



# JFE Group CSR REPORT 2017

## Environmental Data Book

### CONTENTS

- 01 Scope of Report
- 02 Organizational Profile

#### JFE Group

- 03 Status of ISO 14001 Certification/JFE Group's Environmental Accounting
- 04 CO<sub>2</sub> Emissions of the JFE Group
- 05 JFE Group Recycling Businesses
- 06 JFE Group's Recycling Business List
- 07 Main Environmental Targets and Results

#### JFE Steel

- 09 Material Flow
- 11 Input Materials/Output Products
- 12 Recycled Resources/CO<sub>2</sub> Emissions and Energy Consumption
- 14 Disposed Substances

#### JFE Engineering

- 25 Input Materials/Output Products
- 26 CO<sub>2</sub> Emissions and Energy Consumption/Technologies to Reduce Environmental Load
- 27 Disposed Substances/Management of Chemical Substances
- 28 Waste Disposal in Each Section and Works

#### JFE Shoji Trade

- 30 Electricity Consumption and CO<sub>2</sub> Emissions/Input Materials
- 31 Comparison with Environmental Reporting Guidelines 2012  
(Ministry of the Environment, Japan)

This book contains supplemental information and data relating to environmental measures for three JFE Group companies, as well as information and data relating to the JFE Group's recycling business.

Please read this book in conjunction with the "JFE Group CSR Report 2017" to gain a more comprehensive understanding of JFE's environmental initiatives.



## Scope of Report

### Reporting Period

FY2015 (April 1, 2015 to March 31, 2016)

### Organizations Covered

1. JFE Holdings, Inc. and its operating companies:

- JFE Steel Corporation
- JFE Engineering Corporation
- JFE Shoji Trade Corporation

2. The following items include data from "Major consolidated subsidiaries and equity-method affiliates included in the Scope of Reporting" listed below.

#### Environmental data aggregation scope

- Status of ISO 14001 certification
- CO<sub>2</sub> emissions
- Energy consumption (JFE Steel Group, JFE Engineering Group)
- SO<sub>x</sub>, NO<sub>x</sub> emissions (JFE Steel Group)
- Amount of industrial water received (JFE Steel Group)
- COD (JFE Steel Group)
- Release or Transfer of PRTR-registered Substances (JFE Steel Group)
- VOC emissions (JFE Steel Group)

#### • JFE Steel Group

JFE Steel Corporation and 30 consolidated subsidiaries (total: 31 companies)

##### 26 domestic companies

JFE MINERAL COMPANY,LTD., Mizushima Ferroalloy Co., Ltd., JFE Material Co., Ltd., CHIBA RIVERMENT AND CEMENT CORP., MIZUSHIMA RIVERMENT CORP., JFE PRECISION CORPORATION, JFE Plastic Resource Corporation, JFE Bars & Shapes Corporation, JFE Metal Products & Engineering Inc., JFE Galvanizing & Coating Co., Ltd., JFE Container Co., Ltd., JFE Welded Pipe Manufacturing Co., Ltd., JFE Steel Pipe Co., Ltd., Galvatex Corporation, JFE Pipe Fitting Mfg. Co., Ltd., JFE Techno-wire Corporation, JFE Kozai Corporation, JFE Shoji Electrical Steel Co., Ltd.\* (former JFE Electrical Steel Co., Ltd.), JFE LOGISTICS CORPORATION, JFE Chemical Corporation, JFE LIFE CORPORATION, GECOSS CORPORATION, JFE ROCKFIBER CORPORATION, JFE KENZAI FENCE CO.,LTD., J-Logitec Co., Ltd., K-PLASHEET CORPORATION

\* included in Steel Group for data aggregation in fiscal 2016

##### 4 overseas companies

Nova Era Silicon, JFE Steel Galvanizing (Thailand) Ltd., Thai Coated Steel Sheet Co., Ltd., Philippine Sinter Corporation

#### • JFE Engineering Group

JFE Engineering Corporation and 10 domestic consolidated subsidiaries (total: 11 companies)

Asuka Soken Co.,Ltd., Japan Pipeline Engineering Corporation, JFE KANKYO Corporation, JAPAN Recycling Corporation, Recycling Management Japan, Inc., JFE URBAN RECYCLE CORPORATION, NORTHERN JAPAN MACHINERY Corporation, JFE Technos Corporation, Fujikako, Inc., Tohoku Dock Ironworks Corporation

#### • JFE Shoji Trade Group

JFE Shoji Trade Corporation and the following 33 domestic and overseas consolidated subsidiaries (steel-processing companies) (total: 34 companies)

##### 19 domestic subsidiaries

JFE Shoji Coil Center Corporation, JFE Shoji Kohnan Steel Center Co., Ltd., JFE Shoji Tinplate Center Corporation, Aichi Kanzai Kogyo Corporation, Osaka Steel Corporation, Kyusyu-Tech Corporation, JFE Shoji Kohnan Steel Center Co., Ltd. (former Kurashiki Steel Corporation), Shin Nihon Kogyo Corporation, Taisei Kogyo Corporation, Toyo Kinzoku Corporation, Tochigi Shearing Corporation, Naigai Steel Corporation, Nagano Can Corporation, Niigata Steel Corporation, Nihon Jiseizai Kogyo Co., Ltd., Hokuriku Kogyo Corporation, Hokuriku Steel Co., Ltd., Mizushima Steel Corporation, Mizushima Metal Products Corporation

##### 14 overseas subsidiaries

Dongguan JFE Shoji Steel Products Co., Ltd., Guangzhou JFE Shoji Steel Products Co., Ltd., Zhejiang JFE Shoji Steel Products Co., Ltd., Jiangsu JFE Shoji Steel Products Co., Ltd., JFE Shoji Steel Philippines, Inc., Central Metals (Thailand) Ltd., Steel Alliance Service Center Co., Ltd., JFE Shoji Steel Vietnam Co., Ltd., JFE Shoji Steel Hai Phong Co., Ltd., JFE Shoji Steel Malaysia Sdn. Bhd., PT. JFE Shoji Steel Indonesia, JFE Shoji Steel India Private Limited, Vest Inc., JFE Shoji Steel de Mexico, S.A. de C.V.

# Organizational Profile

## JFE Steel

### JFE Steel Corporation

- Head office: 2-2-3 Uchisaiwaicho, Chiyoda-ku, Tokyo 100-0011
- Tel: +81-3-3597-3111
- Net sales (consolidated): 2,349.1 billion yen
- Employees (consolidated): 44,395

### Main Works



#### East Japan Works (Chiba District)

1 Kawasaki-cho, Chuo-ku, Chiba-shi, Chiba 260-0835  
Tel: +81-43-262-2024 Fax: +81-43-262-2967

##### • Main business

Production of hot rolled sheets and strips, cold rolled sheets and strips, stainless steel sheets and strips, coated sheets, UOE pipes, iron powders and solvents.



#### West Japan Works (Kurashiki District)

1 Mizushima Kawasaki-dori, Kurashiki-shi, Okayama 721-8511

Tel: +81-86-447-2020 (main)

+81-86-447-2102 (visitor center reception desk)

Fax: +81-86-447-2131

##### • Main business

Production of hot rolled sheets, cold rolled sheets, coated sheets, electrical sheets, plates, sheet piles, H-shapes, rails, bars, wire rods and UOE pipes.



#### East Japan Works (Keihin District)

1-1 Ohgishima, Kawasaki-ku, Kawasaki-shi, Kanagawa 210-0868

Tel: +81-44-322-1111 Fax: +81-44-322-1500

##### • Main business

Production of plates, hot rolled sheets, cold rolled sheets, galvanized steel sheets, high-performance steel sheets, seamless steel pipes and welded steel pipes.



#### West Japan Works (Fukuyama District)

1 Kokan-cho, Fukuyama-shi, Hiroshima 721-8510

Tel: +81-84-945-3118 Fax: +81-84-945-3808

##### • Main business

Production of hot rolled sheets, cold rolled sheets, coated sheets, electrical sheets, plates, sheet piles, H-shapes, rails, bars, wire rods and UOE pipes.



#### Chita Works

1-1 Kawasaki-cho, Handa-shi, Aichi 475-8611

Tel (for general): +81-569-24-2101 Fax: +81-569-24-2022

##### • Main business

Production of machine structural steel pipes, automotive steel pipes, material pipes, general structural steel pipes and steel pipes for plumbing.



#### Sendai Works

6-1 Minato Miyagino-ku, Sendai-shi, Miyagi 983-0001

Tel: +81-22-258-5511 Fax: +81-22-258-5540

##### • Main business

Production of bars (rounds and bars in coil), wire rods and other products

Note: The Sendai Works' environmental data is included in that of JFE Bars & Shapes Corporation

## JFE Engineering

### JFE Engineering Corporation

- Tokyo head office: Marunouchi Trust Tower North 19F, 1-8-1 Marunouchi, Chiyoda-ku, Tokyo 100-0005
- Tel: +81-3-6212-0800 (main) Fax: +81-3-6212-0802
- Yokohama head office: 2-1, Suehiro-cho, Tsurumi-ku, Yokohama, Kanagawa 230-8611
- Tel: +81-45-505-7435 (main) Fax: +81-45-505-8902 Tel: +81-45-505-8953 (PR)
- Net sales (consolidated): 426.1 billion yen
- Employees (consolidated): 9,166

### Main Works



#### Tsurumi Engineering and Manufacturing Center

2-1 Suehiro-cho, Tsurumi-ku, Yokohama, Kanagawa 230-8611

Tel: +81-45-505-7435 Fax: +81-45-505-8902

##### • Main business

Production of engines, shield tunneling machines, boilers and turbines, water facilities.



#### Tsu Works

1 Kumozu-kokan-cho, Tsu-shi, Mie 514-0393

Tel: +81-59-246-2010 Fax: +81-59-246-2792

##### • Main business

Production of steel structures such as bridges, harbor structures and building steel frames.

## JFE Shoji Trade

### JFE Shoji Trade Corporation

- Tokyo head office: Otemachi Financial City North Tower, 1-9-5 Otemachi, Chiyoda-ku, Tokyo 100-8070
- Tel: +81-3-5203-5053 Fax: +81-3-5203-5289
- Osaka head office: Dojima Avanza, 1-6-20, Dojima, Kita-ku, Osaka 530-8318
- Tel: +81-6-4795-7011 Fax: +81-6-4795-7400
- Net sales (consolidated): 1,671.0 billion yen
- Employees (consolidated): 6,838

# JFE Group

JFE Group

JFE Steel

JFE Engineering

JFE Shoji Trade

## Status of ISO 14001 Certification

All JFE Steel and JFE Engineering production sites and JFE Shoji Trade domestic business offices have received certification. The status of certification for Group companies are as follows.

### List of ISO 14001 Certified Companies (includes certification limited to certain sites of a company)

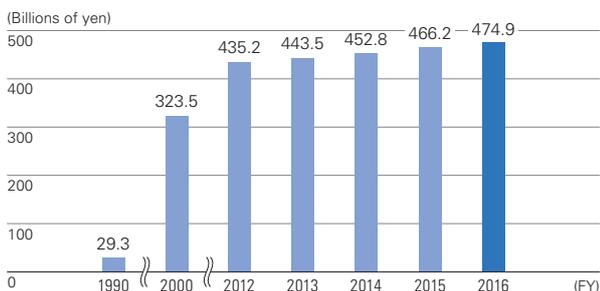
<b>JFE Steel Corporation</b>	JFE MINERAL COMPANY,LTD.	JFE Shoji Electrical Steel Co., Ltd.*1 (former JFE Electrical Steel Co., Ltd.)
	Mizushima Ferroalloy Co., Ltd.	DAIWA KOHTAI CO.Ltd*1
	JFE Material Co., Ltd.	JFE Plant Engineering Co., Ltd.*1
	JFE Plastic Resource Corporation	SHINAGAWA REFRACTORIES CO.,LTD.*1
	JFE Bars & Shapes Corporation	JFE LOGISTICS CORPORATION
	JFE Metal Products & Engineering Inc.	JFE Techno-Research Corporation (JFE-TEC)*1
	JFE Galvanizing & Coating Co., Ltd.	JFE Chemical Corp.
	JFE Container Co., Ltd.	JFE Metal Construction Inc.*1
	JFE Welded Pipe Manufacturing Co., Ltd.	Guangzhou JFE Steel Sheet Co., Ltd.*2
	JFE Pipe Fitting Mfg. Co., Ltd.	Thai Coated Steel Sheet Co., Ltd.
River Steel Co., Ltd.	Philippine Sinter Corporation	
<b>JFE Engineering Corporation</b>	JFE KANKYO Corporation	Fujikako, Inc.
	JAPAN Recycling Corporation	Asuka Soken Co.,Ltd.
	JFE Aqua Machine and Service Corporation*1	
<b>JFE Shoji Trade Corporation</b>	JFE Shoji Coil Center Corporation	JFE Shoji Trade Matech Inc.*1
	JFE Shoji Kohnan Steel Center Co., Ltd.	Kawasho Foods Corporation*1
	Taisei Kogyo Corporation	K&I Tubular Corporation*1
	Toyo Kinzoku Corporation	Tohsen Corporation*1
	Naigai Steel Corporation	Hoshi Kinzoku Corporation*1
	Nihon Jiseizai Kogyo Co., Ltd.	Dongguan JFE Shoji Steel Products Co., Ltd.
	Hokuriku Steel Co., Ltd.	Guangzhou JFE Shoji Steel Products Co., Ltd.
	Mizushima Steel Corporation	Jiangsu JFE Shoji Steel Products Co., Ltd.
	Mizushima Metal Products Corporation	Zhejiang JFE Shoji Steel Products Co., Ltd.
	JFE Shoji Usuitakenzai Corporation*1	JFE Shoji Steel Philippines, Inc.
	JFE Shoji Electronics Corporation*1	Central Metals (Thailand) Ltd.
	JFE Shoji Pipe & Fitting Trade Corporation*1	JFE Shoji Steel Vietnam Co., Ltd.
	JFE Shoji Service Corporation*1	JFE Shoji Steel Hai Phong Co., Ltd.
	JFE Shoji Machinery & Materials Corporation*1	JFE Shoji Steel Malaysia Sdn. Bhd.
	JFE Shoji Trade Steel Construction Materials Corporation*1	PT. JFE Shoji Steel Indonesia
	JFE Shoji Terre One Corporation*1	JFE Shoji Steel De Mexico, S.A. de C.V.
	JFE Shoji Business Support, Inc.*1	

\*1 Outside the scope of environmental data aggregation \*2 Equity method affiliates

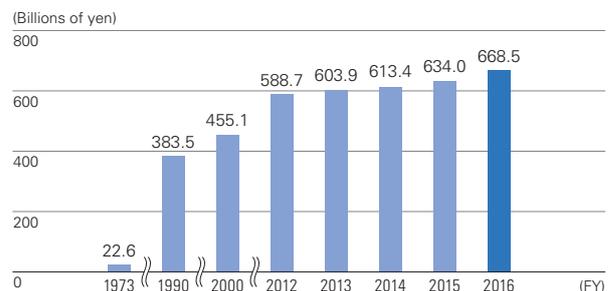
## JFE Group's Environmental Accounting

### • Environmental Accounting

#### Cumulative Investment in Energy Saving



#### Cumulative Investment in Environmental Preservation Measures



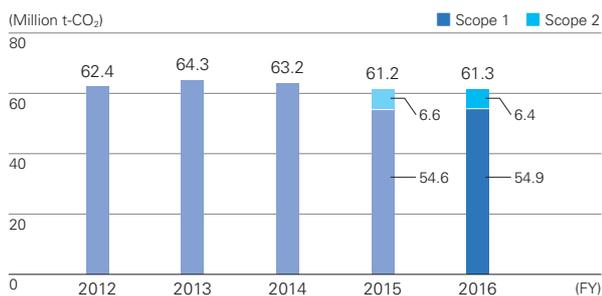
## Breakdown of Environmental Costs

Main Items		FY2015		FY2016	
		Investment (billion yen)	Cost (billion yen)	Investment (billion yen)	Cost (billion yen)
Management	Impact monitoring and measurement, and EMS expenses and education	0.1	2.4	0.1	2.4
Global warming countermeasures	Saving and efficiently use energy	13.4	34.1	8.8	29.5
Conservation of natural resources	Recycling industrial water	0.6	17.8	2	17.4
	Recycling and waste management of internally generated materials, etc.	0.04	5.2	0.03	5.1
Environmental protection	Air pollution countermeasures	17.8	38.5	27.2	36.8
	Water pollution countermeasures	2.1	10	4.6	9.7
	Prevention of soil contamination, noise, vibration and subsidences	0.003	0.9	0.5	0.8
Other	Charges, etc.	–	0.7	–	1.4
R&D	Technologies for protecting the environment, saving energy and preventing global warming	1.1	12.9	1.2	12.6
Societal activities	Support for nature preservation and reforestation, information disclosure, exhibitions and public relations	–	0.7	–	0.7
Total		35.1	123.2	44.4	116.4

Note: Data cover all investment activities of JFE Steel Corporation and R&D activities of JFE Engineering Corporation.

## CO<sub>2</sub> Emissions of the JFE Group

### CO<sub>2</sub> Emissions of the JFE Group



Note: The scope is corrected retroactively to the past fiscal years to ensure uniformity across all fiscal years.

### CO<sub>2</sub> Emission Factor for Purchased Electricity

- JFE Steel uses the emission factor of the Low-Carbon Society Action Plan of the Japan Iron and Steel Federation for energy purchased in FY2016.
- JFE Engineering Group and JFE Shoji Trade Group use the unadjusted emission factors of each electric power company for each fiscal year.
- JFE Steel Group companies, excluding JFE Steel, use the CO<sub>2</sub> equivalent of 0.000587 (t-CO<sub>2</sub>/kWh) for the FY2015 unadjusted emission factors of each electric power company.
- Overseas: based on each country's GHG protocol

### CO<sub>2</sub> Emissions of the JFE Group

JFE Steel	JFE Engineering	JFE Shoji Trade
61,209 thousand t-CO <sub>2</sub>	63 thousand t-CO <sub>2</sub>	30.9 thousand t-CO <sub>2</sub>
99.85%	0.10%	0.05%

Scope: Data cover 76 companies, including JFE Steel and 30 major domestic and overseas subsidiaries, JFE Engineering and 10 major domestic subsidiaries, and JFE Shoji Trade and 33 major domestic and overseas subsidiaries.

Note: CO<sub>2</sub> emissions from non-energy sources are included in the calculations for JFE Steel.

### Scope 3 Emissions of the JFE Group

Category	CO <sub>2</sub> Emissions (1,000 t-CO <sub>2</sub> )		Calculation Method
	FY2015	FY2016*2	
1 Purchased goods and services	7,334	11,019	Purchase prices for materials and outsourced work multiplied by CO <sub>2</sub> emission unit*1
2 Capital goods	–	840	Capital investment cost multiplied by CO <sub>2</sub> emission unit*1
3 Fuel- and energy-related activities not included in Scope 1 or Scope 2	269	348	Annual consumption of electricity and steam multiplied by CO <sub>2</sub> emission unit*1
4 Upstream transportation and delivery	341	647	Transportation distance stated in reports (based on Energy Saving Act) multiplied by CO <sub>2</sub> emission unit*1
5 Waste generated in operations	92	155	Waste volume (by type) multiplied by CO <sub>2</sub> emission unit*1
6 Business travel	2	4	Number of employees multiplied by CO <sub>2</sub> emission unit*1
7 Employee commuting	29	46	Number of employees multiplied by CO <sub>2</sub> emission unit*1
15 Investments	818	848	Emissions from companies of which more than 20% of their stock is held by the Group, and which are accountable under the Energy Saving Act, multiplied by the stock holding ratio

Coverage: (Categories 1–7) JFE Steel, 26 JFE Steel domestic subsidiaries\*2, JFE Engineering, JFE Shoji Trade (Category 15) Japan Marine United, 10 JFE Steel's equity method affiliates (8 domestic and 2 overseas)

\*1 Source: Green Value Chain Platform (Ministry of the Environment) and others

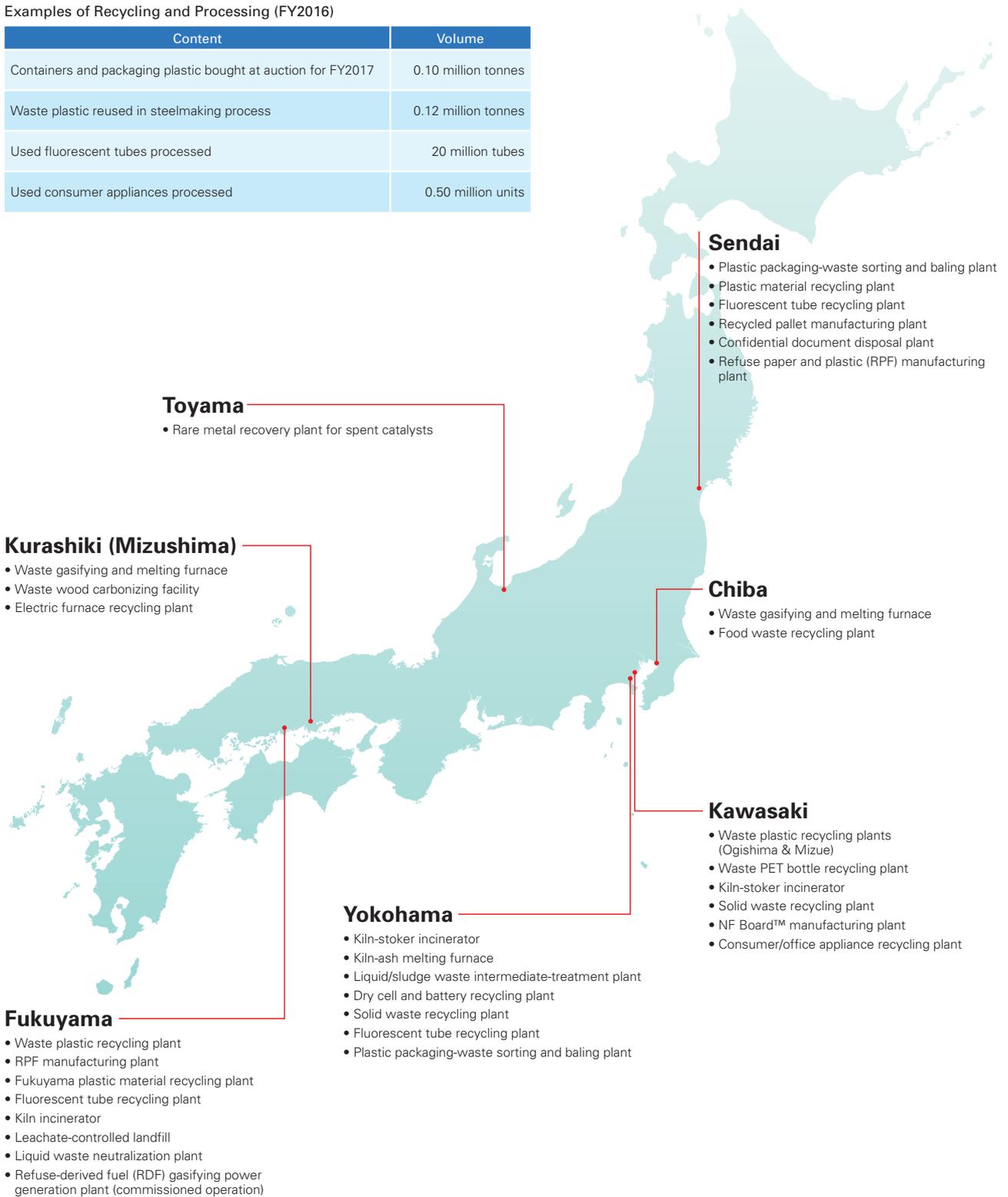
\*2 Only FY2016 figures include emissions from the 26 JFE Steel domestic subsidiaries.

Data for certain fiscal years have been recalculated retroactively for improved accuracy.

# JFE Group Recycling Businesses

Examples of Recycling and Processing (FY2016)

Content	Volume
Containers and packaging plastic bought at auction for FY2017	0.10 million tonnes
Waste plastic reused in steelmaking process	0.12 million tonnes
Used fluorescent tubes processed	20 million tubes
Used consumer appliances processed	0.50 million units



# JFE Group's Recycling Business List

## JFE Group's Recycling Business List

District	Name of the Companies, Plants and Offices	Facilities	Address
Sendai	Shinko Recycle Corporation Head Office Plant	Plastic packaging waste sorting and baling plant Plastic material recycling plant Fluorescent tube recycling plant Recycled pallet manufacturing plant Confidential document disposal plant RPF manufacturing plant	1-6-1 Minato, Miyagino-ku, Sendai-shi, Miyagi Same as above Same as above Same as above Same as above 6-5-14 Shirakashi-dai, Rifu-cho, Miyagi-gun, Miyagi
	Rifu Plant		
Chiba	JAPAN Recycling Corporation Chiba Recycle Center Chiba Biogas Center	Waste gasifying and melting furnace Food waste recycling plant	1 Kawasaki-cho, Chuo-ku, Chiba-shi, Chiba Same as above
Kawasaki	JFE KANKYO Corporation Ohgishima Raw Materials Plant Kawasaki PET Bottle Recycling Plant Can and PET Bottle Baling Plant Kawasaki Eco Clean (Incinerator)	Waste plastic recycling plant Waste PET bottle recycling plant Can and PET bottle sorting and baling plant Kiln-stoker type incinerator Solid waste recycling plant	10 Ohgishima, Kawasaki-ku, Kawasaki-shi, Kanagawa 5-1 Mizue-cho, Kawasaki-ku, Kawasaki-shi, Kanagawa Same as above 5-73 Ohgi-machi, Kawasaki-ku, Kawasaki-shi, Kanagawa, and others Same as above
	JFE Plastic Resource Corporation Mizue recycling plant NF Board™ plant	Waste plastic recycling plant NF Board™ manufacturing plant	699-23 Mizue-cho, Kawasaki-ku, Kawasaki-shi, Kanagawa, and others 5-1 Mizue-cho, Kawasaki-ku, Kawasaki-shi, Kanagawa
	JFE URBAN RECYCLE CORPORATION Home appliance recycling plant	Consumer/office appliance recycling plant	6-1 Mizue-cho, Kawasaki-ku, Kawasaki-shi, Kanagawa
Yokohama	JFE KANKYO Corporation Yokohama Eco Clean (Incinerator)	Kiln-stoker incinerator Kiln-ash melting furnace	2-1-5 Suehiro-cho, Tsurumi-ku, Yokohama-shi, Kanagawa, and others Same as above
	Chemical Plant	Liquid/sludge waste intermediate treatment plant Dry cell and battery recycling plant	3-1 Benten-cho, Tsurumi-ku, Yokohama-shi, Kanagawa 2-1-8 Suehiro-cho, Tsurumi-ku, Yokohama-shi, Kanagawa
	Yokohama Clean Resource Recycling Plant	Solid waste recycling plant	2-1-5 Suehiro-cho, Tsurumi-ku, Yokohama-shi, Kanagawa
	Fluorescent Lamp/Battery Recycling Plant	Fluorescent tube recycling plant	2-1-8 Suehiro-cho, Tsurumi-ku, Yokohama-shi, Kanagawa
	Yokohama Plastics Recycling Plant	Plastic packaging waste sorting and baling plant	Same as above
	Kanazawa Recycling Center	Solid waste recycling plant	1-14-5 Fukuura, Kanazawa-ku, Yokohama-shi, Kanagawa
Kurashiki (Mizushima)	Mizushima Eco-Works Co., Ltd.	Waste gasifying and melting furnace	1-14-5 Mizushimakawasaki-dori, Kurashiki-shi, Okayama
	Recycling Management Japan, Inc. Kurashiki Plant	Waste wood carbonization plant	1-14-1 Mizushimakawasaki-dori, Kurashiki-shi, Okayama
	JFE Bars & Shapes Corporation DC electric arc furnace	Electric-furnace recycling plant	1-5-2 Mizushimakawasaki-dori, Kurashiki-shi, Okayama, and others
Fukuyama	JFE Plastic Resource Corporation Fukuyama recycling plant	Waste plastic recycling plant	113 Minoki-cho, Fukuyama-shi, Hiroshima
	JFE KANKYO Corporation Fukuyama RPF Production Plant Fukuyama Plastic Material Recycling Plant Fukuyama Fluorescent Lamp Recycling Plant Fukuyama Incinerator	RPF manufacturing plant Plastic materials recycling plant Fluorescent tube recycling plant Kiln incinerator Leachate-controlled landfill Liquid waste neutralization plant	115-1 Minoki-cho, Fukuyama-shi, Hiroshima Same as above Same as above 1 Kokan-cho, Fukuyama-shi, Hiroshima Same as above Same as above
	Fukuyama Recycle Power Corporation	Refuse-derived fuel (RDF) gasifying power generation plant (commissioned operation)	107-8 Minoki-cho, Fukuyama-shi, Hiroshima
Toyama	JFE Material Co., Ltd.	Rare metal recovery plant for spent catalysts	2-9-38 Shosei-machi, Imizu-shi, Toyama

## Main Environmental Targets and Results

JFE Group

JFE Steel

JFE Engineering

JFE Shoji Trade

		FY2016 Targets
Management	JFE Steel	<ul style="list-style-type: none"> <li>Continue to improve environmental management systems, including in Group companies.</li> </ul>
	JFE Steel	<ul style="list-style-type: none"> <li>Voluntary activities for environmental protection.</li> </ul>
	JFE Engineering	<ul style="list-style-type: none"> <li>Conduct environmental inspections at all construction sites.</li> <li>Enhance Group-wide environmental compliance.</li> </ul>
	JFE Shoji Trade	<ul style="list-style-type: none"> <li>Continue to self-confirm legal compliance.</li> </ul>
Global Warming Prevention	JFE Steel	<ul style="list-style-type: none"> <li>Continue to implement measures under the Japan Iron and Steel Federation's Low-Carbon Society Action Plan, which aims to reduce CO<sub>2</sub> emissions by five million tonnes per year by 2020 compared to business as usual.</li> </ul>
	JFE Engineering	<ul style="list-style-type: none"> <li>Reduce CO<sub>2</sub> emissions and other environmental loads through products and services, including R&amp;D, planning and design targets in each division.</li> </ul>
	JFE Shoji Trade	<ul style="list-style-type: none"> <li>Reduce electricity consumption.</li> <li>Reduce copy paper usage.</li> </ul>
Pollution Prevention	JFE Steel	<ul style="list-style-type: none"> <li>Cut dioxins emissions to less than 5.5 g-TEQ per year on average between FY2012 and FY2016 under a new reduction plan in Japan.</li> </ul>
Resource Recycling	JFE Steel	<ul style="list-style-type: none"> <li>Reduce dust and sludge and promote increased recycling.</li> </ul>
	JFE Engineering	<p>Set targets for each division relevant to the nature of work at construction sites, using the following minimum values:</p> <ul style="list-style-type: none"> <li>Recycle at least 99.5% of rubble.</li> <li>Recycle at least 95.0% of sludge.</li> <li>Recycle at least 85.0% of other industrial waste.</li> </ul>

○: Target exceeded △: Target partially achieved ×: Target not achieved

	FY2016 Results	Evaluation	FY2017 Targets
	<ul style="list-style-type: none"> <li>Group Liaison Committee met twice to discuss compliance with environmental laws and regulations.</li> <li>Uniformly confirmed and followed up on legal compliance.</li> </ul>	○	<ul style="list-style-type: none"> <li>Continue to improve environmental management systems, including in Group companies.</li> </ul>
	<ul style="list-style-type: none"> <li>Conducted environmental management training for new managers (three times for 58 participants).</li> <li>Conducted environmental auditing at all of JFE Steel's manufacturing sites and 28 offices of Group companies.</li> </ul>	○	<ul style="list-style-type: none"> <li>Voluntary activities for environmental preservation.</li> </ul>
	<ul style="list-style-type: none"> <li>Conducted environmental inspections at all construction sites.</li> <li>Conducted a Group-wide environmental compliance audit.</li> </ul>	○	<ul style="list-style-type: none"> <li>Enhance Group-wide environmental compliance.               <ul style="list-style-type: none"> <li>Promote on-site investigation of industrial waste disposal companies.</li> <li>Conduct more stringent environmental audits.</li> </ul> </li> </ul>
	<ul style="list-style-type: none"> <li>Self-confirmed legal compliance.</li> <li>Conducted environmental management training for 35 newly appointed officers of Group companies.</li> <li>Conducted environmental audit of Group companies.</li> </ul>	○	<ul style="list-style-type: none"> <li>Continue to self-confirm legal compliance.</li> </ul>
	<ul style="list-style-type: none"> <li>Continued Eco-Processes, Eco-Solutions, Eco-Products ("Three Ecos") initiative and COURSE 50 program for developing innovative steelmaking processes.</li> </ul>	○	<ul style="list-style-type: none"> <li>Continue to implement measures under the Japan Iron and Steel Federation's Low-Carbon Society Action Plan, which aims to reduce CO<sub>2</sub> emissions by five million tonnes per year by 2020 compared to business as usual.</li> </ul>
	<ul style="list-style-type: none"> <li>CO<sub>2</sub> emissions reduced due to renewable energy-related products offered by 2016: 3.17 million tonnes of CO<sub>2</sub> per year.</li> </ul>	○	<ul style="list-style-type: none"> <li>Reduce environmental loads through products and services.               <ul style="list-style-type: none"> <li>Reduce CO<sub>2</sub> emissions.</li> <li>Extend the service life of infrastructure.</li> <li>Offer environmentally friendly products.</li> </ul> </li> <li>Maintain the S-classification of the Energy Conservation Law at all locations (main office, branch offices, Tsurumi and Tsu manufacturing sites).               <ul style="list-style-type: none"> <li>Reduce energy consumption basic unit by an annual average of 1% for five years.</li> </ul> </li> </ul>
	<ul style="list-style-type: none"> <li>Electricity consumption: 55% reduction compared to 2001.</li> </ul>	○	<ul style="list-style-type: none"> <li>Reduce electricity consumption.</li> </ul>
	<ul style="list-style-type: none"> <li>Copy paper consumption: 12% reduction compared to 2001.</li> </ul>	○	<ul style="list-style-type: none"> <li>Reduce copy paper usage.</li> </ul>
	<ul style="list-style-type: none"> <li>Average between FY2012 and FY2016: 5.5 g-TEQ per year.</li> </ul>	○	<ul style="list-style-type: none"> <li>Cut dioxins emissions to less than 5.5 g-TEQ per year on average between FY2013 and FY2017 under a new reduction plan in Japan.</li> </ul>
	<ul style="list-style-type: none"> <li>Generated byproducts: 14.5 million tonnes. Recycling rate: 99.7%</li> </ul>	○	<ul style="list-style-type: none"> <li>Reduce dust and sludge and promote recycling efforts.</li> </ul>
	<p>Achieved all targets for 7 divisions involved in construction work:</p> <ul style="list-style-type: none"> <li>Recycled 99.3% of rubble.</li> <li>Recycled 99.5% of sludge.</li> <li>Recycled 95.0% of other industrial waste.</li> </ul>	△	<p>Set targets for each division relevant to the nature of work at construction sites, using the following minimum values:</p> <ul style="list-style-type: none"> <li>Recycle at least 99.5% of rubble.</li> <li>Recycle at least 95.0% of sludge.</li> <li>Recycle at least 85.0% of other industrial waste.</li> </ul>

# JFE Steel

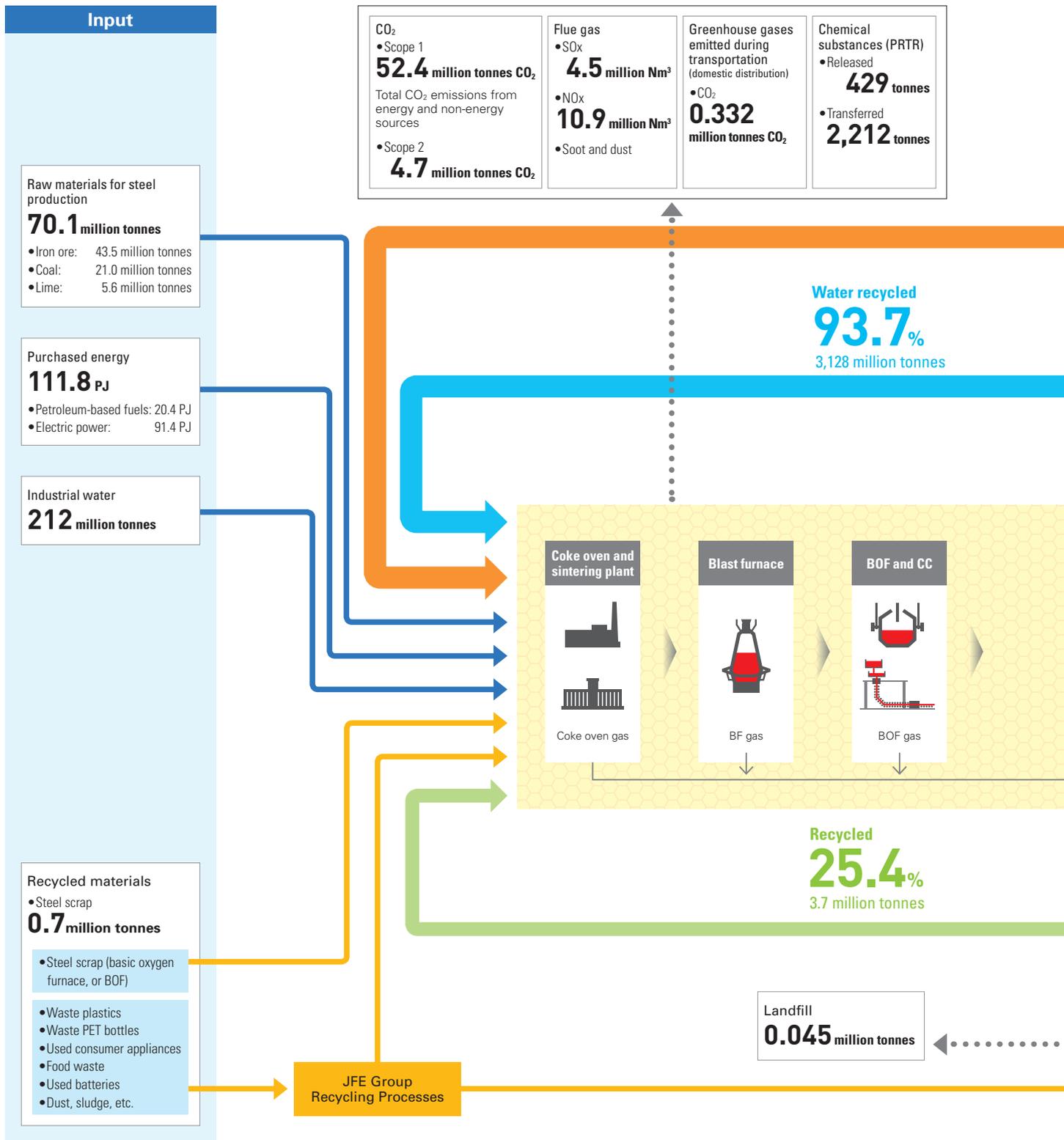
JFE Group

JFE Steel

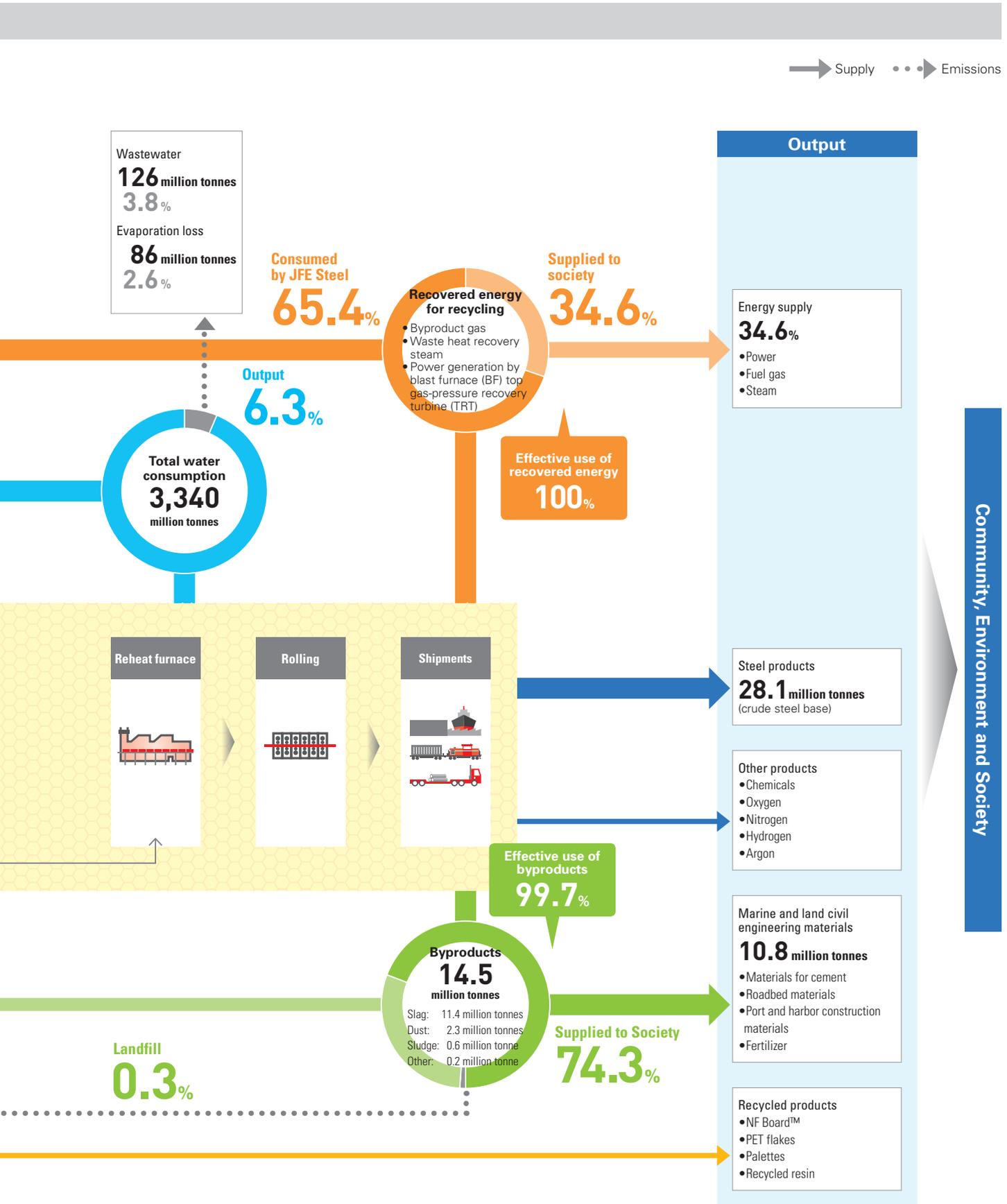
JFE Engineering

JFE Shoji Trade

## Material Flow

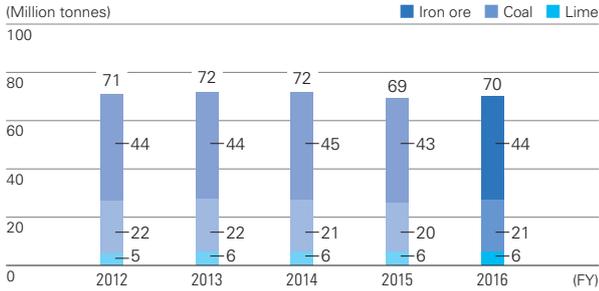


JFE Steel works to reduce the environmental impact of its steelmaking processes, including through the effective use of resources. The company recycles **93.7%** of the water it uses for production and uses **99.7%** of its byproducts, such as iron-steel slag. In addition, **100%** of gas byproducts generated during production is reused as fuel for reheating slabs, generating power for internal use and supplying power to the public.



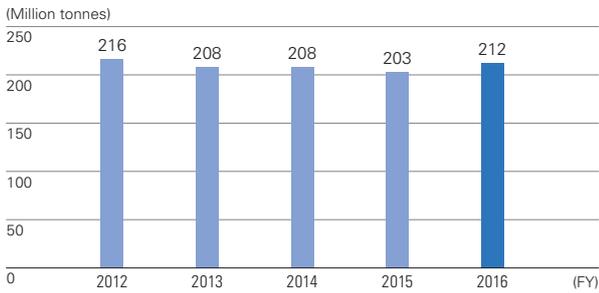
# Input Materials

## Materials for Steel Production

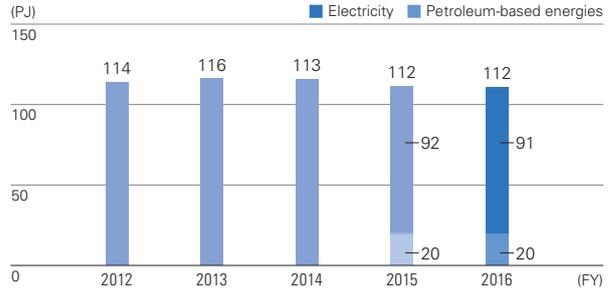


Note: Values for past fiscal years have been recalculated retroactively for improved accuracy.

## Industrial Water



## Purchased Energy (Electricity and Petroleum-based Energies)

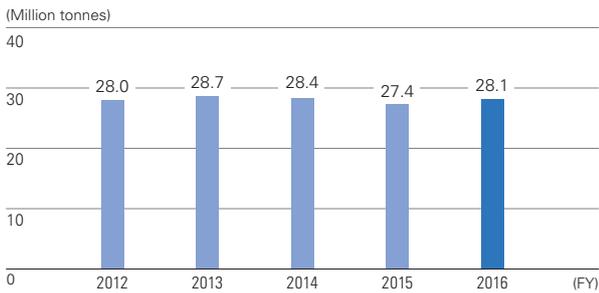


## Water Used by JFE Steel Group Subsidiaries

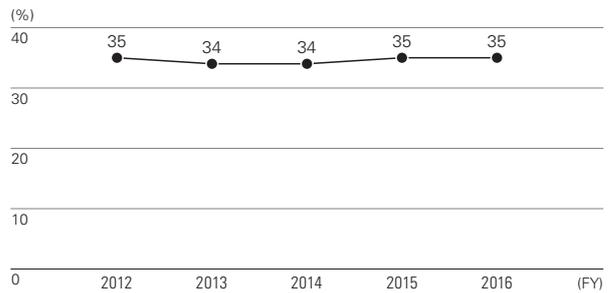
Name of Company	Amount of Water Used (m <sup>3</sup> )	Name of Company	Amount of Water Used (m <sup>3</sup> )
JFE Bars & Shapes Corporation	6,416,912	JFE Welded Pipe Manufacturing Co., Ltd.	51,281
JFE Chemical Corp.	5,514,534	GECOSS CORPORATION	44,549
JFE Material Co., Ltd.	4,720,185	JFE ROCKFIBER CORPORATION	30,834
JFE Galvanizing & Coating Co., Ltd.	2,740,484	K-PLASHEET CORPORATION	23,254
JFE MINERAL COMPANY,LTD.	2,403,258	JFE Plastic Resource Corporation	18,880
JFE PRECISION CORPORATION	875,300	MIZUSHIMA RIVERMENT CORP.	18,390
Galvatex Corporation	680,068	JFE Kozai Corporation	14,931
JFE LIFE CORPORATION	402,669	CHIBA RIVERMENT AND CEMENT CORP.	11,053
Mizushima Ferroalloy Co., Ltd.	400,579	JFE Pipe Fitting Mfg. Co., Ltd.	10,023
JFE Container Co., Ltd.	141,889	J-Logitec Co., Ltd.	3,466
JFE Metal Products & Engineering Inc.	126,464	JFE Steel Pipe Co., Ltd.	1,800
JFE LOGISTICS CORPORATION	99,902	JFE Shoji Electrical Steel Co., Ltd. (former JFE Electrical Steel Co., Ltd.)	1,544
JFE Techno-wire Corporation	91,433		
JFE KENZAI FENCE CO.,LTD.	73,979		
<b>Total</b>		<b>Total</b>	<b>24,917,661</b>

# Output Products

## Steel Products



## Energy Supply Rate for Recovered Energy



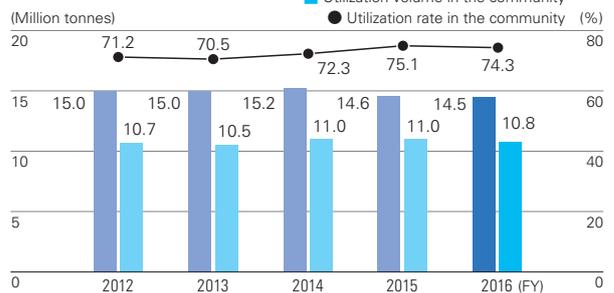
## Byproducts

- NF Board™
- PET Flakes
- Pallet
- Recycled Resin

## Other Products

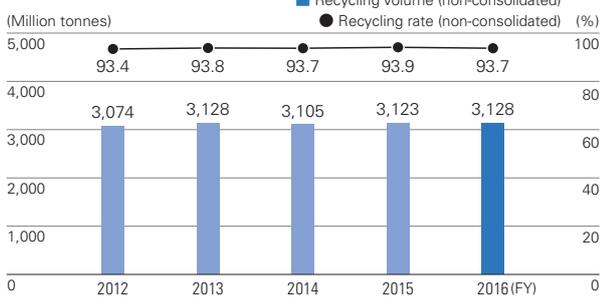
- Chemicals
- Nitrogen
- Argon
- Oxygen
- Hydrogen

## Marine & Land Civil Engineering Materials (Usage from Byproducts)



# Recycled Resources

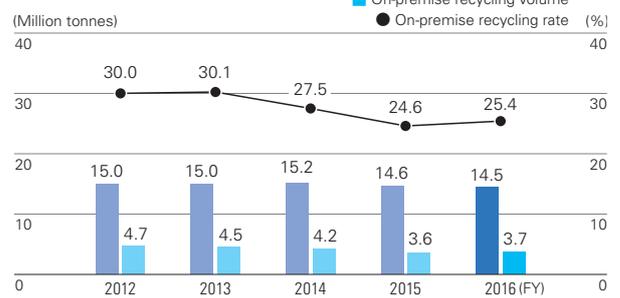
## Recycled Water



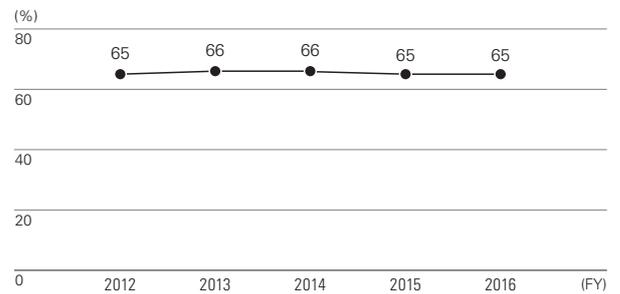
Group companies*	Recycling volume	Recycling rate
	314 (Million m <sup>3</sup> )	91 (%)

Note: Data cover 26 domestic consolidated subsidiaries of JFE Steel

## Byproducts



## Recycling Rate for Recovered Energy



# CO<sub>2</sub> Emissions and Energy Consumption

## Status of the JFE Steel Group

### CO<sub>2</sub> Emissions



Notes: Data cover JFE Steel (CO<sub>2</sub> emissions from energy and non-energy sources), 26 domestic subsidiaries (CO<sub>2</sub> emissions from energy sources) and 4 overseas subsidiaries (CO<sub>2</sub> emissions from energy sources). Data for certain fiscal years have been recalculated retroactively for improved accuracy.

### CO<sub>2</sub> Emission Factor for Purchased Energy

- JFE Steel uses the emission factor of the Low-Carbon Society Action Plan of the Japan Iron and Steel Federation for energy purchased in FY2016.
- With the exception of JFE Steel, companies use the CO<sub>2</sub> equivalent of 0.000587 (t-CO<sub>2</sub>/kWh) for the FY2015 unadjusted emission factors of each electric power company.
- Overseas: based on each country's GHG protocol

### CO<sub>2</sub> Emissions of JFE Steel Group Subsidiaries (FY2016)

Name of Company	CO <sub>2</sub> Emissions (t-CO <sub>2</sub> )
JFE Bars & Shapes Corporation	1,185,213
JFE MINERAL COMPANY,LTD.	384,444
Mizushima Ferroalloy Co., Ltd.	329,573
JFE Chemical Corp.	240,938
JFE LOGISTICS CORPORATION	172,932
JFE Material Co., Ltd.	80,381
JFE Galvanizing & Coating Co., Ltd.	77,423
JFE ROCKFIBER CORPORATION	36,587
JFE Pipe Fitting Mfg. Co., Ltd.	24,309
JFE Plastic Resource Corporation	24,120
JFE Metal Products & Engineering Inc.	18,642
MIZUSHIMA RIVERMENT CORP.	15,539
GECOSS CORPORATION	12,975
JFE Techno-wire Corporation	11,567
JFE Container Co., Ltd.	10,668
J-Logitec Co., Ltd.	10,400
Galvatex Corporation	10,368
CHIBA RIVERMENT AND CEMENT CORP.	8,665
JFE PRECISION CORPORATION	6,948
JFE Welded Pipe Manufacturing Co., Ltd.	6,211
K-PLASHEET CORPORATION	5,032
JFE LIFE CORPORATION	4,886
JFE Steel Pipe Co., Ltd.	4,456
JFE Shoji Electrical Steel Co., Ltd. (former JFE Electrical Steel Co., Ltd.)	4,309
JFE KENZAI FENCE CO.,LTD.	3,982
JFE Kozai Corporation	3,687
4 overseas companies	1,464,835
<b>Total</b>	<b>4,159,090</b>

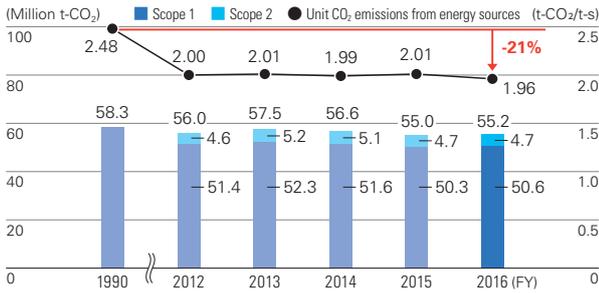
The total does not add up due to rounding.

### Energy Consumption of JFE Steel Group Subsidiaries (FY2016)

Name of Company	Consumption (GJ)
JFE Bars & Shapes Corporation	19,565,400
JFE MINERAL COMPANY,LTD.	6,640,887
JFE Chemical Corp.	5,306,775
Mizushima Ferroalloy Co., Ltd.	3,235,692
JFE LOGISTICS CORPORATION	2,488,734
JFE Galvanizing & Coating Co., Ltd.	1,797,947
JFE Material Co., Ltd.	1,225,518
JFE ROCKFIBER CORPORATION	508,341
JFE Plastic Resource Corporation	386,995
JFE Pipe Fitting Mfg. Co., Ltd.	378,784
JFE Metal Products & Engineering Inc.	334,203
JFE Container Co., Ltd.	228,604
GECOSS CORPORATION	215,102
MIZUSHIMA RIVERMENT CORP.	207,508
Galvatex Corporation	205,710
JFE Techno-wire Corporation	196,017
JFE Welded Pipe Manufacturing Co., Ltd.	168,619
CHIBA RIVERMENT AND CEMENT CORP.	154,947
J-Logitec Co., Ltd.	150,989
JFE LIFE CORPORATION	143,657
JFE PRECISION CORPORATION	121,576
K-PLASHEET CORPORATION	96,941
JFE KENZAI FENCE CO.,LTD.	91,758
JFE Steel Pipe Co., Ltd.	75,153
JFE Shoji Electrical Steel Co., Ltd. (former JFE Electrical Steel Co., Ltd.)	68,062
JFE Kozai Corporation	61,655
4 overseas companies	17,605,970
<b>Total</b>	<b>61,661,544</b>

## Status of JFE Steel

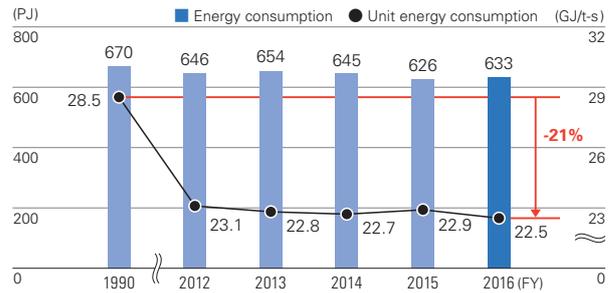
### CO<sub>2</sub> Emissions from Energy Sources and Unit CO<sub>2</sub> Emissions



Notes: The CO<sub>2</sub> coefficient for electricity purchased in FY2016 is based on the Japan Iron and Steel Federation's Low-Carbon Society Implementation Plan.

Data for certain fiscal years have been recalculated retroactively for improved accuracy.

### Energy Consumption and Unit Energy Consumption



Note: Data for certain fiscal years have been recalculated retroactively for improved accuracy.

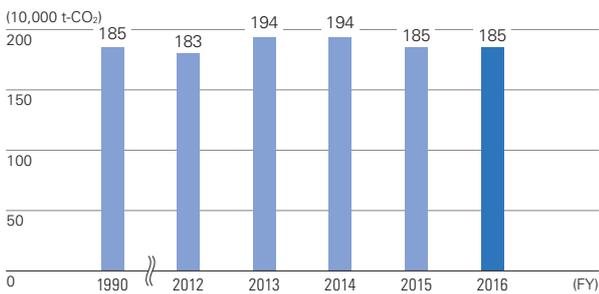
### Changes in Unit CO<sub>2</sub> Emissions and Crude Steel Production vs. FY1990 (%)

	2012	2013	2014	2015	2016
Unit Emissions	-19	-19	-20	-19	-21
Crude Steel Production	19	22	21	16	19

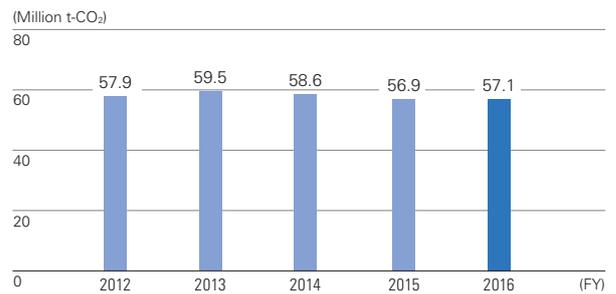
### Changes in Unit Energy Consumption and Crude Steel Production vs. FY1990 (%)

	2012	2013	2014	2015	2016
Unit Emissions	-19	-20	-20	-20	-21
Crude Steel Production	19	22	21	16	19

### CO<sub>2</sub> Emissions from Non-Energy Sources of JFE Steel

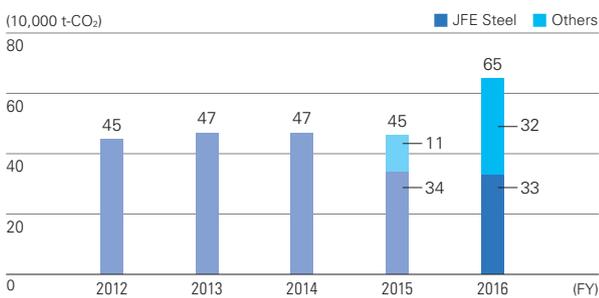


### Total CO<sub>2</sub> Emissions from Energy and Non-Energy Sources



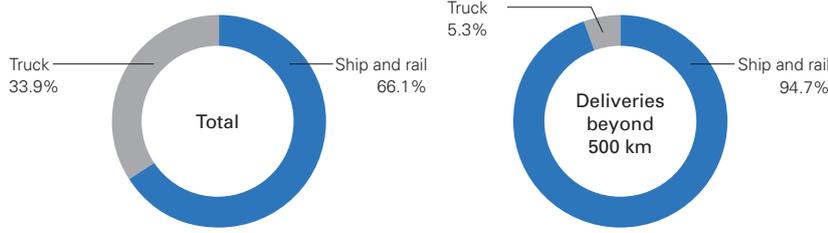
Data for certain fiscal years have been recalculated retroactively for improved accuracy.

### Greenhouse Gas Emitted During Transportation

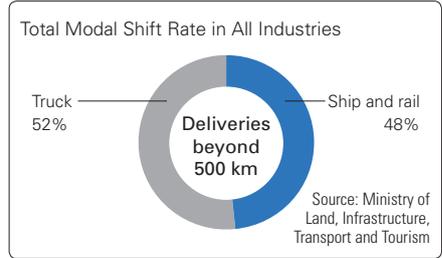


Notes: Data cover JFE Steel and 11 domestic and overseas subsidiaries, which are specified consigners designated under the Japanese Energy Saving Act. For Others, data up to FY2015 consist of emissions from trucks and railways used by the Group companies, while the scope is expanded to truck, rail and ship from FY2016.

### Modal Shift Rate (FY2016)



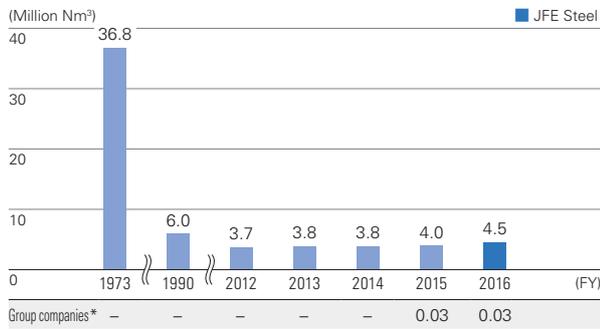
Scope of calculation: All products and half-finished products transported in Japan



## Disposed Substances

### Atmospheric Emissions

#### SOx Emissions

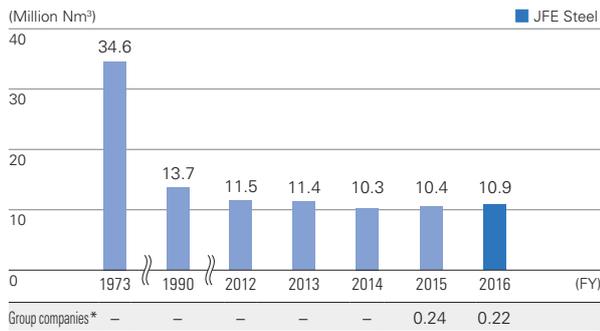


\*13 JFE Steel consolidated subsidiaries in Japan.

#### SOx Emissions of JFE Steel Group Subsidiaries

Name of Company	SOx (Nm³)	Name of Company	SOx (Nm³)
JFE Chemical Corp.	15,628	JFE Container Co., Ltd.	161
JFE MINERAL COMPANY,LTD.	6,138	CHIBA RIVERMENT AND CEMENT CORP.	68
JFE Bars & Shapes Corporation	3,865	JFE Metal Products & Engineering Inc.	53
JFE Galvanizing & Coating Co., Ltd.	2,214	JFE Plastic Resource Corporation	16
JFE Chemical Corp.	2,133	JFE Steel Pipe Co., Ltd.	0
JFE PRECISION CORPORATION	1,402	JFE Pipe Fitting Mfg. Co., Ltd.	0
Mizushima Ferroalloy Co., Ltd.	281	<b>Total</b>	<b>31,958</b>

#### NOx Emissions



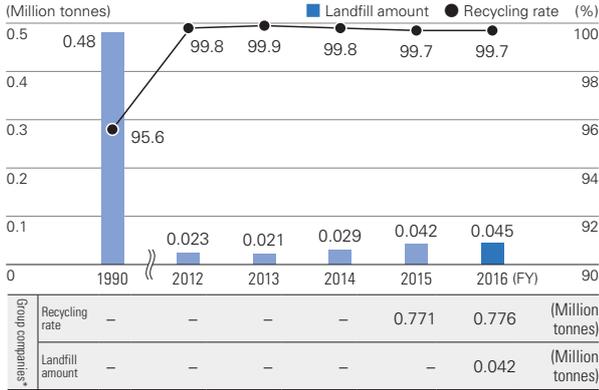
\*14 JFE Steel consolidated subsidiaries in Japan.

#### NOx Emissions of JFE Steel Group Subsidiaries

Name of Company	NOx (Nm³)	Name of Company	NOx (Nm³)
JFE MINERAL COMPANY,LTD.	69,737	CHIBA RIVERMENT AND CEMENT CORP.	904
JFE Bars & Shapes Corporation	53,507	MIZUSHIMA RIVERMENT CORP.	501
Mizushima Ferroalloy Co., Ltd.	30,334	JFE PRECISION CORPORATION	175
JFE Galvanizing & Coating Co., Ltd.	27,422	JFE Plastic Resource Corporation	5
JFE Chemical Corp.	21,610	JFE Pipe Fitting Mfg. Co., Ltd.	4
JFE Material Co., Ltd.	17,901	JFE Container Co., Ltd.	0
JFE Metal Products & Engineering Inc.	1,819	JFE Steel Pipe Co., Ltd.	0
		<b>Total</b>	<b>223,919</b>

## Byproduct Disposal

### Landfill of Byproducts and Recycling Rates



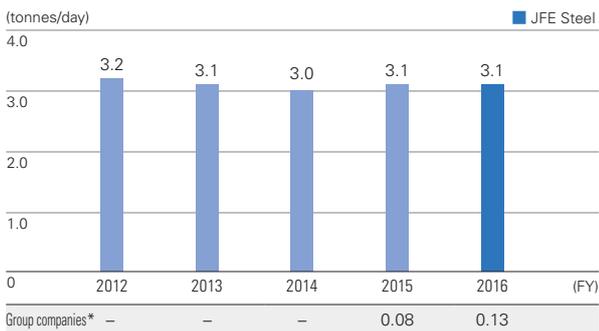
\*26 domestic consolidated subsidiaries of JFE Steel.

### Generation of Byproduct and Landfill Amount of JFE Steel Group Subsidiaries

Name of Company	Byproducts Generated (tonnes)	Landfill Amount (tonnes)
JFE Bars & Shapes Corporation	384,330	10,921
Mizushima Ferroalloy Co., Ltd.	118,123	14,940
JFE Material Co., Ltd.	72,730	5,847
JFE Galvanizing & Coating Co., Ltd.	51,153	66
JFE Shoji Electrical Steel Co., Ltd. (former JFE Electrical Steel Co., Ltd.)	23,693	10
JFE Plastic Resource Corporation	21,819	895
JFE MINERAL COMPANY,LTD.	20,194	77
JFE Kozai Corporation	16,767	3
JFE ROCKFIBER CORPORATION	13,154	5,220
JFE Welded Pipe Manufacturing Co., Ltd.	12,874	0
GECOSS CORPORATION	12,312	318
JFE Container Co., Ltd.	9,616	253
JFE Metal Products & Engineering Inc.	6,689	71
JFE Pipe Fitting Mfg. Co., Ltd.	4,599	584
Galvatex Corporation	3,524	1,587
JFE Techno-wire Corporation	1,437	150
JFE KENZAI FENCE CO.,LTD.	858	162
K-PLASHEET CORPORATION	650	1
CHIBA RIVERMENT AND CEMENT CORP.	419	3
JFE Chemical Corp.	370	94
JFE LIFE CORPORATION	313	201
JFE Steel Pipe Co., Ltd.	252	104
JFE LOGISTICS CORPORATION	63	238
JFE PRECISION CORPORATION	61	0
MIZUSHIMA RIVERMENT CORP.	42	0
J-Logitec Co., Ltd.	58	0
<b>Total</b>	<b>776,099</b>	<b>41,744</b>

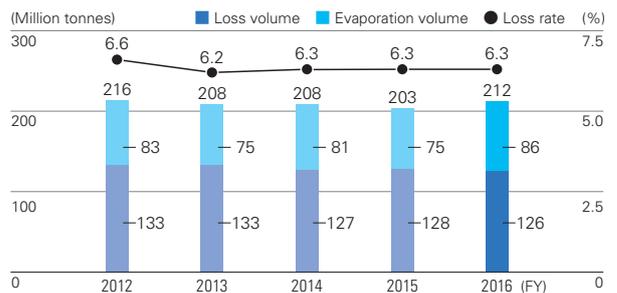
## Discharge into Waterways

### Chemical Oxygen Demand (COD)



\*13 JFE Steel consolidated subsidiaries in Japan.

### Wastewater and Evaporation Loss





Substances Reported under PRTR (Chiba District of East Japan Works)

(tonnes/year, for dioxins: g-TEQ/year)

Substance No.	Substance	Volume Released				Volume Transferred	
		Air	Water Area	Soil	On-premise Landfill	Sewer	Off-premise
1	Zinc compounds (water-soluble)	0	0.14	0	0	0	0
15	Acenaphthene	0.021	0	0	0	0	0
53	Ethylbenzene	1.2	0	0	0	0	0
80	Xylene	1.7	0	0	0	0	0
87	Chromium and chromium(III) compounds	0.0041	0.4	0	0	0	1000
88	Chromium(VI) compounds	0	0.13	0	0	0	0
185	Dichloropentafluoropropane; HCFC-225	45	0	0	0	0	0
243	Dioxins	0.38	0.0000036	0	0	0	0
272	Copper salts (water-soluble, except complex salts)	0	0.065	0	0	0	0
300	Toluene	0.24	0	0	0	0	0
302	Naphthalene	0.15	0	0	0	0	0
308	Nickel	0	0	0	0	0	84
309	Nickel compounds	0.002	1.7	0	0	0	17
333	Hydrazine	0	0.18	0	0	0	0
340	Biphenyl	0.011	0	0	0	0	0
374	Hydrogen fluoride and its water-soluble salts	0	37	0	0	0	25
400	Benzene	1.4	0	0	0	0	0
405	Boron compounds	0	8.3	0	0	0	0.44
406	Polychlorinated biphenyls; PCBs	0	0	0	0	0	15
412	Manganese and its compounds	0.0093	0.63	0	0	0	100
438	Methylnaphthalene	0.034	0	0	0	0	0
453	Molybdenum and its compounds	0	2.6	0	0	0	12
<b>Subtotal</b>		<b>50</b>	<b>51</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1,253</b>
<b>Total</b>		<b>101</b>				<b>1,253</b>	

The total does not include dioxins.

Substances Reported under PRTR (Keihin District of East Japan Works)

(tonnes/year, for dioxins: g-TEQ/year)

Substance No.	Substance	Volume Released				Volume Transferred	
		Air	Water Area	Soil	On-premise Landfill	Sewer	Off-premise
20	2-aminoethanol	0	0	0	0	0	0
53	Ethylbenzene	2.7	0	0	0	0	1.3
74	p-Octylphenol	0	0	0	0	0	0
80	Xylene	8.3	0	0	0	0	2.4
87	Chromium and chromium(III) compounds	0.016	0	0	0	0	75
88	Chromium(VI) compounds	0.0015	0	0	0	0	0
240	Styrene	0.22	0	0	0	0	0
243	Dioxins	1.5	0	0	0	0	0
297	1,3,5-trimethylbenzene	0.68	0	0	0	0	0.38
300	Toluene	17	0	0	0	0	1.4
302	Naphthalene	0.071	0	0	0	0	0
309	Nickel compounds	0.0023	0	0	0	0	2.2
353	Diethyl phthalate	0	0	0	0	0	0
400	Benzene	8.5	0	0	0	0	0
405	Boron compounds	0	2.6	0	0	0	0
406	Polychlorinated biphenyls; PCBs	0	0	0	0	0	16
407	Poly(oxyethylene) alkyl ether (alkyl C=12-15)	0	0	0	0	0	0
412	Manganese and its compounds	0.0099	0.45	0	0	0	150
453	Molybdenum and its compounds	0.0017	1.4	0	0	0	170
<b>Subtotal</b>		<b>38</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>419</b>
<b>Total</b>		<b>42</b>				<b>419</b>	

The total does not include dioxins.

There was no release and transfer of PRTR-registered substances at Nishinomiya District.

Substances Reported under PRTR (Kurashiki District of West Japan Works)

(tonnes/year, for dioxins: g-TEQ/year)

Substance No.	Substance	Volume Released				Volume Transferred	
		Air	Water Area	Soil	On-premise Landfill	Sewer	Off-premise
1	Zinc compounds (water-soluble)	0	3.2	0	0	0	0
31	Antimony and its compounds	0	0.11	0	0	0	0
53	Ethylbenzene	4.6	0	0	0	0	0
80	Xylene	6.8	0	0	0	0	0
87	Chromium and chromium(III) compounds	0.0099	0	0	0	0	23
88	Chromium(VI) compounds	0	0	0	0	0	0.64
186	Dichloromethane; methylene dichloride	1.9	0	0	0	0	0
242	Selenium and its compounds	0	0.082	0	0	0	1.8
243	Dioxins	0.7	0	0	0	0	0
262	Tetrachloroethylene	1.7	0	0	0	0	0
292	Tributylamine	3.7	0	0	0	0	0
296	1,2,4-trimethylbenzene	2.2	0	0	0	0	0
300	Toluene	31	0	0	0	0	0
309	Nickel compounds	0.005	0	0	0	0	2.6
400	Benzene	2.2	0	0	0	0	0
405	Boron compounds	0	8.2	0	0	0	1.1
407	Poly(oxyethylene) alkyl ether (alkyl C=12-15)	0	1.6	0	0	0	0
411	Formaldehyde	0.0001	0	0	0	0	0
412	Manganese and its compounds	0.023	17	0	0	0	63
453	Molybdenum and its compounds	0	1.8	0	0	0	0
Subtotal		54	32	0	0	0	92
Total		86				92	

The total does not include dioxins.

Substances Reported under PRTR (Konan District of West Japan Works)

(tonnes/year)

Substance No.	Substance	Volume Released				Volume Transferred	
		Air	Water Area	Soil	On-premise Landfill	Sewer	Off-premise
80	Xylene	1.1	0	0	0	0	0
300	Toluene	2.6	0	0	0	0	0
Subtotal		4	0	0	0	0	0
Total		4				0	

Substances Reported under PRTR (Fukuyama District of West Japan Works)

(tonnes/year, for dioxins: g-TEQ/year)

Substance No.	Substance	Volume Released				Volume Transferred	
		Air	Water Area	Soil	On-premise Landfill	Sewer	Off-premise
1	Zinc compounds (water-soluble)	0	1.7	0	0	0	0
31	Antimony and its compounds	0	0.26	0	0	0	27
53	Ethylbenzene	18	0	0	0	0	10
80	Xylene	59	0	0	0	0	11
87	Chromium and chromium(III) compounds	0	0	0	0	0	50
132	Cobalt and its compounds	0	0	0	0	0	0.72
186	Dichloromethane; methylene dichloride	12	0	0	0	0	0
240	Styrene	0.69	0	0	0	0	0
243	Dioxins	2	0	0	0	0	0
262	Tetrachloroethylene	18	0	0	0	0	0
296	1,2,4-trimethylbenzene	2.9	0	0	0	0	0.084
300	Toluene	19	0	0	0	0	0.072
302	Naphthalene	1.3	0	0	0	0	0.17
305	Lead compounds	0	0	0	0	0	260
309	Nickel compounds	0	1.2	0	0	0	36
321	Vanadium compounds	0	0	0	0	0	27
374	Hydrogen fluoride and its water-soluble salts	0	4	0	0	0	0
400	Benzene	0	0	0	0	0	0
405	Boron compounds	0	0	0	0	0	0
412	Manganese and its compounds	0	0	0	0	0	0
<b>Subtotal</b>		<b>131</b>	<b>7</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>422</b>
<b>Total</b>		<b>138</b>				<b>422</b>	

The total does not include dioxins.

Substances Reported under PRTR (Chita Works)

(tonnes/year)

Substance No.	Substance	Volume Released				Volume Transferred	
		Air	Water Area	Soil	On-premise Landfill	Sewer	Off-premise
1	Zinc compounds (water-soluble)	0	0.02	0	0	0	0
53	Ethylbenzene	6.8	0	0	0	0	0
80	Xylene	35	0	0	0	0	0
83	Cumene	1	0	0	0	0	0
87	Chromium and chromium(III) compounds	0	0.063	0	0	0	0.19
188	N,N-DICYCLOHEXYLAMINE	0	0	0	0	0	2.8
296	1,2,4-trimethylbenzene	0.099	0	0	0	0	0
297	1,3,5-trimethylbenzene	3.7	0	0	0	0	0
300	Toluene	7.7	0	0	0	0	0
309	Nickel compounds	0	0.04	0	0	0	3.8
392	N-hexane	0.0055	0	0	0	0	0
405	Boron compounds	0	3.7	0	0	0	0
412	Manganese and its compounds	0	0.16	0	0	0	19
453	Molybdenum and its compounds	0	0.29	0	0	0	0.12
<b>Subtotal</b>		<b>54</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>26</b>
<b>Total</b>		<b>58</b>				<b>26</b>	

## All Substances Reported under PRTR by Group Companies

### Substances Reported under PRTR (JFE ROCKFIBER CORPORATION)

(tonnes/year)

Substance No.	Substance	Volume Released				Volume Transferred	
		Air	Water Area	Soil	On-premise Landfill	Sewer	Off-premise
277	Triethylamine	1.3	0	0	0	0	0
349	Phenol	8.7	0	0	0	0	0
411	Formaldehyde	8.9	0	0	0	0	0
Subtotal		18.9	0	0	0	0	0
Total		18.9				0	

### Substances Reported under PRTR (Mizushima Ferroalloy Co., Ltd.)

(tonnes/year)

Substance No.	Substance	Volume Released				Volume Transferred	
		Air	Water Area	Soil	On-premise Landfill	Sewer	Off-premise
405	Boron compounds	0	0	0	0	0	2.6
412	Manganese and its compounds	17	0	0	0	0	2,300
Subtotal		17	0	0	0	0	2,302.6
Total		17				2,302.6	

### Substances Reported under PRTR (JFE Material Co., Ltd.)

(tonnes/year, for dioxins: g-TEQ/year)

Substance No.	Substance	Volume Released				Volume Transferred	
		Air	Water Area	Soil	On-premise Landfill	Sewer	Off-premise
1	Zinc compounds (water-soluble)	0	0.15	0	0	0	0
75	Cadmium and its compounds	0	0.0038	0	0	0	0
87	Chromium and chromium(III) compounds	0.27	0.2	0	0	0	260
88	Chromium(VI) compounds	0	0.033	0	0	0	0
242	Selenium and its compounds	0	0.14	0	0	0	0
243	Dioxins	0.00000063	0.000027	0	0	0	0.00063
305	Lead compounds	0	0.0038	0	0	0	0
309	Nickel compounds	0.015	0.076	0	0	0	8.2
321	Vanadium compounds	0.029	0.62	0	0	0	25
332	Arsenic and its inorganic compounds	0	0.0076	0	0	0	0
374	Hydrogen fluoride and its water-soluble salts	0	2.1	0	0	0	0
405	Boron compounds	0	0.57	0	0	0	0
412	Manganese and its compounds	0	0.53	0	0	0	0
453	Molybdenum and its compounds	0.017	1.9	0	0	0	6.8
Subtotal		0.3310	6.3342	0	0	0	300
Total		6.6652				300	

The total does not include dioxins.

Substances Reported under PRTR (JFE PRECISION CORPORATION)

(tonnes/year)

Substance No.	Substance	Volume Released				Volume Transferred	
		Air	Water Area	Soil	On-premise Landfill	Sewer	Off-premise
1	Zinc compounds (water-soluble)	0	0.17	0	0	0	0
87	Chromium and chromium(III) compounds	0	0	0	0	0	0.0032
186	Dichloromethane; methylene dichloride	20	0	0	0	0	2.4
308	Nickel	0	0	0	0	0	0.001
453	Molybdenum and its compounds	0	0	0	0	0	0.0013
<b>Subtotal</b>		<b>20</b>	<b>0.17</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2.4055</b>
<b>Total</b>		<b>20.17</b>				<b>2.4055</b>	

JFE Group

Substances Reported under PRTR (JFE Bars & Shapes Corporation)

(tonnes/year, for dioxins: g-TEQ/year)

Substance No.	Substance	Volume Released				Volume Transferred	
		Air	Water Area	Soil	On-premise Landfill	Sewer	Off-premise
1	Zinc compounds (water-soluble)	0	0.25	0	0	0	0
87	Chromium and chromium(III) compounds	0	0	0	0	0	45
243	Dioxins	1.283	0	0	0	0	0
305	Lead compounds	0	0	0	0	0	283
405	Boron compounds	0	0	0	0	0.17	2
412	Manganese and its compounds	0	0.012	0	0	0.0039	1,619
<b>Subtotal</b>		<b>0</b>	<b>0.262</b>	<b>0</b>	<b>0</b>	<b>0.1739</b>	<b>1,949</b>
<b>Total</b>		<b>0.262</b>				<b>1,949.1739</b>	

The total does not include dioxins.

JFE Steel

JFE Engineering

Substances Reported under PRTR (JFE Metal Products & Engineering Inc.)

(tonnes/year)

Substance No.	Substance	Volume Released				Volume Transferred	
		Air	Water Area	Soil	On-premise Landfill	Sewer	Off-premise
53	Ethylbenzene	8.6	0	0	0	0	0
80	Xylene	39.8	0	0	0	0	0
87	Chromium and chromium(III) compounds	0	0	0	0	0	0.57
132	Cobalt and its compounds	0	0	0	0	0	0.17
272	Copper salts (water-soluble, except complex salts)	0	0	0	0	0	0.28
296	1,2,4-trimethylbenzene	1.6	0	0	0	0	0
300	Toluene	6.3	0	0	0	0	0
309	Nickel compounds	0	0	0	0	0	0.41
374	Hydrogen fluoride and its water-soluble salts	0	0	0	0	0	0.58
405	Boron compounds	0	0	0	0	0	4.9
412	Manganese and its compounds	0	0	0	0	0	0.27
<b>Subtotal</b>		<b>56.3</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>7.18</b>
<b>Total</b>		<b>56.3</b>				<b>7.18</b>	

JFE Shoji Trade

Substances Reported under PRTR (JFE KENZAI FENCE CO.,LTD.)

(tonnes/year)

Substance No.	Substance	Volume Released				Volume Transferred	
		Air	Water Area	Soil	On-premise Landfill	Sewer	Off-premise
1	Zinc compounds (water-soluble)	0	0	0	0	0	1.2
291	1,3,5-tris(2,3-epoxypropyl)-1,3,5-triazine-2,4,6(1H,3H,5H)-trione	0	0	0	0	0	1.12
<b>Subtotal</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2.32</b>
<b>Total</b>		<b>0</b>				<b>2.32</b>	

Substances Reported under PRTR (JFE Galvanizing & Coating Co., Ltd.)

(tonnes/year)

Substance No.	Substance	Volume Released				Volume Transferred	
		Air	Water Area	Soil	On-premise Landfill	Sewer	Off-premise
53	Ethylbenzene	3.91	0	0	0	0	1.77
80	Xylene	4.2302	0	0	0	0	17.5
83	Cumene	0.001	0	0	0	0	0.002
87	Chromium and chromium(III) compounds	0	0	0	0	0	0.77
88	Chromium(VI) compounds	0	0.0012	0	0	0	1.18
296	1,2,4-trimethylbenzene	0.539	0	0	0	0	0.86
297	1,3,5-trimethylbenzene	0.673	0	0	0	0	0.45
300	Toluene	0.197	0	0	0	0	35.48
302	Naphthalene	0.0646	0	0	0	0	0.1
305	Lead compounds	0	0	0	0	0	0.019
309	Nickel compounds	0.022	0	0	0	0	0.01
354	Di-n-butyl phthalate	0.049	0	0	0	0	0.042
411	Formaldehyde	0.0401	0	0	0	0	0.07
Subtotal		9.7259	0.0012	0	0	0	58.253
Total		9.7012				58.253	

Substances Reported under PRTR (JFE Container Co., Ltd.)

(tonnes/year)

Substance No.	Substance	Volume Released				Volume Transferred	
		Air	Water Area	Soil	On-premise Landfill	Sewer	Off-premise
1	Zinc compounds (water-soluble)	0	0.011	0	0	0	0.373
53	Ethylbenzene	59.097	0	0	0	0	15.5
80	Xylene	121.46	0	0	0	0	32.95
277	Triethylamine	0.42	0	0	0	0	0.001
296	1,2,4-trimethylbenzene	21.4	0	0	0	0	3.62
297	1,3,5-trimethylbenzene	4.1	0	0	0	0	0.72
300	Toluene	29.3	0	0	0	0	20.7
411	Formaldehyde	2.52	0	0	0	0	0.735
Subtotal		238.297	0.011	0	0	0	74.5987
Total		238.308				74.5987	

Substances Reported under PRTR (JFE Welded Pipe Manufacturing Co., Ltd.)

(tonnes/year)

Substance No.	Substance	Volume Released				Volume Transferred	
		Air	Water Area	Soil	On-premise Landfill	Sewer	Off-premise
188	N,N-DICYCLOHEXYLAMINE	1.6	0	0	0	0	0
262	Tetrachloroethylene	1.5	0	0	0	0	0
Subtotal		3.1	0	0	0	0	0
Total		3.1				0	

Substances Reported under PRTR (JFE Steel Pipe Co., Ltd.)

(tonnes/year)

Substance No.	Substance	Volume Released				Volume Transferred	
		Air	Water Area	Soil	On-premise Landfill	Sewer	Off-premise
80	Xylene	0.148	0	0	0	0	0
300	Toluene	0.662	0	0	0	0	0
448	Methylenebis(4,1-phenylene) diisocyanate	0	0	0	0	0	0
Subtotal		0.810	0	0	0	0	0
Total		0.810				0	

Substances Reported under PRTR (Galvatex Corporation)

(tonnes/year)

Substance No.	Substance	Volume Released				Volume Transferred	
		Air	Water Area	Soil	On-premise Landfill	Sewer	Off-premise
1	Zinc compounds (water-soluble)	0.39	0.19	0	0	0	143.00
75	Cadmium and its compounds	0	0	0	0	0	0.06
305	Lead compounds	0.04	0.02	0	0	0	0.80
Subtotal		0.43	0.21	0	0	0	143.86
Total		0.64				143.86	

Substances Reported under PRTR (JFE Pipe Fitting Mfg. Co., Ltd.)

(tonnes/year)

Substance No.	Substance	Volume Released				Volume Transferred	
		Air	Water Area	Soil	On-premise Landfill	Sewer	Off-premise
80	Xylene	1.1	0	0	0	0	0
281	Trichloroethylene	24	0	0	0	0	0
Subtotal		25.1	0	0	0	0	0
Total		25.1				0	

Substances Reported under PRTR (JFE Techno-wire Corporation)

(tonnes/year)

Substance No.	Substance	Volume Released				Volume Transferred	
		Air	Water Area	Soil	On-premise Landfill	Sewer	Off-premise
304	Lead	0	0	0	0	0	0.072
Subtotal		0	0	0	0	0	0.072
Total		0				0.072	

Substances Reported under PRTR (GECOSS CORPORATION)

(tonnes/year)

Substance No.	Substance	Volume Released				Volume Transferred	
		Air	Water Area	Soil	On-premise Landfill	Sewer	Off-premise
240	Styrene	4.6	0	0	0	0	0
412	Manganese and its compounds	0.9	0	0	0	0	0
Subtotal		5.5	0	0	0	0	0
Total		5.5				0	

Substances Reported under PRTR (JFE Chemical Corp.)

(tonnes/year)

Substance No.	Substance	Volume Released				Volume Transferred	
		Air	Water Area	Soil	On-premise Landfill	Sewer	Off-premise
15	Acenaphthene	0	0	0	0	0	0
53	Ethylbenzene	0.5	0	0	0	0	0
80	Xylene	1.2	0	0	0	0	0
81	Quinoline	0	0	0	0	0	0
86	Cresol	0.1	0	0	0	0	0
190	Dicyclopentadiene	0.0	0	0	0	0	0
240	Styrene	0.5	0	0	0	0	0
296	1,2,4-trimethylbenzene	0	0	0	0	0	0
300	Toluene	1.6	0	0	0	0	0
302	Naphthalene	0.5	0	0	0	0	0
321	Vanadium compounds	0	0	0	0	0	0
340	Biphenyl	0	0	0	0	0	0
349	Phenol	0.1	0	0	0	0	0
400	Benzene	4.5	0	0	0	0	0
438	Methylnaphthalene	0	0	0	0	0	0
453	Molybdenum and its compounds	0	0	0	0	0	0.2
Subtotal		9.1	0	0	0	0	0.2
Total		9.1				0.2	

Substances Reported under PRTR (JFE MINERAL COMPANY,LTD.)

(tonnes/year)

Substance No.	Substance	Volume Released				Volume Transferred	
		Air	Water Area	Soil	On-premise Landfill	Sewer	Off-premise
80	Xylene	0.027	0	0	0	0	0
132	Cobalt and its compounds	0	0	0	0	0	0.06
300	Toluene	0.052	0	0	0	0	0
308	Nickel	0	0	0	0	0	17.02
309	Nickel compounds	0	0	0	0	0	0.21
438	Methylnaphthalene	0.011	0	0	0	0	0
Subtotal		0.09	0	0	0	0	17.29
Total		0.09				17.29	

Substances Reported under PRTR (K-PLASHEET CORPORATION)

(tonnes/year)

Substance No.	Substance	Volume Released				Volume Transferred	
		Air	Water Area	Soil	On-premise Landfill	Sewer	Off-premise
30	n-alkylbenzenesulfonic acid and its salts	0	0.1	0	0	0	0
Subtotal		0	0.1	0	0	0	0
Total		0.1				0	

# JFE Engineering

JFE Group

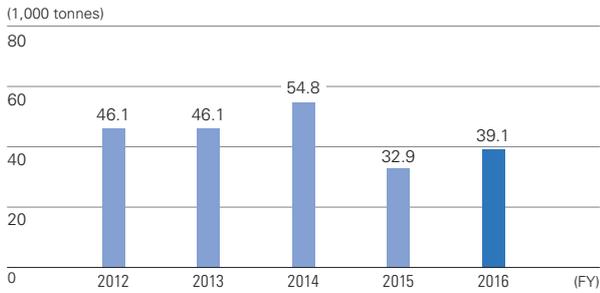
JFE Steel

JFE Engineering

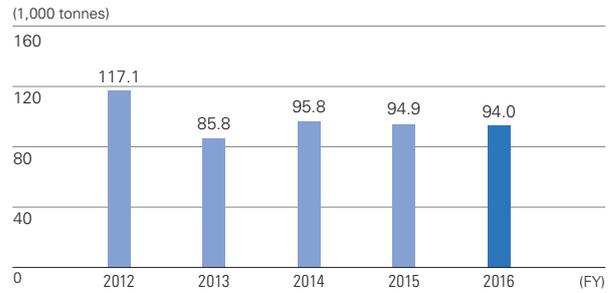
JFE Shoji Trade

## Input Materials

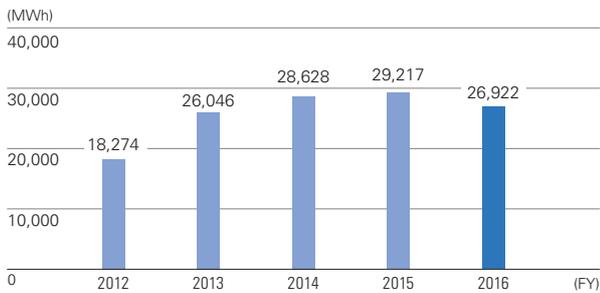
### Raw Materials



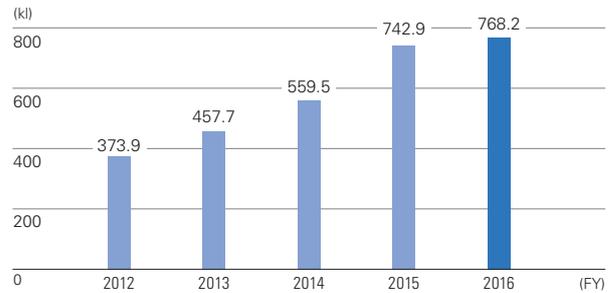
### Water



### Electricity

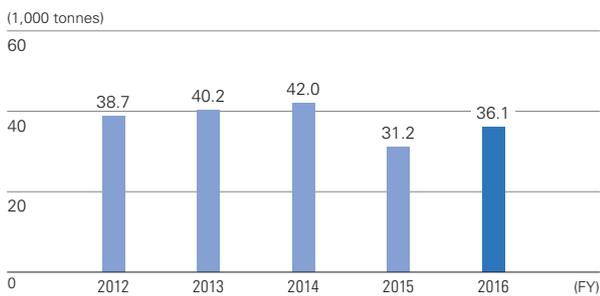


### Heavy Oil, Kerosene, Light Oil and Gasoline



## Output Products

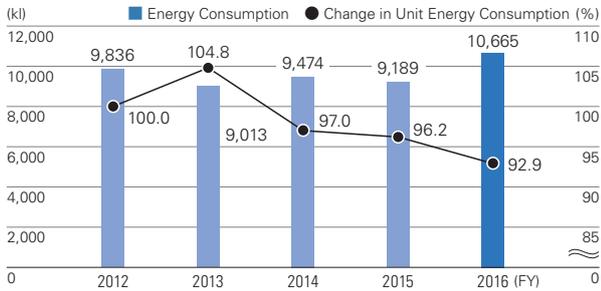
### Products



# CO<sub>2</sub> Emissions and Energy Consumption

## Status on Non-consolidated Basis

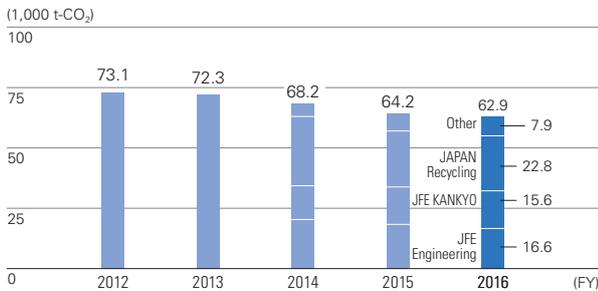
### Energy Consumption and Change in Unit Energy Consumption



Data for certain fiscal years have been recalculated retroactively for improved accuracy.

## Status as a Group

### CO<sub>2</sub> Emissions



Notes: Data cover CO<sub>2</sub> emission by JFE Engineering and 10 domestic subsidiaries.  
Data for certain fiscal years have been recalculated retroactively for improved accuracy.

### CO<sub>2</sub> Emissions of JFE Engineering Group Subsidiaries (FY2016)

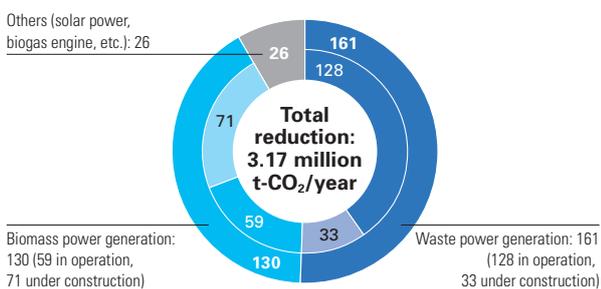
Name of Company	CO <sub>2</sub> Emissions (t-CO <sub>2</sub> )
JAPAN Recycling Corporation	22,783
JFE Engineering Corporation	16,611
JFE KANKYO Corporation	15,618
Fujikako, Inc.	2,344
JFE URBAN RECYCLE CORPORATION	1,235
Tohoku Dock Ironworks Corporation	1,129
NORTHERN JAPAN MACHINERY Corporation	957
Asuka Soken Co.,Ltd.	738
Recycling Management Japan, Inc.	708
Japan Pipeline Engineering Corporation	702
JFE Technos Corporation	87
<b>Total</b>	<b>62,912</b>

### Energy Consumption of JFE Engineering Group Subsidiaries (FY2016)

Name of Company	Energy Consumption (GJ)
JAPAN Recycling Corporation	443,220
JFE Engineering Corporation	352,710
JFE KANKYO Corporation	270,291
Fujikako, Inc.	44,453
JFE URBAN RECYCLE CORPORATION	20,749
Tohoku Dock Ironworks Corporation	19,722
NORTHERN JAPAN MACHINERY Corporation	15,932
Asuka Soken Co.,Ltd.	12,639
Recycling Management Japan, Inc.	11,371
Japan Pipeline Engineering Corporation	10,196
JFE Technos Corporation	1,496
<b>Total</b>	<b>1,202,779</b>

## Technologies to Reduce Environmental Load

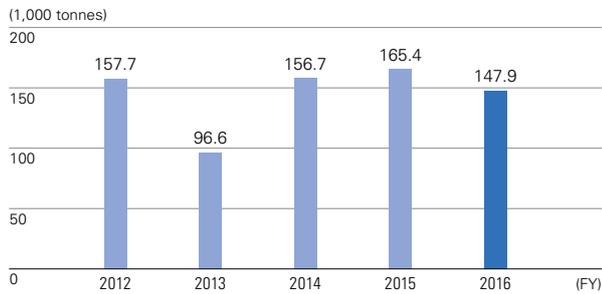
### Effects of Reducing CO<sub>2</sub> Emissions through Renewable Energy Power Plants



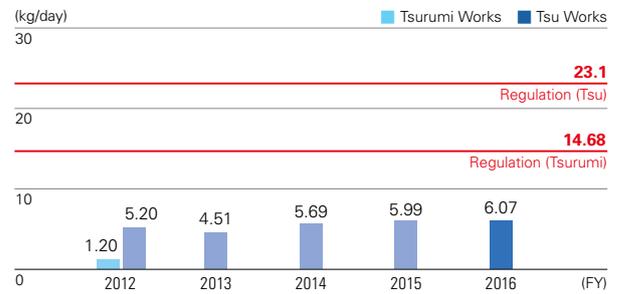
## Disposed Substances

### Release into Water Area

#### Wastewater



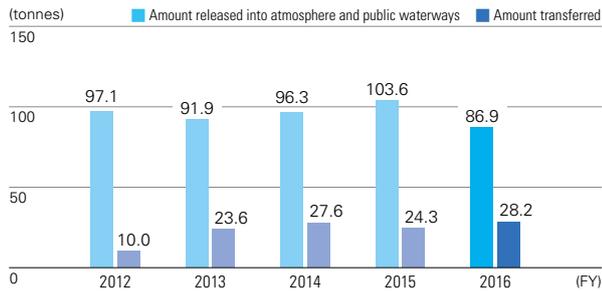
#### Chemical Oxygen Demand (COD) in Wastewater Released Publicly



Note: The Tsurumi Works was connected to the public sewer system in FY2013. This report uses the maximum value of each year.

## Management of Chemical Substances

### Release and Transfer of PRTR-Registered Substances



### Substances Reported under PRTR (all Companies)

Substance No.	Substance	Volume Released				Volume Transferred	
		Air	Water Area	Soil	On-premise Landfill	Sewer	Off-premise
53	Ethylbenzene	18.1	0	0	0	0	0.95
80	Xylene	41.3	0	0	0	0	2.3
87	Chromium and chromium(III) compounds	0	0	0	0	0	0.95
243	Dioxins	0	0	0	0	0	0.001
296	1,2,4-trimethylbenzene	1.9	0	0	0	0	0.0999
297	1,3,5-trimethylbenzene	0.80	0	0	0	0	0.042
300	Toluene	24.7	0	0	0	0	2.2
309	Nickel compounds	0	0	0	0	0	3.2
412	Manganese and its compounds	0	0	0	0	0	17.7
440	1-Methyl-1-phenylethyl hydroperoxide	0	0	0	0	0	0
448	Methylenebis(4,1-phenylene) diisocyanate	0	0	0	0	0	0.79
<b>Total</b>		<b>86.9</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>28.2</b>
		<b>86.9</b>				<b>28.2</b>	
		<b>115.0</b>					

The total does not include dioxins.

Substances Reported under PRTR (Yokohama Head Office (former Tsurumi Works))

(tonnes/year, for dioxins: g-TEQ/year)

Substance No.	Substance	Volume Released				Volume Transferred	
		Air	Water Area	Soil	On-premise Landfill	Sewer	Off-premise
53	Ethylbenzene	0	0	0	0	0	0
80	Xylene	2.0	0	0	0	0	0.22
243	Dioxins	0.0000041	0	0	0	0	0.001
300	Toluene	15.0	0	0	0	0	1.7
412	Manganese and its compounds	0	0	0	0	0	0.75
440	1-Methyl-1-phenylethyl hydroperoxide	0	0	0	0	0	0
448	Methylenebis(4,1-phenylene) diisocyanate	0	0	0	0	0	0.79
Total		17.0	0	0	0	0	3.5
		17.0				3.5	
		20.5					

The total does not include dioxins.

Substances Reported under PRTR (Tsu Works)

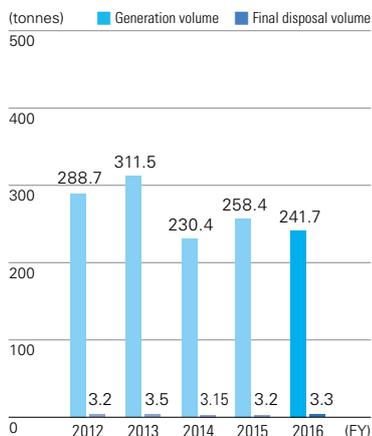
(tonnes/year)

Substance No.	Substance	Volume Released				Volume Transferred	
		Air	Water Area	Soil	On-premise Landfill	Sewer	Off-premise
53	Ethylbenzene	18.1	0	0	0	0	0.95
80	Xylene	39.3	0	0	0	0	2.1
87	Chromium and chromium(III) compounds	0	0	0	0	0	0.95
296	1,2,4-trimethylbenzene	1.9	0	0	0	0	0.0999
297	1,3,5-trimethylbenzene	0.80	0	0	0	0	0.042
300	Toluene	9.7	0	0	0	0	0.51
309	Nickel compounds	0	0	0	0	0	3.2
412	Manganese and its compounds	0	0	0	0	0	16.9
Total		69.9	0	0	0	0	24.7
		69.9				24.7	
		94.6					

## Waste Disposal in Each Section and Works

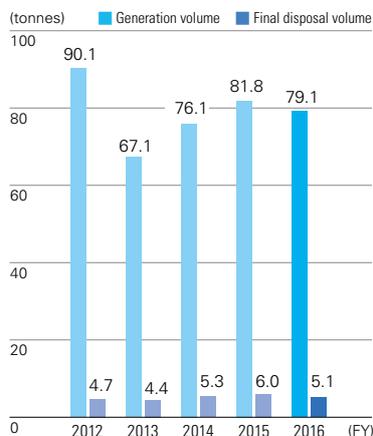
### Offices

#### Yokohama Head Office



(%)	2012	2013	2014	2015	2016
Recycling rate (targets)	98.0	98.0	98.0	98.0	98.0
Recycling rate (results)	98.8	98.8	98.5	98.7	98.5

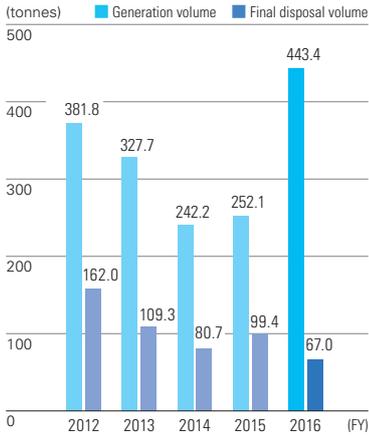
#### Tsu Works



(%)	2012	2013	2014	2015	2016
Recycling rate (targets)	91.0	92.0	92.0	92.0	92.0
Recycling rate (results)	92.1	88.1	87.4	91.5	88.9

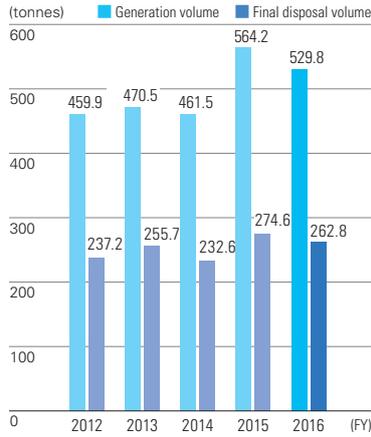
## Plants

### Tsurumi Works



(%)	2012	2013	2014	2015	2016
Recycling rate (targets)	55.0	56.0	58.0	58.0	58.0
Recycling rate (results)	41.4	53.6	57.5	49.8	78.9

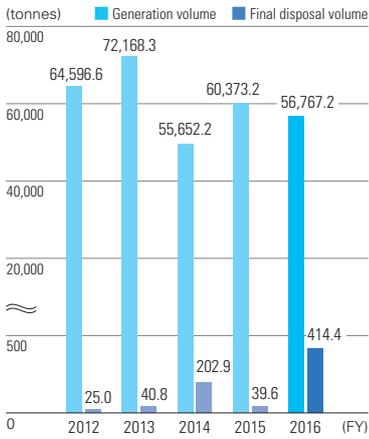
### Tsu Works



(%)	2012	2013	2014	2015	2016
Recycling rate (targets)	29.0	30.0	30.0	31.0	31.0
Recycling rate (results)	32.0	30.1	33.9	34.0	32.5

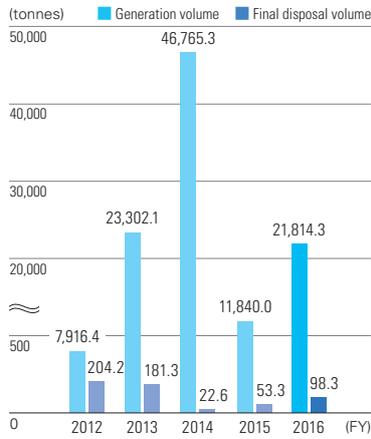
## Construction Sites

### Rubble



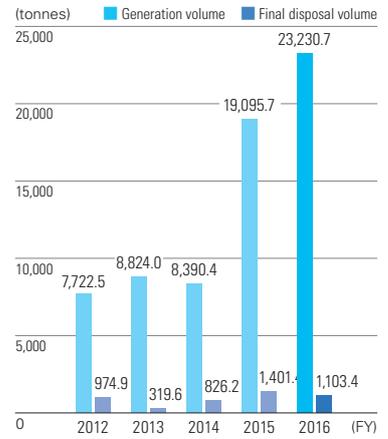
(%)	2012	2013	2014	2015	2016
Recycling rate (targets)	99.5	99.5	99.5	99.5	99.5
Recycling rate (results)	100	99.9	99.6	99.9	99.3

### Sludge



(%)	2012	2013	2014	2015	2016
Recycling rate (targets)	95.0	95.0	95.0	95.0	95.0
Recycling rate (results)	97.4	99.2	99.95	99.5	99.5

### Industrial Wastes, Excluding Rubble and Sludge

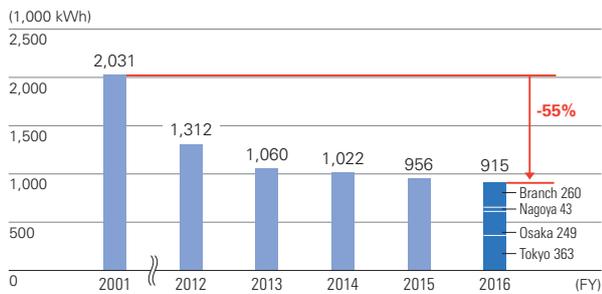


(%)	2012	2013	2014	2015	2016
Recycling rate (targets)	85.0	85.0	85.0	85.0	85.0
Recycling rate (results)	87.1	96.2	93.3	91.7	95.0

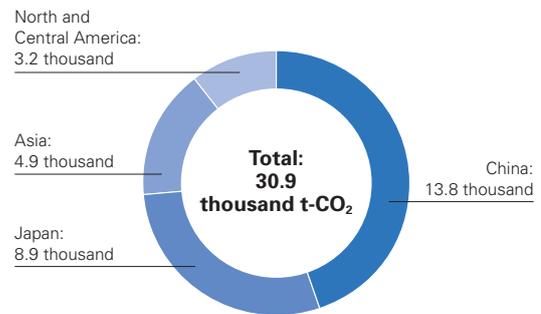
# JFE Shoji Trade

## Electricity Consumption and CO<sub>2</sub> Emissions

Electric Power Consumption of JFE Shoji Trade



CO<sub>2</sub> Emissions of the JFE Shoji Trade Group

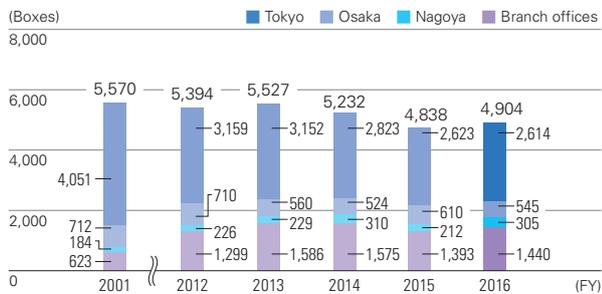


Note: The graph shows CO<sub>2</sub> emissions from electric power consumption by JFE Shoji Trade and 33 domestic and overseas consolidated subsidiaries (steel-processing companies).

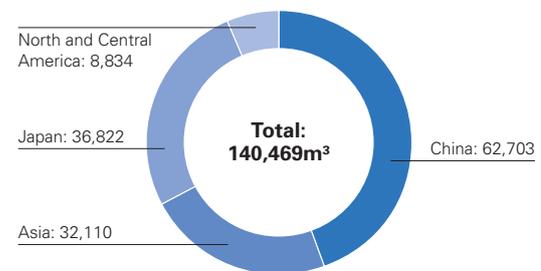
CO<sub>2</sub> Emission Factor for Purchased Energy  
 Japan: unadjusted emission factors of each electric power company  
 Overseas: based on each country's GHG protocol

## Input Materials

Paper Used (Copier Papers)



Water Use of the JFE Shoji Trade Group (m<sup>3</sup>)



Note: The graph shows water used by JFE Shoji Trade and 33 domestic and overseas steel processing companies.

# Comparison with Environmental Reporting Guidelines 2012

(Ministry of the Environment, Japan)

Report Parameters and Summary						
Item	CSR Report					Environmental Data Book Pages
	Pages	Content	JFE Steel	JFE Engineering	JFE Shoji Trade	
<b>1. Report Profile</b>						
(1) Report boundary and reporting period	1	Editorial Policy	○	○	○	1
(2) Organizations coverage ratio and reporting period difference	-	Editorial Policy				-
(3) Reporting policies	1	Editorial Policy	○	○	○	-
	77-79	GRI Content Index	○	○	○	-
(4) Policies for selecting a type of report	1	Editorial Policy	○	○	○	-
		Contact information	○	○	○	Back cover
<b>2. Chairman's Statement/CEO's Statement</b>						
	3-4	Message from the CEO	○	○	○	-
<b>3. Summary</b>						
(1) Overview of environmentally focused management	5-6	JFE in Society	○	○	○	-
(2) Overview of KPI trends	-	-				-
(3) Summary of activities to address an individual environmental issue	39-40	Main Environmental Targets and Results	○	○	○	7-8
<b>4. Material Balance</b>						
	41-42	Materials Flow	○	○		9-10

Information and Indicators on How Environmentally Focused Management Including Environmental Management is Working						
Item	CSR Report					Environmental Data Book Pages
	Pages	Content	JFE Steel	JFE Engineering	JFE Shoji Trade	
<b>1. Environmental Policies, Visions and Business Strategies</b>						
(1) Environmental policies	2	Standards of Business Conduct	○	○	○	-
	35	Environmental Philosophy and Strategies	○	○	○	-
(2) Material issues, visions and business strategies	3-4	Message from the CEO	○	○	○	-
	7-11	Material CSR Issues of the JFE Group	○	○	○	-
	38	Environmental Risks and Opportunities	○	○	○	-
<b>2. Organizational Systems and Governance</b>						
(1) Organizational systems for environmentally focused management	35-36	Environmental Management	○	○	○	3
	81-82	Third-party Comments				-
(2) Environmental risk management system	35-38	Environmental Management	○	○	○	-
(3) Compliance with environmental regulations	36	Environmental Auditing	○	○	○	-
	48-49	Protecting the Environment	○	○		-
<b>3. Responsiveness of Stakeholder Issues</b>						
(1) Responsiveness to stakeholder issues	35	Environmental Philosophy and Strategies	○	○	○	-
	38	Environmental Risks and Opportunities	○	○	○	-
(2) Philanthropy related to the environment	45	Initiatives by the Japanese Steel Industry	○			-
	55	Environmental Communication	○	○	○	-
<b>4. Environmental Initiatives in the Value Chain</b>						
(1) Strategies and environmental policies in the value chain	38	Value Chain Initiatives	○	○	○	-
	38	Environmental Risks and Opportunities	○	○	○	-
	43	Calculation of Greenhouse Gas Emissions (Scope 3)	○	○	○	4
	46	CO <sub>2</sub> Reduction in Value Chain	○			13
(2) Green purchasing and procurement	38	Value Chain Initiatives	○	○	○	-
(3) Products and services designed for mitigating environmental impacts	29-34	Addressing Environmental Issues with Innovative World-class Technology	○	○	○	-
	46	CO <sub>2</sub> Reduction in Value Chain	○			13
	50-51	Resource Recycling	○	○	○	5-6
	52-54	Eco-friendly Products and Technologies	○	○	○	-
(4) New environmental technologies and research and development	29-34	Addressing Environmental Issues with Innovative World-class Technology	○	○	○	-
	37	Environmental Accounting	○	○		3-4
	45	Initiatives by the Japanese Steel Industry	○			-
	52-54	Eco-friendly Products and Technologies	○	○	○	-
(5) Environmentally sound transportation	46	CO <sub>2</sub> Reduction in Value Chain	○			13
(6) Resource exploitations and real estate development/investment with less environmental impacts	37	Environmental Accounting	○	○		3-4
(7) Waste management and recycling	39-40	Main Environmental Targets and Results	○	○	○	7-8
	50-51	Resource Recycling	○	○	○	5-6, 12, 15, 28-29

Information and Indicators on Environmental Impacts of Business Activities and Environmental Initiatives Undertaken to Mitigate Them						
Item	CSR Report					Environmental Data Book Pages
	Pages	Content	JFE Steel	JFE Engineering	JFE Shoji Trade	
<b>1. Resources Used and Energy Consumption</b>						
(1) Total energy consumption and initiatives to reduce it	31-32	Reducing Environmental Impact	○	○	○	-
	39-40	Main Environmental Targets and Results	○	○		7-8
	41-42	Materials Flow	○	○		9-10
	43-44	Energy Savings and CO <sub>2</sub> Reduction in Steelmaking	○			11-13
	47	CO <sub>2</sub> Reduction Initiatives		○	○	26, 30
(2) Total materials used and initiatives to reduce them	31-32	Reducing Environmental Impact	○	○	○	-
	39-40	Main Environmental Targets and Results	○	○	○	7-8
	41-42	Materials Flow	○	○		9-10
(3) Water withdrawal and initiatives to reduce it	41-42	Materials Flow	○	○		9-10
	48-49	Efficient Use of Water and Prevention of Contamination	○	○		11-12
<b>2. Recycled Input Resources (within the organizational boundary)</b>						
	31-32	Reducing Environmental Impact	○	○	○	-
	39-40	Main Environmental Targets and Results	○	○		7-8
	41-42	Materials Flow	○			9-10
	48-49	Efficient Use of Water and Prevention of Contamination	○	○		12
	51	Resource Recycling	○	○	○	15, 28-29
<b>3. Products and Services and Environmental Impacts Arising from Production</b>						
(1) Total products manufactured or goods sold	41-42	Materials Flow	○	○		9-10, 11, 25
(2) Greenhouse gas emissions and initiatives to reduce them	31-32	Addressing Environmental Issues with Innovative World-class Technology	○	○	○	-
	39-40	Main Environmental Targets and Results	○	○	○	7-8
	41-42	Materials Flow	○	○		9-10
	43-47	Global Warming Mitigation	○	○	○	4, 12-13, 26, 30
(3) Total water discharge and initiatives to reduce it	41-42	Materials Flow	○	○		9-10
	48-49	Efficient Use of Water and Prevention of Contamination	○			12
(4) Effluents and nuisance, and initiatives to reduce them	41-42	Materials Flow	○	○		9-10
(5) Release and transfer of chemical substances and initiatives to reduce them	48	Controlling Air Emissions	○	○		14
	41-42	Materials Flow	○	○		9-10
(6) Total weight of waste generated, waste disposed by land filling or incineration and initiatives to reduce them	49	Management of Chemical Substances	○	○		16-24, 27-28
	39-40	Main Environmental Targets and Results	○	○		7-8
(7) Significant spills of hazardous substances and measures taken for preventing them	41-42	Materials Flow	○	○		9-10
	50-51	Resource Recycling	○	○	○	5-6, 15, 28-29
<b>4. Conservation of Biological Diversity and the Sustainable Use of its Components</b>						
	52-54	Eco-friendly Products and Technologies	○			-
	55	Disclosure and Exchange of Information	○	○	○	-

Information and Indicators on the Economic and Social Contexts of Environmentally Focused Management						
Item	CSR Report					Environmental Data Book Pages
	Pages	Content	JFE Steel	JFE Engineering	JFE Shoji Trade	
<b>1. Economic Contexts of Environmentally Focused Management</b>						
(1) Economic contexts in an enterprise	37	Environmental Accounting	○	○		3-4
	38	Environmental Risks and Opportunities	○	○	○	-
(2) Economic contexts in society	38	Environmental Risks and Opportunities	○	○	○	-
<b>2. Social Contexts of Environmentally Focused Management</b>						
	23	Management	○	○	○	-
	65-67	Local Communities	○	○	○	-

Miscellaneous Contents to Be Disclosed						
Item	CSR Report					Environmental Data Book Pages
	Pages	Content	JFE Steel	JFE Engineering	JFE Shoji Trade	
<b>1. Events after the Reporting Period</b>						
(1) Events after the reporting period	-					-
(2) Extraordinary events	-					-
<b>2. Assurance and Other Measures to Enhance Reliability of Environmental Information</b>						
	-					-



**JFE**

JFE Holdings, Inc.

2-2-3 Uchisaiwaicho, Chiyoda-ku, Tokyo 100-0011, Japan  
[www.jfe-holdings.co.jp/en](http://www.jfe-holdings.co.jp/en)

Inquiries:

Corporate Planning Department

JFE Holdings, Inc.

Tel: +81-3-3597-4321

Email: [kankyo@jfe-holdings.co.jp](mailto:kankyo@jfe-holdings.co.jp)