



JFE

**JFE Group
Seventh Medium-Term
Business Plan
(FY2021-2024)**

**May 7, 2021
JFE Holdings, Inc.**

A table of contents

- **Review of Sixth Medium-Term Business Plan**
- **Business environment recognition**
- **Mid/long-term directions**
JFE's mission (Environmental and Social sustainability, Economic sustainability)
- **Economic & Social Sustainability (helping to solve critical issues)**
- **Economic Sustainability (stable earnings power)**
 - Initiatives of operating companies
(Steel Business, Engineering Business, Trading Business)
 - Group initiatives : Digital transformation strategy
- **Balance Financial Soundness with Effective Investment**
- **Main Financial Data and Performance & Profitability Targets**



Review of Sixth Medium-Term Business Plan

Financial results from FY2018 to FY2020 were significantly underachieved to the original 6th mid-term plan targets amid the significant loss resulting from trade friction between the US and China and COVID-19 pandemic from FY2019.

(billion yen)	FY2018	FY2019	FY2020	6 th mid-term business plan
Business Profit	232.0	37.8	(12.9)	290.0/year
Segment Profit				
Steel Business	161.3	(8.7)	(65.4)	220.0/year
Engineering Business	20.1	23.1	24.0	30.0/year
Trading Business	35.7	27.0	20.0	35.0/year

On the other hand, we promoted following initiatives to establish a foundation for the sustainable growth.

JFE Group

Announced the individual target of the reduction of CO₂ emissions reduction
Proactively promoted Digital Transformation

JFE Steel	JFE Engineering	JFE Shoji
Reinforced manufacturing base Decided structural reform etc.	Expanded O&M business Executed M&A etc.	Strengthened electrical steel processing base Expanded supply chain management etc.

Business environment during 7th mid-term business plan

Rapid and extensive change in social and economic conditions is surrounding JFE

Intensified global competition
amid the ascendancy of China



Increasing economic uncertainty
due to US-China conflict



Increasing geopolitical risk



Decreasing domestic demand
amid declining population



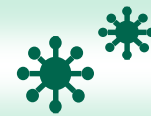
Necessity to address climate
change such as carbon neutrality



Emergence of innovative
new digital technologies



Spread of COVID-19



JFE aims to **rise to a new level by taking bold steps** to establish **a foundation for sustained, long-term growth**, signaling the beginning of **the most transformative period in the company's history**.



Mid/long-term directions

Biggest transformation in company's history aimed at achieving global success

JFE's corporate vision

Contributing to society with the world's most innovative technology

JFE's mission

To be essential to society's sustainable development
and to create safe, comfortable lives for people everywhere

**Environmental & Social
sustainability**
(helping to solve critical issues)



Economic sustainability
(stable earnings power)

Ensuring **environmental & social sustainability** and establishing **economic sustainability** will enable to ensure the **resiliency of JFE's operational foundations** and allow the company to achieve **sustainable growth** and **increased value** over the mid/long-term.



Initiatives to achieve environmental and social sustainability (helping to solve critical issues)

E JFE Group Environmental Vision for 2050

- Aim to realize carbon neutral by 2050, taking climate change as an extremely important business concern for JFE
- Accelerate R&D in new technologies and strive to create super-innovative technologies
- Contribute to the reduction of CO₂ emissions in society and use this as a business opportunity to increase corporate value
- Work systematically to combat climate change under TCFD philosophy

S Solve issues impacting society

1. **Safety/health management**
2. **Facilitate employee participation**
(Diversity & Inclusion, Personnel development, Workstyle reforms)
3. **Contribute to regional societies through engineering**
4. **Respect human rights throughout supply chain**
(Conduct human-rights due diligence from FY2021)

G Enhance corporate governance

Consider how to apply non-financial metrics in terms of director compensation and investment decisions etc.



JFE Group Environmental Vision for 2050

Toward Carbon Neutrality by 2050 JFE Group Environmental Vision for 2050

(GX Investment during 7th mid-term business plan : 340 billion yen)

GX : Green transformation

1. Key environmental initiative under 7th mid-term business plan

- Steel business : Reduction of CO₂ emissions by 18% by the end of FY2024 (vs. FY2013)

2. Carbon Neutrality by 2050

① Reduce CO₂ emissions at JFE Steel

- Pursue super-innovative technology for carbon-recycling blast furnaces and CCU
- Develop hydrogen-based ironmaking (direct reduction) technology etc.

② Expand contributions to CO₂ emissions reduction in society

- Engineering business : Expand & develop renewable-energy power generation and carbon-recycling technologies. → Targets to contributions to CO₂ emissions reduction
- Steel business : Develop & market eco-products and eco-solutions. {

FY2024	12 Mt
FY2030	25 Mt
- Trading business : Increase trading in biomass fuels, steel scrap, etc. and strengthen business in SCM for eco products.

SCM : Supply Chain Management

③ Groupwide commercialization of offshore wind-power business

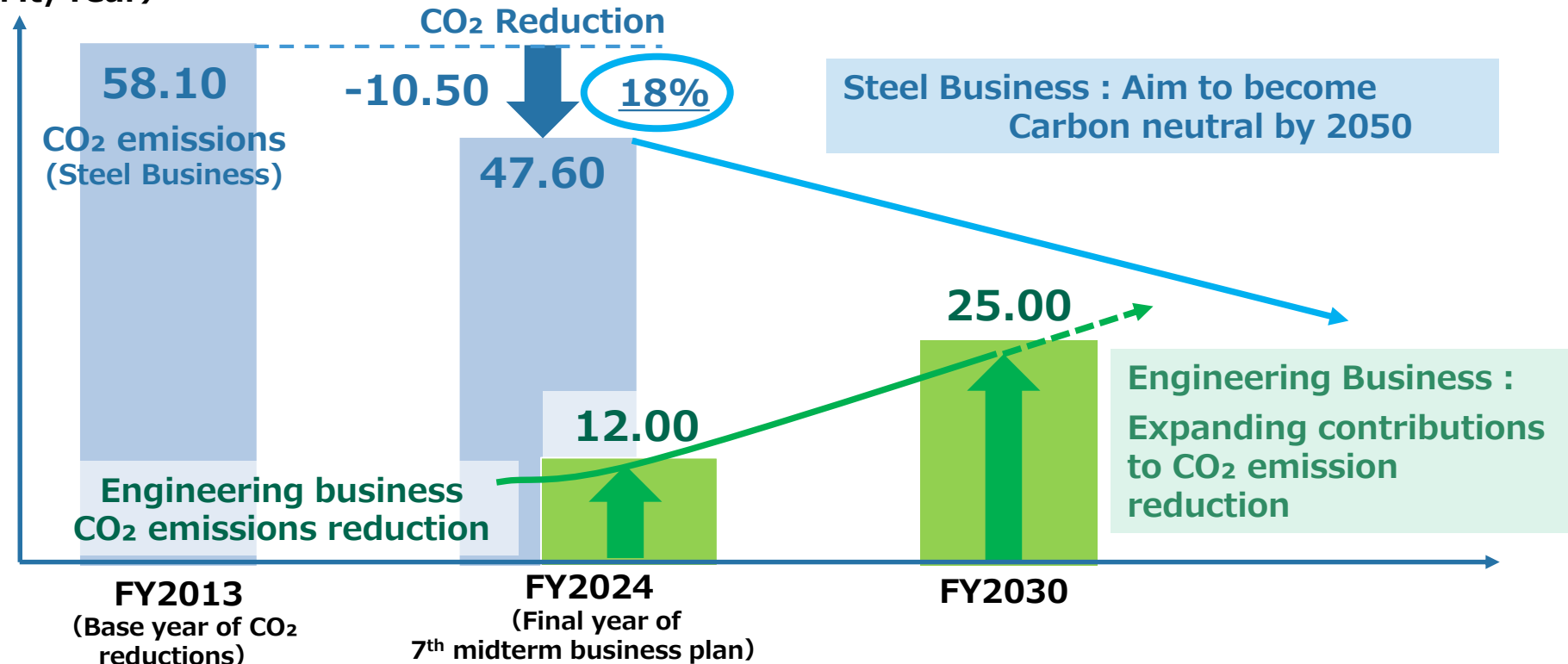
JFE Group's activities for Carbon neutrality

Steel Business: CO₂ emission reduction by 18% at the end of FY2024 (vs. FY2013)

Through [decarbonization in steel manufacturing processes](#) etc., JFE Group aims to be carbon neutral.

Engineering Business: Contribute to carbon neutrality in society on the whole by [expanding JFE Engineering's contributions to CO₂ emissions reduction resulting from its business](#) such as development of renewable-energy generation and carbon recycling technologies.

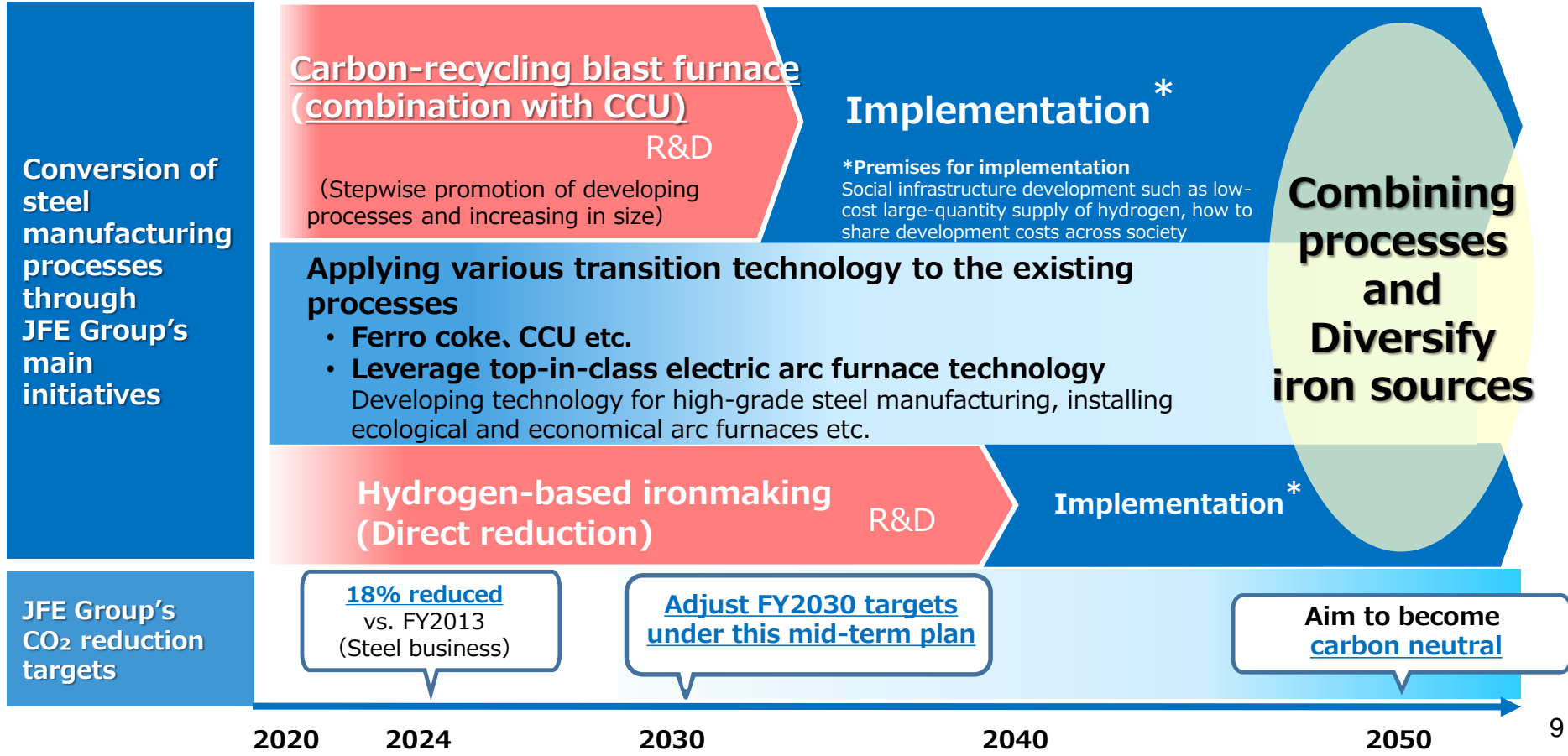
(Mt/Year)



Road Map for Carbon Neutral in 2050

JFE

- Accelerate R&D for quickly establishing new technologies to realize carbon neutrality by 2050
- Taking carbon-recycling blast furnace & CCU and hydrogen-based steel making (direct reduction) as main approaches, proceed multi-track development of various super innovative technologies.
- Leverage top-in-class electric arc furnace technology

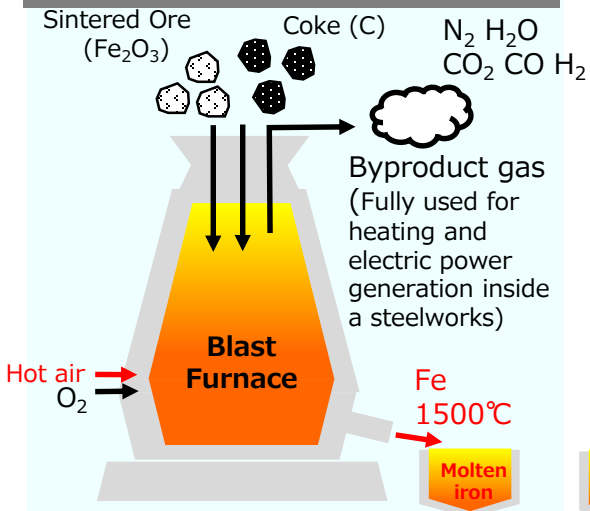


Carbon-recycle Blast Furnace

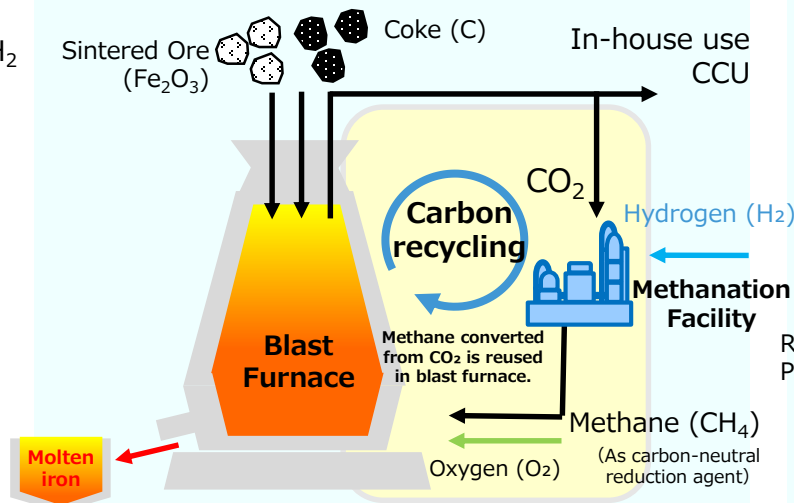
JFE

- Technologies for reducing CO₂ emissions from blast furnaces are necessary to maximize blast furnaces' advantages such as mass production, high-efficiency production, and high-grade steel production
- Combining carbon-recycling blast furnace with CCU enables to reuse CO₂ inside a steelworks by using raw materials of the same grade as those used in conventional blast furnaces. By doing so, JFE aims to achieve **net zero carbon emissions**.

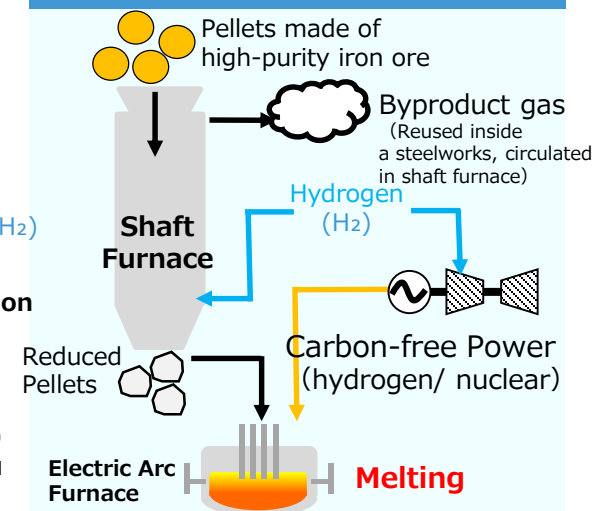
Conventional Blast Furnace



Carbon-recycling Blast Furnace



Hydrogen-based ironmaking (direct reduction)



Conventional Blast Furnace

Carbon-recycling Blast Furnace

Hydrogen-based ironmaking (direct reduction)

Capacity	4M t / BF-year	4M t / BF-year (on par with Conventional BF)	2M t/ Shaft Furnace-year (current direct reduction ironmaking basis)
Reducing Agent	Coke + Pulverized Coal	Coke + Recycled methane (CH ₄)	Hydrogen (H ₂)
Raw Materials	Low-grade raw materials possible.	Low-grade raw materials possible.	Limited (High-grade iron ore)
CO ₂ Emissions	2/t-CO ₂ /1-ton of pig iron	Target: Zero (CO ₂ reduction in BF+CCUS)	Target: Zero (Carbon-free method)



JFE

Groupwide commercialization of offshore wind-power business (Study feasibility)

- Become a pioneer in offshore wind-power generation business by commercializing manufacture of monopile and other seabed-fixed structures.
- Establish groupwide supply-chain such as monopile-structure manufacturing and O&M
- Aim to expand renewable energy business by leveraging group synergy effect, taking JFE Engineering as a main driver.

O&M: Operation and Maintenance. Apply expertise of maintenance and analysis technologies.



JFE Engineering

Manufacture and market monopile and other seabed-fixed structures for offshore wind-power generation

JFE Steel

Increase capacity for heavy, extra-thick steel plate for offshore wind-power applications

Utilizing NO.7 new continuous-casting equipment in Kurashiki district (Start operating in FY2021)

Provide steel products

Provide steel products

Carry out SCM
Provide steel products

Carry out SCM

JFE Shoji

Contribute to groupwide cooperation by carrying out SCM of steel materials and processed products for offshore wind-power generation

Subsidiaries/ Affiliates

JMU : manufacture power-generation floating structures and construct work vessels. **Groupwide**: O&M making maximum use of group resource

Social sustainability : Safety management, HR issues

Safety management

Further increase efforts to prevent accidents not only by using facilities but also through safety education and obedience of rules, in order to achieve top-priority goal of zero major accidents.

Groupwide investment for safety issues : Approx. 10 billion yen/year

Implement multifaceted health/safety management using advanced IT (monitoring, detection, etc.).

Facilitate employee participation

Proceed following initiatives in order to allow employees to maximize performance and enhance groupwide competitive advantages

Diversity & Inclusion	Maximize capabilities of employees with diverse background
Personnel development	Improve individual abilities and develop skills for global competence
Workstyle reforms	Create workplaces and internal structures to maximize employees potential and enable them to work safely and confidently

Social sustainability : Contribution to Regional Societies through Engineering Business

- Expand bases of local production and local consumption business (Food-recycling business and regional PPS business)
- Contribute to the regional society considering to expand combined utility service business in the future.
- Realize circular economy by developing this business

(Example) Local PPS Business : Smart Energy Kumamoto

Points

1. Local production of energy for local consumption (Local generation of renewable-energy power to be consumed in the regional societies)
2. Return economic merits to the city fund. (Investment for renewable energy and energy saving by citizen)
3. Strengthen disaster prevention and energy saving (Establishing self-supporting energy supply line**, using storage battery)

Electricity supply through self-supporting energy supply line



Disaster Prevention Bases (local parks)



Western waste disposal factory
(built by JFE Engineering)



Business support



EMS (Energy Management System)

Electric power

Smart Energy Kumamoto

Electric power



Eastern waste disposal factory

Electric power

Public Facilities



- Demand: 226 public facilities in the city
- Energy source
Western waste disposal factory : 5,980kw
Eastern waste disposal factory : 10,500kw

Charge/Discharge (optimized control)



Storage battery

*Regional PPS (Power Producer and Supplier) : Power producers and suppliers engaged in local production of energy for local consumption **Self-supporting energy supply line: Direct energy supply line from power generation plants to the connection points

Establish economic sustainability (stable earnings power)

Establish sufficient profitability and stable financial base for proactive business operation for the mid/long-term growth

- 1. Shift focus of domestic steel business from quantity to quality** –Pursue world-class earnings power
 - Achieve world-class cost and quality competitiveness
 - Expand margins and achieve stable profit
- 2. Promote growth strategies**
- 3. Significantly enhance competitiveness through DX**
- 4. Balance financial soundness with effective investment based on a “select and concentrate” approach**



JFE

7th mid-term business plan <Steel Business>

Aim to achieve world-class per-ton profit and enhance strategies for global growth
Promote innovation for carbon neutrality

Main initiatives

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

**Targets
FY2024**

Per-ton profit 10,000yen/ton*
(Segment profit 230.0 billion yen)

*Segment profit / unconsolidated sales volume in tons

Cf. 2H of FY2020 (actual)
 • Per-ton profit 6,000 yen/ton
 • Segment profit 70.8 billion yen

**Equipment & Business Investment :
1,080 billion yen over 4 years**

- **40% for GX, DX, equipment modernization and profitability improvements** (6th mid-term actual:20%)
- **30% for maintenance investments** (6th mid-term actual:50%)



Transition to a lean, robust business structure by shifting focus from quantity to quality

Improve per-ton profit by both fixed cost reduction and increase of high value-added products ratio, and enhance earning base.

Achieve world-class cost and quality competitiveness

- Cost reductions: 120 billion yen over 4 years
- Labor productivity: +20%
(13% via structural reform +
1,670→2,000t/person/year via DX etc.
Number of employees: 16,000→13,000)
- Establish profit base that is resilient to changes in economic conditions by completing structural reforms
 - Greatly reducing fixed costs
 - Lowering breakeven points
- Introduce new technologies through DX
 - Improve production efficiency and yields
 - Greatly improve labor productivity
- Ensure quality competitiveness by improving product quality, production efficiency and our delivery

Expand margins and achieve stable profit

- Increase mix of highly value-added products* to an unprecedented 50%
*Products that offer technological advantages, are recognized by customers for their value added and have greater earnings power than commodity products.
- Product-mix enhancements by focusing on selective concentration in priority fields
 - Increase non-oriented electrical steel sheet production capacity
 - Increase capacity for heavy, extra-thick steel plate for offshore wind-power applications
 - Production of high-tensile steel sheet for automotive
- Fully overhaul our sales pricing
Ensure that products offering the type of high value that customers seek are suitably recognized in the market, based on which we aim to fully overhaul our sales pricing



JFE

Expand and Accelerate Overseas Business

- Expand returns from 1. vertical specialization business such as steel production applied for automobiles
- Further deepen integrated production in high-demand market (2. "Insider" business)
- Expand 3. solution business, in which we provide cutting-edge technologies, operations and research knowhow (aim to triple earnings in FY2024 compared to FY2020)

India

JSW

- Investment in 2009 (current equity ratio 15%)
- Further deepen direct participation such as beginning FS of establishing a grain-oriented electrical steel sheet manufacturing company

1. Vertical specialization business

2. "Insider" business

3. Solution business

china

GJSS started renewal construction [FY2020]

Started JV of production of iron powder (BJCMX) [FY2018]

Started JV of production and sales of specialty bar steel (BJSS)[FY2019]

JFE Chemical Established JV of anode materials [FY2019]

UAE

Started commercial production of large-diameter welded pipe (AGPC) [FY2019]

Mexico

NUCOR-JFE STEEL MEXICO Began Operating Hot-dip Galvanized Steel Sheet Production Facility for Automotive Applications[FY2019]

Vietnam

FHS

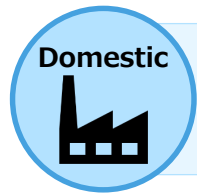
- Investment in 2015 (current equity ratio 4%)

ASEAN

JSGI (Indonesia) · JSGT (Thailand)

production and sales of galvanized steel sheet and cold-rolled steel sheet for automotive

Examples of Steel Business's Critical Initiatives: Strategy to Capture Growing Demand for Electrical Steel Sheet



To expand non-oriented electrical steel sheet (N/O) production capacity

Released April 1, 2021

JFE Steel decided that it would expand the electrical steel sheet production capacity of its West Japan Works (Kurashiki District) amid increasing demand for high-grade N/O applied for EV and HEV motors.

<Demand forecast of high-grade N/O>

The global movement to tighten and accelerate environmental regulations will rapidly increase demand for high-grade N/O, which are essential for production of motors that drive electric vehicles.

CAPEX	Approx. 49.0 billion yen
Expected time to start production	1H of FY2024
Expected capacity	Doubling the facility's existing capacity for producing high-grade non-oriented electrical steel sheet
CO ₂ reductions	Approx. 1.5Mt-CO ₂ /Year*

*CO₂ reductions effect resulting from expanding EV/HEV



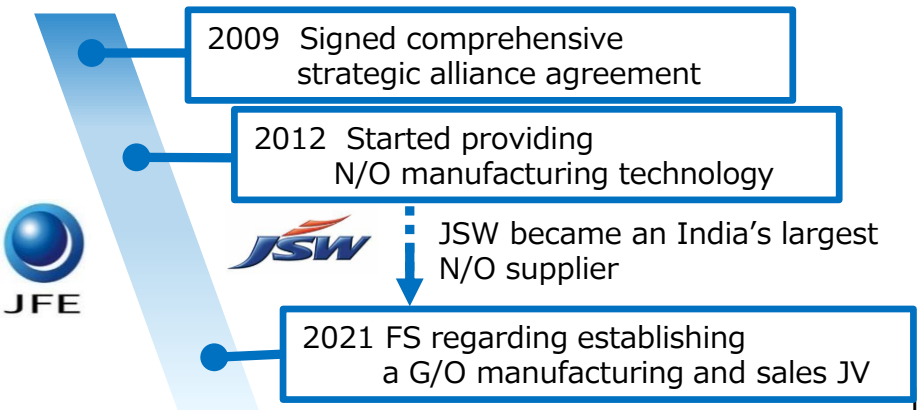
To conduct FS of grain-oriented electrical-steel-sheet JV with JSW in India

Released May 7, 2021

JFE Steel signed a memorandum of understanding to conduct a feasibility study with JSW, JFE's strategic alliance-partner in India, regarding establishing a G/O manufacturing and sales joint-venture-company in India.

<Demand forecast of G/O>

Demand for G/O, which are used for the iron cores of power transform, is expected to grow globally amid continuous increase in demand for electric power and expansion of reusable energy. (Economic growth in India is estimated to boost its local demand for electric power.)





JFE

JFE Group-wide Strategy to Capture Growing Demand for Electrical Steel Sheet (Steel Business and Trading Business)

JFE Steel

Production of
electrical steel
sheets

**Expand production and supply
function of high value-added
electrical steel sheets**

JFE Shoji

Processing and
distribution of
electric cores

**World's No.1 global distribution
and processing system**

Domestic

**Increase electrical
steel sheet
production capacity**

Overseas

**Production & sales JV
with India's JSW for
electrical steel sheets**

**Sharing
Strategies**

Synergy

**Expand collaboration
with alliance partners**

**Expand processing
functions in coil centers**

**Establish SCM in
new regions**

**Groupwide Strategy: Capture increasing demand for high value-added
electrical steel sheets both in domestic and overseas market**



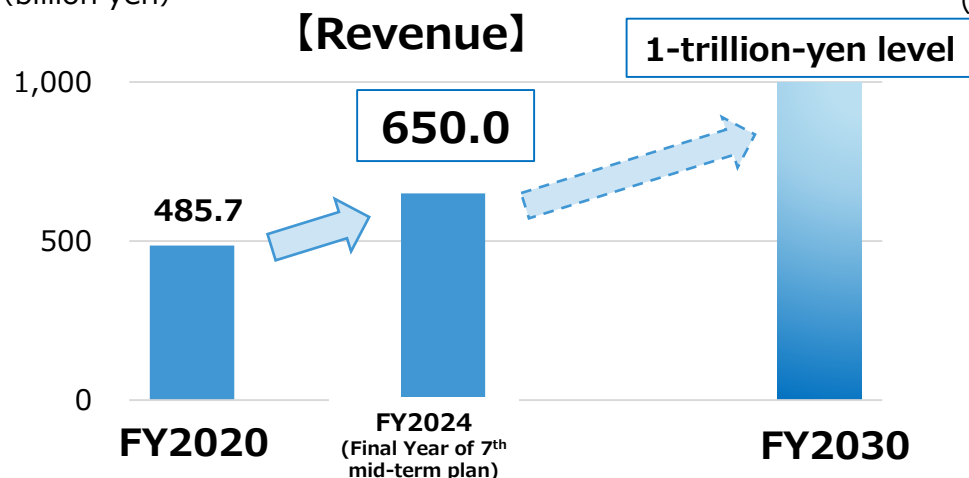
7th mid-term business plan <Engineering Business>

Expand sales revenue to 1-trillion-yen level in FY2030

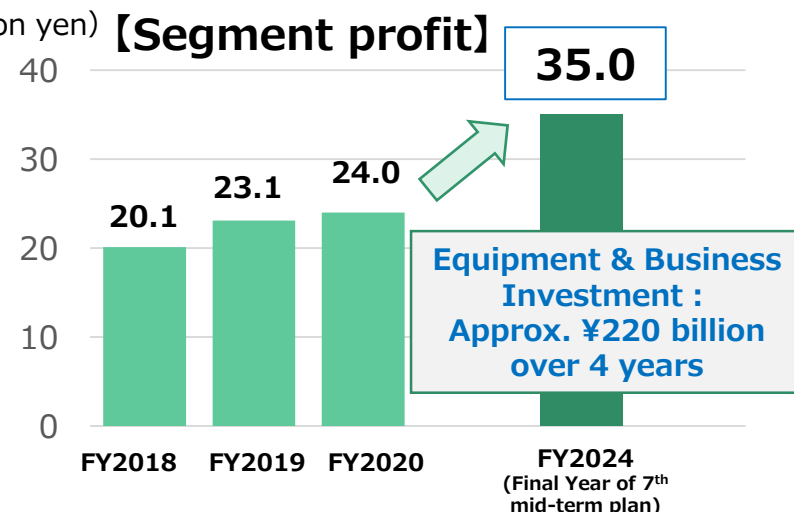
Targets FY2024

- Revenue **650.0 billion yen**
- Segment Profit **35.0 billion yen**

(billion yen)



(billion yen)



Main initiatives

- 1. Enhance mid/long-term priority areas** (See next page)
Waste to Resources, Carbon-neutral business, Combined utility service, Core infrastructure
- 2. Expand overseas business** enhance EPC competitiveness, engage in ODA, pursue M&A synergies in chemical plant field, participation in local business in environmental, water and recycling fields
- 3. Promote DX initiatives**

Engineering Business's Main initiatives

–Enhancing mid/long-term priority areas–

- Expand engineering business as a growth sector by helping to solve pressing issues in global society, in view of increasing importance of the environmental, recycling and renewable-energy fields.
- Expand revenue and profit by setting the following **four priority areas**:

Waste to Resource

FY2024 revenue target
¥290 billion

- Establish stable profit base in domestic environment business
- Priority investment and expansion of domestic market in recycling business*

*Food, Plastic, Incineration and Power generation



Carbon Neutral

FY2024 revenue target
¥80 billion

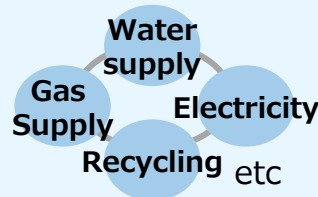
- Put priority in renewable energy (offshore wind-power generation, biomass power plant, solar power plant, geothermal power plant etc.)
- Develop carbon neutral technologies.



Combined utility services

FY2024 revenue target
¥20 billion

- Shift to comprehensive business model, including for efficient operation of facilities to contribute to energy savings and decarbonization



Core infrastructure

FY2024 revenue target
¥260 billion

- New technologies to address newly arising needs for strengthening and improving life of infrastructure
 - Strengthening of existing infrastructure → install new product and method for construction
 - Improving life of existing infrastructure → install new materials and new products

- 1. Waste to Resource** : Recycling and waste-to-power generation etc.
- 2. Carbon neutral** : Renewable energy, carbon recycling etc.
- 3. Combines utility services**: contribute to the local-production and local-consumption (circular economy) by mutual combination among various operation and maintenance business such as water, gas, electricity supply and recycling business/
- 4. Core infrastructure** : infrastructure business to establish social foundation such as bridge and pipeline.

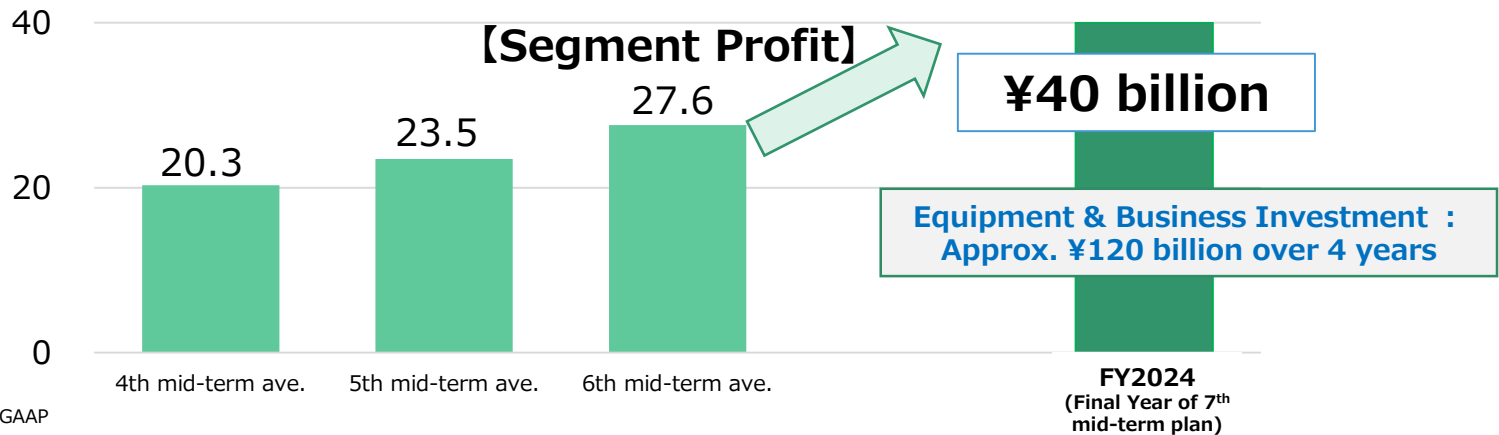
7th mid-term business plan <Trading Business>

Establish growth foundation by enhancing SCM

Target
FY2024

Segment profit **40 billion yen**

(billion yen)



Main initiatives

1. Proceed key strategies for growth

Establish No.1 position in global processing & distribution of electrical steel sheet, Strengthen SCM of automotive steel composite materials, Accelerate efforts in overseas construction materials business, Fully capture steel demand in Japan

2. Strengthen purchasing & sales capabilities (expand non-JFE Steel business)

Increase sales of both JFE group products and alliance-partner products as well as actively expand business with other suppliers' products

3. Seize new business opportunities

Expand environmental-solutions business, DX initiatives

Trading Business's Main initiatives

—Key Strategies for growth, Strengthen purchasing and sales capabilities—

Strengthen SCM of Automotive steel

Enhance SCM for high-tensile steel both in overseas and domestic market to increase sales of JFE's strategic products

Further collaboration with JFE Steel both in domestic and overseas market

- Along with the EV and HEV promotion and increasing needs for lighter body of automobiles, application volume of high-tensile steel for automotive is expected to increase because of its characteristics and environmental-friendly advantages.



Accelerate efforts in overseas construction materials business

- In ASEAN and North American regions, expand trading in this sector and collaborate with local companies to strengthen business foundations.

Fully Capture steel demand in Japan

Increase earnings by enhancing JFE Group's presence through expansion of function (quality) and additional trading (quantity)

Strengthen processing and distribution in domestic steel business

- Strengthen SCM continue to strengthen collaboration beyond group boundaries and establish optimum processing and distribution system
- Widen processing functions to expand business expand capabilities including secondary and tertiary processing to build strong foundation to meet various types of clients' needs

Pursue the best sales structure by sharing strategies with JFE Steel in the domestic market, which is the most critical

Expand non-JFE Steel business

- Aim to expand business to meet clients' needs. Increase sales of both JFE group products and alliance-partner products as well as actively expand business with other suppliers' products



JFE Group's DX strategies

JFE

- Promote DX in every business area such as [advancing productivity through innovation](#), [transforming exiting businesses](#) and [creating new businesses](#).
- Proactively invest money and human resource necessary for DX :
[DX investment approx. 120 billion yen over 4 years](#)

JFE Steel

Use digital technology to streamline production operations and implement new growth strategies

Target

Labor productivity: 20% improve*

*FY2024 structural reform 13%+ DX effects etc.

Investment

**115 billion yen
over 4 years**

JFE Engineering

Digitalize entire business and provide new digital services to customers.

Target

**Design efficiency: 20% increase
in FY2024**

JFE Shoji

Improve customer service, pursue new businesses by leveraging DX

<JFE Steel's initiatives>

- [Enhance competitiveness](#) by introducing cyber-physical systems on all production lines
 - Improve production efficiency, labor productivity and yield ratio etc.
- Utilize digital technologies to [raise customer satisfaction](#) through [quality enhancements and better delivery services](#).
- Actively expand [solutions businesses](#)



Balance Financial Soundness with Effective Investment based on a “select and concentrate” approach

- Selective maintenance investment, focusing on investments for enhancing competitiveness and establishing stable profit base
- Ensure earning source by asset compression

1. Equipment & Business Investment about **1,450 billion yen** over 4 years

- Equipment investment : Approx. **1,200 billion yen** over 4 years
GX : About ¥340 billion over 4 years*, **DX : About ¥120 billion 4 years**

Execute maintenance investment carefully selected from the perspectives of effectiveness and necessity
 Shift focus on investment for improving profitability and cutting-edge facilities

- Business investment : About **250 billion yen** over 4 years

Steel business : expand overseas insider businesses, Engineering business : expand operation & maintenance business and overseas business

Trading business : business investment including M&A for increasing earnings from processing and distribution business

*Steel Business : ¥160 billion
 Engineering Business : ¥130 billion
 Trading Business : ¥50 billion

2. Ensuring earning source

- Generate cash by asset compression : Approx. **200 billion yen** over 4 years

Assets that contribute little to earnings or are tied to unprofitable businesses**

3. Returns to shareholders

- Dividend payout ratio: Around 30% on par with the target during 6th mid-term business plan

**Regarding development plans for partial area of Keihin district resulting from structural reform (Ogishima area):
 We will disclose development plans in FY2023, and strive to see some properties put to new use by FY2030.

Main Financial Data and Performance & Profitability Targets

		7 th mid-term business plan FY2024	FY2020 Actual
Consolidated	Business profit	¥ 320.0 billion	¥ -12.9 billion
	Profit attributable to owners of the parent	¥ 220.0 billion	¥ -21.8 billion
	ROE	10%	-1.3%
	Debt/EBITDA	About 3x	8.1x
	D/E* ¹	About 70%	93.2%
Operating companies	Steel business Profit per ton* ² Segment profit	10,000 yen/ton ¥ 230.0 billion	-3,000 yen/ ton ¥ -65.4 billion
	Engineering business Segment profit Revenue	¥ 35.0 billion ¥ 650.0 billion	¥ 24.0 billion ¥ 485.7 billion
	Trading Business Segment profit	¥ 40.0 billion	¥ 20.0 billion
	Payout ratio	7th mid-term business plan Around 30%	6 th mid-term business plan Around 30%

*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)



JFE