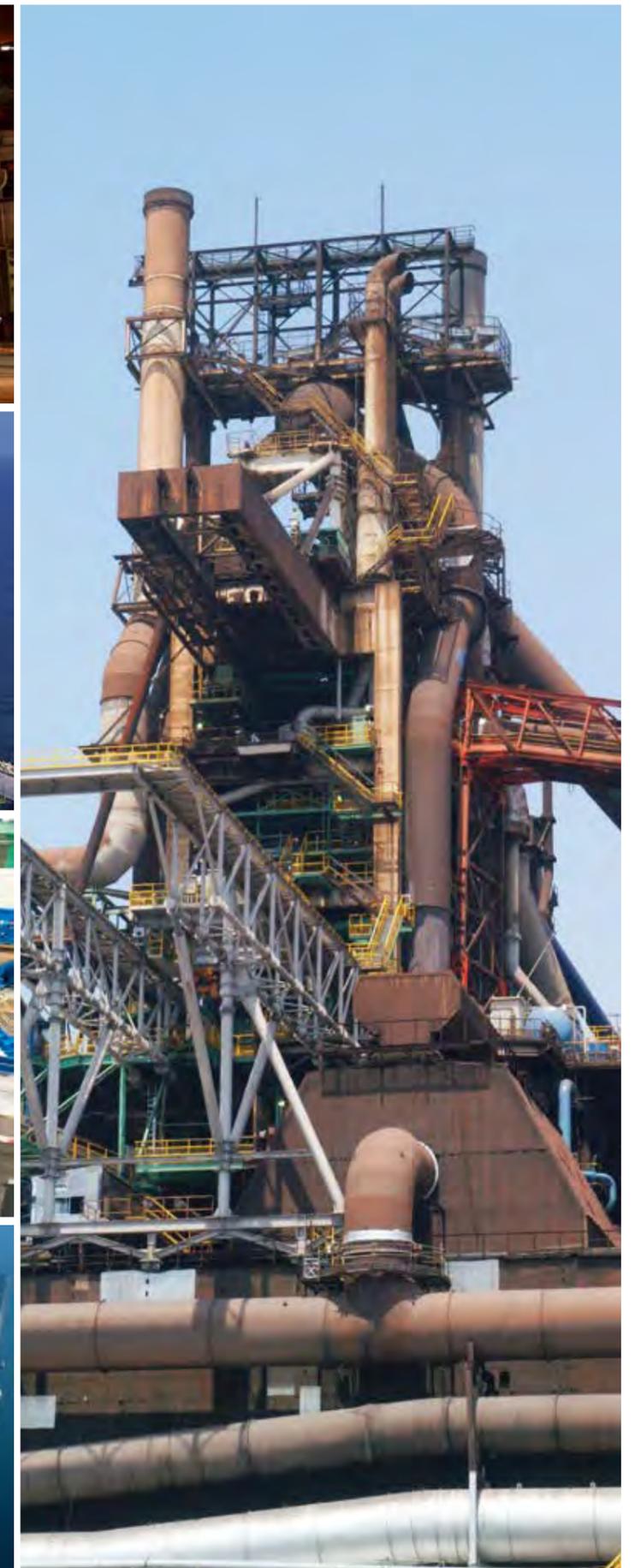


# 2. Strategy to Create Value

Message from the CEO .....	19
Seventh Medium-term Business Plan (FY2021–2024) .....	25
Message from the CFO .....	27
<b>Special Feature</b> JFE Group Environmental Vision for 2050 .....	29
<b>Business Strategies</b> Business Model (Steel Business and Trading Business) .....	35
Business Model (Engineering Business) .....	37
Business Overview: Steel Business .....	39
Business Overview: Engineering Business .....	43
Business Overview: Trading Business .....	47
Business Overview: Shipbuilding Business .....	50
Dialogue with Outside Executives .....	51
Key Issues for Management of the JFE Group (Materiality)	
Fiscal 2021 Key Issues for Management and KPIs .....	57
Fiscal 2020 KPI Outcomes and Evaluations for Priority CSR Issues .....	59



## Aiming to change itself for the sake of our planet's future, JFE is taking on the greatest challenge since its founding.

JFE is engaged in worldwide business centered around the production of steel. It is also involved in engineering activities for the construction of safer and more convenient world with steel, and global trading activities to create value in diverse ways.

What I would like to tell our stakeholders at first is that steel products will support human life and will continue to be an indispensable material for industrial and social development in the future. As economies expand in emerging countries, especially in Asia, demand will continue to strengthen for automobiles, buildings, infrastructure, cargo ships, and containers. There is no substitute for steel. Also, considering the growing concern for climate change, the environmental load of steel is lower than that of many other materials. Furthermore, it can be easily recycled and endlessly turned into new products while maintaining high quality. I am confident that the superiority of steel as a material will remain unchallenged long into the future.

People expect JFE to contribute to industrial and societal development with high-performance materials that help the world become carbon neutral as well as support human life. Such materials include high-tensile steel for extra-light automobiles, high-performance electrical steel for electric vehicle (EV) motors, and high-strength steel plate for large container ships.

Meanwhile, societal and economic conditions are changing faster than ever before, including competition from emerging Chinese steelmakers, the necessity to address climate change, and the seemingly unending COVID-19 pandemic.

Our mission is to become an indispensable company for a sustainable development of society and the assurance of safe and comfortable human life by adapting to these changes. To fulfill this mission, we aim to improve our corporate value and sustain our growth over the medium to long term by securing our own sustainability (stable earnings power) as well as the sustainable development of society and the environment.

### Koji Kakigi

President and CEO  
JFE Holdings, Inc.



### Review of the Sixth Medium-term Business Plan

During our Sixth Medium-term Business Plan (fiscal 2018–2020) we experienced extreme change in our business environment, well beyond what was anticipated when we formulated the plan, including the global pandemic and intense trade friction between the U.S. and China.

In the first half of fiscal 2020, the global pandemic sharply curtailed the production activities of major customers. The demand for steel products fell an unprecedented 30% between April and June. Even a 10% drop in production volume is extremely serious, so the degree of decline this time was even worse than what we experienced during the 2008 financial crisis. Thanks to our emergency measures

and a global economic rebound in the second half, our earnings returned to the black, but it was not enough to fully offset our first-half loss. As a result, we were unable to turn a profit for the full year.

Losses in both fiscal 2019 and 2020 prevented JFE from achieving its key financial and earnings targets under the Sixth Medium-term Business Plan, for which I express my deepest apologies to our stakeholders. In fiscal 2021, however, we expect to see major improvement in earnings in our steel business and year-on-year profit growth in our engineering and trading businesses. We now expect consolidated business profit to greatly exceed our initial forecast.

The business environment was very challenging during the period of our previous plan. Our steel business responded with advanced digital transformation (DX) initiatives and capital investments to upgrade production bases, which led to fewer production problems and smoother repairs. Due to structural changes in the business, in March 2020 we decided to strategically restructure and consolidate the steel business as the first step toward creating a more robust corporate structure. Meanwhile, the engineering

business continued to generate stable earnings despite the pandemic, demonstrating its resilience. Initiatives and outcomes realized under the previous plan now form a vital foundation for our sustained growth into the future.

## Seventh Medium-term Business Plan: Stable Earnings Foundation and Carbon Neutrality

### Strong Efforts to Become Carbon Neutral

At a time when the business environment is undergoing sudden and significant change, there is a rapidly growing sense of crisis regarding global climate change. It is imperative that we take collective action to protect our environment for future generations.

Making steel in blast furnaces is best suited to producing large volumes of high-quality, high-performance products, but this results in CO<sub>2</sub> emissions. JFE views climate change as a crucial issue of its business continuity, so in September 2020, ahead of the Japanese government, we announced our 2030 and 2050 targets for reducing CO<sub>2</sub> emissions.

Our new Seventh Medium-term Business Plan includes the JFE Group Environmental Vision for 2050, which outlines specific initiatives to reduce CO<sub>2</sub> emissions in an effort to become carbon neutral—the end goal—by 2050. We have formulated practical steps aimed at cutting CO<sub>2</sub> emissions by 18% in our steel business as of fiscal 2024, the final year of the current plan. This would put us within reach of achieving our goal of reducing CO<sub>2</sub> emissions by 20% or more by fiscal 2030, as announced last year. During the current plan, we expect to announce updated initiatives for attaining our fiscal 2030 target, including our development of advanced new technologies.

To become carbon neutral by 2050, we aim to establish ultra-innovative technologies as quickly as possible, ahead

of competitors. This will include proprietary technology for carbon recycling blast furnaces, which would allow us to convert existing production facilities into carbon-recycling facilities. If this technology is commercialized, we expect that it will reduce CO<sub>2</sub> emissions by at least 30% in individual single blast furnaces, and carbon neutrality can be realized by combining with Carbon Capture, Utilization and Storage (CCUS). We aim to complete proof-of-principle process by 2027 to ensure the feasibility of this technology. But since no single proven method for becoming carbon neutral has been discovered yet, we plan to explore a range of potential technologies, such as hydrogen-based steelmaking (direct reduction), ferro coke, and the combined use of technologies including electric furnaces.

The development of steelmaking technologies that do not emit CO<sub>2</sub> during production would be a difficult task for a single private company to achieve, in my opinion. This is why we believe that government assistance and collaboration with society will be necessary, including the creation of a framework for society to bear the projected huge increases in costs for R&D, investment in prototypes, and procuring green hydrogen and electricity. Through enhanced coordination with society we hope to achieve carbon neutrality by 2050.

▶ For details, please refer to page 29.

### Carbon Neutrality as a Business Opportunity

As we develop diverse businesses and leverage our unique technologies, we intend to expand operations in unique ways based on the view that the accelerating worldwide movement toward carbon neutrality is a business opportunity.

For example, in the engineering business, we will expand our business to construct environmental plants such as renewable energy plants with expectation of contributing to lowering CO<sub>2</sub> emissions in the society by 12 million tons as of fiscal 2024 and 25 million tons as of fiscal 2030.

JFE was the first company in Japan to commercialize the production of monopiles needed to secure offshore wind power turbines to the seabed. I have long sought to expand JFE businesses that maximize our group synergies, and the monopile business is one such example. JFE Engineering will

produce the monopiles, JFE Steel will supply the heaviest steel plate available in Asia, and JFE Shoji will handle distribution and steel processing. Furthermore, other companies in our group will help to maintain structural components and our equity-method affiliate, Japan Marine United, is looking for a business opportunity to build the required work vessels and floating wind power plants.

Offshore wind power generation will be a key to expanding renewable energy in Japan, which is why the Japanese government has set medium- and long-term targets for rolling out wind power and raising the domestic procurement ratio. After solidifying our operational base in Japan, we aim to expand this business throughout Asia.

▶ For details, please refer to page 34.

### Pursuing World-class Earnings Power

The medium- to long-term outlook for JFE's core steel business is inevitably impacted by conditions in Japan, traditionally JFE's main market, where the domestic population is continuing to decline in size. Overseas, meanwhile, it will be hard to expand export volume without sacrificing profitability in light of increasing price competition for commodity steel products and the shift to local production for local consumption. To give JFE the best chance to achieve sustainable growth, overcome global competition, and suitably address climate change, our current plan dramatically repositions our business focus by pivoting toward quality (profit per ton of steel shipment) and away from quantity (tons of steel produced).

We have focused on producing high value-added products for many years, and at the same time, we aimed to increase production and sales volume of between 40 million and 50 million tons under the JFE brand in the previous medium-term business plan. The thinking was that it would be impossible to generate earnings reliably unless we were among the world's top 10 steelmakers in terms of output. But the fact is that companies with large production capacity are not necessarily profitable. I think business model has been changed due to structural changes in the business environment. Therefore, for our new business plan, I decided that creating a business structure capable of reliably generating profits was more important than expanding our output.

During the current plan, JFE will concentrate strategically on priority fields (automobiles, energy, construction materials, and infrastructure) and reducing fixed costs through structural reforms, rather than attempt to grow earnings by increasing domestic production. We also aim to reconstitute



prices for steel by overhauling our selling prices and by talking with our customers about appropriate pricing. Additionally, we plan to offer a more advanced product mix and will continue to cut costs through our application of new DX technology.

The phrase "the most transformative period in company's history" contained in the current plan expresses our strong determination to achieve world-class earnings power by pivoting away from our previous pursuit of volume-based growth. Ultimately, we aim to establish a robust earnings foundation to lock in a profit of 10,000 yen per ton of steel through our disciplined pursuit of quality.

▶ For details, please refer to page 41.

### Growth Strategy Centering on Overseas Steel Business and Engineering Business

To drive the overall growth of our entire group, we aim to expand the scale of our overseas steel business and also our engineering business in the environmental and recycling fields.

We have two main business models for our overseas steel business. The first one, our vertically integrated business model, entails supplying semi-processed steel sheets from Japan and providing processed materials to the local customers in overseas markets. The second one, our "insider business" model, calls for investing in leading, reliable partners in growth markets to provide steel products by using our partners' material. We especially hope to increase earnings by deepening partnerships through this second model during the current plan.

As a part of this effort, we are looking closely at jointly establishing a production and sales company for

grain-oriented electrical steel sheet with JSW Steel Ltd., our strategic alliance partner in India. The demand for electricity is projected to increase strongly as India's economy expands, resulting in more demand for grain-oriented electrical steel needed to produce transformers. Our growing involvement with highly value-added electrical steel sheet is expected to help us pivot from quantity to quality as we grow our earnings.

We also aim to develop new revenue-generating businesses by providing overseas companies with advanced solutions. This will involve leveraging the technologies and knowledge we have accumulated over the years not only inside our domestic production basis but also to the outside of our company globally. The initiative is in line with our new strategy to find new applications for our advanced technologies and knowledge within the global steel industry.

In engineering, we will focus on the environmental and recycling fields, our greatest strengths, and the carbon-neutral field centered on renewable energy. We have set ambitious targets including 1 trillion yen in revenue and a profit margin of 8% (segment profit 80 billion yen) by fiscal 2030, roughly double the current levels. Although achieving these targets will not be easy, we plan to execute capital and business investments amounting to an unprecedented 220 billion yen over the first four years, the period in which we intend to build a foundation for growth to 2030. In our core

fields of waste-to-energy power generation, food recycling, and plastic recycling, we expect to significantly increase alliances, M&A and our use of DX. Moreover, we will aggressively invest in the promising field of renewable energy, including offshore wind power and geothermal power plants.

In our trading business, plans call for M&A and other investments to establish a leading global system for processing and distributing electrical steel and also to reinforce supply chain management (SCM) systems for automotive steel.

### Establishment of a Robust Financial Foundation

Under our previous plan, investments to modernize aging facilities and update our production base reached a peak. Going forward, investments will be focused more strategically, aiming to enhance our competitiveness and establish a more stable earnings base. Investments will target high-growth and high-return projects, such as green transformation (GX) and DX, in addition to further facility upgrades. Funds for such these investments will be secured as required by selling assets and businesses that are contributing little to earnings.

We will emphasize financial soundness as a means to secure funds for investments in growth and to become more carbon neutral. Our development and implementation of ultra-innovative technologies by 2050 will require huge investments, so we are keen to improve our profitability and reinforce our financial position in order to prepare for the necessary R&D, verification, and then implementation of these ultra-innovative technologies.

▶ For details, please refer to page 27.

### Improving Our Responsiveness to Change

The business environment has changed dramatically in several ways since I became CEO. The international political situation has evolved at a dizzying pace over the past few years, affecting not only our production activities but also our customers and other corporations in unpredictable ways. In some ways it is no longer possible to envision future risks and then create detailed responses in advance. Instead, I believe it is more appropriate to identify unanticipated events as soon as possible and then flexibly change course to address them as required. In other words, we need to improve JFE's responsiveness to change.

Under our current plan, we are strengthening our group-wide governance by having the Group CSR Council improve our cross-organizational risk management structure. The committee is also creating a comprehensive system to identify and address risks and changes in business conditions. Furthermore, we have added important economic matters to our list of material CSR issues, based on which we are following up on our execution of KPIs for each priority issue.

Our Board of Directors is spending significantly more time looking into ESG issues, such as climate change and human rights. We intend to enhance governance by using non-financial indicators related to the environment and society in order to help guide our decision-making and determine compensation for executive officers.

### Human Resources Strategy for Sustaining Business Activities

JFE's human resources strategy for hiring and training employees has a major impact on corporate activities over the medium to long term. While hiring and training employees does not boost earnings immediately, I believe we must have a sound system for securing talented and diverse personnel if we wish to remain resilient to change. JFE gladly hires women and mid-career personnel and makes concerted efforts to create workplaces that further the abilities and motivations of our employees.

Since middle-aged employees in our steel business are in decline, we have been achieving measurable progress in passing technical know-how down to younger workers since the previous plan, supported with our use of DX technology. During our current plan, we are expanding the scope of this project to train data scientists and upgrade other necessary employee skills.

▶ For details, please refer to page 73.

### Safety Measures to Eliminate Serious Accidents

We take very seriously the fact that we have not eliminated serious accidents, which remains a top priority.

Based on the basic philosophy that safety must be prioritized over everything else, JFE has concentrated on ensuring perfect safety by modifying facilities so that accidents cannot happen, and by thoroughly training employees and updating rules on safety. Our first and foremost priority is to operate continuously safe environments in workplaces where everyone can work without worry. For example, we plan to install systems so that when an employee enters a restricted zone, they will be detected by sensors and the production line will stop automatically. In safety education,

we will expand training techniques to include hands-on training and virtual reality (VR) training on how to avoid accidents involving falls or getting wedged between equipment.

Under the current plan, JFE has earmarked 10 billion yen for annual investments in groupwide safety. We will push forward with measures to truly improve the safety of our equipment and our work, including through deployment of safety-support tools built with IT and data-science technologies.

Based on our strong conviction that it is possible to prevent all accidents, we will make every effort to promote safety.

▶ For details, please refer to page 71.

## To Our Stakeholders

Our mission is to remain a company capable of developing and providing products and services that benefit the world regardless of the current operating environment.

The movement toward carbon neutrality is gaining momentum worldwide and the need to realize this goal is increasing at an accelerating pace. JFE is responsible for continuing its business by achieving carbon neutrality of steelmaking process earlier than other steelmakers, as an indispensable company for supporting social and industrial development and human life.

I am driven by a strong sense of crisis that our company may become irrelevant if we cannot establish a process for producing steel without emitting CO<sub>2</sub>. Steelmakers

worldwide are working to develop such technologies, but JFE is in position to lead the world and become the first company to make this a reality.

Our Seventh Medium-term Business Plan calls on employees to be proud, not to be afraid of failure when taking on bold challenges, and to make sure that we remain essential to society and humankind as we grow.

The four years of our Seventh Medium-term Business Plan are positioned as a period for transitioning to a new stage of growth, signaling the beginning of the most transformative period in our history. I humbly ask for everyone's understanding and support as we set about achieving our goals.

# Koji Kakigi

President and CEO



# Seventh Medium-term Business Plan (FY2021–2024)

## Key Measure 1 Ensure Environmental and Social Sustainability

### (1) Promotion of the JFE Group Environmental Vision for 2050

In May 2021, we formulated the JFE Group Environmental Vision for 2050 with the aim of becoming carbon neutral by 2050, positioning initiatives to address climate change as the highest priority issue for management.

To attain the ambitious goal of becoming carbon neutral by 2050, JFE intends to establish as early as possible the necessary technologies for decarbonization ahead of its global competitors, while assuming this global movement will progress on equal footing and decarbonization infrastructure will be put into place.

▶ Please refer to the Special Feature on page 29 for details about the JFE Group Environmental Vision for 2050.

### Initiatives in the Seventh Medium-term Business Plan

**Reduction of CO<sub>2</sub> emissions by 18% by the end of fiscal 2024 vs. fiscal 2013**

### Initiatives for Carbon Neutrality by 2050

1. Reduce CO<sub>2</sub> emissions at JFE Steel
2. Expand contributions to CO<sub>2</sub> emissions reduction in society
3. Groupwide commercialization of offshore wind power business

### (2) Resolve issues impacting society

#### Safety/health management

Management takes seriously the fact that it has been unable to achieve its most important target of zero serious accidents. The Company is concentrating efforts on ensuring 100% safety by modifying equipment so that accidents cannot occur.

- Prioritize investment in safety measures: **10 billion yen** annually Groupwide
- Promote multifaceted occupational safety management (supervision, detection, etc.) using advanced IT

#### Facilitate employee participation

As business becomes more global and complex, JFE endeavors to hire personnel necessary for realizing its growth strategy while sharpening its competitiveness, and to provide environments where employees can work to the fullest of their abilities.

- Diversity and inclusion: Maximize the abilities of employees with diverse backgrounds
- Personnel training: Improve the skills of each employee and foster global talent
- Work-style reforms: Maintain work environments and internal systems so that employees can work safely and securely while applying their abilities

#### Contribute to regional societies through the engineering business

JFE contributes to the circular economy through a combination of its businesses in renewable energy power generation in each region, regional power producers and suppliers\*, as well as gas, waterworks, and other utility services, in addition to food recycling and waste-to-energy power generation.

\* Electricity is generated and supplied within a region to promote the local production and consumption of energy.

#### Respect human rights throughout the supply chain

In addition to the JFE Group's supply chain, we engage in initiatives to ensure that human rights are respected in all global supply chains. The JFE Group has performed due diligence into human rights since fiscal 2021, and will continue to expand its efforts on this front.

▶ For details, please refer to page 75.

### (3) Enhance corporate governance

In addition to corporate governance initiatives in the past, during the time frame of the plan, the JFE Group will examine the use of non-financial indicators related to the environment and society as management targets, and refer to various indicators when making investment decisions and setting director remuneration.

We will reinforce the Groupwide risk management structure, appropriately deal with various risks that arise in a changing business environment, and further strengthen Group governance.

▶ For details, please refer to page 78.

## Key Measure 2 Establish Economic Sustainability

### (1) Pursue world-class earnings capabilities in transition from volume to quality in the domestic steel business

It has become vital to ensure strong earnings capabilities that are resilient to changes in business and market conditions, as it is likely to become more challenging to expand exports while maintaining margins, and as the domestic market contracts. Accordingly, in the medium-term plan, the JFE Group is pivoting from volume to quality as its source of earnings, seeking a profit of 10,000 yen per ton of steel products.

#### Achieve world-class cost and quality competitiveness

Cost reductions **120 billion yen** (Steel business)

#### Expand margins and achieve stable profit

Ratio of high-value-added products **50%** (Steel business)

### (2) Promote growth strategies

#### Steel business

Examine establishment of a joint company with JSW in India for the production and sales of grain-oriented electrical steel sheet

▶ Steel Business P.39

#### Steel business

Expand solutions business  
Increase earnings **threefold** by fiscal 2024 vs. fiscal 2020

#### Engineering business

Expand sales revenue to the level of one trillion yen in fiscal 2030

▶ Engineering Business P.43

#### Trading business

Expand overseas processing supply chain management for high-performance electrical steel sheet  
**Create No. 1** global distribution and processing structure

▶ Trading Business P.47

### (3) Significantly enhance competitiveness through DX

JFE aims to enhance its business model, realize its growth strategy, and improve earnings capabilities while advancing DX projects.

#### Groundbreaking improvements in productivity

JFE aims to optimize overall operations by utilizing cutting-edge digital technologies.

#### Transform existing businesses

JFE will strengthen relationships with customers and improve products and services with DX.

#### Create new businesses

JFE aims to expand the solutions business and launch disaster prevention and preservation businesses with digital services.

Along with expansion of its DX strategy, it has become more important for the Company to address cybersecurity risks, such as cyberattacks and system intrusions. Management is strengthening governance and security measures, centered on JFE-SIRT\*.

\* JFE Security Integration and Response Team

### (4) Balance financial soundness with effective investment based on a “select and concentrate” approach

With regard to investments for maintaining the functionality of aging facilities in the steel business, the Company takes a disciplined approach to selecting projects based on returns on investment and necessity. Our priorities are being shifted to investments for improving earnings, modernizing facilities, and GX and DX projects.

Furthermore, JFE aims to achieve both financial soundness and returns on investments with sustainable financial management, securing the funds necessary for investments while reducing assets through reviews of assets and businesses that contribute little to earnings.

▶ Please refer to the Message from the CFO on page 28 for information about plans for investments and reducing assets.

### Financial and earnings targets

Consolidated	FY2020 Actual	FY2024 Plan	Operating companies	FY2020 Actual	FY2024 Plan
Business profit	¥(12.9) billion	<b>¥320 billion</b>	Steel business		
Profit attributable to owners of the parent	¥(21.8) billion	<b>¥220 billion</b>	Profit per ton*2	(3,000) yen/ton	<b>10,000 yen/ton</b>
ROE	(1.3)%	<b>10%</b>	Segment profit	¥(65.4) billion	<b>¥230 billion</b>
Debt/EBITDA	8.1x	<b>About 3x</b>	Engineering business		
D/E ratio*1	93.2%	<b>About 70%</b>	Segment profit	¥24.0 billion	<b>¥35 billion</b>
			Revenue	¥485.7 billion	<b>¥650 billion</b>
			Trading business		
			Segment profit	¥20.0 billion	<b>¥40 billion</b>

\*1 For liabilities with equity subject to credit ratings, these equities reflect the evaluations of rating agencies

\*2 Steel business profit per ton (consolidated segment profit / non-consolidated sales volume)

## Message from the CFO

We will establish a robust financial and earnings foundation during the Seventh Medium-term Business Plan while eyeing future investments to become carbon neutral.

**Masashi Terahata**

Executive Vice President and CFO  
JFE Holdings, Inc.



### Review of the Sixth Medium-term Business Plan

JFE fell far short of its medium-term target for business profit, owing to sudden changes in the business environment stemming from U.S.-China trade friction and the COVID-19 pandemic. We reduced capital investment as we took emergency steps to shore up earnings and cash flow, mainly in the steel business. Meanwhile, operating companies continued to invest in medium- to long-term growth. To fund these investments, we generated 215 billion yen in cash over the three years of the plan by selling cross-held shares and land, as well as by reducing inventories. As a result, we were able to slightly reduce the balance of interest-bearing debt in fiscal 2020. During the Sixth Medium-term Business Plan, JFE issued a total of 210 billion yen in corporate bonds, while stabilizing and diversifying its procurement of funds.

#### Financial and earnings targets and results in the Sixth Medium-term Business Plan

	Targets in the Sixth Medium-term Business Plan (Average)	Results in the Sixth Medium-term Business Plan (billion yen)		
		FY2018	FY2019	FY2020
Business profit	290.0 / year	232.0	37.8	(12.9)
Profit attributable to owners of parent	220.0 / year	163.5	(197.7)*1	(21.8)
Debt/EBITDA ratio	About 3x	3.6x	6.7x	8.1x
Interest-bearing debt outstanding	—	1,523.8	1,814.3*2	1,806.1

\*1 Impairment losses of 238.8 billion yen were booked as an exceptional item.  
\*2 Fiscal 2019 reflects an impact of 105.7 billion yen (increase at the start of the fiscal year) from the application of IFRS 16 Leases.

### Initiatives in the Seventh Medium-term Business Plan

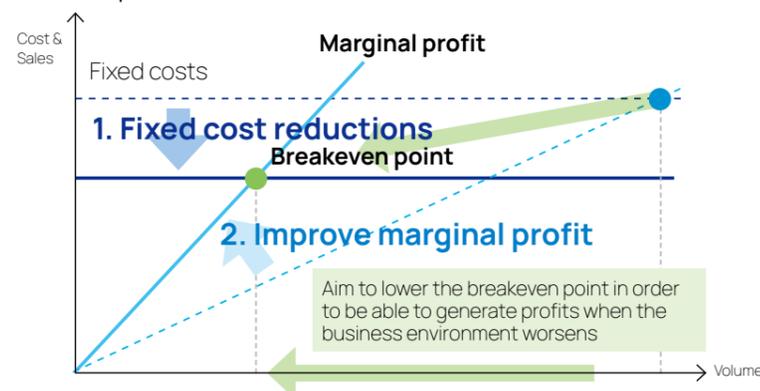
#### Review earnings structure of steel business and advance Group growth strategy

In the Company's main steel business, we will halt upstream processes at East Japan Works (Keihin) and deploy DX technology to improve labor productivity, resulting in lower fixed costs (see 1 in the breakeven chart below). In addition, JFE aims to increase the ratio of high-value-added products and overhaul its selling prices, driving improvement in the marginal profit ratio (see 2 in the breakeven chart below). These initiatives will make our earnings base more robust.

As for our growth strategy, we intend to expand the solution business of providing technological, operational, and research know-how in the steel business, and accelerate growth and expand the overseas business by deepening the overseas "insider" business. We aim for 230 billion yen in segment profit by fiscal 2024, the final year of the business plan.

In the engineering business, we are aiming for segment profit of 35 billion yen by the final year of the plan through earnings

#### Breakeven point chart for the steel business



- 1. Fixed cost reductions**
    - Halt upstream operations at East Japan Works (Keihin)
    - Improve labor productivity
  - 2. Improve marginal profit**
    - Raise ratio of high-value-added products
    - Overhaul sales prices
    - Reduce variable costs
- Establish a robust earnings foundation by slimming down and pivoting from quantity to quality**

growth in the environment & recycling field and the renewable energy field. In the trading business, our target is segment profit of 40 billion yen, by expanding the supply chain through M&A and

advancing processing functions. As a result of these initiatives at operating companies, JFE targets business profit of 320 billion yen by the last year of the Seventh Medium-term Business Plan.

#### Shareholder return policy and balancing investments and financial soundness

Under the Seventh Medium-term Business Plan, JFE has earmarked approximately 1,450 billion yen for a high level of investment but in line with plans to keep spending within depreciation and after-tax and after-dividend profits. Of this investment amount, 1,080 billion yen is allocated to the steel business, 220 billion yen to the engineering business, and 120 billion yen to the trading business. Compared with the previous medium-term business plan, in the steel business we will reduce the ratio of investment for maintaining functions and redirect these funds toward growth investments, such as in GX, DX, and facility modernization, as well as investments in overseas business. In the engineering business, we will increase investments in line with the goal of achieving revenue of 1 trillion yen by fiscal 2030.

Regarding our financial soundness, we aim to improve the D/E ratio to around 70% by the final year of the plan in order to facilitate the flexible and stable procurement of funds, with an eye on investing in growth and taking steps toward becoming carbon

neutral. To this end, JFE will continue to unwind cross shareholdings and generate 200 billion yen in cash by reviewing assets and businesses that do not contribute much to earnings.

Regarding shareholder returns, one of the most important issues for management, our basic dividend policy is to target a dividend payout ratio of approximately 30%, unchanged from the previous medium-term business plan.

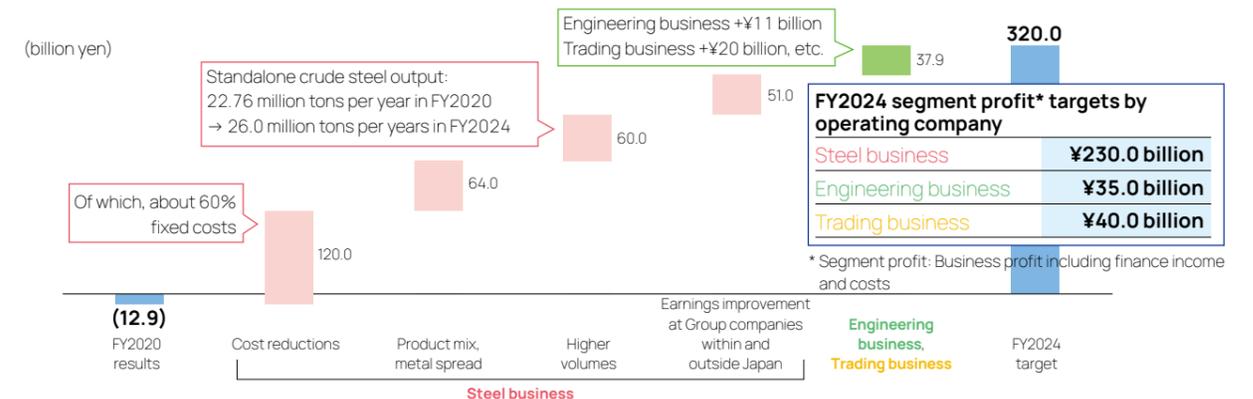
#### Total investment (four years, decided basis)

	Group total
Total investment*	About ¥1,450 billion
Of which, GX investment	¥340 billion
Of which, DX investment	¥120 billion

\* Capital investment 1,200 billion yen, business investment 250 billion yen

Asset compression plan	¥200 billion
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#### Changes in earnings toward business profit target for fiscal 2024



### Outlook for Fiscal 2021 Earnings

In FY2021, in the steel business, JFE expects demand for steel products to gradually recover as economies regain their footing in Japan and overseas. For the full year, we estimate segment profit will be 280 billion yen, reflecting the steady and rapid incorporation of rising raw material costs into prices for steel products, higher selling prices alongside improving market prices, especially for exports, improvement at subsidiary companies around the world, and one-off gains from inventory valuation differences. In total for the engineering business and the trading business, we expect profit to improve by 19 billion yen. We estimate segment profit of 25 billion yen for the engineering business and 38 billion yen for the trading business. For the current fiscal year, we forecast consolidated business profit of 350

billion yen and profit attributable to owners of parent of 240 billion yen, a strong step toward realizing our targets in the medium-term business plan. In the steel business, profits for this fiscal year include one-off gains on valuations, and we are still in the process of moving toward an earnings structure able to reliably generate this level of profit. By undertaking the measures outlined in the plan, we will make progress on strengthening our earnings structure.

For fiscal 2021, management plans to distribute an interim dividend of 60 yen per share. As of August 2021, we have not yet decided on the year-end dividend, as we are watching trends in earnings.

# JFE Group Environmental Vision for 2050

## Toward Carbon Neutrality by 2050

### Background to formulation of vision and its aims

Having become an essential part of the sustained development of society and the safe and comfortable lives of people, the JFE Group believes that climate change is a serious management issue that may affect its ability to sustain growth and improve corporate value over the medium to long term. We believe that climate change, which is happening on a global scale, needs to be urgently addressed. To this end, we are working to cut CO<sub>2</sub> emissions, marking 2020 as a pivotal year for countering climate change. Ahead of other domestic steelmakers, the JFE Group

declared in September 2020 that it targets a reduction in CO<sub>2</sub> emissions of at least 20% in its steel business by fiscal 2030, compared with the fiscal 2013 level, with the objective of becoming carbon neutral as quickly as possible around 2050.

In May 2021, the JFE Group formulated the JFE Group Environmental Vision for 2050 with the aim of becoming carbon neutral by 2050, positioning climate change initiatives as one of the most important issues in its Seventh Medium-term Business Plan as it moves to a new stage of growth.

### JFE Group Environmental Vision for 2050

The JFE Group is vigorously advancing initiatives to deal with climate change as a part of its aim to become carbon neutral by 2050.

- We recognize climate change as a serious management issue and aim to become carbon neutral by 2050.
- We intend to develop super-innovative technologies by accelerating R&D in new technologies.
- We aim to improve corporate value, and view reductions in CO<sub>2</sub> emissions across society as a whole as a business opportunity.
- We will systematically work to resolve climate change problems while reflecting TCFD concepts in our management strategies.

#### 1. Initiatives in the Seventh Medium-term Business Plan

- Steel business: Reduce steel business CO<sub>2</sub> emissions by 18% in FY2024 vs. FY2013

Groupwide CX investment under the Seventh Medium-term Business Plan: ¥340 billion

Steel business:	¥160 billion
Engineering business:	¥130 billion
Trading business:	¥50 billion

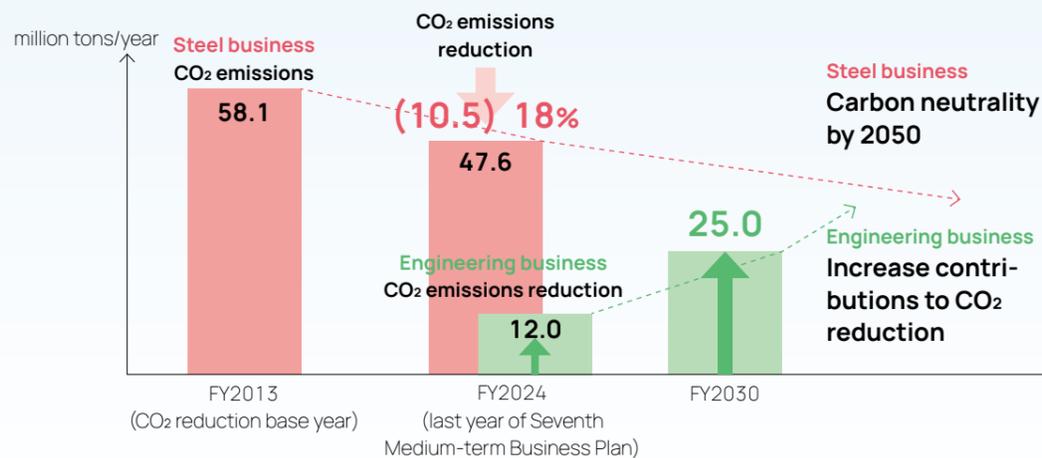
#### 2. Initiatives for carbon neutrality by 2050

- 1) Reduce CO<sub>2</sub> emissions at JFE Steel
  - Pursue super-innovative technologies mainly for carbon-recycling blast furnaces and Carbon Capture and Utilization (CCU)
  - Develop hydrogen-based ironmaking (direct-reduction) technology, maximize use of electric arc furnace technology, etc.
- 2) Expand contributions to CO<sub>2</sub> emissions reduction in society
  - Engineering business: Expand and develop renewable energy power generation and carbon-recycling technologies
  - Steel business: Develop and market eco-products and eco-solutions
  - Trading business: Increase trading in biomass fuels, steel scrap, etc. and strengthen supply chain management (SCM) for eco-products

#### Targets for CO<sub>2</sub> emissions reductions

12 million tons by FY2024  
25 million tons by FY2030

#### 3) Accelerate Groupwide commercialization of offshore wind power business

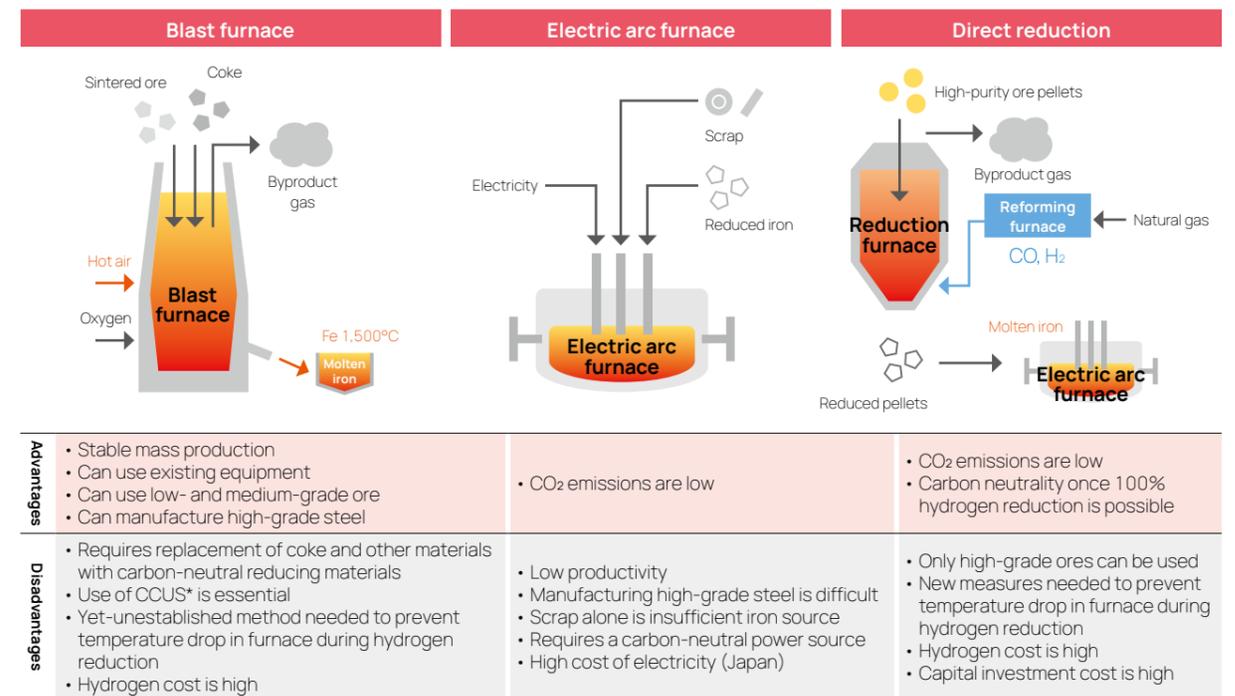


## Carbon neutrality initiatives in the steel business

### Advantages and disadvantages on the path to carbon-neutral steelmaking

Steel is an essential material that is key to an abundant planet in the future, and demand for steel will never go away. Achieving a carbon-neutral process for steelmaking is necessary for the future of the planet, but the technologies for this have not yet been established. Steelmaking processes currently include blast furnace steelmaking, electric furnace steelmaking, and direct-reduction steelmaking methods. Each process has advantages

and disadvantages with respect to the objective of attaining carbon neutrality. We believe it will be important to take a multi-track approach to innovation for overcoming these disadvantages. The JFE Group is working to create super-innovative technologies by accelerating R&D in new technologies with the aim of becoming carbon neutral by 2050. We are moving strongly toward the ultimate goal of carbon neutrality while going through a technology transition and advancing innovation.

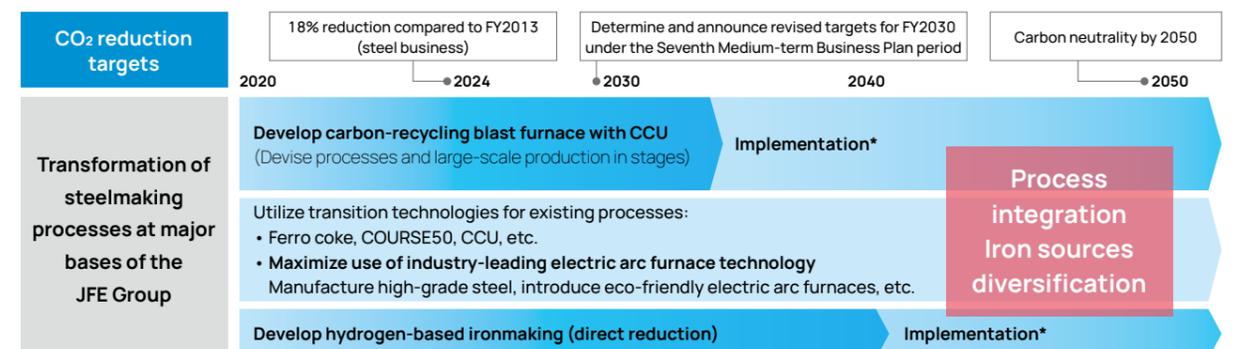


\* CCUS: Carbon Capture, Utilization and Storage

### Roadmap for carbon neutrality

As an initiative in the Seventh Medium-term Business Plan, the JFE Group aims to reduce CO<sub>2</sub> emissions in the steel business by 18% in fiscal 2024, compared with the fiscal 2013 level. With an eye on becoming carbon neutral by 2050, the Company is keen to develop super-innovative technologies centered on carbon-recycling blast furnaces, CCU, and hydrogen-based ironmaking

(direct reduction). By maximizing the use of industry-leading electric furnace steelmaking technologies, the JFE Group is proactively working to apply transition technologies to existing processes. We aim to establish as quickly as possible the decarbonization technologies required to achieve our goal of being carbon neutral by 2050.



\* Assumes development of infrastructure for supplying large, inexpensive quantities of hydrogen and a system for sharing the costs throughout society

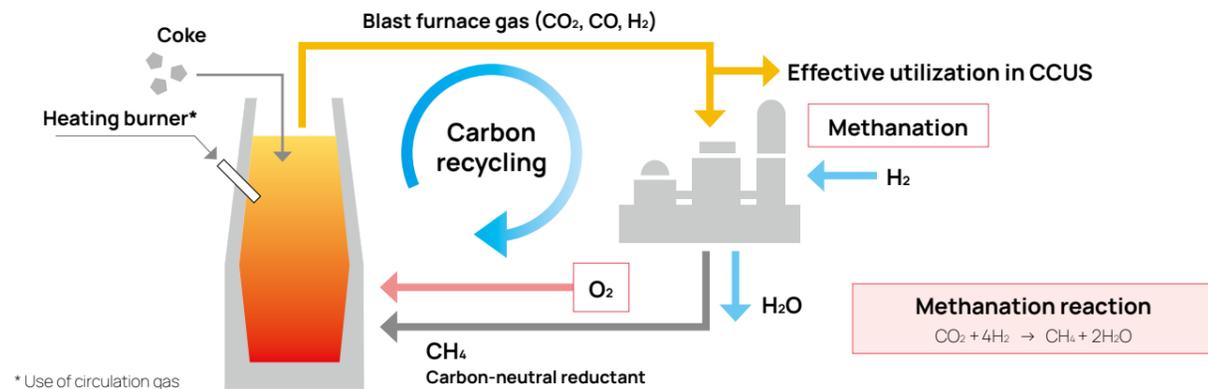
Technological development 1 **Carbon-recycling blast furnaces**

**What are carbon-recycling blast furnaces?**

Carbon-recycling blast furnaces are a super-innovative technology that reuses carbon, by turning the CO<sub>2</sub> emitted during the steelmaking process into methane with methanation technology, and then using this methane as an input in the blast furnace steelmaking process. The aim is to reduce CO<sub>2</sub> emissions by 30% on a single blast furnace unit basis. By converting air sucked in by

normal blast furnaces into pure oxygen, the energy used to heat nitrogen contained in the air can be used to heat methane, increasing the thermal efficiency of the overall process. Adding CCUS (CCU) to carbon-recycling blast furnaces will enable to production of basic chemicals such as methanol from the excess CO<sub>2</sub>, moving one step closer to net zero CO<sub>2</sub> emissions.

CO<sub>2</sub> reduction target of 30% in blast furnace, aiming at carbon neutrality through CCUS utilization

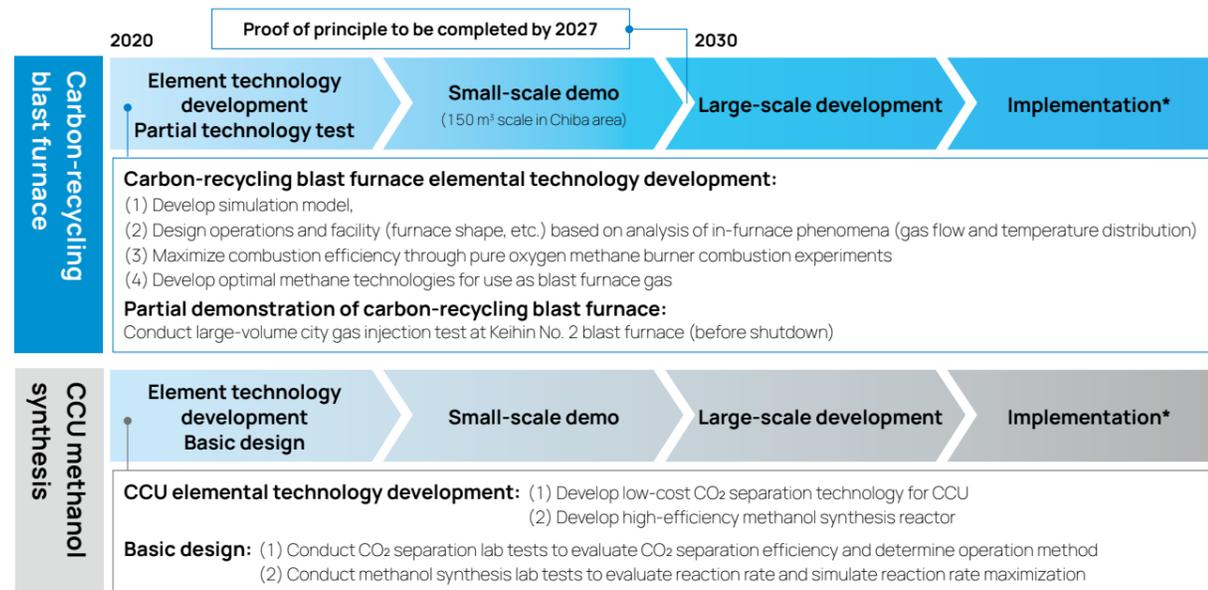


\* Use of circulation gas

**Technology development roadmap**

Regarding the development of technologies for carbon-recycling blast furnaces and CCU, the JFE Group will first develop basic technologies and conduct small-scale trials with the objective of completing verification work of the fundamental process by 2027. On developing technologies for carbon-recycling blast furnaces, the Company will develop basic technologies, including simulation

models, and conduct a city gas intake experiment at the Keihin district as a stepstone experiment. We will also evaluate a small-scale prototype carbon-recycling blast furnace with 150 m<sup>3</sup> of capacity. We are advancing the development of low-cost CO<sub>2</sub> separation technology and high-efficiency methanol synthesis reactors as basic technologies for CCU methanol synthesis.

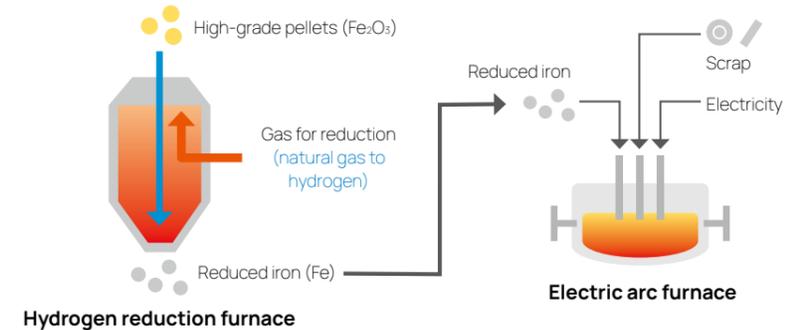


\* Pursuant to development of infrastructure for cheap, high-volume hydrogen supply and system for sharing related costs throughout society

Technological development 2 **Hydrogen-based ironmaking (direct reduction)**

Hydrogen-based ironmaking technologies entails using CO<sub>2</sub>-free hydrogen gas instead of natural gas, which is now used in the direct-reduction steelmaking process that has recently become practical. However, there are still some problems, namely that only high-grade iron ore can be used as a raw material in direct-reduction steelmaking, in addition to the challenges of endothermic reactions for reduction with hydrogen. High-grade iron ore is produced in relatively little quantity, and as the direct-reduction steelmaking process gains momentum worldwide, high-grade iron ore may

become harder to obtain. To address this problem, JFE has partnered with BHP, one of the world's largest iron ore suppliers, to expand production volume and develop new processing technologies for low- and medium-grade iron ore that is currently used in blast furnaces. Through this partnership, we aim to expand sources of raw materials and increase the competitiveness of direct-reduction steelmaking with the use of low- and medium-grade iron ore as inputs.



Technological development 3 **Leverage electric furnace technologies to their maximum (high-grade steel production, greater efficiency)**

Electric furnace steelmaking produces steel products by melting steel scrap and direct-reduction iron. This process emits one fourth the amount of CO<sub>2</sub> than blast furnaces and converter furnaces. Steel scrap, a raw material, contains impurities that cannot be removed in the electric furnace steelmaking process, and the amount of these impurities is expected to increase in the future, even in direct-reduction iron. With the electric furnace

steelmaking process, it is therefore hard to produce high-grade steel of the same quality as blast furnace or converter furnace methods. Technologies must be developed for removing these impurities or making these impurities harmless in steel, in order to produce high-grade steel. The JFE Group is also striving to improve the productivity of electric furnaces by utilizing its industry-leading technologies for electric furnaces.

Eco-Products **Expansion of supply structure for high-value-added electrical steel**

Electrical steel is a key material that determines the performance of electrical equipment, and it is also widely used as iron core materials in motors, transformers and other electrical machinery. By supplying high-performance electrical steel, JFE Steel contributes to the reduction of CO<sub>2</sub> emissions around the world from a materials perspective.

**Domestic Strategy**

Expand manufacturing facilities for non-oriented (N/O) electrical steel sheet

**Overseas Strategy**

Business feasibility study for establishment of oriented electrical steel production and sales company in India (jointly with JSW)

As demands increase for addressing global climate change, the electrification of automobiles has advanced, which has translated into rapid growth in demand for essential high-grade N/O electrical steel sheet. JFE forecasts demand will more than triple by fiscal 2024. Management has therefore decided to invest roughly 49 billion yen, double the current level of investment, by the first half of fiscal 2024 in expanding production capacity for high-grade N/O electrical steel sheet at its West Japan Works (Kurashiki district).

Demand for oriented electrical steel sheet used in transformers is projected to grow on the back of increasing demand for electricity and expanding installations of renewable energy around the world. Demand for oriented electrical steel sheet in India is forecast to increase by 1.7 times the 2019 level by 2030. The Company has decided to examine the business feasibility of establishing a production and sales joint venture with JSW, a strategic alliance partner, for oriented electrical steel sheet in India.

## Contributions to carbon neutrality in the engineering business

In the engineering business, the Company is developing and commercializing carbon recycling technologies while striving to further expand the renewable energy business, with the intention of helping all of society become carbon neutral.

### Renewable energy

- Biomass, geothermal, solar power, wind power generation
- Waste-to-energy power generation

The engineering business is engaged in the engineering, procurement, construction and operation of biomass, geothermal, solar, and wind power plants. We aim to diversify power sources into offshore wind, geothermal and hydroelectric power. We are also keen to increase electricity generation at waste-to-energy power plants from a resource recycling and effective use standpoint. The generated electricity is supplied through JFE Engineering's subsidiary Urban Energy as renewable energy in a zero emissions plan, promoting the local generation and local consumption of energy via regional power companies.

### Carbon recycling

- Conversion of CO<sub>2</sub> into synthetic gas and chemicals
- CO<sub>2</sub> separation and collection

The JFE Engineering Group has worked to turn plastic waste into usable resources, such as bottle-to-bottle recycling with the reuse of PET bottles. Leveraging this knowledge, we are developing technologies for the carbon recycling of CO<sub>2</sub> and the chemical recycling of waste plastic. The JFE Group is contributing to the realization of a low-carbon, resource-recycling society through the development and commercialization of technologies for producing chemicals with collected CO<sub>2</sub>, as well as technologies for the separation and collection of CO<sub>2</sub> emitted from incinerators and power generation facilities.

### Public-private initiatives for regional energy business

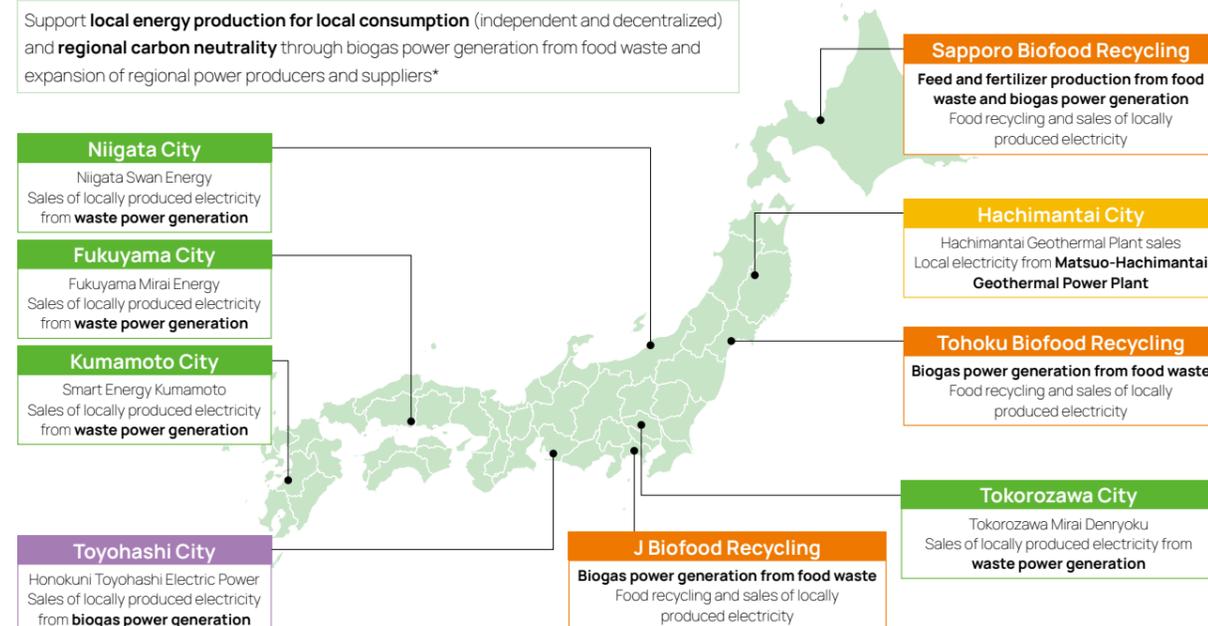
JFE Engineering has established regional power producers and suppliers with the cooperation of local governments around Japan, as a part of its regional energy business that focuses on supplying renewable energy. Electricity generated at waste-to-energy power plants constructed by JFE Engineering is supplied to local public institutions in line with the concept for local production for local consumption of energy. We aim to improve local industrial infrastructure and lower administrative costs for

governments, while moving toward low-carbon localities through the greater use of renewable energy.

Group company J&T Recycling is involved in the food recycling business, where food waste is collected and fermented to produce methane gas a fuel for power generation. We will facilitate the expansion of renewable energy supply while advancing the food recycling business.

#### JFE Engineering's Support of Local Production for Local Consumption

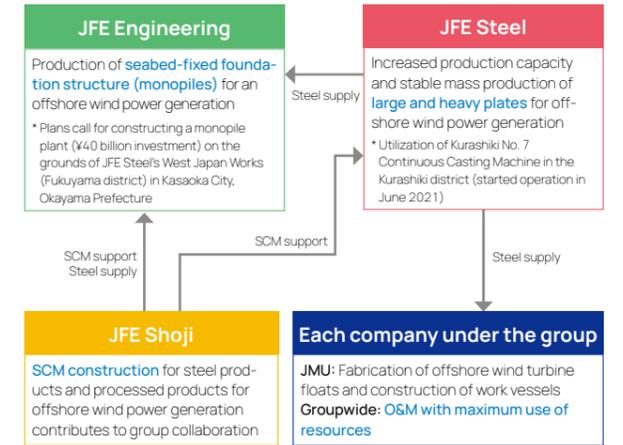
Support **local energy production for local consumption** (independent and decentralized) and **regional carbon neutrality** through biogas power generation from food waste and expansion of regional power producers and suppliers\*



\* Electricity is generated and supplied within a region to promote the local production and consumption of energy

## Advancing commercialization of offshore wind power generation business

The Japanese government is backing offshore wind power plants as a pillar of its Green Growth Strategy to realize carbon neutrality by 2050. Against this backdrop, the JFE Group is leveraging its comprehensive capabilities, mainly in the engineering business, to commercialize the offshore wind power plant business. As a pioneer in this area, the JFE Group is building a supply chain, including basic production and operations and maintenance (O&M), through the commercialization of production for monopiles (basic structures attached to the seabed) that form the foundations of offshore wind power plants.



### Monopile market trends

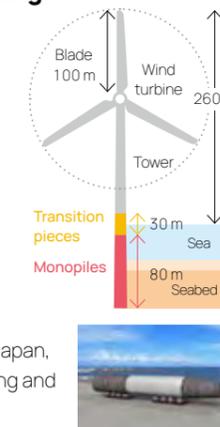
Offshore wind power plants have been constructed mainly in Europe and China. In light of the recent growth trend in renewable energy, offshore wind power plants are poised to see major growth in North America and Asia, including Japan. In Japan, last year, the government set targets for installing offshore wind power plants. The market for monopiles looks likely to exceed 200,000 tons annually from 2030 onward.

	Expected power generation (GW)	Steel consumption (million tons)
As of 2030	10	1.5
As of 2040	30-45	4.5-6.75
As of 2050	90	13.5

Source: Japan Wind Power Association  
\* Cumulative totals for installed volume and steel materials

### Initiatives at JFE Engineering

Monopile foundations support massive wind turbines that rise more than 200 meters above the sea, and consist of monopiles and transition pieces anchored to bearing ground on the seabed. Monopiles are ultra-large offshore structures. JFE Engineering aims to start producing monopiles in 2024 while leveraging its engineering and production know-how accumulated from the construction of large offshore structures near Japan, as well as its thick steel plate processing and welding technologies.



### Initiatives at JFE Steel

In offshore wind power generation, wind turbines and basic foundations (monopiles, etc.) have become larger in size in order to reduce the cost of electricity. In fiscal 2021, JFE Steel started operating a new continuous steelmaking plant in the Kurashiki district, and expanded production capacity at its steel plate plant in order to reliably mass produce the heavy steel plate for monopiles. Through these measures, we aim to cut costs and shorten production times by reducing welding volume and the number of assembly steps, and help advance the rollout of offshore wind power plants.

	Weld lines	Tube length
A tube for monopiles made with large-size plates	Little	Long
A tube made with conventional-size steel plates	Lots	Short

### O&M utilizing Group resources

A pioneer in the offshore wind power plant field, the JFE Group is building out a supply chain with its comprehensive capabilities in O&M, which covers the operation, management, and maintenance of facilities that are essential for reliable operations of facilities. The JFE Group is contributing to the O&M field in offshore wind power by leveraging its maintenance technologies accumulated over many years in onshore wind power generation, as well as its knowledge of marine structure construction.

### Life cycle cost structure for seabed-fixed offshore wind turbines (European case)

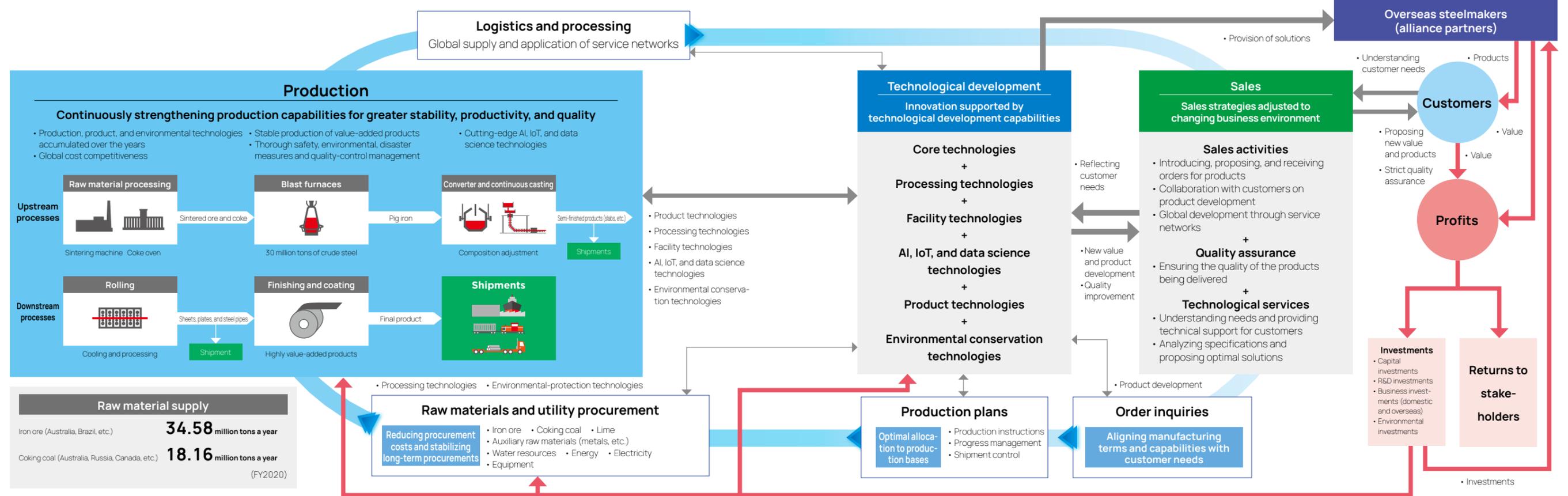


Source: Mitsubishi Research Institute

# A business model that creates a JFE brand associated with high-added value

The competitive advantages of JFE's steel and trading businesses are on three fundamental capabilities: **(1) leading-edge technological development capabilities focused on customer needs**, **(2) production capabilities constantly being developed and enhanced at production sites**, and **(3) sales capabilities underpinned by solid relationships of trust with customers** established over years by JFE Steel and JFE Shoji. We create new value tailored to customer needs and provide optimized solutions based on these three strengths. These competitive advantages, treasured assets accumulated through many decades of effort and not easily matched by other companies, are the driving force behind our sustainable growth.

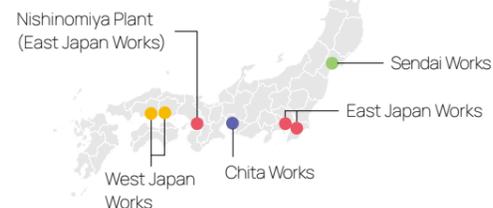
Leveraging competitive advantages through our business model ▶ Measures Steel Business P.39 Trading Business P.47



## Steel business overview

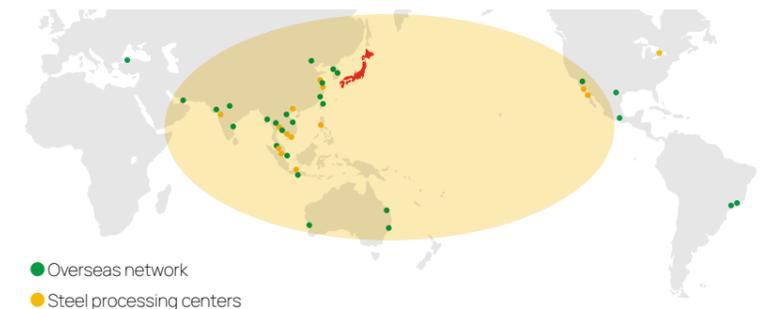
JFE provides highly functional steel products to customers worldwide as a blast-furnace steelmaker with operations of the integrated steelworks, where it can produce final products from iron ore as raw materials. For global growth, JFE is expanding businesses with local partners and solutions-related businesses, starting with alliance-partner steelmakers overseas.

### JFE Steel's production bases



## Trading business overview

JFE Shoji Group is engaged in businesses ranging from steel materials, machinery, nonferrous metals, chemicals, and ships to food and electronics, with an overarching focus on steel products. Through a global network encompassing 96 companies, JFE Shoji provides services that add value to supply chain operations.



# Business model that strongly supports the lives of people

The sources of our competitive edge in the engineering business are (1) our engineering capabilities (engineering, procurement, and construction (EPC)) centered on building infrastructure that supports industry and human life, and (2) know-how to operating, maintenance & managing accumulated over the years, especially in waste-to-energy power generation and waterworks plants, which (3) paired with our diverse human resources and DX projects, leads to more abundant life in the future. Leveraging these three advantages, we aim to help the world become carbon neutral while promoting a circular economy. We aim to be an engineering company that is constantly leading the world and adapting to the change of the times.

As long as people in the world long for more comfortable and abundant life, there will never be an end to our mission. We will provide optimal solutions for society and strive to realize a sustainable society.

## The source of competitive advantages that reinforce our business model

Measures P.43

### Engineering, procurement, and construction

Project execution capabilities with abundant experience and global structure

In a variety of fields, such as energy, the environment, and bridges, JFE has constructed numerous highly functional and high-quality structures that satisfy customer needs, covering everything from engineering to project handover. Moreover, we will strengthen our competitiveness by building out a global engineering system at overseas bases.

### Operating business

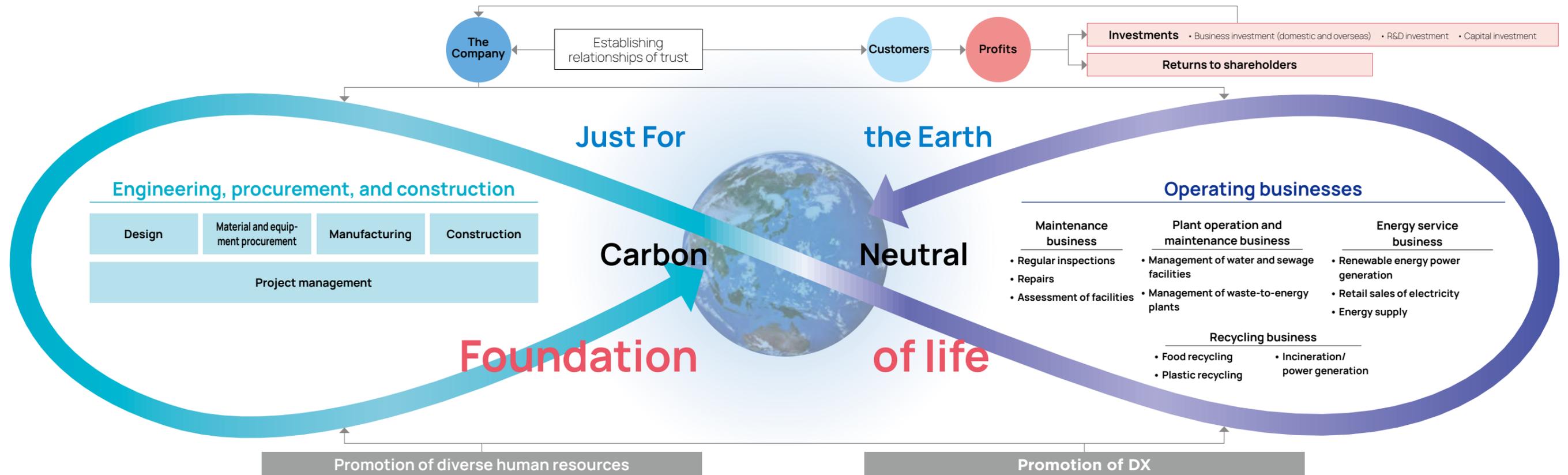
Business management capabilities with strengths in manufacturing expertise

We have accumulated operational know-how in plants in particular, such as waste-to-energy power generation and waterworks, and in the public services field, the Company has an extensive track record in public-private projects. We also engages in our own recycling operations and renewable energy power generation business, and is expanding its presence in operation & maintenance business domains around the world.

### Diverse human resources and DX

Diverse human resources to support the business and promotion of DX to support the evolution of the company

Approximately 40% of our employees have diverse backgrounds, such as women, foreign nationals, and career hires. We also strive to create work environments that draw out the best abilities of each and every employee. We support the advancement of "creation" and "responsibility" while digitalizing operations with AI and IoT.



### Business overview

By focusing on these business fields, which are needed around the world all the time, we propose integrated services from business



#### Environment

- Waste-to-energy plants
- Industrial waste processing



#### Recycling

- Food waste recycling
- Plastic recycling
- Incineration/power generation



#### Water

- Water and sewage treatment plants
- Water and sewerage pipelines



#### Energy

- LNG terminals
- Oil and gas pipelines
- Chemical plants



#### Power generation and retail

- Electricity retailing
- Renewable energy power generation
- Energy service provider



#### Steel structures and industrial machinery

- Transportation and logistics infrastructure (Bridges, ports, and harbor facilities)
- Disaster prevention infrastructure (Seawalls and breakwaters)
- Industrial machinery (Cranes and steam turbines)

planning to EPC and operating businesses.

Steel Business | JFE Steel Corporation

Shifting from quantity to quality and evolving to become carbon neutral

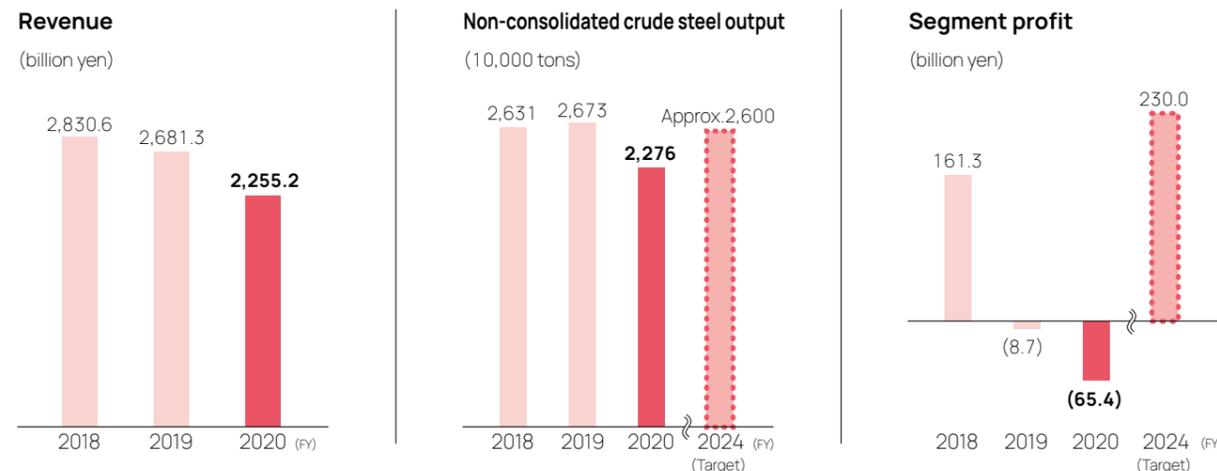
JFE Steel has established a solid yet lean business structure by restructuring its operations to adapt to structural changes in the business environment. While shifting from quantity (tons of steel) to quality (profit per ton of steel), JFE Steel also is accelerating its technological development to become carbon neutral and to realize sustainable growth as a company that remains essential to society.



**Yoshihisa Kitano**  
President and CEO  
JFE Steel Corporation

Strengths	Threats and risks	Opportunities
<ul style="list-style-type: none"> <li>World-class technologies that reduce environmental load and contribute to carbon neutrality</li> <li>World-class production technologies for highly value-added products</li> <li>World-leading R&amp;D capabilities</li> <li>Abundant technologies and operational/research know-how</li> <li>Strong alliances forged with steelmakers around the world</li> <li>Cutting-edge AI, IoT, and data science technologies to evolve the company through digital transformation</li> <li>Extensive customer base built up over the decades</li> </ul>	<ul style="list-style-type: none"> <li>Increasing demands for worldwide reduction of CO<sub>2</sub> emissions</li> <li>Tougher global competition from new rivals in China</li> <li>Long-term decline in domestic steel demand</li> <li>Uncertain outlook for global economy due to U.S.-China trade friction</li> <li>Another wave of COVID-19 infections</li> </ul>	<ul style="list-style-type: none"> <li>Stronger demand for eco-products and solutions that help reduce CO<sub>2</sub> emissions</li> <li>Increasing demand for high-grade steel due to shift to lighter and electric vehicles</li> <li>Demand for operational and environmental support technologies from steelmakers in emerging countries</li> <li>Increasing demand for steel materials due to medium- and long-term growth in emerging countries</li> <li>Increasing demand for infrastructure for natural disaster prevention and replacement to make Japan more resilient</li> </ul>

Fiscal 2020 results



Initiatives in Fiscal 2020

In the first half of fiscal 2020, the COVID-19 pandemic caused a rapid deceleration in global economic activity and brought domestic economic activity to a near halt. As a result, demand for steel plummeted. JFE Steel brought forward planned maintenance of its No. 4 blast furnace in the Kurashiki district and temporarily suspended (banked) its No. 4 blast furnace in the Fukuyama district. When demand started to pick back up, JFE Steel was the first steelmaker in the world to quickly restart a major blast furnace that had been banked, and took other measures to minimize costs in operations. JFE Steel was able to quickly restore production and meet demand for steel. In addition, costs were reduced 100 billion yen by reducing maintenance and repairs and taking emergency measures to reduce labor costs. JFE Steel also reduced capital investment by 130 billion yen from 1 trillion yen during the Sixth Medium-term Business Plan, but still made key investments in facilities to maintain the company's production foundation as well as in safety, the

environment, and disaster prevention in order to fulfill the company's corporate social responsibilities. JFE Steel also did not scale back its planned strategic investments in digital transformation.

In the fiscal 2020 second half, steel demand began to recover, mainly for automobiles, and prices started to improve. Although JFE's steel segment posted a full-year loss in fiscal 2020, a profit was secured in the second half.

In fiscal 2021, JFE Steel forecasts segment profit of 280 billion yen under the expectation that steel prices will remain favorable. Profit will be boosted through cost reductions realized by newly operating the No. 7 continuous casting facility in the Kurashiki district and the No. 3 coke oven (Battery B) in the Fukuyama district. Output will be strengthened by quickly relaunching the No. 4 blast furnace at Kurashiki after maintenance is completed.

Medium- to Long-term Strategy and Future Initiatives

The company is facing structural changes in its business environment. Japan, the most important market for JFE Steel, is poised to shrink due to population decline. Overseas, in view of increasing production in local markets to handle local consumption, it could become challenging to expand the volume exports with sufficient margins. Meanwhile, JFE Steel is coming under increasing pressure to address climate change and become carbon neutral.

For JFE Steel to grow sustainably as a steelmaker over the long term, we certainly must work toward becoming carbon neutral. However, technology for producing steel without emitting CO<sub>2</sub> has not been established yet and the technical hurdles are quite high. It will be crucial to secure the needed technological capabilities and the financial means to invest in technological development. The Seventh Medium-term Business Plan (FY2021-2024) represents the biggest transformation in JFE's history. During this period, it will be absolutely essential to establish a robust earnings foundation and take bold steps toward becoming carbon neutral.

On the earnings front, JFE Steel is pivoting from quantity (tons of steel) to quality (profit per ton of steel) while also advancing its growth strategies and transitioning to a leaner, stronger business structure. Management is keen to create a foundation for reliably generating 10,000 yen in profit per ton of steel for a target profit of 230 billion yen. Accordingly, JFE Steel is restructuring operations by shifting production to high-value-added products, which will include cutting annual crude steel production capacity by some four million tons in Japan.

Through digital transformation and other measures, we aim to reduce costs by 120 billion yen and raise labor productivity by 20% or more over the next four years. To increase margins and secure earnings, JFE Steel is conducting a sweeping review of its selling prices, aiming to increase prices to levels commensurate with the high value demanded by customers.

Regarding its growth strategy, JFE Steel will deepen its overseas business and achieve higher earnings by increasing corporate values of our allied companies. The company also will expand its solutions-based businesses, leveraging its know-how in technology, operations, and research to help customers produce value-added products and lower their environmental impacts.

In the field of carbon neutrality, JFE Steel intends to reduce CO<sub>2</sub> emissions by 18% in fiscal 2024, compared with the fiscal 2013 level, with the intention of becoming carbon neutral by 2050. Under the direction of a project team that was launched in October 2020 and reports directly to the president, initiatives to reduce CO<sub>2</sub> emissions are steadily advancing (see diagram in Key Measure 2 on page 41). In fiscal 2024, we will update our fiscal 2030 targets for reducing CO<sub>2</sub> emissions to reflect our state of progress in developing new technologies. In addition to steadily reducing CO<sub>2</sub> emissions through fiscal 2030, JFE Steel aims to develop groundbreaking carbon-neutral technologies by 2050. Right now, existing candidate technologies all offer advantages as well as disadvantages, so the plan is to continue pursuing various possible technologies from multiple angles.

**Key measures in Seventh Medium-term Business Plan and fiscal 2024 earnings targets**

1. Transition to a lean, robust business structure by shifting focus from quantity to quality
2. Pursue innovation aimed at achieving carbon neutrality
3. Use digital technologies to strengthen production bases and achieve new growth
4. Expand and accelerate overseas business via solutions based on knowledge, skills, and data

**Per-ton profit\***  
**10,000 yen/ton**  
**(Target segment profit of 230.0 billion yen)**

\* Segment profit / unconsolidated sales volume in tons

## Key Measures in the Seventh Medium-term Business Plan

### Key Measure 1 Transition to a lean, robust business structure by shifting focus from quantity to quality

Improve per-ton profit by reducing fixed costs and increasing the ratio of highly value-added products for enhanced earnings

Achieve world-class cost and quality competitiveness	Expand margins and achieve stable profit
<p><b>Targets</b></p> <p><b>Cost reductions</b> 120 billion yen over four years</p> <p><b>Labor productivity</b> Up 20% or more*</p> <p>* 13% via structural reforms and the rest via initiatives such as digital transformation to increase labor productivity (1,670 → 2,000 tons per person per year) resulting in reducing employees from 16,000 to 13,000</p> <p><b>Initiatives</b></p> <ol style="list-style-type: none"> <li><b>Establish profit base that is resilient to changes in economic conditions</b> by completing structural reforms                     <ul style="list-style-type: none"> <li>Greatly reduce fixed costs</li> <li>Lower breakeven points</li> </ul> </li> <li><b>Promote digital transformation</b> with new technologies                     <ul style="list-style-type: none"> <li>Raise production efficiency and yields</li> <li>Greatly improve labor productivity</li> </ul> </li> <li><b>Ensure quality competitiveness</b> by improving product quality, production efficiency, and deliveries</li> </ol>	<p><b>Target</b></p> <p><b>Increase mix of highly value-added products* to an unprecedented 50%</b></p> <p>* Offer technological advantages that are recognized by customers for their value added, and have greater earnings power than commodity-type products</p> <p><b>Initiatives</b></p> <ol style="list-style-type: none"> <li><b>Enhance product mix</b> by strategically focusing production on priority fields                     <ul style="list-style-type: none"> <li>Increase high-grade non-oriented electrical steel sheet production capacity</li> <li>Increase capacity for heavy, extra-thick steel plate used in offshore wind power applications</li> <li>Produce high-tensile steel sheet for automobiles</li> </ul> </li> <li><b>Fully overhaul product pricing</b> <ul style="list-style-type: none"> <li>Facilitate more suitable pricing by ensuring that JFE products offering the high value sought by customers are recognized accordingly by the market</li> </ul> </li> </ol>

### Key Measure 2 Pursue innovation to achieve carbon neutrality

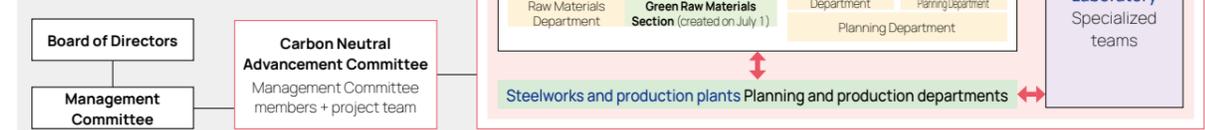
Achieve carbon neutrality by developing groundbreaking technologies in multiple areas and by accelerating R&D in traditional technological fields, including blast furnaces, direct reduction, and electric furnaces

CO <sub>2</sub> emission reductions targets	FY2024	FY2030	2050
	18% reduction vs. FY2013 (steel business)	20% or more reduction vs. FY2013 (Adjust FY2030 targets under this medium-term plan)	Carbon neutrality
<b>Blast furnace technology</b>	 <ul style="list-style-type: none"> <li>Carbon-recycling blast furnace with CCU</li> <li>COURSE50 and Super-COURSE50</li> <li>Ferro coke</li> </ul>	Green hydrogen and green electricity  Low-cost, stable, and mass supply  <b>Carbon neutrality</b>	
<b>Direct-reduction technology</b>	 <ul style="list-style-type: none"> <li>Hydrogen-based ironmaking (direct reduction)</li> <li>Measures for hydrogen endothermic reaction and restriction of raw materials</li> </ul>		
<b>Electric arc furnace technology</b>	 <ul style="list-style-type: none"> <li>Electric arc furnace</li> <li>Measures to improve productivity, lower electricity costs, manufacture high-grade steel, and expand usage of hard-to-use scrap, etc.</li> </ul>		
<b>Conventional technology</b>	 <ul style="list-style-type: none"> <li>Expanded use of scrap in converters, etc.</li> <li>Development of high-efficiency, heat-transfer burner</li> </ul>		

\* CCUS: Carbon Capture, Utilization and Storage

For details about each technology, please see pages 30-32.

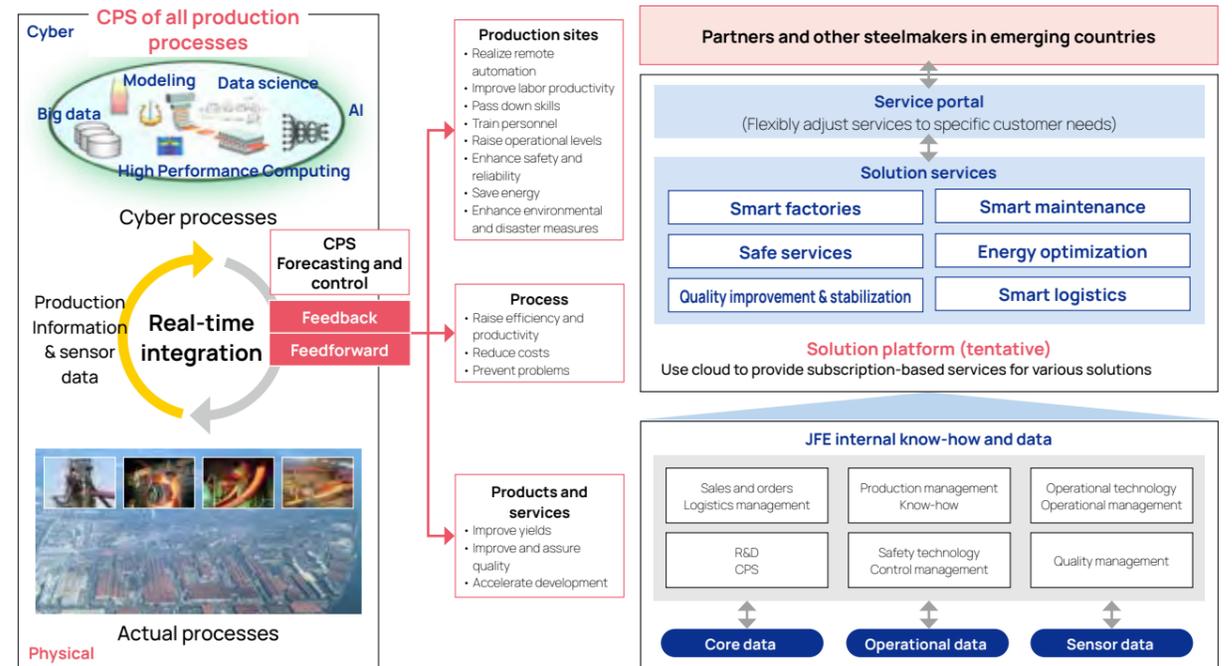
**Framework for becoming carbon neutral**  
In October 2020, JFE created a companywide project team that reports directly to the president to guide efforts toward becoming carbon neutral by 2050, including by developing innovative technologies and working to realize practical application. Additional units set up in July and October 2021 are now helping to reform internal structures and accelerate initiatives to advance toward carbon neutrality.



### Key Measure 3 Use digital technology to strengthen production bases and achieve new growth

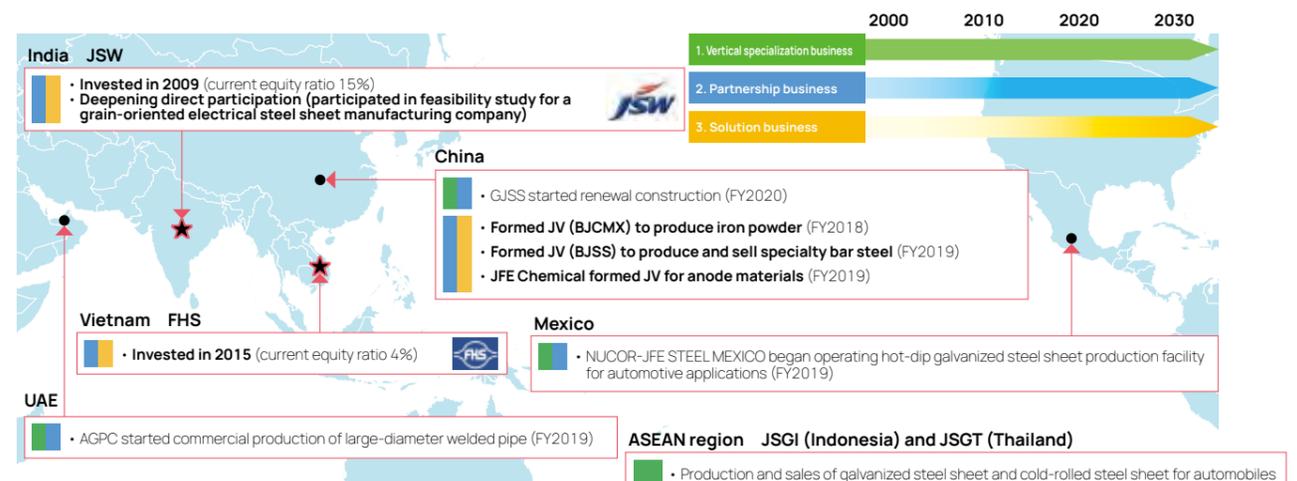
- Complete the installation of cyber physical systems (CPS)\* in all production processes during the Seventh Medium-term Business Plan and thereby realize more stable operations while greatly improving productivity through the **creation of integrated CPS at steelworks and across the entire company**
- Expand solutions-based businesses by building a platform to provide technologies and operational and research know-how that help to produce highly value-added products and reduce environmental impacts

\* Systems that create value by gathering data (big data) from diverse sensors installed in equipment and products, and then assemble the data in cyberspace to perform data analysis before feeding back the results to the physical realm in real time



### Key Measure 4 Expand and accelerate overseas business via solutions based on knowledge, skills, and data

- Expand returns from 1 vertical specialization businesses, such as steel production for automobiles
- Further deepen 2 business with partners to tap into expanding demand in growth markets
- Expand 3 solution businesses to provide cutting-edge technologies, operations and research know-how  
→ Triple earnings in FY2024 compared to FY2020



## Engineering Business | JFE Engineering Corporation

### Becoming an engineering company that contributes to the achievement of the SDGs with the mission of foundation of life

When formulating a medium- to long-term strategy targeting the year 2030, JFE Engineering came up with its purpose called "foundation of life," Just for the Earth. We strongly back people's lives and the creation of a safe society for current and future generations. Driven by a mission of "Just for the Earth," the entire Company is working diligently to contribute to the achievement of the SDGs and achieve its targets in the Seventh Medium-term Business Plan.

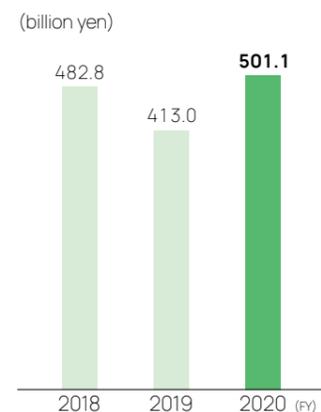


**Hajime Oshita**  
President and CEO  
JFE Engineering Corporation

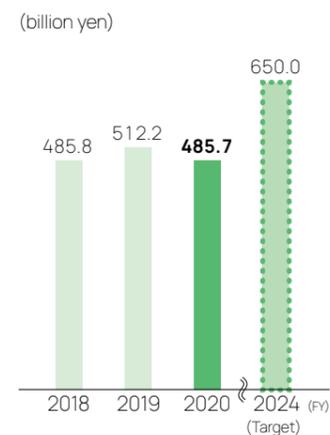
Strengths	Threats and risks	Opportunities
<ul style="list-style-type: none"> <li>Track record and technological capabilities in the broader infrastructure business</li> <li>Track record and technological prowess in the environmental, recycling, and renewable energy fields</li> <li>Stable earnings foundation thanks to expansion in the operation &amp; maintenance business</li> <li>Integrated provision of utilities (water, electricity, gas, etc.)</li> </ul>	<ul style="list-style-type: none"> <li>Contraction in domestic public works projects in line with government aims and policies</li> <li>Increase in construction costs due to changes in prices for equipment and materials</li> <li>Decline in EPC projects due to fall in private-sector capital investment</li> <li>Loss of business opportunities due to COVID-19</li> </ul>	<ul style="list-style-type: none"> <li>Greater social expectations for SDGs achievement</li> <li>Stronger demand for infrastructure upgrades and service life extension</li> <li>Changes in social structure with privatization of public services</li> <li>Growing needs for renewable energy</li> </ul>

### Fiscal 2020 results

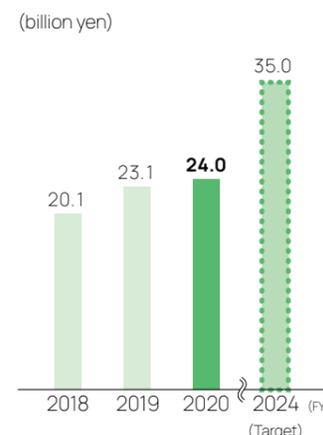
#### Orders received



#### Revenue



#### Segment profit



### Initiatives in Fiscal 2020

JFE Engineering expanded its operation & maintenance business that is responsible for upholding the cornerstone of our life in public-private partnership (PPP) operations, power generation and electricity business, and the recycling business, in addition to its traditional engineering, procurement, and construction (EPC) business.

In the EPC business, JFE Engineering received orders for major projects, mainly in its fields of expertise: waste-to-energy power plants, pipelines, bridges, and other public works projects, marking steady progress in the "creation" business of the cornerstone of life. In continuation from fiscal 2019, JFE Engineering expanded its customer base and offerings of products and services through M&A deals, endeavoring to improve corporate value further.

In operation & maintenance businesses, JFE Engineering participates in biomass power generation private finance initiative (PFI) projects and concessions in the water field, in addition to the comprehensive management of new gas and waterworks projects, while currently preparing to launch operations of these projects. In the electric power field, we expanded our bases in areas where energy is produced for local consumption through regional new electric power companies with connections to local governments. J&T Recycling Corporation, which is in charge of the

recycling business, has focused on expanding its food recycling bases while participating in projects to recycle PET bottles, demand for which has been growing each year. By expanding our operation & maintenance businesses, we aim to establish a corporate structure with earnings that are less susceptible to fluctuations in orders for projects.

In overseas operations, we are aggressively advancing efforts to set up operation & maintenance businesses with local partners and carry out EPC projects with a focus on Europe and Southeast Asia. We are making steady progress toward stabilizing operations overseas.

JFE Engineering is concentrating on digital reforms in the development of new technologies. Regarding waste-to-energy power plants, we are implementing digital technologies that will lead to more stable operations and higher output of electricity with the operation of fully automated waste incinerators and the deployment of AI coupled with voluminous data accumulated from operations.

Leveraging our accumulated technologies and know-how, we have expanded and advanced business domains related to the "creation" and "responsibility" cornerstones of life.

### Medium- to Long-term Strategy and Future Initiatives

JFE Engineering focuses its efforts on the following five major fields in its medium- to long-term strategies.

The first is **the waste to resources field**. With the intention of creating a business model centered on thoroughly using waste, we will build a rock-solid earnings foundation by steadily expanding assets over the long term and tapping into demand for replacing aging waste-to-energy power facilities. Overseas, we are accelerating the development of operation & maintenance businesses, in addition to EPC projects. In the recycling business, we have identified three core businesses with strong social needs: food recycling, plastic recycling, and waste incineration / power generation. We aim to aggressively invest in and develop these core businesses nationally.

The second one is **the carbon neutral field**. In addition to solar and biomass power generation that we have focused on, we are strengthening our presence in the fields of offshore wind power and geothermal power generation. In the offshore wind power field, we will enhance our production structure for foundational structures attached to the seabed, an area of expertise. JFE Engineering is also accelerating the development of carbon recycling technology by leveraging its accumulated know-how in incineration technology.

The third field is **combined utility services**. As an operation & maintenance business that is a "responsible" cornerstone in our life, JFE Engineering comprehensively provides utility services (water, electricity, and gas) to regions, including heat supply services, through the launch of new local electric power companies and participation in concessions for the privatization of waterworks services, which has expanded in recent years.

The fourth field is **infrastructure**. JFE Engineering is developing and introducing new products, construction methods, and materials that address needs to maximize the use of already built infrastructure, by reinforcing and extending the service life of infrastructure like bridges, gas plants, waterworks systems, and pipelines.

**DX projects** are the fifth field. We are advancing the use of digital technology in all kinds of engineering work. In addition to increasing the efficiency of work, our aim is to widely reform work processes and provide digital twins and digital services that utilize AI and IoT, such as adding new functionality to products and services.

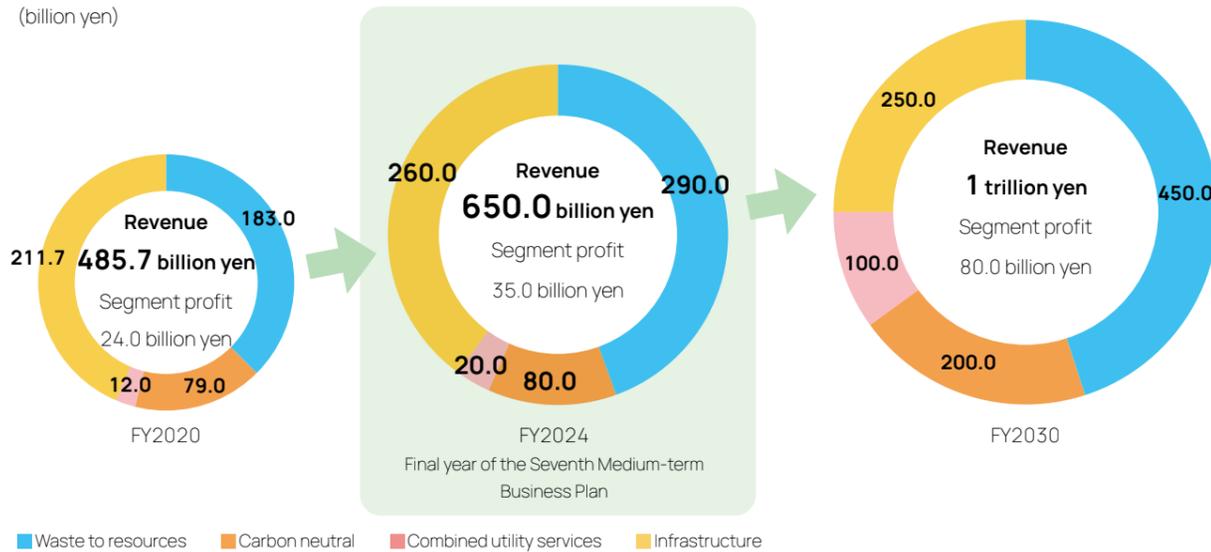
#### Key measures in the Seventh Medium-term Business Plan and fiscal 2024 earnings targets

- Enhance medium- to long-term priority areas as growth fields
  - Waste to resources
  - Carbon neutral
  - Combined utility services
  - Infrastructure
- Expand overseas operations by developing business in tune with local needs
- Advance DX projects for all engineering work

Revenue  
**650.0 billion yen**  
(Segment profit 35.0 billion yen)

### Seventh Medium-term Business Plan Business Strategy

Expand sales revenue to the level of one trillion yen in fiscal 2030



### Key Measure 1 Enhance medium- to long-term priority areas as growth fields

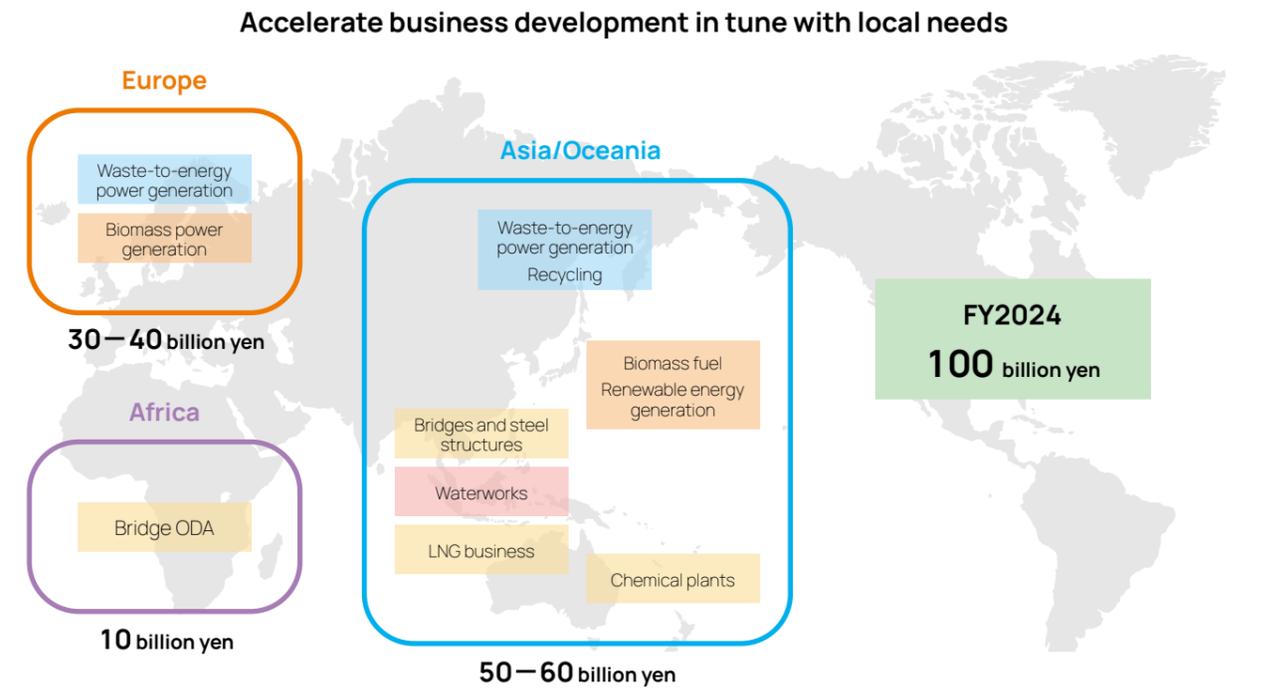
With our ambitious target for revenue of one trillion yen by fiscal 2030, we are creating a foundation for growth by setting revenue targets for fiscal 2024 in the four fields of waste to resources, carbon neutral, combined utility services, and infrastructure.

<p><b>Waste to Resources</b></p> <p><b>290 billion yen</b></p> <ul style="list-style-type: none"> <li>Establish stable profit base in domestic environment business</li> <li>Priority investment and expansion of domestic market in recycling business*</li> </ul> <p><small>* Food, plastic, incineration, and power generation</small></p>	<p><b>Carbon neutral</b></p> <p><b>80 billion yen</b></p> <ul style="list-style-type: none"> <li>Put priority in renewable energy (offshore wind power generation, biomass power plant, solar power plant, geothermal power plant, etc.)</li> <li>Develop carbon neutral technologies</li> </ul>	<p><b>Combined utility services</b></p> <p><b>20 billion yen</b></p> <p>Shift to comprehensive business model, including for efficient operation of facilities to contribute to energy savings and decarbonization</p>	<p><b>Infrastructure</b></p> <p><b>260 billion yen</b></p> <p>New technologies (new products, construction methods, and materials) to address newly arising needs for strengthening and improving life of infrastructure</p>
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### Key Measure 2 Expand overseas operations by developing business in tune with local needs

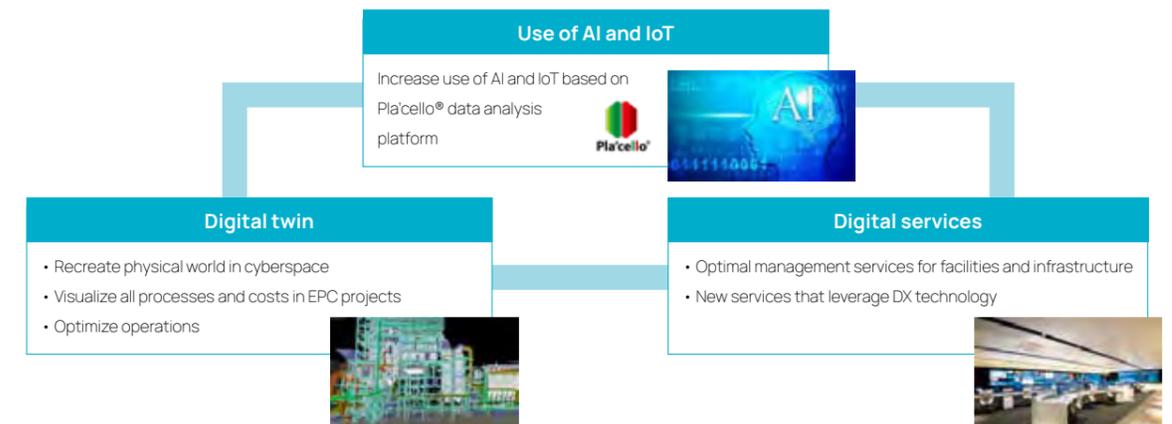
In Asia and Oceania, the JFE Group is pursuing synergies through M&A and enhancing its competitiveness in EPC projects, mainly related to the environment and energy plants. In Europe, the JFE Group will build an earnings foundation in EPC projects for environmental plants and biomass power plants. In Africa, we are keen to make inroads into new markets with bridge ODA projects. Through these initiatives, we aim to increase revenue to 100 billion yen.

#### Priority fields by area in overseas operations



### Key Measure 3 Advance DX projects for all engineering work

To digitalize overall work, we aim to advance our AI and IoT technologies, and optimize operations while improving engineering efficiency with next-generation EPC using digital twin technology. We also aim to provide new kinds of digital services to customers.



JFE Engineering is undertaking reforms with DX technology focused on three angles: AI and IoT, digital twin, and digital services, in order to remain a front-runner in the engineering world.

## Trading Business | JFE Shoji Corporation

### Increasing our abilities to offer proposals and convey information, aiming to be a trading company with presence

As the JFE Group's core trading company, we constantly consider the overall optimum sharing strategies with other Group companies to work on strengthening functions. Furthermore, we seek to increase our abilities to offer proposals and convey information, growing sustainably with our customers to be a company with a strong market presence.



**Toshinori Kobayashi**  
President and CEO  
JFE Shoji Corporation

#### Strengths

- Robust business foundation with steel-related businesses such as steel products, raw materials, and machinery
- Solid sales, processing, and distribution network in the four global key regions (Japan, the Americas, China, and ASEAN)
- Maximization of comprehensive Group capabilities through strong collaboration with JFE Steel and JFE Engineering
- Highly specialized human resources with the ability to propose projects backed by extensive experience in steel-related businesses

#### Threats and risks

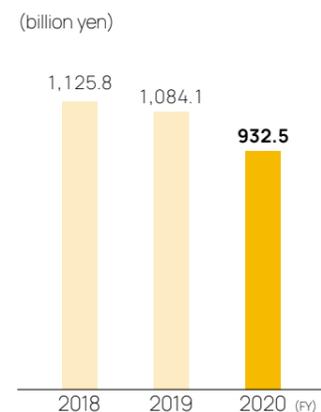
- Uncertainties in global economy caused by geopolitical risks, such as tensions between the United States and China
- Negative impact on corporate activities from uncertainties surrounding the COVID-19 pandemic
- Slower growth in domestic market and contraction in manufacturing industry due to declining population
- Changes in market structure and government policy due to a faster movement toward carbon neutrality

#### Opportunities

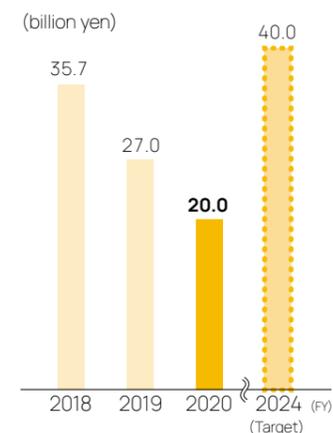
- Revision of customers' supply chains and procurement strategies, in line with changes in the external environment, such as U.S.-China trade friction and the impact of COVID-19
- Stronger demand for steel in emerging markets of India and the ASEAN region
- Higher demand for eco-products that can help reduce CO<sub>2</sub> emissions and conserve energy, in response to growing social expectations in the context of ESG and the SDGs
- Increasing potential to create new value added and provide services in distribution using DX and AI

### Fiscal 2020 results

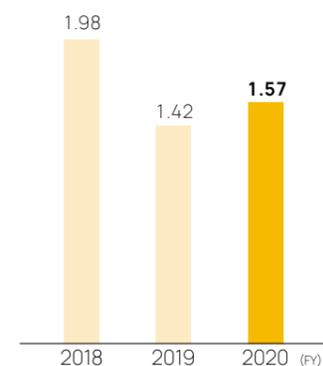
#### Revenue



#### Segment profit



#### Ratio of consolidated income to non-consolidated income



### Initiatives in Fiscal 2020

In the second half of fiscal 2019, the world economy slowed down due to trade friction between the United States and China, and then in fiscal 2020 global economic activity was dulled by the COVID-19 pandemic, which still lingers today. Under these circumstances, JFE Shoji maintained and expanded trading revenue while expanding our business revenue as one of the basic policies of the Sixth Medium-term Business Plan, and strengthened its four global key regions (Japan, the Americas, China, and ASEAN).

In response to the pandemic, JFE Shoji reduced assets and applied stricter criteria for investments and loans in order to secure cash flow. JFE Shoji also focused on maintaining its supply chain by managing inventory and checking creditworthiness. From a medium- to long-term perspective of increasing competitiveness, JFE Shoji continued to reinforce its global supply chain.

More specifically, in the domestic steel business, JFE Shoji strengthened processing and distribution functions through

collaboration across the Group and beyond, building alliances and investing in independent processing centers while considering the long-term decline in demand. Overseas, JFE Shoji stabilized the management of an electrical steel processing company it acquired in Canada in 2019. At the same time, JFE Shoji expanded its network by launching a new service center for automotive steel in Mexico.

In the raw materials business, JFE Shoji strove to increase customers by maximizing the utilization of Group resources, and focused on growing sales of biomass fuel, demand for which should increase as renewable energy expands. In the machinery and materials business, JFE Shoji leveraged its accumulated know-how in steel-related businesses to engage in new transactions involving solutions for electric power companies.

### Medium- to Long-term Strategy and Future Initiatives

Under the Seventh Medium-term Business Plan, in continuation of the basic policies of the previous plan, JFE Shoji will build a foundation for growth for the Group in the growth fields such as electrical steel, steel for automobiles, and overseas construction, while expanding its supply chain. Moreover, JFE Shoji will pair its advantage in high specializations with its proposal capabilities to expand transactions involving companies other than JFE Steel, while further enhancing its purchase and sales capabilities. Moreover, JFE Shoji is striving to contribute to the activities of the whole JFE Group in the increasingly important areas of ESG

management and the promotion of DX, while utilizing the information networks and management resources of the JFE Shoji Group more than before.

JFE Shoji plans to invest 120 billion yen (including 50 billion yen in GX investments) with the objective of expanding business earnings and reinforcing the supply chain through M&A and investments in other companies. By steadily implementing this growth strategy, JFE Shoji targets segment profit of 40 billion yen in fiscal 2024.

#### Key measures in the Seventh Medium-term Business Plan and fiscal 2024 earnings targets

##### 1. Initiatives in Priority Field

- Electrical steel: Establish No. 1 position in global processing and distribution
- Strengthen supply chain management of automotive steel composite materials
- Accelerate activities overseas in construction materials business
- Fully capture steel demand in Japan

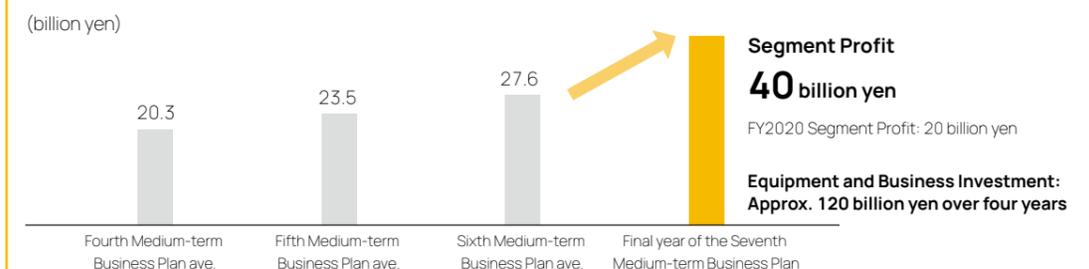
##### 2. Strengthen purchasing and sales capabilities

- Expand our presence in the steel; raw materials, machinery and materials

##### 3. Initiatives for new business opportunities

- Expand environmental-solution businesses
- Promotion of DX

#### Segment profit targets (Comparisons with past medium-term business plans)



\* The Fourth and Fifth Medium-term Business Plans used JGAAP.

Seventh Medium-term Business Plan Business Strategy

Key Measure 1 Initiatives in Priority Field

Electrical steel: Establish No. 1 position in global processing and distribution

JFE Shoji is building a best-in-class processing and distribution network for electrical steel through M&A and alliances, while developing overseas processing centers over the long term. During the medium-term plan, JFE Shoji aims to be No. 1 in global electrical steel processing and distribution by expanding cooperation with alliance firms, deepening its processing functions, and building supply chains in new regions.



Accelerate activities overseas in construction materials business

JFE Shoji is keen to tap into growing demand for construction materials in North America and the ASEAN region. In North America, we are examining opportunities to expand business domains through M&A. In the ASEAN region, we aim to increase transactions with local general contractors and fabs, while exploring collaborations with local companies to latch onto strengthening demand.



Strengthen supply chain management of automotive steel composite materials

Amid increasing needs for lighter vehicles to improve fuel economy, we expect more vehicles to use high-tensile steel, one of JFE Steel's strategic products. JFE Shoji will deepen its collaboration with JFE Steel's automotive steel production bases around the world. In addition, it aims to be more sensitive to trends in high-tensile steel in the supply chain, and accelerate the global development of the Group's automotive steel products.



Fully capture steel demand in Japan

While enhancing the presence of the JFE Group in the domestic market, its most important market, JFE Shoji will maintain and expand earnings by increasing new sales through the synchronization of strategies with JFE Steel. Moreover, we will expand functions to secondary and tertiary processing through collaboration across the Group and beyond, and reinforce functions through deeper connections within the Group.



Key Measure 2 Strengthen purchasing and sales capabilities

Expand our presence in the steel; raw materials, machinery and materials

In the steel products field, JFE Shoji is meeting the needs of customers in Japan and around the world, while aiming to build an even more stable purchasing structure and strengthening

relationships with alliance partners and other steel mills, in addition to JFE Steel's products. In the raw materials and machinery and materials field, we are accelerating growth in businesses unrelated to the Group, leveraging our insight, know-how, and purchasing network that has been built up in transactions with the JFE Group.

Key Measure 3 Initiatives for new business opportunities

Expand environmental-solution businesses

Viewing growing social expectations on ESG matters as an opportunity, JFE Shoji is focusing on the following initiatives.

- Enhance the processing and distribution of eco-products, such as high-tensile steel for automobiles, and electrical steel for improving energy efficiency, while building a supply chain for steel used to construct offshore wind power plants
- Help reduce CO<sub>2</sub> emissions across society through global resource recycling, in light of the greater volumes of steel scrap being handled, and expand transactions in biomass fuel, such as palm kernel shells (PKS) and wood pallets



Palm kernel shells (PKS)

Promotion of DX

Though DX projects, we aim to increase the competitiveness of our products and services in the supply chain, focusing on the creation of new businesses that utilize digital technologies, and changing existing businesses while greatly increasing productivity.

**WE SUPPORT**  
  
 In April 2021, JFE Shoji became a signatory to the United Nations Global Compact, declaring its support for these principles. JFE Shoji will comply with the Ten Principles of the Global Compact and endeavor to achieve the SDGs.  
 United Nations Global Compact  
<https://www.unglobalcompact.org>

Shipbuilding Business | Japan Marine United Corporation (equity-method affiliate)

Contributing to the sustainable development of society and industry through the finest products and services in the ship and offshore field.

As a leading company in Japan's shipbuilding industry, Japan Marine United, in its business fields of merchant ships, naval/government ships, and offshore structures, aims to be a competitive shipyard that drives the maritime industry to realize a decarbonized society on the seas, leveraging its world-class environmental and energy-saving technologies.



**Kotaro Chiba**  
 President and CEO  
 Japan Marine United Corporation

Strengths	Threats and risks	Opportunities
<ul style="list-style-type: none"> <li>Advanced environmental and energy-saving technologies</li> <li>Planning &amp; Development capabilities for design of superior product, that leverage its abundant R&amp;D and design/engineering resources</li> <li>High productivity that leverages the unique features of each shipyard.</li> </ul>	<ul style="list-style-type: none"> <li>Tougher international competition against shipbuilders become larger in China and South Korea</li> <li>Impact of U.S.-China trade friction on seaborne trade and cargo movement</li> <li>Higher prices for raw materials and equipment</li> <li>Foreign exchange fluctuations (yen appreciation)</li> </ul>	<ul style="list-style-type: none"> <li>Progress toward a decarbonized society                             <ul style="list-style-type: none"> <li>Stronger environmental regulations</li> <li>Faster momentum in new fuel adoption and research</li> <li>Invigoration of offshore wind power generation markets</li> </ul> </li> <li>Growth picking back up in cargo movement and recovery in market conditions once economic activity returns to normal after the pandemic ends</li> </ul>

Initiatives in Fiscal 2020

In fiscal 2020, Nihon Shipyard Co., Ltd. (NSY) was established as a sales and design joint venture between Japan Marine United and Imabari Shipbuilding, as their capital and business alliance came into effect.

While utilizing the strengthened marketing, design, and sales force of both companies, NSY aims to develop outstanding performance design and launch them timely to market, in order to fit to increasingly strict environmental regulations on the path to decarbonization.

The alliance between Japan Marine United and Imabari Shipbuilding enables both companies to receive a lot-order and construct ultra-large container ships in series, which had been difficult for a single company in terms of building capacity to accomplish to date.

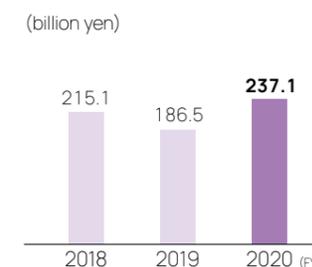
Medium- to Long-term Strategy and Future Initiatives

In fiscal 2020, Japan Marine United created a business plan for the next five years, laying out a vision for where it wants to be in five years, which is to be a core player that guides a maritime cluster with world-leading technologies combining the engineering strengths of shipbuilding in Japan.

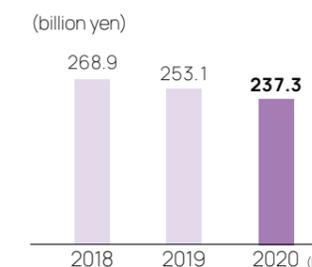
In the core merchant ships business, Japan Marine United aims to develop ships that constantly outperform the competition by pioneering leading-edge environmental technologies with NSY at the center. While improving the productivity of manufacturing facilities, production systems, and human resources, we will reinforce the business foundation by sharpening our global competitiveness and moving toward our vision for the future. We will contribute to the sustainable growth of an environment-friendly society, updating our business structure for growing market, floating-type offshore wind power generation.

Fiscal 2020 results

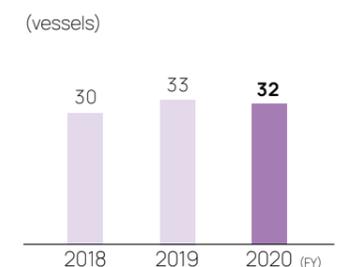
Orders received



Net sales



Vessels built



# Outside executives talk about the Seventh Medium-term Business Plan and JFE's future vision



**Nobumasa Kemori**  
Outside Director

Mr. Kemori joined Sumitomo Metal Mining in 1980 and served as president, chairman, and advisor before being appointed honorary advisor in June 2021. He is also an outside director of NAGASE & CO., LTD. and Sumitomo Realty & Development Co., Ltd. He has been a director of JFE Holdings since June 2018.



**Masami Yamamoto**  
Outside Director

Mr. Yamamoto joined Fujitsu in 1976 and was appointed director and then senior advisor (current post from June 2019) after first serving as president and later chairman. He is also an outside director of Mizuho Financial Group, Inc. He has been a director of JFE Holdings since June 2017.



**Yoshiko Ando**  
Outside Director

Ms. Ando joined the Ministry of Health, Labour and Welfare in 1982 and retired in 2018 after serving as director-general of Labour Policy and Director-General for Human Resources Development. She currently is an outside Audit & Supervisory Board member of Kirin Holdings Company, Limited and an outside director of Sansei Technologies, Inc. She has been a director of JFE Holdings since June 2020.



**Shigeo Ohyagi**  
Outside Audit & Supervisory Board Member

Mr. Ohyagi joined Teijin in 1971 and assumed his present post as senior advisor in June 2018 after serving as president and then chairman. He is also an outside director of KDDI CORPORATION, MUFG Bank, Ltd., and Tokyo Electric Power Company Holdings, Incorporated. He became an Audit & Supervisory Board Member of JFE Holdings in June 2014.



**Tsuyoshi Numagami**  
Outside Audit & Supervisory Board Member

Mr. Numagami became a professor in the Graduate School of Commerce and Management at Hitotsubashi University in 2000. After serving as dean, board member and executive vice president, he took his present position as professor in the university's Graduate School of Business Administration in April 2018. He became an Audit & Supervisory Board Member of JFE Holdings in June 2018.



**Isao Saiki**  
Outside Audit & Supervisory Board Member

Mr. Saiki was admitted to the Japanese bar in 1989 and joined Ginza Law Office (current Abe, Ikubo & Katayama Law Firm), where he has been a partner lawyer since January 1998. He became an Audit & Supervisory Board Member of JFE Holdings in June 2017.

## What is your opinion of the Board of Directors' activities as well as its responses to the pandemic and other sudden changes in the business environment over the past year?

**Kemori** In the first half of fiscal 2020, the Board of Directors mainly discussed two topics. The first was how to reduce production in response to a sharp, steep drop in the demand for steel products. A decision was made to temporarily halt operations at two blast furnaces and keep six blast furnaces operating, instead of scaling back output uniformly across all eight furnaces. The Board of Directors made a proper decision after President Kitano of JFE Steel explained the situation to us, including technical aspects in ways that we all could understand.

The second topic was how to reduce losses and control interest-bearing debt in the face of substantial losses forecasted due to a deteriorating metal spread,\* a source of earnings for the Company. It was extremely challenging to reduce costs while significantly cutting back production volume. Emergency measures were implemented and the Company sold off assets, which kept interest-bearing debt within the parameters set by management.

Overall, I feel the Board of Directors handled the situation appropriately. However, I strongly believe that management needs to maintain constant awareness of the equity ratio (equity attributable to owners of parent ratio) to remain prepared for any rapid or unforeseeable change in the business environment.

\* Product sales price - Raw material procurement price

**Ohyagi** Japan's steel industry is strongly affected by trends in the macroeconomic environment. JFE Steel has a high export ratio of over 40% for steel products, so both trade friction between the U.S. and China and the pandemic have had big impacts. Moreover, under the Sixth Medium-term Business Plan from fiscal 2018 to fiscal 2020, the Company invested large amounts of capital to strengthen its production capacity, resulting in increased interest-bearing debt and a decrease in the equity ratio. At the Board of Directors' meetings, as an Audit & Supervisory Board Member, I voiced my opinion regarding the risks involved in concentrating capital investments

and the importance of preparing for a possibly steeper economic downturn.

Another important topic is the deployment of digital technology to facilitate new workstyles. The Board of Directors discussed how the pandemic has accelerated related reforms and, as a result, JFE has kept up with other progressive Japanese companies in shifting paper-based and face-to-face work to digital processes.

**Ando** I was appointed to this position in June 2020, during the pandemic, so I have not had the opportunity to visit the front-lines and talk with people there. At JFE, Board of Directors' meetings are opportunities for participants to voice opinions frankly and exchange ideas freely. All participants, including Audit & Supervisory Board Members, engage actively in dialogue with no distinction made between 'insiders' and 'outsiders.' As the chair, President Kakigi supports deliberations with information as needed, but he makes a full effort to guide discussions toward conclusions that consider the opinions of outside Board members. From this perspective, I believe an inside director is better able to perform the role of the JFE chair, although outside directors are often placed in charge of corporate governance matters.

Right before my appointment, the Company announced emergency measures to counter COVID-19 and the Board of Directors discussed how to follow up on these measures at every meeting thereafter. Outside Board members brought up various problems and clearly conveyed their awareness of the crisis, even when the meetings were held by phone.



## What do you think of the process used to formulate the Seventh Medium-term Business Plan?

**Yamamoto** Discussions about the Seventh Medium-term Business Plan began with a strong sense of crisis shared by both the Board of Directors and Company executives regarding what the Company must do to survive a challenging business environment, given that substantial losses were incurred in both fiscal 2019 and the first half of fiscal 2020. Compared with

the Sixth Medium-term Business Plan, triple the amount of time was spent on formulating the new plan. Schedules were set up so that our deliberations could concentrate separately on the steel, engineering and trading business segments. I think it is rare for a company to allocate this much time for discussion about a medium-term business plan.

## Dialogue with Outside Executives

Whereas the previous plan sought growth in volume terms, this seventh plan focuses on quality-based growth. It also sets out a clear policy for sustainability. While we must wait to see the actual outcome, I am confident that this plan has been well considered down to the last detail.

**Numagami** Overall, I think the process for formulating the seventh plan was excellent. In particular, two forums were created for discussing Companywide efforts involving offshore wind power generation. Executives carefully explained the initiatives being taken at each operating company and ample time was set aside for discussions, which ended up being quite thorough.

Furthermore, Japanese politics and economics are becoming increasingly linked to global politics, so the plan reflects deep discussions by the Board of Directors about global matters. I believe the plan will be impactful in the sense that JFE is taking on the biggest transformation since its founding.



### Which measures outlined in the Seventh Medium-term Business Plan do you find the most intriguing?

**Kemori** I am interested in the pivot from quantity to quality. The steel business is basically a cash cow for JFE because it generates a large percentage of total sales revenue. Among companies that use large-scale equipment, it is common to pursue competitive advantage by increasing volume. At first glance, turning the focus away from volume seems to run counter to this common practice. However, competitiveness in manufacturing is defined not by the Company as a whole, but by the production capacity of individual plants, or blast furnaces in this case. Also, the production capacity of blast furnaces can be described as the amount of output per on-site employee.

The first key, production capacity per blast furnace, is greatly affected by the volume of the blast furnace itself. By maximizing the operating rates of blast furnaces using a digital technology called cyber physical systems (CPS), it is possible to further boost capacity. This idea, which is unique to JFE, aligns with the company's vision of 'contributing to society with the world's most innovative technology.'

**Saiki** When we evaluated the previous plan, we thought it would be better to examine the accumulated measures undertaken by each operating company within the broader context of what JFE aims to accomplish overall. Similarly, we initially considered setting targets for only fiscal 2021 under a special single-year plan for emergency measures during the pandemic, and then launch the Seventh Medium-term Business Plan from fiscal 2022. However, once we finally decided to launch the new plan in fiscal 2021, I was concerned there would not be enough time to discuss broader outlines. But despite my concerns we were able to hold thorough discussions, so I believe the process turned out to be quite good. I think the business plan is well put together, despite the time constraints and rapid changes in the operating environment.

**Ando** When groups of companies are managed within a holding company structure, overall business control can be challenging depending on how the holding company is positioned. I had thought that discussions about the JFE Group would be framed in terms of its operating companies engaged in steel, engineering and trading, but during the plan's formulation a broad framework was first established for the entire group and then details about each individual part were added to the framework. I believe this improved the visibility of how each company generates synergy within the Group. A fair amount of time was spent discussing offshore wind power generation, which I feel has the potential to become a promising business capable of leveraging group synergies.

The second key, improving production capacity per employee, requires the establishment of KPIs. Using one of my ideas, JFE now analyzes and compares its current productivity to that of sector peers that are globally competitive. As a result, JFE has set KPI targets of 2,000 tons of annual output per employee and profit of 10,000 yen per ton of steel shipment. To achieve these targets, I am confident that JFE will do its utmost to attain world-class profitability as a steelmaker.



**Numagami** I think an important shift introduced in the new plan is the Company's intention to sell various steel solutions to overseas corporations. This could act as a springboard for transforming JFE from a manufacturer into a platformer. In platformer business, unlike general manufacturing, business development skills can be more crucial than technology types/levels. This will place great emphasis on the seamless sharing of internal know-how, something that is already well under way in the engineering business.

I am also interested in the Company's carbon-recycling blast furnaces and offshore wind power plants. While JFE has an opportunity to lead the world in carbon-recycling technology, European companies already have first-mover advantages in the field of offshore wind power plants. But considering the cost and time required to transport plant materials and equipment from Europe to Japan, I believe JFE may have a competitive advantage. Going forward, I see the Company accumulating the know-how and expertise it needs to gradually enhance its productivity in this field.

**Saiki** My main interest is the project to commercialize offshore wind power business. The fulcrum of this project will be the realization of synergies through cooperation among the three businesses. JFE's basic stance in the past has been to put an operating company in charge of a single business, with JFE Holdings serving as a pure holding company, but in this case it will act as a hub. I expect this to lead to changes in governance and business methods throughout the Group.

The Board of Directors has received reports about this project on numerous occasions and posed tough questions to operating company executives about its outlook and feasibility. I believe the initial concept has been brushed up significantly as a result of these discussions.

**Yamamoto** Under the Seventh Medium-term Business Plan, the Company's first step is to clear the very high hurdle of becoming carbon neutral by 2050. The steel industry currently emits more than 10% of CO<sub>2</sub> emissions in Japan as a whole. To achieve net zero emissions, next-generation technologies such as carbon-recycling blast furnaces are needed to completely makeover traditional steelmaking processes. This will require the use of data control combined with DX technologies. A massive undertaking to solve the technological issues for carbon neutrality has begun, aiming ultimately at generating profits as well as innovating technology.



Measures outlined in the new plan lean heavily on the input of executives, so I believe it is our duty to back them up as much as possible. The success of this initiative over the next four years will determine the future direction of JFE over the next decade or two, in my opinion.

**Ohyagi** Medium-term business plans typically have goals that can be achieved within their time frames, but the Seventh Medium-term Business Plan looks more like a vision with long-term objectives set 10 or 20 years into the future. For such a visionary plan, ensuring there is executive capacity to carry it out will be crucial.

Measures in the plan include a significant amount of forward-looking investment, but earnings in the steel industry are broadly exposed to trends in the economic environment. There may well be situations where the Company will have to discuss how much progress can be made depending on external conditions. In this case, it may be necessary for the Company to change its approach while flexibly deploying people, equipment, funding, and information. I believe it is my responsibility as an Audit & Supervisory Board Member to make sure the Company will be able to follow through with its plans.

The history of any company is one of constant change, but now we are also approaching pivotal transformations in society and the market. Implementing change under the Seventh Medium-term Business Plan will require constant awareness of the Company's market positioning. So far, JFE has provided supply chains with upstream raw materials, but now it must focus on developing more nimble businesses as a platformer. We must think carefully about where to position the Company while keeping a close eye on society's evolution.

**Ando** The Seventh Medium-term Business Plan's targets for CO<sub>2</sub> reduction (by the end of fiscal 2024) are realistic in view of current conditions, but I think future objectives will require backcasting from the Company's targets for 2050. I believe, as Mr. Ohyagi said earlier, the visionary nature of the new plan reflects this viewpoint.

Initiatives to achieve monumental targets naturally require the input of more than just one company working on its own. While monitoring progress in R&D, government policy objectives, and global trends, we will continue to oversee the Company's progress from an objective viewpoint, one step removed from the action.

**What risks and issues do you envision materializing and possibly impacting the implementation of company plans?**

**Saiki** In the steel business, changes in the external environment could tighten the metal spread and tilt operations into the red. While the Seventh Medium-term Business Plan incorporates lessons learned from the previous plan, risks could still materialize under similar situations. As an outside director, I am constantly thinking about what management should do with its major investments in the event that risks appear.



**Yamamoto** Initiatives to become carbon neutral will require large investments that JFE would have trouble funding on its own. A business model that involves all industries and the government too probably will be needed. Under such a scenario, it is unclear what kind of leadership role JFE could assume within an industry consortium. The chance that investment plans could differ from past objectives is something greater than zero. Since stakeholder interests can sometimes be at odds with each other, I think the first challenge, and risk, will be the proper management of projects.

Furthermore, initiatives to become carbon neutral, even if successful, could well increase production costs. Also, rival steelmakers overseas will probably manufacture cheaper products that are not carbon neutral. Basically, moves to decarbonize have inherent risks in terms of price competition for steel products. To compensate for this, JFE must promote

the environmental value of its carbon-free steel and ultimately prevail on the basis of its total value proposition. We envision needs for sweeping changes in sales methods and sales channels to enable the Company to realize selling prices commensurate with the value of its products.

**Numagami** Assuming JFE develops a solutions business as a platformer, a certain degree of openness will become necessary so that other steelmakers can participate in the platform. To provide various solutions overseas over the long term, some technologies probably will have to be opened up. If the Company resorts to the standard practice in the Japanese manufacturing industry of holding back its proprietary technologies that could wind up being a mistake.

Another point to note is the pace of growth in the engineering business, which at some point will require more business managers. If a company or business grows too fast, personnel hiring and training might not be able to keep pace. An ironclad rule of management is to prioritize the allocation of resources, starting with upper management. The pace of future growth will hinge on the JFE Group's ability to develop necessary human resources internally as well as acquire such personnel from outside.

**Kemori** On top of the external risks that everyone has identified, I would like to add that internal risks may also increase. The Seventh Medium-term Business Plan accepts the challenge of dealing with major changes, but changes can occur throughout business processes. Issues related to safety, the environment, and quality could arise if such changes occur one after another. Focusing too much on external risks might result in the Company losing its footing due to unforeseen circumstances. I hope the executives are well aware of the internal risks.

**Lastly, what are your thoughts on the JFE group's greatest strengths for supporting sustained growth? As outside directors, what are your expectations and hopes?**

**Kemori** I believe JFE's greatest strength is its willingness to take on the challenge of resolving issues in the modern world by applying its technological capabilities. The company's corporate vision and Seventh Medium-term Business Plan embody this willingness.

During the formulation of the Seventh Medium-term Business Plan, I was deeply impressed by the deliberations

about targets for reducing CO<sub>2</sub> emissions. Carbon neutrality by 2050 has been set as the ultimate objective, beginning with reduction targets for fiscal 2024. Perhaps midway targets for fiscal 2030 also could have been set, but the executives were adamant that numerical targets disclosed to the public had to be backed up by technologies capable of achieving them. So the Company will draw up targets after monitoring its progress

in developing the needed technologies. I think JFE's high expectations and pride regarding technology are the sources of its competitive advantage.

**Yamamoto** I can feel everyone's passion for the steel business at JFE. For example, at the Intercity Baseball Tournament held in 2019, when JFE East Japan won its first game, the enthusiasm of the employees was incredible.

The mindset of overcoming hardships and taking on challenges until objectives are achieved has been instilled from the top down to each and every employee. I believe this is JFE's greatest strength. JFE continues to take on challenges with a positive attitude, so I have great hopes for its coming accomplishments.

**Saiki** Like everyone has said, I also feel that JFE's strength is its unwavering spirit of taking on new challenges. JFE's concepts for carbon-recycling blast furnaces and offshore wind power generation are examples of its will to develop strengths unlike those of other domestic steelmakers. I strongly hope that the Company will continue to evolve in this direction.

JFE ranks second in terms of crude steel output in the Japanese steel industry. If the Company does not disclose information adequately, the world will not know about its ambitious plans. JFE is taking on some amazing challenges, so to ensure that the world appreciates these efforts I hope the Company will step up its dissemination of information.

**Numagami** Global developments regarding carbon neutrality and hydrogen-based societies could turn into promising businesses, but this will depend on governments playing crucially important roles. JFE has many technological strengths, but beyond its technical and on-site capabilities, the ability to comprehensively read the international situation and government trends will become increasingly crucial. The Board of Directors examines issues from multifaceted viewpoints by freely discussing everything from daily issues to international situations. Continually building on such wisdom is one of JFE's greatest strengths.

**Ando** I believe JFE's strength is derived from the growth engine and potential of each of its three relatively independent operating companies. Under the Seventh Medium-term Business Plan, the Company has plotted a course for generating new synergies in each business, centered on the environment.

Another strength of JFE is its human organizational capabilities that encompass the individual talents of employees. This is evident in how well the administrative office responds to our opinions and requests, and in the activities being undertaken by employees, which are reported in the group's internal

newsletters. JFE's respect for individuals will translate into stronger organizational capabilities, in my view.

Another point to watch is the Company's promotion of women in the workplace. JFE has been setting up childcare centers next to its main offices and taking other forward-looking initiatives, but some of these efforts still feel like they lack direction. Female employees have increased, and now many are approaching eventful stages in their lives, so the Company's responsiveness will be tested. I wish to visit workplaces to talk one-on-one with these employees. Regarding the promotion of women to managerial positions, the Company has set targets as a priority issue. I have hopes for ongoing efforts to groom women for executive positions in the operating companies, but for now I am looking forward to the day when female employees will attend Board of Directors' meetings to provide briefings.



**Ohyagi** I think JFE needs to put more effort into developing innovative technologies and producing products that are superior to those of its competitors. Frontline employees at JFE research labs and plants will be key in this endeavor. Given that employees come to work for 7-8 hours a day, they must be given opportunities to feel joy, motivation and growth in their jobs. A 'good company' must have an open organizational culture in which fair decisions are made in a controlled and transparent environment. In this sense, as an Audit & Supervisory Board member, I believe JFE is a very good company. I want to help make sure that this excellent corporate culture, the foundation for all activities, is passed on to future generations.

## Fiscal 2021 Key Issues of Corporate Management and KPIs

■ Groupwide ■ JFE Steel ■ JFE Engineering ■ JFE Shoji

The JFE Group has set key performance indicators (KPIs) for its initiatives to address priority issues, and worked toward achieving its targets. In fiscal 2021, the Company revised its material CSR issues, adding economic material issues to the list, and defined key issues for management. As a unified Group, we aim to contribute to the realization of sustainable growth for both the JFE Group and society as a whole by tackling these key issues for management.

Areas of Focus	Details	Material Issues	Operating Company	2021 KPIs
Contribute to resolving climate change issues (initiatives for achieving carbon neutrality by 2050)	<ul style="list-style-type: none"> <li>Initiatives for achieving carbon neutrality by 2050</li> <li>Reduce the JFE Group's CO<sub>2</sub> emissions</li> <li>Contribute to reduction of CO<sub>2</sub> emissions in society</li> </ul>	<b>Reduce the JFE Group's CO<sub>2</sub> emissions</b>	JFE Steel JFE Engineering JFE Shoji	<ul style="list-style-type: none"> <li>Formulate an investment plan for CO<sub>2</sub> reduction using new benchmarks for steadily achieving the target of reducing CO<sub>2</sub> emissions by 18% from FY2013 levels by the end of FY2024</li> <li>Achieve 35% of its CO<sub>2</sub> reduction target by energy conservation and technological development in FY2021</li> <li>Create a structure for promoting technological development with a focus on carbon recycling blast furnaces toward achieving carbon neutrality by 2050</li> </ul>
		<b>Contribute to reduction of CO<sub>2</sub> emissions across the society</b>	JFE Engineering JFE Shoji	<ul style="list-style-type: none"> <li>Reduce CO<sub>2</sub> emissions through the procurement of electricity derived from renewable energy (reduce domestic CO<sub>2</sub> emissions by at least 20% from FY2019 levels by the end of FY2024)</li> <li>Launch sales and implement eco-friendly products and technologies*: at least 15 cases in FY2021 (the cumulative total of at least 60 cases for the period from FY2021 to FY2024)</li> <li>* Products and technologies that contribute to saving energy and resources, reduce waste and environmentally hazardous substances, and do not require hazardous substances for manufacturing or use.</li> <li>Provide renewable energy power generation facilities</li> <li>Help reduce CO<sub>2</sub> emissions in society by expanding the bases of the recycling business (for plastic, food, etc.)</li> <li>Contribute to reduction in CO<sub>2</sub> emissions (FY2021): 10 million tonnes per year</li> </ul>
Ensure occupational safety and health	<ul style="list-style-type: none"> <li>Prioritize safety first</li> <li>Maintain the physical and mental health of employees and their families</li> </ul>	<b>Prevent workplace accidents</b>	Groupwide JFE Steel JFE Engineering JFE Shoji	<ul style="list-style-type: none"> <li>Workplace fatalities: Zero occurrences</li> <li>Lost-work injuries rate: ■ below 0.10 ■ below 0.25 ■ below 0.45</li> </ul> <p>[Key measures]</p> <p>(1) Enhance safety</p> <ul style="list-style-type: none"> <li>Install electromagnetic locks at the secondary mill entrances: 100% by FY2024</li> </ul> <p>(2) Restructure the safety and health management system</p> <ul style="list-style-type: none"> <li>ISO 45001 certification in all districts: 100% by FY2022</li> </ul> <p>[Key measures]</p> <p>(1) Eliminate falling accidents (100% implementation of following measures)</p> <ul style="list-style-type: none"> <li>Pre-operation checks (curing openings in high locations and edges of work floors)</li> <li>Strict adherence during operations (use of safety belts)</li> </ul> <p>(2) Eliminate accidents involving being caught in heavy machinery or struck by flying/falling objects (100% implementation of following measures)</p> <ul style="list-style-type: none"> <li>Pre-operation checks (ensure on-site understanding of work plans)</li> <li>Strict adherence during operations (no entry measures, allocation of worksite guides)</li> </ul> <p>(3) Turn off equipment, machines, and tools while non-standard operations</p> <p>(4) Multifaceted management of occupational safety and health</p> <ul style="list-style-type: none"> <li>Conduct remote safety patrols on premises by integrating multiple video images</li> <li>Introduce an AI-based system for detecting intruders</li> </ul> <p>[Key measures]</p> <p>(1) Install safety sensors (100% of plan) (2) 100% implementation of crane operation drills (at least once a year at each company)</p>
		<b>Ensure the health of employees and their families</b>	Groupwide	<p>(1) Provision rates of healthcare guidance</p> <ul style="list-style-type: none"> <li>60% (FY2023 target)</li> </ul> <p>(2) Reduce rates of smokers (ensure employee health and prevent exposure to passive smoke)</p> <ul style="list-style-type: none"> <li>1.5% reduction per year (total for operating companies)</li> </ul>
		<b>Pursue diversity and inclusion</b>	Groupwide	<p>1. Rates for female recruits</p> <ul style="list-style-type: none"> <li>Career-track (white-collar position): 35% or more Career-track (technical position): 10% or more On-site position: 10% or more</li> <li>Career-track (white-collar position): 35% or more Career-track (technical position): 10% or more Production/construction position: 10% or more (four-year average)</li> <li>Career-track position: 30% or more</li> </ul> <p>2. Females in managerial positions: 5 times the 2014 August figure (FY2025 target)</p> <p>3. Rate of male employees taking childcare leave or time off related to child rearing: at least 90%</p>
Recruit and nurture diverse human resources	<ul style="list-style-type: none"> <li>Maintain work environments where all personnel can maximize their abilities</li> <li>Accumulate and hand down technologies and skills</li> </ul>	<b>Strengthen human resources development</b>	JFE Steel	<ul style="list-style-type: none"> <li>Training hours per person: ■ 40 hours or more per year ■ 20 hours or more per year ■ 20 hours or more per year</li> <li>Annual leave acquisition rate of at least 75% (total for operating companies)</li> <li>Engagement survey</li> <li>Affirmative response to questions about motivation: 75%</li> </ul>
		<b>Create workplaces that motivate employees</b>	JFE Steel	<p>1. Improve labor productivity by 20% by the end of FY2024</p> <p>► FY2021 KPI:</p> <ul style="list-style-type: none"> <li>Establish investment plans for automation, remote operation and robotics with a focus on DX</li> <li>Set milestones for investment and number of personnel for each fiscal year</li> <li>Plan and systemize concrete labor policies to smoothly facilitate structural reform of the Keihin district</li> </ul> <p>2. Achieve stable quality and enhance yields through measures including introduction of quality prediction technology based on integrated data encompassing the entire process from steelmaking to final processing using DS*</p> <p>Improve yields by 0.5% in FY2021 to achieve 2% by FY2024</p> <p>* Data Science</p>
		<b>Increase efficiency and enhance cost competitiveness in production and engineering</b>	JFE Steel JFE Engineering	<ul style="list-style-type: none"> <li>Increase the efficiency of engineering operations by introducing DX technologies</li> <li>1,200 engineers for big data analysis utilizing Platello*</li> <li>Proprietary data analysis platform using AI</li> </ul>
Reinforce resilience of production and engineering capabilities (realize world-class earnings power through DX and other measures)	<ul style="list-style-type: none"> <li>Pursue world-class earnings power</li> <li>Promote DX and other measures to improve production efficiency, yields, and labor productivity</li> <li>Shift focus of steel business from quantity to quality (structural reform)</li> <li>Reduce costs to strengthen cost competitiveness and ensure quality competitiveness</li> </ul>	<b>Raise quality of products and services and ensure reliable supply</b>	JFE Steel JFE Engineering JFE Shoji	<p>1. Make steady progress on capital investments to improve the level of quality assurance and product testing, and achieve 100% automation from test measurement to mill sheet data entry for the four priority items: tensile test, molten steel analysis, thickness measurement for hot and cold rolled steel sheets, and coating weight measurement. In addition, achieve 100% automation from test instructions, sample collation to test measurement and mill sheet data entry.</p> <p>2. Strengthen the manufacturing infrastructures using DX</p> <p>Aim to apply to equipment listed below in FY2021 to implement CPS* in all production processes by the end of FY2024.</p> <p>Kurashiki's new continuous casting DS operations, hot rolling CPS (temperature model/Kurashiki), cold rolling CPS (automatic operation/Kurashiki) and integrated quality CPS (galvanizing/Fukuyama)</p> <p>* Cyber-Physical System</p>
		<b>Expand business by increasing value added in products and services with advanced technologies</b>	JFE Steel JFE Engineering	<p>1. Secure a stable number of certificated managing engineers 2. No major quality problems</p> <p>1. Make consistent investment in processing and distribution operations</p> <p>2. Conduct quality audits at Group companies</p> <ul style="list-style-type: none"> <li>Continue conducting quality audits at 32 Group manufacturing affiliate companies in Japan and overseas (audit completed: 100%)</li> </ul> <p>1. Pursue strategic research and development focusing on priority development fields*</p> <p>Develop new products and technologies</p> <p>FY2021: at least 20 cases (at least 80 cases in total from FY2021 to FY2024)</p> <p>* Automobiles, energy, infrastructure construction materials, DX technology, and green transformation (GX) technology</p> <p>2. Increase the mix of high value-added products* to 50% in FY2024 (sell 10.9 million tonnes, 50% of sales excluding half-finished products, by FY2024)</p> <p>► FY2021 KPIs</p> <ul style="list-style-type: none"> <li>9.3 million tonnes in sales of high value-added products (up 1.5 million tonnes from FY2020)</li> <li>* Products that offer technological advantages and are recognized by customers for their added value while having greater earnings power than commodity products.</li> </ul> <p>3. As a step toward triple earnings in the solution business by FY2024 from the FY2020 level, focus efforts on receiving orders for the new solutions business model (utilization of DS, provision of maintenance technologies, etc.) and secure first order. With an eye on receiving continuous orders thereafter, update external sales platform and maintenance know-how.</p>
		<b>Sales strategies for realizing sustainable growth</b>	JFE Steel JFE Engineering JFE Shoji	<p>1. Develop technologies in four priority fields of waste to resources, carbon-neutrality, combined utility service and DX, and at least 60% of R&amp;D expenses on these four fields.</p> <p>2. Number of patent applications: at least 80 per year</p> <ul style="list-style-type: none"> <li>Expand the earnings difference between high value-added products (A-rank products) and commodity products to 5,000 yen per tonnes by FY2024</li> </ul> <p>► FY2021 KPI: Aim for 25% of target</p> <p>Expand the stable earnings base</p> <p>Expand the operating businesses</p> <p>1. Sales: 250 billion yen</p> <p>2. Expand bases: at least 3 bases</p> <ul style="list-style-type: none"> <li>Recycling business (food, plastics, electronic appliances, etc.)</li> <li>Regional electricity retail new power business</li> <li>Waste processing business</li> <li>Water and sewage operations business</li> </ul>
Basis of activity	Thoroughly enforce compliance	<b>Ensure adherence to corporate ethical standards and compliance</b>	Groupwide	<p>1. Steady execution of training to foster and maintain a sense of compliance (100% attendance from the target audience)</p> <p>2. Improve employee awareness of ethics reflected in the Corporate Ethics Awareness Survey (next survey is scheduled for FY2022)</p>
	Respect human rights	<b>Respect human rights across the supply chain</b>	Groupwide	<p>1. 100% attendance from the target audience for human rights awareness training 2. Implement human rights due diligence</p>

Key Issues of JFE Group Corporate Management (Materiality)

Fiscal 2020 KPI Outcomes and Evaluations for Priority CSR Issues

Since fiscal 2017, the Company has set KPIs for priority CSR issues it identified in fiscal 2016, and engaged in initiatives to resolve these issues. In fiscal 2020, JFE evaluated the results of the previous fiscal year, and set KPIs while considering the unique nature of each operating company, advancing CSR management while going through a PDCA cycle. The results and evaluation of KPIs for priority CSR issues in fiscal 2020 are reflected in initiatives to address key issues for management in fiscal 2021.

■ Groupwide ■ JFE Steel ■ JFE Engineering ■ JFE Shoji

Evaluation criteria

Target attributes		○	△	×
Quantitative	Set for each fiscal year	Accomplished 100% or better	Accomplished 80%-99%	Accomplished 79% or less
	Set medium- to long-terms (in case of setting a multi-year target)	Final target accomplished 100% or better	Final target partly accomplished with some results (80% or better with linear interpolation).	Working toward the goal but no results yet (79% or less with linear interpolation).
Qualitative		Fully accomplished with significant results.	Partly accomplished with some results.	Working toward the goal but no results yet.

\* In Groupwide evaluations, the lowest result among the companies is taken as the overall result.

Areas of Focus	Material CSR Issues	Operating Company	Targets/KPIs	Initiatives and Results for FY2020	Assessment
Activity	Stably supply products	JFE Steel	1. Flexibly respond to changes in demand arising from environmental changes and maintain stable operations to ensure stable product supply 2. Make steady progress on strengthening the manufacturing base, including measures to stabilize blast furnace operation	<ul style="list-style-type: none"> <li>Improved facility operations at each steelwork and district by steady progress in strengthening the manufacturing infrastructures</li> <li>Flexible operation of blast furnaces to match changes in demand during COVID-19 (introduction of CPS to blast furnace operations)</li> <li>Maintained previous fiscal year's delivery achievement rate in FY2020, despite sharp swings in demand</li> </ul>	○
		JFE Engineering	Secure a stable number of certificated managing engineers	Stable number of managing engineers was secured while achieving high sales revenue	○
		JFE Shoji	Make consistent investment in processing and distribution operations	Carried out selective investments necessary for this fiscal year to ensure stable product supply under COVID-19 Amount of investment (approved amount): Reinforcement: 7.3 billion yen • Renewal and safety 2.7 billion yen • System: 0.6 billion yen	○
	Ensure quality	JFE Steel	Make steady progress on capital investments to improve the level of quality assurance and product testing, and achieve full automation of the four critical items: tensile test, molten steel analysis, steel sheet thickness measurement, and coating weight measurement	Steadily invest in automation to finish all approved investments during FY2020 for reaching 100% automation of four priority areas from test measurements to mill sheet descriptions (Automation achievement rate: tensile test: 93.9%, molten steel analysis: 99.9%, automobile steel sheet thickness measurement: 98.7%, and coating weight measurement: 99.9%)	○
		JFE Engineering	No major quality problems	Major quality problems: None (examples: legal violations, failure to fulfill customer requirements)	○
		JFE Shoji	Conduct quality audits at Group companies and continue conducting quality audits at 32 Group companies in Japan and overseas (expanded target companies from 30 to 32)	Began considering quality audits by remote due to the difficulty of conducting on-site audits under COVID-19; determined procedures and methods based on preliminary check sheets and remote conferences in January 2021 Completed quality audits for all 17 domestic Group companies (including remote audits for six companies)	○
	Pursue research and development	JFE Steel	1. Pursue strategic research and development By developing DS**1 application technology, in FY2020 aim to inaugurate the JFE Digital Transformation Center (JDXC**), promote an AI application at blast furnaces, promote a DS application at three sintering plants in Fukuyama, and apply J-dscom**3 to all hot strip lines *1: Data Science *2: JFE Digital Transformation Center *3: JFE Detecting-anomaly-Signs & Color-Mapping system 2. Develop new products and technologies FY2020: 20 cases or more (achieve the cumulative total of 135 cases from FY2015 to FY2020)	1. Pursued strategic research and development JDXC opened in July 2020, applied AI to blast furnaces, applied DS to three sintering plants in Fukuyama, and finished application of J-dscom to all hot strip lines 2. Developed new products and technologies FY2020: 13 cases (3 new products, 10 new technologies) (total from FY2015 to FY2020: 152 cases) Note: Missed numerical target in FY2020 due to slowdown in economic activity associated with COVID-19. Achieved the target for cumulative total cases encompassing the Fifth and Sixth Medium-Term Business Plans.	○
		JFE Engineering	Pursue technological development in three critical areas: leveraging ICT, climate change, and recycling plastics Numerical target: Ratio of R&D expenses for the three critical areas: 30% or more	Ratio of R&D expenses for the three priority fields: 36% Total costs in FY2020 R&D: 4.07 billion yen, including 1.48 billion yen for three priority fields	○
		JFE Steel	1. All sales personnel are to take rank-based training for the sales department within two years of being posted to the department 2. Conduct CS survey and ensure feedback of results	1. All office heads, managers, and newly appointed employees took the course within two years 2. Implemented feedback on CS survey results	○
	Respond to customer needs	JFE Engineering	Use data collected from customer surveys to enhance customer satisfaction	Collected construction completion evaluation forms for public-sector projects and customer surveys about quality management system (QMS) for private-sector projects (total: 322 projects) Conveyed customer feedback to sector heads, divisions managers, and others	○
		JFE Shoji	Invest in the development of strong sales personnel All target employees are required to meet the goal of human resource development through skill training and participation of overseas employees in joint training held in Japan	Fully achieved the target of human resource development through skill training; skill training: 4 courses, 125 participants	○
		JFE Steel	Expand eco-friendly products and technological offerings: 15 or more in FY2020 (target accumulated total of 105 for the period from FY2015 to FY2020)	FY2020: 10 cases (2 new products, 8 new technologies) (total from FY2015 to FY2018: 107 cases) Note: Missed numerical target in FY2020 due to slowdown in economic activity associated with COVID-19. Achieved the target for cumulative total cases encompassing the Fifth and Sixth Medium-Term Business Plans.	△
Develop and provide ecofriendly products	JFE Engineering	Create new business or products that contribute to environmental protection or expand business: at least one applicable case per year ▶ Promote plastic recycling business ▶ Promote food waste recycling business ▶ Promote home electronic appliance and fluorescent light recycling business ▶ Promote renewable energy-generated power supply business ▶ Develop and offer eco-friendly products	Implemented 3 cases of new business and business expansion ▶ Established a Bottle-to-Bottle joint venture (Kyoei J&T Recycling) ▶ Launched a joint venture with three companies for biogas power generation from food waste (Tohoku Biofood Recycling) ▶ Inherited the refuse-derived fuel (RDF) gasifying power generation business (Omura Recycle Electric Generation)	○	
	JFE Steel	Aim to reduce our CO <sub>2</sub> emissions by at least 20% in FY2030 from FY2013 level Establish project team and formulate and implement a scenario by the end of FY2020 to realize the above Participate in technological development led by the New Energy and Industrial Technology Development Organization (NEDO) to realize zero-carbon steel; develop a long-term road map in 2020 to 2021 for technological development Begin actual operation testing with a ferro-coke pilot plant	Disclosed the FY2030 target for reducing CO <sub>2</sub> emissions by at least 20% from FY2013 level Project team launched for CO <sub>2</sub> reduction and formulated a scenario for achieving carbon neutrality Participated in the NEDO technological development project for making zero-carbon steel a reality Began verification tests at the ferro-coke production pilot plant (NEDO project)	○	
	JFE Engineering	1. Two or more offerings per year of products/services that contribute to climate change mitigation ▶ Promote waste-fueled power generation ▶ Promote biomass power generation ▶ Promote a digestion gas power generation plant ▶ Promote geothermal, solar photovoltaic, and wind power generation 2. At least 1% y-o-y reduction of carbon footprint of factories and offices	1. Delivered two biomass power generation plants and two large-scale solar power generation plants 2. Achieved 16% reduction (FY2019: 16,800 t/year, FY2020: 14,100 t/year)	○	

Fiscal 2020 KPI Outcomes and Evaluations for Priority CSR Issues

■ Groupwide ■ JFE Steel ■ JFE Engineering ■ JFE Shoji

Areas of Focus	Material CSR Issues	Operating Company	Targets/KPIs	Initiatives and Results for FY2020	Assessment	
Activity	Protect the global environment	JFE Steel	1. Continue work on keeping NOx and SOx emissions at low levels 2. VOC emissions: maintain a low level (30% decrease compared to FY2000) 3. Benzene emissions: maintain a low level (80% decrease compared to FY1999) 4. Dichloromethane emissions: maintain a low level (40% decrease compared to FY1999)	1. Continued work on keeping NOx and SOx emissions at low levels 2. VOC emissions: 66% decrease 3. Benzene emissions: 94% decrease 4. Dichloromethane emissions: 71% decrease	○	
		JFE Engineering	• Continue work on keeping NOx and SOx emissions at low levels	• Successfully maintained low emissions as it was significantly less than the value equivalent to the total annual volume restriction: NOx: 124Nm <sup>3</sup> (18,000Nm <sup>3</sup> ), SOx: 42Nm <sup>3</sup> (100Nm <sup>3</sup> ) Note: The amount in parenthesis represents the value equivalent to the total volume restriction.	○	
		JFE Steel	1. Maintain the efficient use of water Recirculated water usage rate: 90% or more 2. Recycling rate of co-products: 99% or more	1. Recirculated water usage rate: 93.0% 2. Recycling rate of co-products: 99.7%	○	
		JFE Engineering	1. Recycling rate at construction sites ▶ Recycle at least 99.5% of rubble ▶ Recycle at least 95.0% of sludge ▶ Recycle at least 85.0% of industrial waste 2. Recycle at least 98.0% of recyclable wastes generated at the Yokohama head office	1. Recycling rates ▶ Rubble: 99.4% ▶ Sludge: 98.9% ▶ Industrial waste: 85.4% 2. 99.1%	△	
		JFE Shoji	• Global recycling of steel scrap: Increase scrap transactions to exceed the volume for FY2017 (FY2020 target: +3% from FY2017)	• Contributed to the expansion of a recycling-oriented society by steadily increasing scrap transactions since FY2017 • Domestic transactions volume decreased in FY2020 to levels lower than in FY2017 due to COVID-19, failing to meet the target (-1.7% from FY2017)	×	
	Ensure occupational safety and health	Prevent workplace accidents	Groupwide	1. Workplace fatalities: zero occurrences 2. Lost-work injuries rate for ST: up to 0.10 [Key measures] (1) Strengthen safety activities at each business unit to cover weak areas (2) Restructure the safety and health management system (introduce ISO) (3) Implement safety activities that utilize ICT (specific initiatives: introduce safety monitoring system, support for safe work using AI image analysis, etc.) 3. Lost-work injuries rate for EN: up to 0.25 [Key measures] (1) Build a floor or hand rail for work in high places and wear safety belt (2) Restrict people from areas near hoisted objects or heavy machinery in operation (3) Turn off equipment, machines, and tools when not in use (4) Verbal communication on safety awareness during site patrol and implementing corrective measures [Example of advanced initiative] ▶ Safety training by experiencing dangerous situations using VR and special vehicles designed to instill an understanding of the sense of safety [Key measures] ▶ Improve equipment (promoting installation of safety sensors, etc.) to prevent contact between people and objects in motion	1. Workplace fatalities: 1 occurrence 2. Lost-work injuries rate: 0.23 [Key measures] (1) Lost work injuries rate: Improved from 0.28 in the first half to 0.18 in the latter half (2) Restructure the safety and health management system: started implementing the system in all districts (3) Safety monitoring system: Completed companywide deployment (users: about 2,400) 3. Lost-work injuries rate: 0.35 [Key measures] (1) Prioritized the following actions to prevent workplace fatalities. • Installed working platforms / handrails and ensured wearing safety belts for work in high places • Ensured people remained at a safe distance from hoisted objects and heavy machinery in operation • Turn off equipment, machines, and tools while non-standard operations (2) Made a focused effort on verbal communication during site patrols and implemented corrective measures to prevent unsafe behavior by relevant employees (3) Promoted safety training based on a simulated experience of accidents using special vehicles and VR to increase the sensitivity for safety [Key measures] • 81% of the installations by the end of FY2020 Note: Installations to be completed by end of November 2021 • Continued "100% adherence activities" • Promoted fixed-point patrols (patrols for closely observing and understanding tasks) and eliminated tasks unknown to managers and supervisors)	×
			Groupwide	• Provision rates of health guidance: ■ 60% (by FY2023) ■ 35% (by FY2020) ■ 40% (FY2020) • Rate of health examination for spouses: 60% (by FY2020)	• Provision rates of health guidance: ■ 53.0% ■ 39.1% ■ 41.6% • Rate of health examination for spouses: ■ 48.0% ■ 47.2% ■ 53.2%	△
		Ensure the health of employees and their families	Groupwide	• Ratios for female recruits ■ Career-track (white-collar position): 35% or more Career-track (technical position): 10% or more On-site position: 10% or more ■ Career-track (white-collar position): 20% or more Production/construction position (technical): 5% or more ■ Career-track (white-collar position): 25% or more • Females in managerial positions: five times the 2014 August figure by 2025	• Ratios for female recruits ■ Career-track (white-collar position): 28% Career-track (technical position): 7% On-site position: 7% ■ Career-track (white-collar position): 18% Production/construction position (technical): 0% ■ Career-track (white-collar position): 26.7% • Female in managerial positions: 3.6 times the 2014 August figure	×
	Recruit and nurture diverse human resources	Strengthen human resources development	Groupwide	• Training hours per person ■ Over 40 each year ■ Over 20 each year ■ Over 20 each year • 100% attendance from the target audience for human rights awareness training	• Training hours per person ■ 38.5 hours per year ■ 19.0 hours per year ■ 17.5 hours per year • Rate of attendance for human rights awareness training: 100%	△
			Groupwide	• Steady execution of training to foster and maintain a sense of compliance (100% achievement) • Improve employee awareness of ethics reflected in the Corporate Ethics Awareness Survey	• Steadily executed training to foster and maintain a sense of compliance (100% achievement) • Improved employee awareness of ethics reflected in the Corporate Ethics Awareness Survey (next survey is scheduled in FY2022)	○
Basis of activity	Thoroughly enforce compliance	Groupwide			○	