Under the Sixth Medium-term Business Plan, we are currently undertaking capital investments totaling 1 trillion yen over 3 years (IFRS). By establishing leading-edge facilities through renovation and new production processes utilizing advanced AI/IoT, the company aims to stabilize facility operation, increase production efficiency, reinforce cost competitiveness and realize the stable production of products with high added value. Maximized manufacturing capabilities will enable JFE Steel to triumph against global competition and ensure a solid earnings base for the future.

Leveraging our manufacturing power to open up new horizons

Under the Sixth Medium-term Business Plan, we are currently undertaking capital investments totaling 1 trillion yen over 3 years (IFRS). By establishing leading-edge facilities through renovation and new production processes utilizing advanced AI/IoT, the company aims to stabilize facility operation, increase production efficiency, reinforce cost competitiveness and realize the stable production of products with high added value. Maximized manufacturing capabilities will enable JFE Steel to triumph against global competition and ensure a solid earnings base for the future.
Expanding the engineering business that “Ni·na·u*” the foundations for life, from planning to operation.

The geothermal power plant in Matsuo-Hachimantai constructed by JFE Engineering Corporation has started full-scale operations. JFE Engineering has participated in the project from the survey stage, and remains responsible for the construction of the entire set of ground facilities including steam production facilities and power generation facilities, while engaging in operations management as an investor. The generated electricity is supplied to local customers via Urban Energy Corporation, a new electric power company wholly owned by JFE Engineering. We aim to expand a stable source of earnings by proposing integrated services that cover business planning to management.

* “Ni·na·u” is a Japanese word meaning supporting and remaining responsible. We aim to provide solutions with our engineering and manufacturing know-how.
Every day we strive to improve our technology and quality with a great sense of pride in the important role of connecting each JFE Group’s steel-works with customers. In 2010, we established the Steel Alliance Service Center in Thailand to process steel materials for automotive steel sheets. National staff, who initially had no experience, have become reliable on-site employees. They are the power behind the scene supporting the frontline of our business.
This Suezmax tanker, developed by Japan Marine United after the merger, is the largest crude oil carrier that can transit the Suez Canal. Born out of a combination of long-accumulated expertise and cutting-edge technologies in tanker development, this next-generation Suezmax tanker is energy efficient and environmentally friendly, and is optimally designed to satisfy the entry conditions of the world's major ports and meet the current mainstream market requirements.
Meeting Challenges throughout JFE’s History

Realizing our merger’s full potential
The primary aim behind the establishment of JFE was to secure stable profitability even amid fluctuating iron-steel foundation through active investment and financing. We established facilities, restructured and integrated Group companies, formed a steel production system and strengthened the competitiveness of our rare businesses in steel and engineering.

Expanding high-value-added products
JFE shifted to establishing a highly profitable business framework based on the production and sale of high-quality high-value-added products and the provision of sophisticated services. We also invested actively in establishment systems for stable production and expanded sales of high-value-added products.

Targeting future-oriented technological development
Despite a harsh business environment brought on by events including the collapse of Lehman Brothers in 2008 and the Great East Japan Earthquake in 2011, we continued development of new technologies to accelerate our leapfrog into the future, with a focus on environmental developments in the following 10 years. We also reinforced our corporate strategy to increase profitability as the No.1 supplier of high-value-added products.

Expanding into growing markets overseas
We further strengthened our profit bases for growth by investing overseas and developing innovative new products. Corporate resources were allocated strategically to emerging markets where significant growth was expected over the medium to long term. We also reinforced overseas sales and technical functions for future growth.

Capturing global demand to the fullest extent
We formulated a manufacturing and sales strategy to maximize opportunities for capturing demand in Japan stemming from government initiatives to upgrade disaster resilience and respond to the Olympic and Paralympic Games in 2020. Overall, we focused on capturing demand related to infrastructure transformation in emerging countries and initiatives for energy savings and environmental protection. As a result, we became the first in business in fields and geographic regions showing strong potential for future growths.

Boosting competitiveness with advanced technology
Our current focus is strengthening competitiveness through the application of state science and other advanced technologies to meet escalating environmental and social challenges. Having made sustainable societies one of our priorities, we partnered with leading universities and research institutions across the world to pursue a number of environmental, social and governance (ESG) initiatives, including environmental protection, development of human resources and establishment of a governance system.

Establishment of JFE Holdings

- November 2005: Strategic collaboration agreement concluded with OIST in Okinawa and technical cooperation agreement concluded in July 2010.

Third Medium-term Business Plan (2009-2011)
- December 2009: Agreement reached on acquisition of U.S. pipe distributor Kelly Pipe Co., LLC.

Fourth Medium-term Business Plan (2012-2014)


Sixth Medium-term Business Plan (2018-2020)
- March 2018: Agreement concluded on participation in nuclear power plant in Mexico with Nippon Corporation.

JFE Holdings
- Australian Commonwealth Scientific and Industrial Research Organization (CSIRO) agreed to collaborate on joint research activities in water treatment and agglomeration technologies for implementing new materials for mine and coal.

JFE Steel
- Established Guangzhou JFE Steel Sheet Co., Ltd.

JFE Engineering
- Established Guangzhou JFE Steel Sheet Co., Ltd.

JFE Shipyard
- Established Guangzhou JFE Steel Sheet Co., Ltd.

JFE Marine
- Established Guangzhou JFE Steel Sheet Co., Ltd.

JFE Group Report 2019
Since there are rich reserves of steel, which comprises approximately 30% of Earth's mass, it can also be mass produced at low cost. Steel has an extremely low impact on the environment at the manufacturing stage when compared to other materials, and has an excellent recyclability. Steel with the low environmental impact is reborn as anything over and over again (closed-loop recycling), contributing to the sustainable development of our society.

**Steel's LCA (Life Cycle Assessment)**

Steel establishes a highly sophisticated value chain of Produce-Use-Recycle thanks to its excellent recyclability, and is reborn as anything over and over again. Therefore, it is important to evaluate steel's environmental impact by encompassing the entire life cycle including recycling. JFE Steel participated in the initiative to quantify the lifecycle environmental impact of steel products, which is led by the Japan Iron and Steel Federation, as one of the core members, and developed an ISO/JIS Standard* for the calculation. The results provided through the use of this standard has shown that the more superior the recyclability of material is, the less environmental impact such as global warming becomes.

**Steel contributes to social developments with its rich resources**

Steel is a material with rich reserves and a long history of development. It is not only mass produced at a reasonable price, contributing to the sustainable development of society, but also has extremely low environmental impact compared to other materials.

### High economic efficiency and low environmental impact

**Earth is a steel planet (rich resources)**

As much as 96% (190 billion tons) of the Earth's metal resources are iron ore. Source: Mineral Commodity Summaries (2018)

**Mass production at low cost**

Steel is a material with rich reserves and a long history of development. It can be mass produced at a reasonable price, contributing to the sustainable development of society.

**Extremely low environmental impact at the manufacturing stage when compared to other materials**

The GHS greenhouse gas emissions of steel at the manufacturing stage is 1 to 5% that of aluminum, and approximately 111% that of carbon fiber. Source: Steel Recycling Institute

Japan's steel industry keeps the top energy efficiency in the world.

Japanese Steel Industry (converter furnace steel) produces steel with the lowest environmental impact when compared to other major countries in the world as a result of its long-standing efforts towards environmental conservation, including developing and spreading the use of energy-saving technologies.

### The potential to grow on a global level

Steel can be elongated two to three times more than aluminum at the manufacturing stage. Steel still has considerable potential for growth, such as in the construction of major buildings such as Tokyo Skytree. Steel has considerable potential for demand growth, such as in the construction of major buildings such as Tokyo Skytree.

### Potential for evolution

Steel can be elongated two to three times more than aluminum at the same strength, and is three to five times stronger at the same extended rate, making it the optimal material for the world-class structures of the times, such as Tokyo Skytree. Steel still has considerable potential for evolution. Emerging needs of society will make steel evolve, and contribute to a productive future.
Steel Business

We possess two major integrated steelworks in Japan along with global manufacturing and processing bases, which allow us to incorporate world-class technologies to supply products with the high added value that meets our customers’ evolving requirements.

- P33

Engineering Business

In addition to the urban environment and steel structure sectors, we also focus on renewable energy and resources recycling technologies.

Comparison with FY1990
- 19% reduction (11.2 to 9.3 GJ/t)
- 93.5% (satisfactory progress)

Relationships of trust established over many years with our customers and stakeholders

Approximately 24,000 customers

Trading Business

Supplying steel products with added value globally, this business operates in a broad range of sectors, including food and electronics, as well as handling iron and steel raw materials.

- P39

Shipbuilding Business

(Asset-method affiliate)

Building a wide range of vessels, this business possesses advanced technologies and one of the strongest construction capabilities in Japan.

- P40

Creating new value by providing solutions that meet the needs of society in general, and also of our customers

Putting Corporate Vision into Practice

Contributing to Society with the World’s Most Innovative Technology

Using our operations to make progress possible in diverse industries and lifestyles

- Realizing comfortable lifestyles through supply of automobiles, ships, and household appliances with advanced functions
- Constructing a strong infrastructure through development in the civil engineering and construction fields
- Ensuring a stable energy supply and spreading the use of renewable energy toward a sustainable society
- Developing and supplying environmentally friendly products and promoting resource recycling
- Securing excellent human resources and enhancing job satisfaction
- Creating a prosperous coexistence with local communities

Returning the economic value created through business operations into investments and to shareholders

- Sustainable cash flow growth
- Continue further business investment in growth sectors and regions
- Return of profit to shareholders: Dividend payout ratio of approximately 30%

Improving medium- to long-term corporate value

Creating economic value from sustainable growth

Making sustainable efforts to resolve social issues

Creating a prosperous coexistence with local communities

Building a foundation for sustainable growth

ESG Management

Value Creation

Input

Business growth drivers

Business model

Output into market

Outcome

Intellectual capital
- Domestic patent publications (FY2018)
- PCT applications (FY2018)

Manufacturing capital
- Consolidated crude steel production (FY2018)
- Manufacturing bases (as of April 2018)

Natural capital
- Energy consumption intensity (FY2018)
- Recycling of water resources (FY2018)

Social and other related capital
- Number of customers (delivery destinations) (FY2018)
- Number of employees (as of the end of March 2018)
- Annual training hours (FY2018)

Human capital
- Ratio of equity attribution to owners of parent (IFRS) (as of the end of March 2018)
- Total equity (IFRS) (as of the end of March 2018)

Financial capital
- Building a foundation for sustainable growth (IFRS Management)

Foundations supporting our businesses

Compliance

Corporate Governance

Human Resources

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

The competitive advantages of our steel and trading businesses are three fundamental sources: (1) leading-edge technological development capabilities mobilized by customer needs, (2) production capabilities constantly developed and enhanced at production sites, and (3) sales capabilities underpinned by firm relationships of trust with customers established over years by JFE Steel and JFE Shoji Trade. We have created new value tailored to customer needs and provided optimized solutions based on these three factors. Our competitive advantages are treasured assets created through many years of effort. They are also the driving force behind our sustainable growth and cannot easily be matched by other companies.

The primary source of our competitive strength in the steel business are two major steelworks located in east and west Japan, both with world-class production scales. Consolidating manufacturing bases reduces fixed costs and enables highly-efﬁcient production. West Japan Works can produce 20 million tons of steel materials annually and, by international standards, is among the best in terms of cost, product lineup and technological capabilities. Leading production and product technologies, intellectual property, expertise and other strengths accumulated over many years in service provide the company with a unique source of competitive strength.

We have established relationships of trust through two-way communications with many customers during our long years in business. We have created new value by closely communicating with customers to accurately meet their evolving requirements and through other activities, including cooperation from the initial development stage which helps us to contribute to the resolution of customer issues. As a result, we have created a solid customer base that cannot be easily or quickly built by other companies and, at the same time, gained global competitive strength (non-price competition).

The source of competitive advantages that reinforce our business model

<table>
<thead>
<tr>
<th>Initiatives and investments for reinforcement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Production</td>
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<tr>
<td>Major renovation of facilities to reinforce manufacturing capabilities, along with strategic capital investment and development of innovative production processes.</td>
</tr>
<tr>
<td>Application of advanced IT and development of diverse human resources so that skills and technologies are effectively harnessed, and dynamic increases in productivity are achieved.</td>
</tr>
<tr>
<td>Investment for overseas growth to expand global production systems using technologies and skills constantly developed and enhanced at domestic facilities.</td>
</tr>
<tr>
<td>Stable procurement of raw materials and cost reduction utilizing technologies for low-cost raw materials and networks, including JFE Shoji Trade.</td>
</tr>
</tbody>
</table>

| Logistics and processing                     |
| Ensure greater stability in production by strengthening manufacturing capabilities. |
| Raw material procurement                     |
| Iron ore (Australias, Brazil, etc.) 39.34 million tons a year |
| Coking coal (Australia, Russia, Canada, etc.) 20.29 million tons a year (FY2018) |

| Production                                   |
| Production and product technologies accumulated over the past years |
| Through optimally managed production and quality control management |
| Stable production of value-added products |

| Product technologies                         |
| Product technologies                        |
| Processing technologies                      |
| Facility technologies                        |
| ICT                                          |
| Environmental conservation technologies       |

| Technical development                         |
| Core technologies                             |
| Processing technologies                       |
| Facility technologies                         |
| ICT                                          |
| Product technologies                          |
| Environmental conservation technologies       |

| Value Creation                               |
| Value creation                               |
| Production plan                              |
| Optimal allocation to product bases          |
| Production instructions                      |
| Production instructions                       |
| Dispatch control                             |

| Sales                                        |
| Sales activities                             |
| New value and product development            |
| Quality assurance                            |
| Technological services                       |
| Sales activities                             |
| Allowing customers to accurately meet their evolving requirements and through other activities, including cooperation from the initial development stage which helps us to contribute to the resolution of customer issues. As a result, we have created a solid customer base that cannot be easily or quickly built by other companies and, at the same time, gained global competitive strength (non-price competition). |

| Availability to respond to customer demands  |
| Availability to respond to customer demands |
| Initiatives and investments for reinforcement |
| Consolidating product development and sales as well as understanding the needs of customers is an indispensable way in a timely manner through close communication with them. |
| Early Vendor Involvement: First-learning technologies with customers from the initial stage of product development, to create the best products possible with the available technologies |
| Accurately responding to customer expectations and creating a global network that can deliver products and services in a timely manner |
Business models that support society and create the future

The main focus of the engineering business is infrastructure construction that supports people’s lives and society, providing products and services based on the Group’s comprehensive strengths and advanced technologies. As long as people in the world long for more comfortable and abundant lives, there will never be an end to our mission. We will provide optimal solutions for society and strive to realize a sustainable society in “create” and continue to “Ni·na·u” the foundations for life.

* “Ni·na·u” is a Japanese word meaning supporting and remaining responsible. We aim to provide solutions with our engineering and manufacturing know-how.

EPC (Engineering, procurement, construction)

- Design
- Material and equipment procurement
- Manufacturing
- Construction

Project management

Technological development
- Core technologies
- Product technologies
- Production technologies
- Environmental conservation technologies
- ICT

Business development
- Creating new value
- Resolving social issues

The source of competitive advantages that reinforce our business model

- Proven track record and project execution capabilities enabled by diverse human resources
- Advanced core technologies and diverse product technological capabilities

Operating business

- Maintenance business
- Plant operation and maintenance business
- Management of water and sewage facilities
- Management of Waste-to-Energy plants

Returns to shareholders

- Investments
  - Business investment (domestic and overseas)
  - R&D investment
  - Capital investment

Value Creation

- Resolving social issues
- Creating new value

Business investment (domestic and overseas)

- R&D investment
- Capital investment

Business management capabilities with strengths in manufacturing expertise

- Active investment toward expanding operating business, such as public and private sector collaborations in the civil service field, energy service business, and consumer appliance recycling and other service operations, applying our strengths in manufacturing and management expertise.

The source of competitive advantages that reinforce our business model

- Value Creation
- Creating new value
- Resolving social issues

Ensuring quality and productivity through active application of advanced ICT at construction and manufacturing sites
- Technological development in manufacturing expertise
- Other enhancement of project management systems to ensure projects are thoroughly implemented and earnings is secured.

Initiatives and investments for reinforcement

- Enhancing existing products with a focus on the energy and environment fields, along with developing new products that meet the needs
- Accelerating the creation and expansion of new businesses based on a global engineering structure that enables the supply of optimal products and services, including through application of AI and IoT technologies
- Continuous investment and reinforcement of human resources to accelerate the enhancement of products and services, including through application of AI and IoT technologies
- Active business investment, including collaboration with local overseas partners, to reinforce our overseas business

Business management capabilities with strengths in manufacturing expertise

- Active investment toward expanding operating business, such as public and private sector collaborations in the civil service field, energy service business, and consumer appliance recycling and other service operations, applying our strengths in manufacturing and management expertise.

Business development

- Creating new value
- Resolving social issues

Advanced core technologies and diverse product technological capabilities

We have conducted business in diverse fields such as energy, environment and bridges, taking advantage of our advanced technological capabilities, which were developed by combining and advancing the following technologies:

- Enhancing existing products with a focus on the energy and environment fields, along with developing new products that meet the needs
- Accelerating the creation and expansion of new businesses based on a global engineering structure that enables the supply of optimal products and services, including through application of AI and IoT technologies
- Continuous investment and reinforcement of human resources to accelerate the enhancement of products and services, including through application of AI and IoT technologies
- Active business investment, including collaboration with local overseas partners, to reinforce our overseas business