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# JFE Group's Initiatives for Climate Change Issues

To build a sustainable society, the JFE Group works to respond to climate change risks with the world's most innovative technology, contributing to a resilient societal framework.

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## Initiatives for Climate Change

### Initiatives for major climate-related risks and opportunities that impact businesses

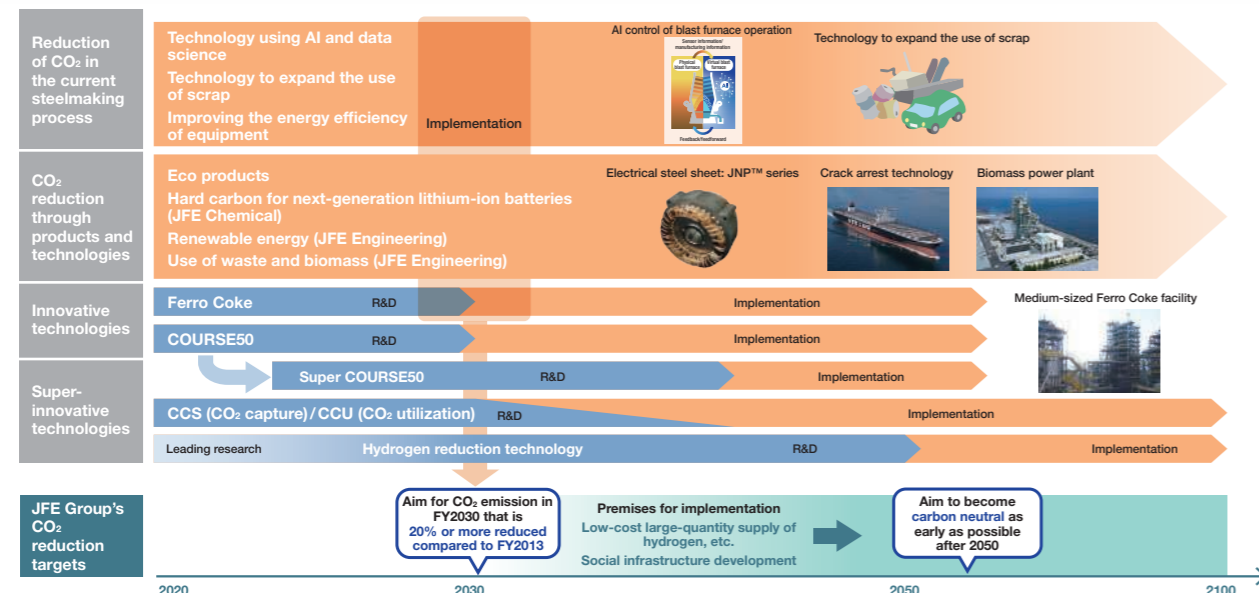
**Initiative 1** **JFE Group's medium-to-long-term vision**  
**Aiming to reduce CO<sub>2</sub> emissions by 20% or more by FY2030 and to be carbon neutral after 2050**  
 The JFE Group intends to increase sustainability through solutions that address global climate change issues while restructuring its business to respond to developments in the environment facing the steel business. We regard this year to be a landmark year to further reinforce our efforts to tackle the issues of climate change, and we are actively promoting initiatives for reducing CO<sub>2</sub> emissions with the targets set up as follows:

#### JFE Group's targets for reducing CO<sub>2</sub> emissions

- Toward 2030**
  - In the steel business, which accounts for most of the JFE Group's CO<sub>2</sub> emissions, we are exploring feasible scenarios with the aim of reducing CO<sub>2</sub> emissions in fiscal 2030 by 20% or more compared to fiscal 2013, maximizing the use of the best available technologies and innovations.
  - JFE continues to share the Japan Iron and Steel Federation's commitment to a low-carbon society and to play an active role. At the same time, JFE has launched a new project team to reduce our CO<sub>2</sub> emissions as much as possible for an individual company, and will start examining various measures to achieve our targets.
- Toward 2050**
  - In line with the social transformation to establish carbon-free infrastructure over the long term, JFE will strive to be carbon neutral within the JFE Group as soon as possible after 2050.
  - JFE is carrying out research and development to be ready to show a lineup of carbon neutral technologies in its business processes well ahead of 2050.

See Non-financial Highlights on page 79 for CO<sub>2</sub> emissions by JFE's steel business

### The JFE Group's road map for CO<sub>2</sub> reduction to achieve carbon neutrality



Initiative  
2

### Decarbonization in steel production processes

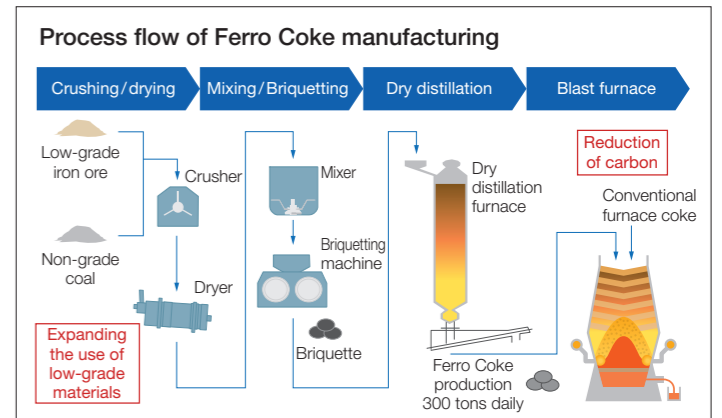
The JFE Group promotes the development of innovative technologies to achieve decarbonization ahead of the rest of the world.

JFE Steel has been actively working on developing energy saving technology to increase the efficiency and achieving decarbonization in the iron and steelmaking processes. We currently boast the world's top-class energy-efficient iron and steelmaking processing technologies. To make further progress toward decarbonization, we will promote development of innovative steel production processes (COURSE50, Ferro Coke) that are expected to reduce CO<sub>2</sub> emissions through methods such as hydrogen-reduction and CCS.

COURSE50 is aiming to reduce CO<sub>2</sub> emissions by approximately 30% in total: around 10% through hydrogen-reduction, and 20% through CCS. Equipment will be put in place by around 2030, and be introduced in stages by around 2050, in line with the timing of the renewal of blast furnace-related equipment. Ferro Coke, which improves the efficiency of iron-reduction in blast furnaces, is a technology that can significantly lower CO<sub>2</sub> emissions. Furthermore, to ultimately achieve Zero-carbon Steel, we will pursue challenges such as developing hydrogen-reduction ironmaking technologies in 2030 and beyond.

We view the introduction of these innovative technologies as one of the top priorities and push ahead with the initiative in cooperation with the national government.

Currently, we have built medium-scale pilot plant equipment that produces 300t/d of Ferro Coke at JFE Steel's West Japan Works (Fukuyama), and will start trials for commercial operation from FY2020.



## JFE Group's Response to the TCFD

To build a sustainable society, the JFE Group works to respond to climate change issues with the world's most innovative technology, contributing to a resilient societal framework. The JFE Group will disclose information on risks and opportunities regarding climate change issues, such as scenario analysis, in line with the TCFD recommendations.

### JFE's initiatives for climate change issues and future action

The JFE Group's business involves steel manufacturing, which emits massive amounts of CO<sub>2</sub>. That is why climate change issues are serious management issues from the viewpoint of business continuity. The steel business accounts for 99.9% of the JFE Group's CO<sub>2</sub> emissions. The JFE Group is able to manufacture steel with the lowest CO<sub>2</sub> emission intensity among all the integrated steel mills in the world through developing diverse technologies that enable energy saving and CO<sub>2</sub> emission reduction, and by applying them to our iron and steelmaking processes we help to alleviate risks. We will continue developing processes to reduce environmental impact and spread our vast accumulated technologies globally for new opportunities, in order to contribute to mitigating climate change.


The JFE Group develops and possesses many environmentally friendly products and technologies which help customers save energy at the stage of consumption, such as high-performance steel materials and power generation using renewable energy.

Reduction of weight and the electrification of automobiles are expected to be further advanced in the future, through enhancing the functions of its products such as high-tensile and electrical steel sheets, the JFE Group will contribute to such advancements. Also, while contributing to the further spread of renewable energy, we plan to help reduce CO<sub>2</sub> through our recycling business and efforts in resource-saving.

To help achieve the Paris Agreement's long term goal of holding the average global temperature rise well below 2°C, the company continues to develop and spread required technologies and contribute to playing its part in mitigating climate change. At the same time, to prepare for the gradually intensifying climate crisis, we plan to contribute to national resilience through providing steel for societal infrastructure and put it into use for construction.

### Information disclosure following TCFD recommendations

JFE Holdings declared its agreement with the summary of the Final TCFD Report, released on May 27, 2019.



\*The Task Force on Climate-Related Financial Disclosures, established by the Financial Stability Board (FSB), based on the opinions of G20 Finance Ministers and Central Bank Governors.

#### TCFD recommendations

Climate-related risks and opportunities significantly affect the finance of companies on a medium- to long-term. TCFD is a task force established by the Financial Stability Board as requested at G20, to reduce risks that could destabilize the financial market. TCFD reviews methods of information disclosure that allows the financial market to appropriately evaluate climate-related risks and opportunities, and announces them as final recom-

mendation reports.

TCFD considers that it is important for investors and other parties to accurately grasp what effects climate-related risks and opportunities pose on the financial conditions of investee before financial decision-making, based on which TCFD recommends that information related to four core elements in organizational management: Governance, Strategy, Risk management, and metrics and targets should be disclosed.

Summary of TCFD recommendations	JFE's disclosure (relevant sections in the CSR report)
<b>Governance: Disclose the organization's governance associated with climate-related risks and opportunities</b>	
a. Describe the Board of Directors' oversight of climate-related risks and opportunities	Corporate governance / Risk management Climate change (JFE Group's Response to the TCFD: Governance)
b. Describe assessment of climate-related risks and opportunities, and management's role in company management	Risk management system
<b>Strategy: Disclose the actual and potential impacts of climate-related risks and opportunities on the organization's business, strategy, and financial planning (if such information is important)</b>	
a. Describe the climate-related risks and opportunities over the short, medium, and long term the organization has identified	JFE Group value chain Climate change (JFE Group's medium-to-long-term vision) Climate change (JFE Group's Response to the TCFD: Strategy)
b. Describe the impact of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning	
c. Describe the resilience of the organization's strategy, taking into consideration different climate-related scenarios, including a 2°C scenario	
<b>Risk management: Disclose the processes used by the organization to identify, assess, and manage climate-related risks</b>	
a. Describe the organization's processes for identifying and assessing climate-related risks	Risk management Environmental management Climate change (JFE Group's Response to the TCFD: Risk management)
b. Describe the organization's processes for managing climate-related risks	
c. Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organization's overall risk management	
<b>Metrics and targets: Disclose the metrics and targets used to assess and manage climate-related risks and opportunities</b>	
a. Disclose the metrics used by the organization to assess climate-related risks and opportunities in line with its strategy and risk management	Material CSR issues (KPIs for Material CSR Issues) Climate change (JFE Group's Response to the TCFD: metrics and targets)
b. Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 greenhouse gas (GHG) emissions, and the related risks	Climate change (JFE Group CO <sub>2</sub> emissions) / Environmental data
c. Describe the targets used by the organization to manage climate-related risks and opportunities and performance against targets	Material CSR issues (KPIs for Material CSR Issues) Climate change (JFE Group's medium-to-long term vision) Climate change (JFE Group's Response to the TCFD: metrics and targets)

#### Governance

The JFE Group's Standards of Business Conduct states that we will actively work to exist harmoniously with the global environment, as well as to raise living standards and advance societies. We acknowledge that activities to protect the global environment, such as reinforcement of environmental conservation and response to climate change issues, are absolutely essential to achieving a sustainable society.

In FY2016 we designated "mitigating climate change" as our CSR materiality in order to pursue a steady PDCA cycle and appropriate management of our ongoing initiatives to reduce CO<sub>2</sub> in iron and steelmaking processes and to develop and provide environmentally friendly products.

The JFE Group Environmental Committee, established under the Group CSR Council chaired by the President of JFE Holdings, supervises and directs these initiatives across the Group by

setting targets, assessing progress, and holding discussions to improve the Group's overall performance.

The Group Management Strategy Committee also deliberates topics that are vital to our business, such as climate change issues, and reports to the Board of Directors. The Board of Directors provide supervision through discussions on environmental issues such as climate change based on these reports.

**Examples of climate change related issues reported to and discussed in a meeting of the Board of Directors**

- 1 Declaration of endorsement of the final TCFD recommendation report
- 2 Information disclosure following TCFD recommendations (scenario analysis, etc.)

#### Methods of monitoring issues relating to climate change

The Group CSR Council, the Group Management Strategy Committee, and the Management Committee monitor issues that may impact our business. Monitoring is conducted through quarterly reports on climate change issues from each operating company deliberated by its environmental committee, etc. to take suitable measures. The JFE Group Environmental Committee strengthens the collection and management of information

relating to risks, to not only reduce the likelihood of risks occurring and their impact, but also to strive to maximize opportunities.

**Measures based on monitoring**

- 1 Group policy deliberation
- 2 Supervision of policy penetration
- 3 Information sharing on topics and examples of actual responses to problems

#### Strategy

The many risks and opportunities involved with climate change issues are integrated into the business strategies of the JFE Group in the following ways. The JFE Group has formulated the Sixth Medium-term Business Plan to guide our business operations for FY2018 to FY2020. Under this plan, we have placed high priority on contributing to the establishment of a sustainable society as part of our plan to strengthen the business structure for sustainable growth. By dedicating our efforts to continuously addressing ESG issues as one of the core strategies, we have incorporated our initiatives on climate change issues into our business strategy. We disclose information in accordance with TCFD recommendations including scenario analysis, select material factors impacting business, and identify

and evaluate risks and opportunities.

The JFE Group positions protection of the global environment as one of our most important issues. In addition to reduction of CO<sub>2</sub> in iron and steelmaking processes and recycling of water resources and energy, we also develop environmentally friendly products and processing technologies and provide resource recycling solutions, establishing a strategy to actively pursue the reduction of environmental impacts. Furthermore, we make our stand on public policies relating to climate change issues and environmental conservation, expressing our opinions through organizations such as the Japan Iron and Steel Federation and proactively participate in such activities.

#### Risk management

JFE Holdings is responsible for comprehensive risk management in accordance with its Basic Stance for Building an Internal Control System. The JFE Group CSR Council, chaired by the President of JFE Holdings, collects specific information and enhances management for the purpose of reducing the frequency and impact of risks. The Corporate Officer responsible for risk works to identify potential risks associated with ESG risks such as climate change. If potential risks are identified, they are reviewed and assessed at an appropriate meeting as necessary for further examination or the deployment of countermeasures.

The Board of Directors supervises the Group's initiatives on ESG risks and CSR including climate change issues by receiving reports and holding discussion on its material issues.

We identify and evaluate climate-related risks in the corporate level taking into account scenario analysis based on the framework recommended by the TCFD. We select material factors impacting business and perform a closer analysis of their effects, then utilize this in formulating future business strategies.

#### Metrics and targets

JFE Steel, the steel operating company of the JFE Group, is a member of the Japan Iron and Steel Federation (JISF). The JFE Group is pursuing the "Three Ecos" and innovative iron and steelmaking process development, which are the main pillars of the Low-Carbon Society Implementation Plan formulated by JISF. Under this plan, JISF targets the reduction of 3 million t-CO<sub>2</sub> by FY2020 compared to BAU (Business As Usual: the estimated emissions based on production output without special measures), and the further reduction of 9 million t-CO<sub>2</sub> by FY2030. JFE Steel is also actively pursuing action to attain the targets of the Low-Carbon Society Implementation Plan.

its long-term vision for climate change mitigation for 2030 and beyond, which ultimately aims for Zero-carbon Steel production. JFE Steel also played a pivotal role in the development of this long-term vision.

The JFE Group intends to increase sustainability through solutions to climate change issues on a global level by restructuring its business to cope with the changes facing the steel business. We regard this year to be a landmark year to further redouble our efforts to tackle the issue of climate change, and have set the JFE Group's CO<sub>2</sub> reduction targets, actively promoting initiatives to reduce CO<sub>2</sub> emissions.

JISF, in addition to these initiatives, established and announced

Scenario analysis

What is scenario analysis?

While correctly understanding the risks and opportunities related to climate, we evaluate the effects they have on current business strategies, and utilize them in establishing future strategies. Due to our business having the potential to be significantly affected by climate change, we have set the following two scenarios.

Both scenarios are based on the scenarios announced by the International Energy Agency (IEA). The analysis was performed under the assumption that carbon pricing would be introduced under major CO<sub>2</sub> generating countries in order to achieve the 2°C target.

Projected scenarios		2°C scenario	4°C scenario
Reference scenarios	Transition	Transition scenarios by the International Energy Agency (IEA) ● Sustainable Development Scenario (SDS) <sup>1</sup> ● 2°C scenario (2DS) <sup>2</sup>	Transition scenarios by the International Energy Agency (IEA) ● New Policies Scenario (NPS) <sup>1</sup> ● Reference Technology Scenario (RTS) <sup>2</sup>
	Physical effects	Estimate scenario of climate change by the United Nations' Intergovernmental Panel on Climate Change (IPCC) ● Representative Concentration Pathways Scenario (RCP) <sup>3</sup>	
Social vision		Bold policies and technological reforms will be undertaken to hold the increase in the global average temperature below 2°C until the end of the century, and to achieve sustainable development. Societal changes that come alongside decarbonization are assumed to affect business. ● Worldwide/industry-wide common carbon pricing <sup>4</sup> ● Increase in ratio of electric cars in automobile sales	Even with the new policies in various countries stipulated in accordance with the Paris Agreement, including Intended Nationally Determined Contribution (INDC), the global average temperature will rise up to 4°C by the end of the century. Climate changes such as rising temperatures are assumed to affect business. ● Increase in frequency of flood damages ● Rise in sea level

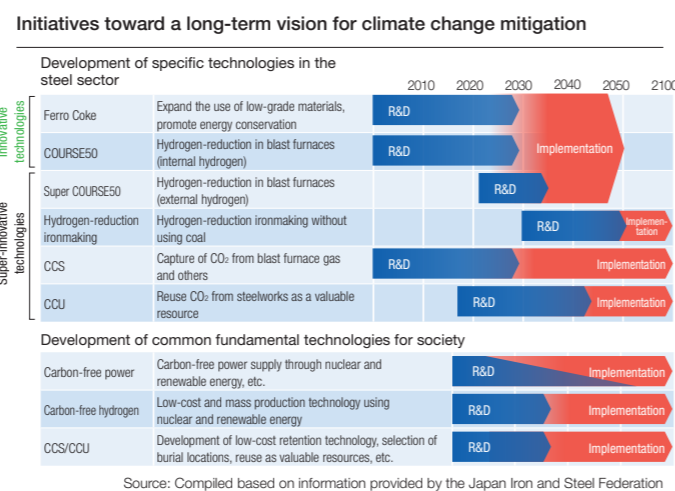
<sup>1</sup> Source: IEA "World Energy Outlook 2018" <sup>2</sup> Source: IEA "Energy Technology Perspectives 2017" <sup>3</sup> Source: IPCC "Fifth Assessment Report"  
<sup>4</sup> Carbon pricing differences among countries may widen the global industrial competitiveness between countries with strict CO<sub>2</sub> emission restrictions and those with more lenient ones, potentially resulting in carbon leakage (countries with stricter restrictions decrease production and investments, reducing CO<sub>2</sub> emissions, while those with more lenient restrictions increase production and investments, increasing CO<sub>2</sub> emissions). The reference scenario SDS assumes that developed countries and certain developing countries have implemented carbon pricing. Based on this SDS, the JFE Group has set the 2°C scenario under the assumption that carbon pricing would be introduced into major CO<sub>2</sub> generating countries in order to achieve the 2°C target.

Relevant businesses and period for analysis

Relevant businesses of the scenario analysis were JFE Steel: steel business; JFE Engineering: engineering business; JFE Shoji: trading business; and businesses of certain Group companies. The period for analysis was set to be up to 2050.

Compatibility with the Japan Iron and Steel Federation's long-term vision for climate-change mitigation

JFE Steel, the steel operating company of JFE Group, is a member of the Japan Iron and Steel Federation (JISF), which has set 2030 as the target year to achieve its Low-Carbon Society Implementation Plan. In addition to that, in November 2018, JISF also established and announced its long-term vision for climate-change mitigation from 2030 and beyond. JFE Steel played a pivotal role in the development of this long-term vision. JISF's long-term vision for climate-change mitigation ultimately aims for Zero-carbon Steel by 2100. On the other hand, the JFE Group's scenario analysis aims to ensure the resilience of the Group's business strategies at certain phases during the long-term challenge.



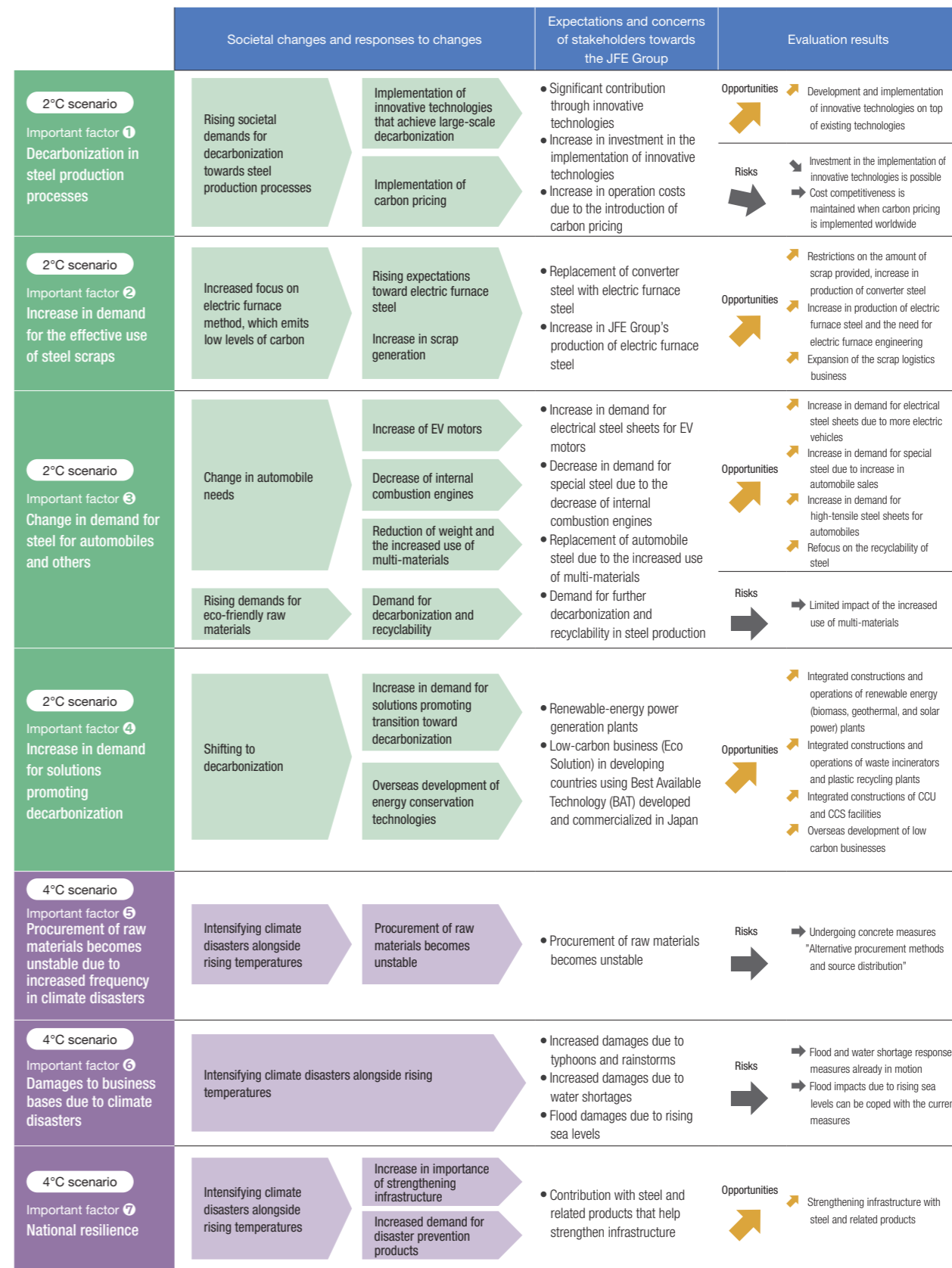
Identification processes of important risks, opportunities and factors affecting businesses

- Step 1** Summarize factors that affect relevant businesses from a standpoint covering the value chain
- Step 2** Study the factors comprehensively and take into account their "impact on the factors" as well as "expectations and concerns of stakeholders," thereby identifying especially important factors

	2°C scenario	4°C scenario
Impact on procurement		5. Procurement of raw materials becomes unstable due to increased frequency in climate disasters
Impact on direct business operations	1. Decarbonization in steel production processes 2. Increase in demand for the effective use of steel scraps	6. Damages to business bases due to climate disasters
Impact on demand for products and services	3. Change in demand for steel for automobiles and others 4. Increase in demand for solutions promoting decarbonization	7. National resilience

Criteria for identifying important factors:  
 • Impact (possibility of risk opportunities × impact upon occurrence) • Expectations and concerns of stakeholders

Results of Scenario Analysis





Feature

03

# JFE Group's Human Resources Strategy

It is vital that the JFE Group recruits diverse, high-quality skilled human resources, and creates environments where they can demonstrate their full potential, in order to ensure business continuity, and continue to create new value in this rapidly changing social environment.

To this end, we have established a new human resources strategy, especially focusing on the areas essential to our sustainable growth: promoting DX, expanding a new revenue base overseas, and strengthening the competitiveness of our domestic manufacturing sites. We also believe that the creation of safe workplaces and the health of our employees and their families are indispensable for continuing our corporate operations.

We will continue to engage in business operations based on the JFE Group's Basic Stance on Human Resource Management, and strive together with our employees for growth.

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### JFE Group's Basic Stance on Human Resource Management

- 1** **Respect human rights and facilitate fair management of human resources**  
The Group manages human resources fairly by respecting the human rights of all employees and nurturing employees who embrace the Group's corporate value and standards of business conduct.
- 2** **Foster a corporate culture that nurtures people and promotes satisfying workplaces**  
The Group facilitates interactive communication among employees to cultivate a corporate culture that nurtures human resources and creates safe, attractive environments where everyone can enjoy working.
- 3** **Diversify human resources**  
The Group ensures that diverse all people, including women, non-Japanese, the elderly and the disabled, can demonstrate their full potential.
- 4** **Recruit and steadily nurture excellent human resources**  
To survive in an increasingly complicated and diversified global environment, the Group steadily recruits diverse, high-quality skilled human resources, ensures that they receive the skills and knowledge necessary to continue strengthening the Group's technological capabilities, and nurtures their global capabilities.

## JFE Group's Human Resources Strategy

### Human resources development to support the DX strategy

The JFE Group is active in securing and developing human resources necessary to pursue a DX strategy in each business domain.

Data science (hereinafter "DS") technology is being applied in industry at a rapid pace. In order to incorporate DS technology into its business processes, JFE Steel has established a system to independently foster data scientists in-house. Having

knowledge unique to the field of the steel industry is essential to applying DS in actual manufacturing and R&D front lines. With the aim of fostering in-house data scientists and human resources that can harness DS, the company established a pyramid-shaped rank-based training system according to the required level, as shown below.

#### JFE Steel's ranks for data scientist development

<b>1</b> <b>DS pioneers</b>	Human resources able to independently collect data to solve problems, develop algorithms, and practically implement them. At the same level as professional engineers of DS vendors. Researchers in R&D departments specializing in DS as well as engineers working in manufacturing sites are sent to train for a certain period at a research lab to learn how to solve actual problems.
<b>2</b> <b>DS advocates</b>	Human resources able to use DS tools to find solutions and practically implement them, with guidance from DS pioneers. Engineers at manufacturing sites learn advanced statistical analysis tools and modeling tools capable of machine learning or deep learning, and trained how to use these to solve actual problems based on data. Ranks 1 and 2 are classified as data scientists.
<b>3</b> <b>DS handlers</b>	Human resources able to use DS tools, identify problems, and find ways to solve them. This applies to all engineers. They receive the general DS training program, which consists of initial training for adopting tools, statistical analysis courses and existing in-house training brushed up with a focus on big data analysis.
<b>4</b> <b>DS users</b>	Human resources able to recognize the importance of data analysis and use simple DS tools in dealing with everyday operational tasks. This applies to office employees in addition to engineers. An AI literacy course in e-learning style is provided to enhance the literacy of ordinary employees by gaining an understanding on how AI and DS technologies can help operations.

Rank	Target	Training method
<b>1</b> <b>DS pioneers</b>	<ul style="list-style-type: none"> <li>• Researchers in research departments</li> <li>• Some engineers in manufacturing departments</li> </ul>	<ul style="list-style-type: none"> <li>• Dispatch to academic institutions</li> <li>• Dispatch from manufacturing departments to R&amp;D departments</li> </ul>
<b>2</b> <b>DS advocates</b>	<ul style="list-style-type: none"> <li>• Some engineers in manufacturing departments</li> </ul>	<ul style="list-style-type: none"> <li>• Training through actual problem-solving</li> </ul>
<b>3</b> <b>DS handlers</b>	<ul style="list-style-type: none"> <li>• All engineers</li> </ul>	<ul style="list-style-type: none"> <li>• Training for adoption of DS tools</li> <li>• General DS training</li> </ul>
<b>4</b> <b>DS users</b>	<ul style="list-style-type: none"> <li>• Employees including clerical employees</li> </ul>	<ul style="list-style-type: none"> <li>• e-Learning</li> </ul>

\* Ranks 1 and 2 are classified as data scientists at JFE Steel

As of October 2019, we have trained over 200 in-house data scientists, doubling the number of DS-related initiatives since the conclusion of the Fifth Medium-term Business Plan (the end

of FY2017). By pursuing further training, we plan to increase our number of in-house data scientists to around 350 by the end of the Sixth Medium-term Business Plan (the end of FY2020).

### Securing and developing global human resources to pursue business overseas

It is essential for the JFE Group to secure and develop global human resources to enhance its competitive strength in the global market.

The JFE Steel is striving to expand profits Groupwide with a focus on fields where efforts have been made so far to expand global production. In Asian countries with growth potential, we will expand profitability by utilizing the world-leading technologies that the company has accumulated thus far for raising the corporate value of overseas steel companies in alliance. In April 2020, in order to strengthen management of these overseas businesses, an Overseas Business Promotion Center was established.

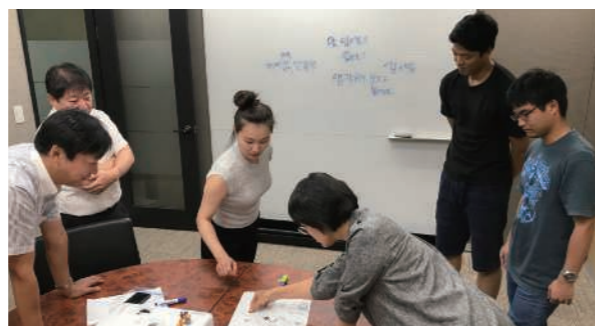
We actively promote overseas study and training Group-wide in addition to hiring employees of foreign nationality and local staff overseas, in order to secure and develop human resources to support our overseas business.

JFE Steel provides overseas training opportunities for its young clerical employees to work at local offices and subsidiaries, for mid-career employees to obtain MBAs overseas, and for managers to study foreign languages overseas, in order to develop assets required for leading global business. Young engineers are provided with abundant opportunities for gaining experience overseas through assignments to provide technical guidance to overseas affiliates. In total, JFE Steel has provided opportunities for global human resources development to 330 employees since 2014.

JFE Engineering provides training programs for human resources involved in overseas projects according to the skills

necessary for each position. Project managers learn quality control, process control, and other project management skills, and administrators learn tax, legal, trade and transportation, personnel administration, risk management and other skills, both of which are designed to gain comprehensive skills required to carry out overseas projects.

JFE Shoji holds overseas staff management training in Tokyo each year for talented local employees employed in overseas local subsidiaries and offices. In addition, the company also invites overseas staff to the head office in Japan for an extended-stay training to improve their skills still further, with the aim of eventually promoting them as executives. Through these and other efforts, JFE Shoji is promoting bilateral globalization with overseas Group companies.



### Pursuit of diversity



The JFE Group views the promotion of diversity as a key management issue, and promotes initiatives to maximize the abilities of employees with diverse backgrounds in terms of gender, nationality, values, or lifestyle, in order to swiftly

and appropriately respond to the rapidly changing business environment.

In promoting empowerment of female employees, we achieved the target of tripling the number of female employees in management positions by 2020 from that as of August 2014 ahead of time in April 2019. We have proceeded to set a new target to further increase the number by five times by 2025 from that as of August 2014, and will continue to actively promote women to management positions.

Since 2012, female employees have accounted for 10% of JFE Steel's regular recruitment for on-site positions, and approximately 400 women are actively working in its steel

manufacturing sites companywide. The company has been engaged in developing female-friendly working environments such as accommodating infrastructure including showers and lockers as well as providing training for staff at accepting sites. We are also focusing on measures to ensure a balance of work and life events, such as expanding work-life balance support systems and daycare centers in the main offices.

We are actively hiring diverse human resources including those with experience of other industries, with one out of every four new employees being a mid-career hire. In particular, JFE Engineering constantly accepts around 80 local staff from overseas Group companies at its workplaces in Japan, to help build a corporate culture based on mutual understanding beyond cultural differences.

We are also promoting Group-wide efforts to raise awareness regarding diversity among managers, and providing opportunities for female employees to participate in leadership training and seminars.

### Initiatives to bring out competence and motivation of our human resources

#### Human resource development utilizing IT and the IoT

Utilization of IT and the IoT is now part of human resources development. The JFE Group provides an online learning curriculum to encourage employees to autonomously improve their own skills, allowing them to engage in various types of training without restraints on time or location.

JFE Steel believes that improving the skills and abilities of each individual at manufacturing sites is the source of competitiveness to provide high-quality products. The company employs human resource development systems to quantitatively determine each person's skill level, along with efforts to analyze and utilize them. To cope with the generational shift in our production sites, we are implementing intensive on-site guidance by technical experts with advanced skills, ensuring the high level of skills is passed down by linking such on-site education to skill data accumulated in IT systems.

Recently, we are using IT tools such as VR to expand simulated, scenario-based mock training that lecture-style learning

cannot provide. Through such effective and efficient education, we will improve our human resources development to secure even more quality and depth.



#### Improving employee engagement

Given that the steel business is an industry based on skill proficiency, it is extremely important for the company's growth to develop an environment where personnel who support the JFE Group can demonstrate their abilities with peace of mind over the long term. This is why each Group company is individually working to promote work style reforms, develop generous welfare benefit systems, and provide enhanced training curriculums.

JFE Steel aims to be a dynamic company where employees can energetically take on new challenges, and to realize this goal, we believe it is necessary to enhance the relationship of trust between senior employees and their subordinates at workplaces. To achieve this, we take methods such as management

feedback where subordinates and coworkers reply to questionnaires on the daily management behavior of their superiors (360 degree evaluation), and employee satisfaction surveys (engagement surveys), giving feedback of the survey results of each section to department managers.

JFE Engineering conducts basic engineering training of over 30 courses given by leading experts inside the company, which also serve as an opportunity for interaction between engineers beyond their own departments. In addition, as an initiative to support the honing of engineering skills, we subsidize expenses to gain license qualifications, offer incentives for certifications, and grant qualification allowances to young engineers, in a bid to raise their motivation.

#### Work style reforms by Group companies to enhance engagement

Category	Company	Items
Reduce long working hours	JFE Steel / JFE Engineering / JFE Shoji	<ul style="list-style-type: none"> <li>Designated no overtime days</li> <li>Trial of standardized number of hours in between work shifts</li> <li>No overtime beyond 8:00 p.m. in principle</li> <li>Initiative to provide two days off each week for construction departments (expansion of back office functions, use of ICT tools)</li> </ul>
	JFE Steel / JFE Engineering	<ul style="list-style-type: none"> <li>Designated days to encourage taking annual leave days</li> <li>Encouraging the "hitoiki" annual leave (consecutive annual leave days taken at the completion of construction) in the construction department</li> </ul>
	JFE Steel / JFE Shoji	<ul style="list-style-type: none"> <li>Trial of coreless flexi-time system</li> <li>Introduction of self-core flexi-time system</li> </ul>
	JFE Steel / JFE Shoji	<ul style="list-style-type: none"> <li>Work-at-home system</li> <li>Introduction of telework system</li> </ul>

■ JFE Steel ■ JFE Engineering ■ JFE Shoji

## Safety



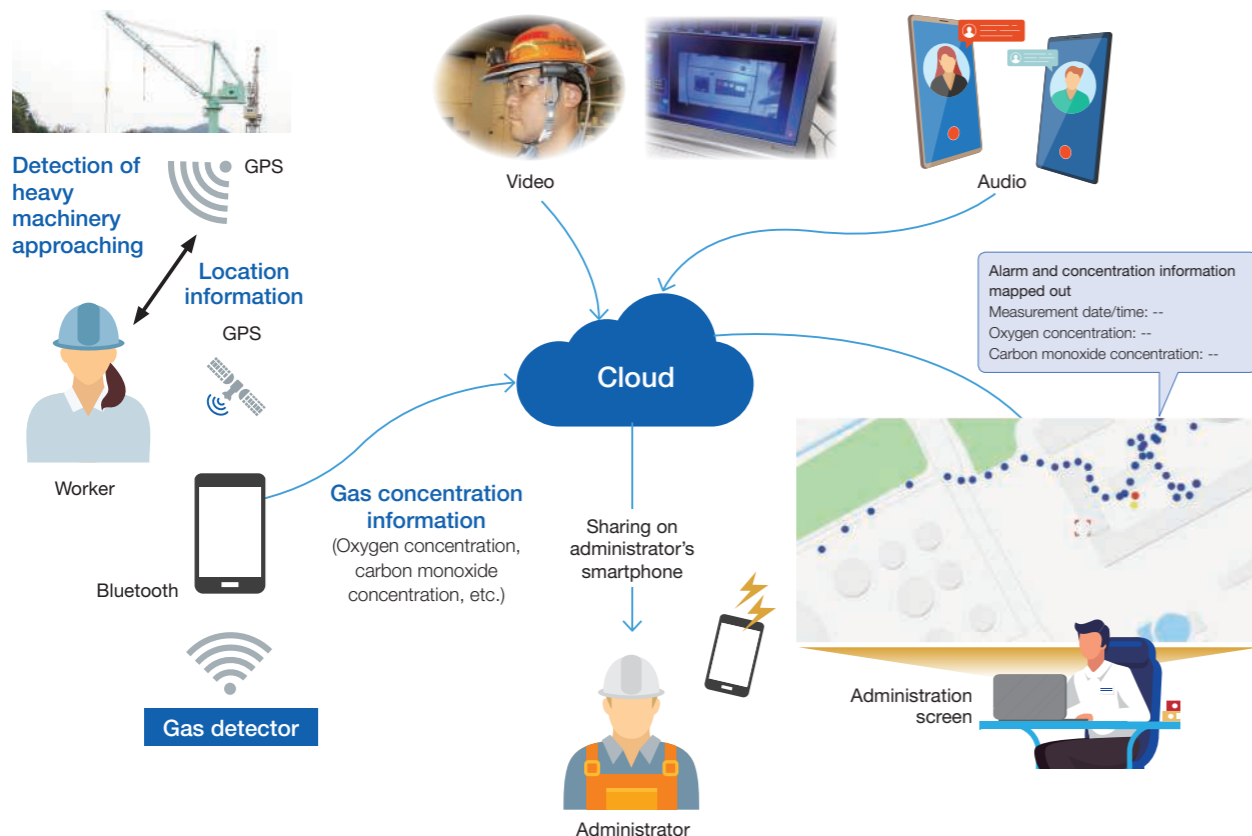
CSR Report: Occupational Safety and Health  
<https://www.jfe-holdings.co.jp/en/csr/society/safety/index.html>

### Securing the safety of employees using AI

In the steel business, we ensure the safety of workers at manufacturing sites by utilizing the latest ICT, AI, and data science to pursue the development and commercialization of further advanced technologies. One example is the use of the safety support system. This system has communications functions such as audio and video sharing within the Group, and also allows the

sharing of information including the locations and status of workers, detection of approaching heavy machinery, and operational environment such as the presence of gas, to ensure the safety of workers. This information is also shared to administrators through smartphones and the cloud. We will continue to strive to secure the safety of workers using the latest technology.

#### System overview



## Human Rights



CSR Report: Human Rights  
[https://www.jfe-holdings.co.jp/en/csr/society/human\\_rights/index.html](https://www.jfe-holdings.co.jp/en/csr/society/human_rights/index.html)

Since its integration, the JFE Group has observed human rights through its Standards of Business Conduct, which mandate respect for individuals in the Group and greater society as well as nondiscrimination in all corporate activities. Two years ago we established the JFE Group Human Rights Basic Stance, ensuring that our corporate operations are aligned with international norms such as the United Nations' Guiding Principles on Business and Human Rights (hereinafter the "UNGPs"). In particular, we purchase raw materials with full consideration of respect for human rights, legal compliance, and environmental preservation

in accordance with our Raw Materials Purchasing Policy. In order to make awareness of human rights in business permeate deeply throughout the Group, last year we held seminars by outside experts on the UNGPs for human rights compliance staffs of each Group company. Furthermore, in order to build this awareness among individual employees, we reorganized our training lineup to reflect the concept of the UNGPs and global trends, and held in-house human rights awareness training. We set the rate of participation in this training as a KPI, to improve human rights awareness.

## Health and Productivity Management



CSR Report: Labor Practice  
<https://www.jfe-holdings.co.jp/en/csr/society/diversity/index.html>

### Promoting health and productivity management

In order to realize safe and highly attractive workplaces that provide motivation to workers and to powerfully promote the development of environments where diverse human resources can demonstrate their full potential, the JFE Group has formulated the JFE Group Health Declaration and collaborates with its health insurance union and industrial health staff to strengthen employee health.

**JFE Group Health Declaration**

- 1 JFE, recognizing that safety and health are fundamental for fulfilling its mission, creates workplaces in which every employee can work with vigor.
- 2 JFE and its health insurance union work together to advance initiatives for maintaining and upgrading the physical and mental health of employees and their families.
- 3 JFE gives top priority to safety and health and to creating a health culture in which each employee takes personal responsibility.

### External recognition

We believe that health and productivity management will be greatly facilitated not only by the individual actions of Group companies but also by recognition from outside. Accordingly, we actively cooperate with outside surveys.

Name of SRI index, etc.	Description of selection criteria, etc.	Evaluation, etc.
Health & Productivity Stock Selection Program Certified Health & Productivity Management Outstanding Organizations Recognition Program (White 500)	Under the Health & Productivity Stock Selection Program, the Ministry of Economy, Trade and Industry and the Tokyo Stock Exchange cooperate to select companies that have been strategically implementing employee health management from a business management viewpoint. JFE was selected for the Health & Productivity Stock Selection for the first time in 2018. Additionally, the company was selected for Certified Health & Productivity Management Outstanding Organizations Recognition Program which certifies organizations that implement outstanding health management in collaboration with health insurance society members.	
DBJ Employees' Health Management Rated Loan Program	This is the first financing option in the world to incorporate special health management ratings, which uses the unique screening system developed by the Development Bank of Japan (DBJ) to evaluate and select companies with excellent health management initiatives for employees, whereby setting financing terms and conditions according to the evaluation result. The company was rated as a top-ranking company with excellent advanced initiatives for employees' health management in 2018 in recognition of our advanced health management so far.	

### Activities of Group companies

JFE Steel	JFE Engineering	JFE Shoji
JFE Steel business sites offer the Active Exercise™ program, which the West Japan Works designed to help people increase their physical strength and prevent injuries due to falling. The program's effectiveness in preventing occupational accidents and improving health has even attracted attention outside the company, so it is being shared as a contribution to society.	JFE Engineering identifies health management issues of company workers from historical health examination data, then takes steps to make improvements. In FY2018, the company introduced gastroscopy as part of the regular health examinations in order to strengthen cancer screening. From FY2019 a self-care training course for all employees was introduced, to enhance concentration through short naps, to practice breathing techniques, etc.	JFE Shoji provides helicobacter pylori (blood) tests as part of regular health examinations for prevention and early detection of cancer, as well as subsidies to cover expenses for women's cancer examinations. In November 2019 we started subsidizing the costs of smoking cessation outpatient services, to lower the risk of lung cancer and stroke due to smoking. We also provide e-learning with the aim of raising health awareness among our employees.