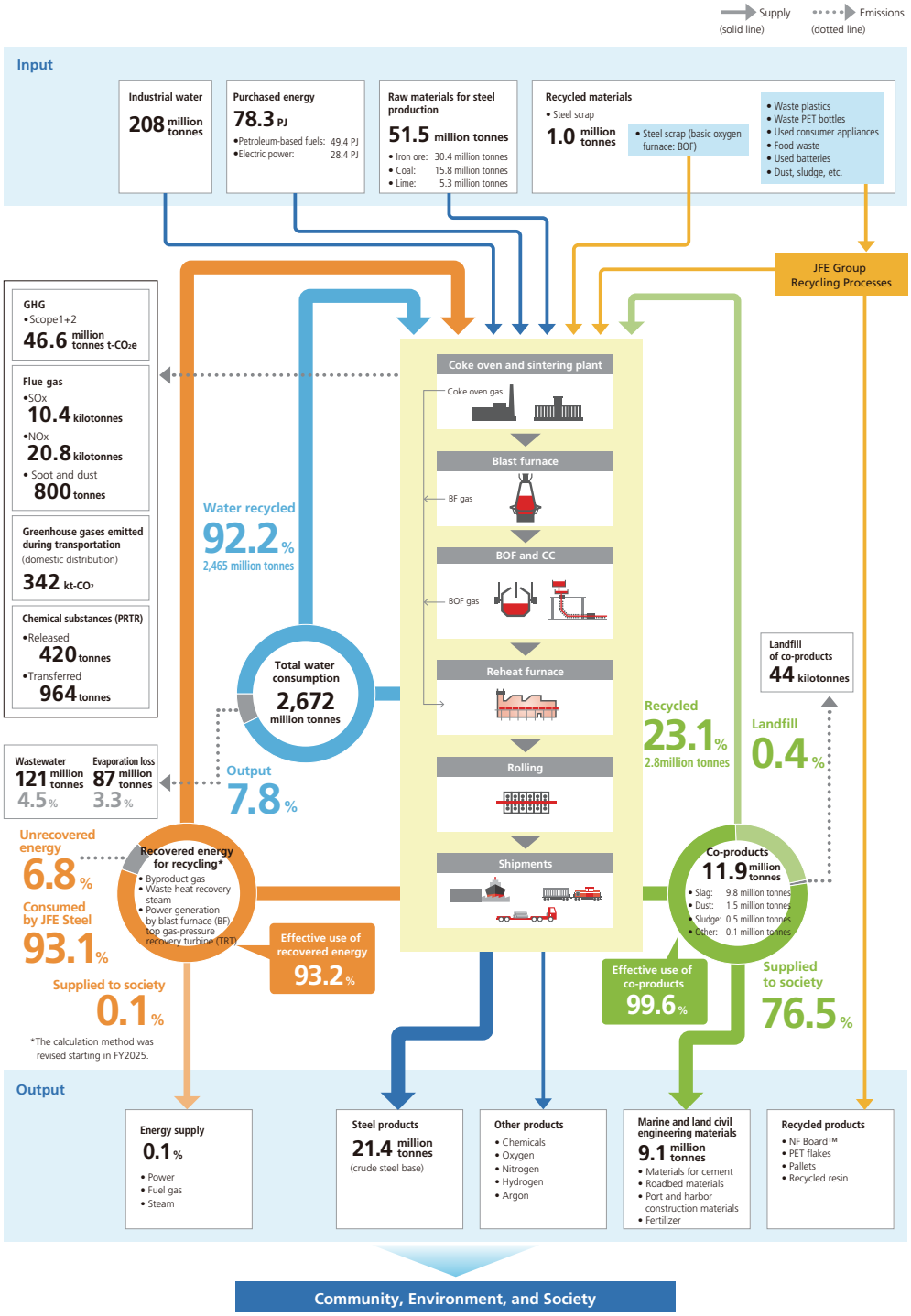
Environmental Data

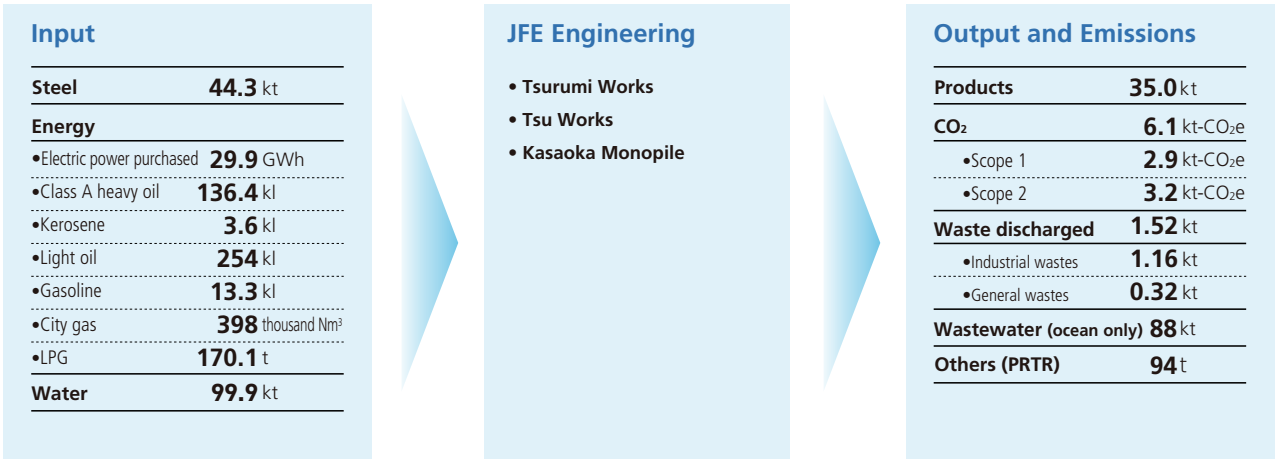
Material Flow

JFE Steel works to reduce the environmental impact of its iron and steelmaking processes, including through the effective use of resources. The company recycles 92.2% of the water it uses for production and uses 99.6% of its co-products, such as iron and steelmaking slag. In addition, 100% of co-product gas generated during production is reused as fuel for reheating slabs, generating power for internal use and supplying power to the public.

JFE Steel's Material Flow (Non-Consolidated)



JFE Engineering's Material Flow (Head Office and Works)



Abbreviations for scope of data: JFE Group (All); JFE Steel Group (ST Gr); JFE Steel (ST); JFE Engineering Group (EN Gr); JFE Engineering (EN); JFE Shoji Group (SH Gr); JFE Shoji (SH)

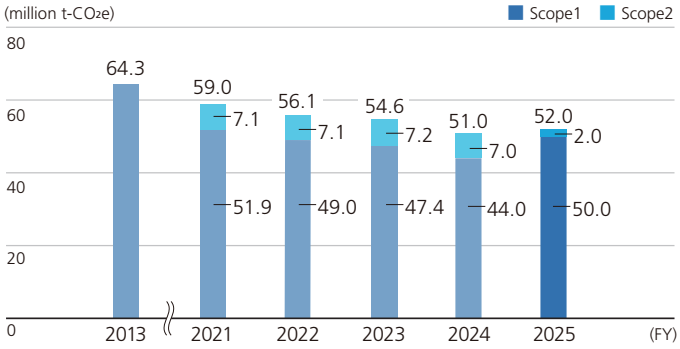
Note: The calculation method and scope of data for GHG emissions were revised in FY2025, and the company plans to expand the scope further in the future. Information on these revisions is provided for each item.

Environmental Indicators

Area	Operating Company	FY2025 Targets	FY2025 Results and Related Pages
Greenhouse Gas and Energy	ST	• FY2027 GHG emissions reduction: 24% or more from FY2013 levels	P.275
	EN	• Reduction in CO_2 emissions in own plants and offices: 40% from FY2013 levels • CO_2 reductions achieved through the provision of power generation facilities related to renewable energy and expansion of electricity supply operations: 12.5 million tonnes per year	P.275,277
	SH	• FY2025 domestic CO_2 emissions: 22.5% reduction from FY2019 levels	P.275
Chemical Substances	ST	• VOC emissions: –30% from FY2000 (1,078 t or less) • Benzene emissions: –80% from FY1999 (46 t or less) • Dichloromethane emissions: –40% from FY1999 (46 t or less)	P.279
Resource Use	ST	Recycling rate of co-products: 99% or higher	P.280
	EN	Recycling rate at construction sites • Recycling rate of rubble: 99.5% or higher • Recycling rate of sludge: 95.0% or higher • Recycling rate of industrial waste: 85.0% or higher Recycling rate of office recyclable waste • Yokohama head office: 98.0% or higher	P.281
	SH	Global recycling of steel scrap • Exceed FY2020 scrap trade volume (FY2025 target: +5% from FY2020)	P.280
Water Use	ST	Maintain efficient use of water Recirculated water usage rate: 90% or higher	P.282

Greenhouse Gas and Energy

GHG Emissions of the JFE Group (Scope 1, 2)



GHG Emissions of the JFE Group (Scope 1, 2)

Item	Scope	Unit	FY2021	FY2022	FY2023	FY2024	FY2025
CO_2 emissions (Scope 1 and 2 total)*1, 2	All	million t-CO_2e	59.0	56.1	54.6	51.0	52.0
	ST Gr	million t-CO_2e	58.6	55.7	54.1	50.8	51.5*3
	ST※4	million t-CO_2e	54.7	52.3	50.0	47.0	46.6
	ST subsidiaries	million t-CO_2e	3.9	3.4	4.1	3.8	11.3
	EN Gr	million t-CO_2e	0.387	0.422	0.482	0.234	0.486
	SH Gr	million t-CO_2e	0.0319	0.0316	0.0311	0.0298	0.0343
Scope1	All	million t-CO_2e	51.9	49.0	47.4	44.0	50.0
	ST Gr	million t-CO_2e	51.5	48.6	47.0	43.8	49.6
	ST	million t-CO_2e	48.8	46.4	44.1	41.2	40.3
	ST subsidiaries	million t-CO_2e	2.7	2.2	2.9	2.6	9.3
	EN Gr	million t-CO_2e	0.345	0.395	0.459	0.215	0.450
	SH Gr	million t-CO_2e	—	—	—	—	0.003
Scope2*5	All	million t-CO_2	7.1	7.1	7.2	7.0	2.0
	ST Gr	million t-CO_2	7.0	7.0	7.1	7.0	1.9*3
	ST	million t-CO_2	5.8	5.9	5.9	5.8	6.4
	ST subsidiaries	million t-CO_2	1.2	1.1	1.2	1.2	2.0
	EN Gr	million t-CO_2	0.0418	0.0263	0.0232	0.0189	0.0359
	SH Gr	million t-CO_2	0.0319	0.0316	0.0311	0.0298	0.0316
Unit CO_2 emissions (numerator: Scope 1 and 2 total; denominator: sales)	All	t-CO_2e/billion yen	135.2	106.5	105.5	105.0	114.6

*1 Scope of data: Calculated based on the operational control approach as defined by the GHG Protocol. Since FY2025, the figures include data for an expanded list comprising major subsidiaries of JFE Steel, JFE Engineering, and JFE Shoji, bringing the total to 205 companies.
JFE Holdings
- JFE Steel, 118 major subsidiaries, and 2 equity-method affiliates in Japan and overseas
- JFE Engineering and 22 major subsidiaries in Japan and overseas
- JFE Shoji and 59 major subsidiaries in Japan and overseas

*2 The item covered only CO_2 emissions up to FY2024. Greenhouse gases other than CO_2 were included in the calculation starting in FY2025.
*3 Due to adjustments for transactions among Group companies, the sum of the figures for each company in FY2025 does not match the total figure for all companies.
*4 Non-consolidated data for JFE Steel was calculated based on the Japan Iron and Steel Federation's Carbon Neutrality Action Plan up to FY2024 and on the GHG Protocol from FY2025.
*5 Calculated based on the market-based method.

Breakdown of GHG Emissions of the JFE Group (Scope 1, 2)

Item		Scope	Unit	FY2021	FY2022	FY2023	FY2024	FY2025
CO_2 emissions and denominator (Scope 1 and 2 total)	CO_2 emissions	All	million t-CO_2	59.0	56.1	54.6	51.0	51.9
	CO_2 emissions (denominator: crude steel production)	ST	t-CO_2/t-steel	2.03	2.09	2.06	2.06	2.18
GHG emissions other than CO_2*	Methane (CH_4)	All	million t-CO_2e	0.1	0.04	0.1	0.2	0.05
	N_2O	All	million t-CO_2e	0.03	0.02	0.04	0.04	0.04

*Scope of data: JFE Steel and one major overseas subsidiary.

GHG Emissions of the JFE Group (Scope 3)

Item	Scope	Unit	FY2021	FY2022	FY2023	FY2024	FY2025
Scope 3*[1, 2]	All	kt-CO_2e	20,778	23,184	22,701	21,894	28,217
Category 1 Purchased goods and services	All	kt-CO_2e	17,244	19,750	19,118	18,537	13,726
Category 2 Capital goods	All	kt-CO_2e	1,221	1,166	1,239	1,127	1,159
Category 3 Fuel- and energy-related activities not included in Scope 1 or 2	All	kt-CO_2e	717	736	760	723	888
Category 4 Upstream transportation and delivery	All	kt-CO_2e	454	450	440	434	2,699
Category 5 Waste generated in operations	All	kt-CO_2e	58	62	133	147	75
Category 6 Business travel	All	kt-CO_2e	5	4	5	5	8
Category 7 Employee commuting	All	kt-CO_2e	59	49	14	14	19
Category 15 Investments	All	kt-CO_2e	1,022	967	993	906	9,639

*1 Scope of data: Since FY2025, the figures include data for an expanded list comprising major subsidiaries of JFE Steel, JFE Engineering, and JFE Shoji.
(Categories 1, 3, 4, 5, 7)
JFE Holdings, JFE Steel, JFE Steel's 25 major subsidiaries in Japan, JFE Engineering, JFE Engineering's one major subsidiary in Japan, and JFE Shoji
(Categories 2, 6)
JFE Holdings, JFE Steel, JFE Steel's 127 consolidated subsidiaries, JFE Engineering, JFE Engineering's 89 consolidated subsidiaries, JFE Shoji, and JFE Shoji's 109 consolidated subsidiaries
(Category 15)
Japan Marine United, and JFE Steel's 37 equity-method affiliates (14 in Japan and 23 overseas)
*2 Sources: Green Value Chain Platform (Ministry of the Environment) and others.

Contribution to GHG Reductions in the Engineering Business

Item	Scope	Unit	FY2021	FY2022	FY2023	FY2024	FY2025
Contribution to GHG emission reductions*	EN Gr	Million t-CO_2e/year	10.57	11.14	11.53	12.00	12.91
Biomass power generation	EN Gr	Million t-CO_2e/year	2.86	2.94	2.95	3.12	3.57
Waste power generation	EN Gr	Million t-CO_2e/year	3.40	3.72	3.80	3.60	3.80
Others (digestion gas, geothermal, solar power, wind, waste heat recovery, fuel conversion, energy services, biomass silo, logistics products)	EN Gr	Million t-CO_2e/year	3.57	3.59	3.84	4.43	4.61
Recycling (includes fluorocarbon recovery and energy creation)	EN Gr	Million t-CO_2e/year	0.74	0.89	0.94	0.85	0.92

*Scope of data: Includes JFE Engineering's businesses in Japan and overseas, J&T Recycling Corporation, JFE Urban Recycle Corporation, and German subsidiary Standardkessel Baumgarte GmbH (SBG).

Energy Consumption

Item		Scope	Unit	FY2021	FY2022	FY2023	FY2024	FY2025
Energy consumption and unit energy consumption	Energy consumption*1	All	PJ	654	627	612	567	575
		ST Gr	PJ	652	625	611	566	573
		ST	PJ	602	581	557	519	518
		ST subsidiaries	PJ	49.6	43.9	53.9	46.5	128
		EN Gr	PJ	1.3	1.2	1.2	1.1	1.7
		SH Gr	PJ	0.7	0.7	0.7	0.6	0.7
	Unit energy consumption (crude steel production)	ST	GJ/t-steel	23.3	24.1	23.7	23.6	24.2
Recovered energy for recycling*2	Supplied to society	ST	%	38	37	39	40	0.1
	Consumed internally	ST	%	62	63	61	60	93

*1 Due to adjustments for transactions among Group companies, the sum of the figures for each company does not match the total figure for all companies.
*2 The FY2025 figures were calculated using a revised method.

Modal Shift

Item		Scope	Unit	FY2021	FY2022	FY2023	FY2024	FY2025
All transportation	Ship and rail	ST	%	58.3	59.0	57.9	58.7	59.2
	Truck	ST	%	41.7	41.0	42.1	41.3	40.8
Transportation of a distance of 500 km or more	Ship and rail	ST	%	90.0	92.1	93.6	94.8	94.8
	Truck	ST	%	10.0	7.9	6.4	5.2	5.2

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

Chemical Substances

Air Emissions

Item	Scope	Unit	FY2021	FY2022	FY2023	FY2024	FY2025
SOx emissions*1, 3	ST Gr	kt	10.0	9.6	10.3	10.0	10.5
	ST	kt	9.9	9.5	10.2	9.9	10.4
	ST subsidiaries	kt	0.06	0.08	0.08	0.08	0.08
NOx emissions*1, 2	ST Gr	kt	23.5	21.1	20.8	20.5	21.5
	ST	kt	23	20.7	20.4	20.1	20.8
	ST subsidiaries	kt	0.5	0.4	0.4	0.4	0.7
Soot and dust	ST	kt	1.2	0.9	0.8	0.7	0.8

*1 10 JFE Steel's consolidated subsidiaries in Japan.
*2 9 JFE Steel's consolidated subsidiaries in Japan.
*3 The unit of measurement has been changed from million Nm³ to thousand tonnes.

Discharge to Waterways

Item	Scope	Unit	FY2021	FY2022	FY2023	FY2024	FY2025
COD (chemical oxygen demand)	All*1	t/day	3.1	3.1	2.6	2.5	2.4
	ST	t/day	2.9	2.8	2.3	2.4	2.3
	ST subsidiaries	t/day	0.23	0.25	0.27	0.09	0.04
	EN*2	kg/day	8.4	6.6	4.8	5.8	9.2

*1 Scope of data: 10 companies (JFE Steel and its 8 consolidated subsidiaries in Japan, and JFE Engineering)
*2 This report uses the maximum value of each year.

PRTR-Registered Substances

Item		Scope	Unit	FY2021	FY2022	FY2023	FY2024	FY2025
PRTR-registered substances*1, 2	Amount released	All	t	827	750	917	810*3	739
		ST Gr	t	672	609	790	731*3	670
		ST	t	380	366	510	471	420
		ST subsidiaries	t	292	243	280	260*3	250
		EN Gr	t	155	141	126	79	69
	Amount transferred	All*4	t	9,845	12,809	11,217	11,074*3	7,487
		ST Gr	t	9,811	12,779	11,193	11,049*3	7,440
		ST	t	1,378	1,278	1,192	1,836	964
		ST subsidiaries	t	8,433	11,501	10,001	9,213*3	6,777
		EN Gr	t	34	30	23	25	47
VOC emissions		ST	t	542	513	528	475	441
Benzene emissions		ST	t	16	17	16	11	14
Dichloromethane emissions		ST	t	30	25	25	19	22

*1 Scope of data:
- JFE Steel and 16 consolidated subsidiaries in Japan
- JFE Engineering and 3 consolidated subsidiaries in Japan

*2 Excluding dioxins.

*3 Revised the prior year data to increase accuracy.

*4 JFE Shoji is not included in the scope of the report, as the company is not subject to PRTR registration.

Use of Natural Resources

Input and Products Supplied

Item		Scope	Unit	FY2021	FY2022	FY2023	FY2024	FY2025
Input	Raw materials for steel production	ST	million t	63.4	60.4	56.1	52.4	51.5
	Iron ore	ST	million t	37.6	35.7	33.4	30.9	30.4
	Coal	ST	million t	19.9	19.1	17.5	16.2	15.8
	Lime	ST	million t	5.9	5.6	5.2	5.3	5.3
	Recycled materials (steel scrap)	ST	million t	1.2	0.9	0.8	1.1	1.0
	Raw materials	EN	kt	38.6	27.9	24.0	35.3	44.3
Products supplied	Steel products	ST	million t	25.9	24.2	23.4	21.9	21.4
	Engineering	EN	kt	37.4	27.0	23.0	29.7	35.0

Co-Products Generated by the Steel Business

Item		Scope	Unit	FY2021	FY2022	FY2023	FY2024	FY2025
Co-products	Amount generated*1	ST Gr	million t	14.4	14.1	13.3	12.6	12.5
		ST*2	million t	13.9	13.5	12.7	12.0	11.9
		ST subsidiaries	million t	0.5	0.6	0.6	0.6	0.6
	Amount recycled internally	ST	million t	3.3	2.9	2.9	2.7	2.8
	Internal recycling rate	ST	%	24.0	21.7	22.4	22.8	23.1
	Emissions*1	ST Gr	million t	10.8	10.8	10.1	9.5	9.3
		ST	million t	10.6	10.6	9.9	9.3	9.1
		ST subsidiaries	million t	0.2	0.2	0.2	0.2	0.1
	Used by local communities	ST	million t	10.5	10.5	9.8	9.2	9.1
	Rate of local community use	ST	%	75.7	77.8	77.0	76.6	76.5
	Landfill amount*1	ST Gr	million t	0.094	0.167	0.180	0.146	0.094
		ST	million t	0.042	0.073	0.083	0.063	0.044
		ST subsidiaries	million t	0.052	0.094	0.097	0.083	0.050
	Recycling rate	ST	%	99.7	99.5	99.4	99.5	99.6

*1 Scope of data: JFE Steel and 22 consolidated subsidiaries in Japan.

*2 Byproducts generated by JFE Steel are mostly reused as offshore, land, or construction materials.

Waste Generated by the Engineering Business

Item			Scope	Unit	FY2021	FY2022	FY2023	FY2024	FY2025
Waste	Emissions		EN Gr	kt	249.2	223.7	193.1	151.4	172.0
		Offices	EN	t	235.3	259.4	219.4	263.0	323.9
		Production	EN	t	803.0	821.4	705.8	1,571.7	1,157.7
		Construction	EN	t	190,242.3	162,747.2	134,157.5	60,269.0	85,260.6
		Subsidiaries	EN subsidiaries	t	57,960.3	59,841.4	57,990.0	89,319.6	85,300.9
	Recycling rate (offices)		EN	%	96.1	96.4	92.1	93.0	93.8
	Recycling rate (production)		EN	%	46.8	54.0	50.4	53.9	24.4
	Recycling rate (construction)		EN	%	98.6	99.3	97.5	97.3	95.5
	Landfill		EN	t	3,035.6	1,456.7	3,497.5	1,956.9	4,305.5
		Offices	EN	t	7.4	7.7	7.4	13.3	14.3
		Production	EN	t	322.6	287.7	235.2	344.3	625.0
		Construction	EN	t	2,705.6	1,161.3	3,254.8	1,599.3	3,666.2
	Recycling rate		EN	%	96.5	97.4	96.1	92.6	90.7

*Scope of data: JFE Engineering and 10 consolidated subsidiaries in Japan.

Waste at JFE Engineering Construction Sites

Item		Scope	Unit	FY2021	FY2022	FY2023	FY2024	FY2025
Rubble	Amount generated	EN	t	159,309	141,888	119,708	46,853	53,634
	Recycling rate	EN	%	99.4	99.9	97.8	99.6	97.7
	Landfill amount	EN	t	940	173	2,632	189	1,223
Sludge	Amount generated	EN	t	24,350	14,806	9,679	4,827	19,083
	Recycling rate	EN	%	96.9	99.0	99.3	97.1	99.4
	Landfill amount	EN	t	683	130	56	104	113
Industrial waste excluding rubble and sludge	Amount generated	EN	t	6,583	6,054	4,771	8,589	12,544
	Recycling rate	EN	%	81.6	84.4	87.1	83.9	66.8
	Landfill amount	EN	t	1,083	858	566	1,307	2,331

Paper Consumption at JFE Shoji

Item	Scope	Unit	FY2021	FY2022	FY2023	FY2024	FY2025
Consumption of copier paper	SH	boxes	3,033	2,860	2,934	3,089	2,717
	Tokyo	boxes	1,471	1,376	1,396	1,374	1,149
	Osaka	boxes	337	351	391	679	654
	Nagoya	boxes	154	177	162	165	181
	Branch	boxes	1,071	956	985	871	733

Water Use

Water Intake and Discharge

Item	Scope	Unit	FY2021	FY2022	FY2023	FY2024	FY2025
Amount of water intake*1	All	million t	246	240	225	228	226
	ST Gr	million t	245	239	224	227	224
	ST	million t	226	220	208	210	208
	ST subsidiaries	million t	18.7	18.2	16.1	16.5	16.7
	EN Gr	million t	1.141	1.35	1.24	1.36	1.69
	SH Gr	million t	0.154	0.154	0.144	0.143	0.134
Amount of water discharged*2	ST Gr	million t	144	143	139	137	135
	ST	million t	128	128	125	124	121
	ST subsidiaries	million t	15.6	15.4	13.9	13.3	13.6
	EN	million t	0.132	0.122	0.122	0.107	0.088
Amount of water consumption*2	ST Gr	million t	3,442	3,475	3,242	2,974	2,890
	ST	million t	3,207	3,242	3,035	2,748	2,672
	ST subsidiaries	million t	235	233	207	226	218
Amount evaporated	ST	million t	98	92	83	76	87
Ratio of amount released and evaporated	ST	%	7.0	6.8	6.9	7.3	7.8
Amount recycled*2	ST Gr	million t	3,197	3,237	3,017	2,747	2,666
	ST	million t	2,981	3,022	2,826	2,538	2,465
	ST subsidiaries	million t	216	215	191	209	201
Recycling rate*2, 3	ST	%	93.0	93.2	93.1	92.4	92.2
	ST subsidiaries	%	92	92	92	93	92

*1 Scope of data:
- JFE Steel and 22 consolidated subsidiaries in Japan
- JFE Engineering and 5 consolidated subsidiaries in Japan
- JFE Shoji's 35 domestic and overseas consolidated subsidiaries

*2 Scope of data: JFE Steel and 22 JFE Steel consolidated subsidiaries in Japan.

*3 Industrial water circulated (%) = (Total amount – industrial water accepted)/total amount used × 100

Breakdown of Water Intake and Discharge Areas

Item	Scope	Unit	FY2021	FY2022	FY2023	FY2024	FY2025
Total intake	2 operating companies*	million t	226.1	220.4	208.4	210.1	207.7
River / lake		million t	0	0	0	0	0
Groundwater		million t	0	0	0	0	0
Industrial water / waterworks		million t	226.1	220.4	208.4	210.1	207.7
Ocean		million t	0	0	0	0	0
Rainwater		million t	0	0	0	0	0
Other intake source		million t	0	0	0	0	0
Total discharge	2 operating companies*	million t	128.8	128.5	125.8	124.3	121.8
Ocean		million t	128.3	128.1	125.4	123.9	121.4
Surface water		million t	0	0	0	0	0
Underground / well		million t	0	0	0	0	0
Off-site water processing		million t	0.4709	0.4300	0.4158	0.4168	0.3903
Beneficial use / other use		million t	0	0	0	0	0
Other discharge destinations		million t	0	0	0	0	0

*Scope of data: JFE Steel and JFE Engineering

Environmental Management

Environmental Management System

Item		Scope	Unit	FY2021	FY2022	FY2023	FY2024	FY2025
ISO 14001 certification coverage rate	Base	All	%	54	52	52	52	52
		ST Gr	%	18	44	44	44	42
		EN Gr	%	8	44	43	43	47
		SH Gr	%	27	64	64	64	64
	Employees	All	%	68	67	72	66	63
		ST Gr	%	72	70	72	71	64
		EN Gr	%	50	50	47	48	50
		SH Gr	%	83	81	80	78	78
Environmental audit (number of sites)		ST Gr	sites	29	28	27	25	26
		EN Gr	sites	52	50	52	53	46
Environmental education conducted (total participants)		EN Gr	persons	1,131	889	897	1,282	771

Environmental Accounting

Breakdown of environmental protection cost		FY2023		FY2024		FY2025	
		Investment (billion yen)	Cost (billion yen)	Investment (billion yen)	Cost (billion yen)	Investment (billion yen)	Cost (billion yen)
Management	Impact monitoring and measurement, and EMS expenses and education	1.2	2.4	0.1	2.8	0.2	28
Global warming countermeasures	Saving and efficiently using energy	19.5	36.5	6.3	36.0	3.8	30.2
	Recycling industrial water	4.9	25.7	2.0	22.6	1.5	24.1
Conservation of natural resources	Recycling and waste management of internally generated materials, etc.	0	5.7	7.1	5.2	0.4	5.9
Environmental protection	Air pollution countermeasures	6.9	30.7	6.0	28.2	4.0	29.6
	Water pollution countermeasures	1.8	11.5	3.3	14.9	1.5	15.5
	Prevention of soil contamination, noise, vibration, and subsidence	0	0.5	0	0.5	0	0.5
Other	Charges, etc.	—	1.4	—	0.7	—	0.2
R&D	Technologies for protecting the environment, saving energy, and preventing global warming	1.0	9.4	1.2	17.9	1.2	29.6
Social activities	Support for nature preservation and forestation, information disclosure, exhibitions, and public relations	—	0.7	—	0.8	—	0.8
Total		35.2	124.4	26.2	129.6	12.6	139.2

Scope of data: All investment activities of JFE Steel Corporation and R&D activities of JFE Engineering Corporation.

Environmental Accounting (Accumulated)

Item	Scope	Unit	FY2021	FY2022	FY2023	FY2024	FY2025
Energy-saving investment (accumulated)	All	Billion yen	565.4	570.8	590.3	596.6	600.5
Environmental protection investment (accumulated)	All	Billion yen	770.9	797.1	811.9	830.6	838.2