[Environmental data annual report (FY2022)]

1 Environmental Load from Operations

1-1 Energy input

GRI302-1,302-4

		Unit			FY2013 (base year)		FY2021		FY2022	
Energy input			**GJ**		**(6,170,903)**		**(5,356,446)**		**(4,611,290)**	
In-house power generation from photovoltaic		**MWh**			**-**		**2,205**		**2,344**	
Electricity (Note 2)	Electricity (total)	MWh	(GJ)		63,560	(628,302)	63,837	(628,627)	64,314	(611,785)
	(In-house generation from PV)	MWh	(-)		-	(-)	282	(-)	2,344	(-)
	(Purchases)	MWh	(GJ)		63,560	(628,302)	63,555	(628,627)	61,970	(611,785)
Fuel oil	Fuel oil (total)	kl	(GJ)		73,047	(2,849,812)	10,006	(383,229)	13,676	(522,224)
	(Gasoline)	kl	(GJ)		304	(10,514)	326	(11,286)	406	(14,038)
	(Kerosine)	kl	(GJ)		149	(5,452)	76	(2,777)	116	(4,257)
	(Diesel)	kl	(GJ)		3,559	(134,157)	4,540	(171,143)	7,444	(280,630)
	(Heavy oil A)	kl	(GJ)		68,902	(2,694,074)	5,065	(198,023)	5,711	(223,298)
	(Heavy oil B)	kl	(GJ)		134	(5,615)	0	(0)	0	(0)
Fuel gas	Fuel gas (total)		(GJ)		49,438	(2,692,789)	79,647	(4,342,461)	63,772	(3,475,847)
	(LPG)	t	(GJ)		815	(41,421)	468	(23,782)	375	(19,038)
	(LNG)	t	(GJ)		48,267	(2,635,386)	78,716	(4,297,867)	62,916	(3,435,219)
	(City gas)	thousand ㎥	(GJ)		341	(15,255)	449	(20,131)	467	(20,902)
	(Acetylene)	thousand ㎥	(GJ)		15	(728)	11	(538)	13	(615)
	(Combustion gas)	thousand ㎥	(GJ)		0	(0)	3	(144)	2	(74)
Steam	Steam (total)		(GJ)		-	(-)	-	(2,129)	-	(1,434)
	(for heating)	t	(GJ)		-	(-)	1,565	(2,129)	1,054	(1,434)

20 companies subject to calculation in FY2022 (82.54% coverage)(Refer to Note 2)

1-2 Greenhouse Gases Emitted

GRI305-1,305-2,305-3,305-5

			Unit		FY2013 (base year)		FY2021		FY2022	
GHG emitted										
Scope1＋Scope2 (BM ratio) (Note 3)			kt-CO2e	(%)	369.86	(-)	265.55	(△ 28.2%)	224.47	(△ 39.3%)
Scope1 *1		Direct emissions from in-house fuel use and manufacturing processes	kt-CO2e	(%)	336.91	(-)	251.01	(△ 25.5%)	208.62	(△ 38.1%)
Scope2		Indirect emissions associated with the use of electricity and heat purchased by the company	kt-CO2e	(%)	33.04	(-)	14.57	(△ 55.9%)	15.85	(△ 52.0%)
Scope3	4	Consigned logistics in Japan with Hitachi Zosen as the shipper	kt-CO2e	(%)	-	(-)	2.61	(-)	7.16	(-)

Scope1,2 : 20 companies subject to calculation in FY2022 (82.54% coverage) (Refer to Note 2)

Scope3 : Four companies (coverage rate: 47.64%)(Refer to Note 2)

Scope3 is reference value. Only shipping transportation is calculated and does not include procurement transportation.

*1 Scope1, breakdown by GHGs

GRI305-1,305-5

		Unit	FY2013 (base year)	FY2021	FY2022
Breakdown by GHGs (Note 3)	Carbon dioxide (CO2)	kt-CO2e	336.91	251.01	208.62
	Methane (CH4)	kt-CO2e	-	-	-
	Nitrous oxide (N2O)	kt-CO2e	-	-	-
	Hydrofluorocarbon (HFCs)	kt-CO2e	-	-	-
	Perfluorocarbon (PFCs)	kt-CO2e	-	-	-
	Sulfur hexafluoride (SF6)	kt-CO2e	-	-	-
	Nitrogen trifluoride (NF3)	kt-CO2e	-	-	-

20 companies subject to calculation in FY2022 (82.54% coverage) (Refer to Note 2)

1-3 Raw Material Inputs

GRI301-1

			Unit	FY2020	FY2021	FY2022
Raw materials	Steel material		t	24,362	19,962	21,878
	Paints		t	336	207	279
	Welding materials		t	790	323	47
Paper consumption	Paper consumption		t	95	21	53
	Intensity	Paper consumption per employee	kg	21.3	4.9	12.0

2 companies subject to calculation in FY2022 (43.06% coverage) (Refer to Note2)

Figures before FY2021 are reference values.

1-4 Water Resource Input

GRI303-1,303-3,303-5

		Unit	FY2020	FY2021	FY2022
Water (total amount)		**thousand ㎥**	**1,050**	**1,040**	**1,426**
Surface water	Tap water	thousand ㎥	130	120	198
	Industrial water	thousand ㎥	920	920	1,228

19 companies subject to calculation in FY2022 (80.54% coverage)(Refer to Note 2)

Figures before FY2021 are reference values.

1-5 Water Effluents Discharged

GRI303-1,303-4,303-5

	Unit	FY2020	FY2021	FY2022
Water effluents discharged (total amount)	**thousand ㎥**	**571**	**560**	**773**
Public water bodies (rivers, seas)	thousand ㎥	-	-	704
Sewerage	thousand ㎥	-	-	69

19 companies subject to calculation in FY2022 (80.54% coverage)(Refer to Note 2)

Figures before FY2021 are reference values.

1-6 Waste and Valuables Generated

GRI306-1,306-2,306-3,306-4,306-5

		Unit	FY2020	FY2021	FY2022
Generated volume (total amount)		**t**	**9,154**	**9,431**	**8,091**
Volume reduction		t	-	-	500
Amount recycled	Reuse	t	-	-	-
	Material recycle	t	-	-	7,500
	Thermal recycle	t	-	-	500
	(Material recycle rate)	%	-	-	92.7
Final disposal volume		t	-	-	192
(Landfill rate)		%	-	-	2.4
Hazardous waste	Specially controlled industrial waste	t	-	-	5.9

2 companies subject to calculation in FY2022 (43.06% coverage)(Refer to Note 1)

1-7 Chemical Substances Handled

GRI305-1,305-6,305-7

		Unit	FY2020	FY2021	FY2022
Chemicals handled (total amount)		**t**	**128.7**	**101.5**	**91.4**
Chemical Substances Handled	PRTR substances handled	t	121.6	94.4	84.0
	Ozone-depleting substances handled	t	1.8	1.7	1.7
	Greenhouse gas substances handled	t	5.3	5.4	5.7

PRTR: 2 companies subject to calculation in FY2022 (45.08% coverage)　Others: Hitachi Zosen only (41.72% coverage) (Refer to Note 2)

Figures before FY2021 are reference values.

1-8 Chemical Substances Discharged or Transferred

GRI305-1,305-6,305-7

		Unit	FY2020	FY2021	FY2022
Discharges and Transfers (total amount)		**t**	**262.8**	**268.0**	**239.6**
Chemical Substances Discharged or Transferred	PRTR substances discharged or transferred	t	63.0	52.3	57.1
	Sulfer oxides (SOx)	t	5.7	3.8	6.6
	Nitrogen oxides (NOx)	t	194.1	212.0	175.9
	Ozone-depleting substances emitted (CFC-11, etc.)	t (t-ODP)	- -	- -	- -

PRTR: 4 companies subject to calculation in FY2022 (45.08% coverage)　SOx: Hitachi Zosen only (41.72% coverage)　(Refer to Note 2)

NOx : 20 companies subject to calculation in FY2022 (82.54% coverage) (Refer to Note 2)

Figures before FY2021 are reference values.

ODP (ozone depletion potential): A coefficient indicating the extent to which a chemical compound may cause ozone depletion relative to depletion by CFC-11 (trichlorofluoromethane.

The conversion factor uses the ODP and global warming potential published by Japan's Ministry of the Environment.

2 Environment Management Data

2-1 Number of ISO 14001 Certified Companies (as of March 2023)

GRI103-1, 103-2, 103-3

	Unit	FY2021	FY2022
Companies		**12**	**11**
Japan	Companies	9	8
Others	Companies	3 (One of them is companies accounted for using the equity method)	3 (One of them is companies accounted for using the equity method)

Companies with at least one certified business site.

In FY2022, the number of consolidated companies decreased by one due to the removal of Nippon Pusnes Co., Ltd. from the scope of consolidation.

Includes one company (in Japan) that has acquired the Kyoto Environmental Management System standard, which is equivalent to ISO 14001.

2-2 Number of Regulatory Violations and Complaints

GRI307-1

		Unit	FY2021	FY2022
Regulatory violations	Water quality	Cases	0	0
	Air quality	Cases	0	0
	Waste materials	Cases	0	0
	Other (equipment registration, etc.)	Cases	0	0
Complaints		Cases	2	1

2 companies subject to calculation in FY2022 (43.06% coverage)(Refer to Note 2)

2-3 Envionment-related fines and penalties

Hitachi Zosen did not incur any environment-related fines or penalties in the fiscal year ended March 2023.

3 Site Report

3-1 Ariake Works

Technology / Products (as of March 2023) : Diesel Engines, Pressure Vessels, Nuclear Fuel Cycling-Related Equipment

		Unit	Regulation	Hitachi Zosen	FY2020	FY2021	FY2022
Total energy consumption (crude oil equivalent)		TJ	-	-	243	203	205
Greenhouse gasses emitted (Scope1＋Scope2)		t-CO2e	-	-	11,880	10,062	10,629
Water Consumption	Water withdrawal	thousand ㎥	-	-	-	76.0	50.2
	Water discharge / Evaporation	thousand ㎥	-	-	-	68.4	45.1
Waste and Valuables Generated	Waste and Valuables generated	t	-	-	3,127	2,986	2,523
	Recycle	t	-	-	2,799	2,677	2,253
	Landfill rate	%	-	-	2.7	2.4	1.7
Water Quality (Public water)	pH	pH	5.8～8.6	6.0～8.0	7.6	7.7	7.8
	BOD	mg/l	-	-	-	-	-
	COD	mg/l	20	20	7.7	3.3	7.2
	SS	mg/l	70	60	6.4	17	10
	n-Hexane Extract Substances	mg/l	5	3	＜0.5	＜0.5	＜0.5
	Nitrogen	mg/l	120	60	9.2	3.3	11
	Phosphorus	mg/l	16	8	2.7	1.0	1.7
	E. coli	Body/㎤	3,000	1,000	89	31	38
Air Pollution	SOx	N㎥/hr	K Value=17.5	K Value=6.5	0.005	0.005	0.005
	NOx	ppm	150	100	52	64	32
	Ash dust	g/N㎥	0.25	0.1	＜0.01	＜0.02	＜0.01

3-2 Sakai Works

Technology / Products (as of March 2023): Sluice gates, Large steel structures, Large industrial machinery, Large process equipment, Shield tunneling machines

		Unit	Regulation	Hitachi Zosen	FY2020	FY2021	FY2022
Total energy consumption (crude oil equivalent)		TJ	-	-	67	60	58
Greenhouse gasses emitted (Scope1＋Scope2)		t-CO2e	-	-	1,265	817	1,587
Water Consumption	Water withdrawal	thousand ㎥	-	-	-	40	34
	Water discharge / Evaporation	thousand ㎥	-	-	-	36	31
Waste and Valuables Generated	Waste and Valuables generated	t	-	-	823	871	1,137
	Recycle	t	-	-	698	798	1,058
	Landfill rate	%	-	-	15.1	8.3	5.1
Water Quality (Public water)	pH	pH	5.8～8.6	6.0～8.0	7.2	7.2	7.2
	BOD	mg/l	25	20	3.7	3.7	4.5
	COD	mg/l	25	20	7.8	7.8	6.8
	SS	mg/l	40	20	3.5	3.5	3.0
	n-Hexane Extract Substances	mg/l	4	2	N.D	N.D	N.D
	Nitrogen	mg/l	60	20	11.5	11.5	10.0
	Phosphorus	mg/l	8	5	1.3	1.3	1.2
	E. coli	Body/㎤	3,000	1,500	870	870	390
Air Pollution	SOx	N㎥/hr	As we don't have specified facilities, we are not regulated.				
	NOx	ppm	150	90	39	37	39
	Ash dust	g/N㎥	0.05	0.03	＜0.01	＜0.01	＜0.01

3-3 Mukaishima Works

Technology / Products (as of March 2023): Bridges, Steel chimneys, Other steel structures, Food processing inspection and sorting machinery and equipment

		Unit	Regulation	Hitachi Zosen	FY2020	FY2021	FY2022
Total energy consumption (crude oil equivalent)		TJ	-	-	39	30	33
Greenhouse gasses emitted (Scope1＋Scope2)		t-CO2e	-	-	1,562	422	744
Water Consumption	Water withdrawal	thousand ㎥	-	-	-	8	8
	Water discharge / Evaporation	thousand ㎥	-	-	-	8	7
Waste and Valuables Generated	Waste and Valuables generated	t	-	-	1,796	1,766	1,736
	Recycle	t	-	-	1,684	1,741	1,712
	Landfill rate	%	-	-	3.4	1.4	1.4
Water Quality (Public water)	pH	pH	-	6.0～8.2	6.8	7.8	7.9
	BOD	mg/l	-	-	-	-	-
	COD	mg/l	-	75	14	9.0	2.5
	SS	mg/l	-	80	5	5.0	3.0
	n-Hexane Extract Substances	mg/l	-	16	Less than the lower limit	0.8	Less than the lower limit
	Nitrogen	mg/l	-	60	13	15.0	1.9
	Phosphorus	mg/l	-	8	2.5	2.3	0.0
	E. coli	Body/㎤	-	1,000	-	-	-
Air Pollution	SOx	N㎥/hr	As we don't have specified facilities, we are not regulated.				
	NOx	ppm					
	Ash dust	g/N㎥					

3-4 Maizuru Works

Technology / Products (as of March 2023): (Naka-Maizuru)Industrial electronic boards, Electronic control units
(Wakasa)Lapping plates, Other castings

			Unit	Regulation	Hitachi Zosen	FY2020	FY2021	FY2022
Total energy consumption (crude oil equivalent)			TJ	-	-	53	57	60
Greenhouse gasses emitted (Scope1＋Scope2)			t-CO2e	-	-	2,188	2,256	2,286
Water Consumption		Water withdrawal	thousand ㎥	-	-	-	14	16
		Water discharge /	thousand ㎥	-	-	-	13	14
Waste and Valuables Generated		Waste and Valuables generated	t	-	-	886	1,103	508
		Recycle	t	-	-	823	1,074	494
		Landfill rate	%	-	-	1.7	0.5	0.7
Water Quality (Public water)	Naka-Maizuru worksite	pH	pH	5.8～8.6	5.8～8.6	8.2	7.6	8.1
		BOD	mg/l	90	40	-	-	-
		COD	mg/l	90	40	4.1	2.8	7.6
		SS	mg/l	120	40	13	1.0	3.0
		n-Hexane Extract Substances	mg/l	5	3	0.9	1.0	0.8
		Nitrogen	mg/l	120	40	4.3	4.5	1.6
		Phosphorus	mg/l	16	10	0.5	0.3	0.1
		E. coli	Body/㎤	3,000	2,000	65	55	40
	Wakasa worksite	SOx	N㎥/hr	K Value=11.5	K Value=7.0	-	-	<0.001
		NOx	ppm	150	120	26	25	22
		Ash dust	g/N㎥	0.2	0.2	<0.01	＜0.01	<0.01

3-5 Innoshima Works (Imex Co., Ltd.)

Technology / Products (as of March 2023): Boiler and plant equipment, Environmental equipment, Diesel engines, Industrial machinery

		Unit	Regulation	Hitachi Zosen	FY2020	FY2021	FY2022
Total energy consumption (crude oil equivalent)		TJ	-	-	46	44	45
Greenhouse gasses emitted (Scope1＋Scope2)		t-CO2e	-	-	2,673	845	1,242
Water Consumption	Water withdrawal	thousand ㎥	-	-	-	11	12
	Water discharge / Evaporation	thousand ㎥	-	-	-	10	11
Waste and Valuables Generated	Waste and Valuables generated	t	-	-	751	855	851
	Recycle	t	-	-	647	778	742
	Landfill rate	%	-	-	5.2	3.4	3.0
Water Quality (Public water)	pH	pH	5.5～9.0	6.0～8.0	7.3	7.1	7.2
	BOD	mg/l	-	-	-	-	1.4
	COD	mg/l	20	18	18	14.0	14.0
	SS	mg/l	200	160	9	11.0	4.0
	n-Hexane Extract Substances	mg/l	20	18	N.D	N.D	N.D
	Nitrogen	mg/l	120	108	19	23.0	22.0
	Phosphorus	mg/l	16	14.4	2.9	4.0	3.9
	E. coli	Body/㎤	3,000	2,700	200	0	0
Air Pollution	SOx	N㎥/hr	K Value=17.5	10	<0.018	<0.016	<0.012
	NOx	ppm	170	100	<5	32	35
	Ash dust	g/N㎥	0.25	0.1	<0.002	0.016	<0.010

3-6 Chikkou Works

Technology / Products (as of March 2023): Filling and packaging line systems, Semiconductor and other production lines, Molding lines, Electrolysis equipment, Filter presses, Hydrogen generation equipment

		Unit	Regulation	Hitachi Zosen	FY2020	FY2021	FY2022
Total energy consumption (crude oil equivalent)		TJ	-	-	73	88	93
Greenhouse gasses emitted (Scope1＋Scope2)		t-CO2e	-	-	1,368	1,112	2,053
Water Consumption	Water withdrawal	thousand ㎥	-	-	-	47	20
	Water discharge / Evaporation	thousand ㎥	-	-	-	42	18
Waste and Valuables Generated	Waste and Valuables generated	t	-	-	601	817	558
	Recycle	t	-	-	457	773	499
	Landfill rate	%	-	-	8.9	5.4	6.9
Water Quality (Public water)	pH	pH	5.8～8.6	6.0～8.3	8.4	8.0	8.5
	BOD	mg/l	25	20	17.0	19.0	39.0
	COD	mg/l	25	20	21.0	11.0	20.0
	SS	mg/l	65	30	15.0	11.0	20.0
	n-Hexane Extract Substances	mg/l	4	3	4	＜3	＜3
	Nitrogen	mg/l	37.5	35	40.0	30.0	30.0
	Phosphorus	mg/l	8	3	5.6	1.9	3.4
	E. coli	Body/㎤	-	-	0	72	260
Air Pollution	SOx	N㎥/hr	As we don't have specified facilities, we are not regulated.				
	NOx	ppm	150	130	13	10	14
	Ash dust	g/N㎥	0.05	0.01	＜0.001	＜0.001	＜0.001

3-7 Ibaraki Works

Technology / Products (as of March 2023)　　：　Power generation business

			Unit	Regulation	Hitachi Zosen	FY2020	FY2021	FY2022
Total energy consumption (crude oil equivalent)			TJ	-	-	4,434	4,346	3,489
Greenhouse gasses emitted (Scope1＋Scope2)			t-CO2e	-	-	219,518	214,429	172,140
Water Consumption		Water withdrawal	thousand ㎥	-	-	-	818	1,166
		Water discharge / Evaporation	thousand ㎥	-	-	-	363	531
Waste and Valuables Generated		Waste and Valuables generated	t	-	-	920	848	638
		Recycle	t	-	-	920	847	638
		Landfill rate	%	-	-	0.0	0.1	0.0
Water Quality (Public water)	Ibaraki worksite	pH	pH	5.8～8.6	6.0～8.5	8.2	8.6	7.9
		BOD	mg/l	10	10	1.9	2.4	2.5
		COD	mg/l	-	-	-	-	-
		SS	mg/l	20	20	4.0	9.6	12.0
		n-Hexane Extract Substances	mg/l	5	3	0.5	0.5	0.5
		Nitrogen	mg/l	-	-	-	-	-
		Phosphorus	mg/l	-	-	-	-	-
		E. coli	Body/㎤	3,000	2,000	62	86	39
	Miyanosato worksite	pH	pH	5.8～8.6	6.0～8.5	8.6	8.4	8.5
		BOD	mg/l	20	10	10	11.0	5.0
		COD	mg/l	-	-	8.8	27.3	-
		SS	mg/l	30	20	5.0	5.0	17.0
		n-Hexane Extract Substances	mg/l	10	2	0.5	0.5	0.5
		Nitrogen	mg/l	-	-	-	-	-
		Phosphorus	mg/l	-	-	-	-	-
		E. coli	Body/㎤	3,000	2,000	8	16	0
Air Pollution	Ibaraki worksite	SOx	N㎥/hr	K Value=13	K Value=6	-	0.1	0.1
		NOx	ppm	180	150	85	65	63
		Ash dust	g/N㎥	0.3	0.15	0.002	0.002	0.004
	Miyanosato worksite	SOx	N㎥/hr	K Value=17.5	K Value=1.0	-	0.1	0.1
		NOx	ppm	150	100	79	69	75
		Ash dust	g/N㎥	0.3	0.15	0.005	0.005	0.005

(Notes)

1 Calculation methods for environmental load data

The standards, guidelines, etc. below are used for determining the scope, base year data, calculation methods, etc.

Item	Guidelines, etc.
General	・GRI (Global Reporting Initiative) Sustainability Reporting Standards
Energy	・the Greenhouse Gas Protocol (GHG Protocol) developed by the World Business Council for Sustainable Development ・Manual for Calculating and Reporting Greenhouse Gas Emissions, Ver. 4.8 (Ministry of the Environment, Japan)
Waste	・Japan's Waste Disposal and Public Cleansing Law
VOCs and other chemical substances	・Japan's Pollutant Release and Transfer Registers (PRTR) Law

2 Report boundary and coverage ratios (calculated based on consolidated sales) for each item are as follows.

1) Energy input / GHG emissions (Scope1,2)

FY	Report boundary	Coverage ratio	Remarks
FY2022	HZC, SNT, HESC (included 4 subsidiaries), AAC, NTI, HZI (included HZI Jönköping Biogas AB), Osmoflo, HZV, H&F, IMEX, VTEX, UFT, Ohnami, PT. HITZ INDONESIA, HITZ(THAILAND)Co.,LTD. (20 companies)	82.54%	NIPPON PUSNES CO., Ltd. and its wholly owned subsidiary, Setozaki Iron Works Co., Ltd. were excluded from the scope of consolidation.
FY2021	HZC, SNT, HESC (included 4 subsidiaries), AAC, NTI, HZI (included HZI Jönköping Biogas AB), Osmoflo, HZV, H&F, IMEX, VTEX, UFT, Ohnami, NP/ST(20 companies)	82.38%	-
FY2013	HZC, SNT, Subsidiaries composed present HESC (6 companies included NSK), NTI, HZI, H&F, IMEX, VTEX, UFT, Ohnami, NP/ST (17 companies)	88.33%	In order to set the reference value for FY2013, based on the results of hearings on the actual values for FY2018 and FY2021, the portion of subsidiaries without data was estimated as a percentage of sales.

2) GHG emissions (Scope3 Category4)

FY	Report boundary	Coverage ratio	Remarks
FY2022	HZC, IMEX, H&F, VTEX, UFT (5 companies)	47.64%	-
FY2021	HZC, IMEX (2 companies)	47.29%	-

3) Raw Material Inputs, Waste and Valuables Generated

FY	Report boundary	Coverage ratio	Remarks
FY2022	HZC, IMEX (2 companies)	44.35%	-
FY2021	HZC, IMEX (2 companies)	47.29%	-
FY2020	HZC, IMEX (2 companies)	50.99%	-

4) Water Resource Input, Water Effluents Discharged

FY	Report boundary	Coverage ratio	Remarks
FY2022	HZC, SNT, HESC(included 4 companies), AAC, NTI, HZI (included HZI Jönköping Biogas AB), Osmoflo, H&F, IMEX, VTEX, UFT, PT. HITZ INDONESIA, HITZ(THAILAND)Co.,LTD. (19 companies)	80.54%	-
FY2021	HZC, IMEX (2 companies)	47.29%	-
FY2020	HZC, IMEX (2 companies)	50.99%	-

5) Chemical Substances Handled

FY		Report boundary	Coverage ratio	Remarks
FY2022	[PRTR]	HZC, IMEX, VTEX, UFT (4 companies)	45.08%	-
	[other]	HZC	41.72%	-
FY2021	HZC		45.05%	-
FY2020	HZC		45.62%	-

6) Chemical Substances Discharged or Transferred

FY		Report boundary	Coverage ratio	Remarks
FY2022	[PRTR]	HZC, IMEX, VTEX, UFT (4 companies)	45.08%	-
	[SOx]	HZC	41.72%	-
	[NOx]	HZC, SNT, HESC (included 4 subsidiaries), AAC, NTI, HZI (included HZI Jönköping Biogas AB), Osmoflo, HZV, H&F, IMEX, VTEX, UFT, Ohnami, PT. HITZ INDONESIA, HITZ(THAILAND)Co.,LTD. (20 companies)	82.54%	NIPPON PUSNES CO., Ltd. and its wholly owned subsidiary, Setozaki Iron Works Co., Ltd. were excluded from the scope of consolidation.

FY	Report boundary		Coverage ratio	Remarks
FY2021	[PRTR]	HZC, IMEX (2 companies)	47.29%	-
	[SOx]	HZC	45.05%	-
	[NOx]	HZC, SNT, HESC (included 4 subsidiaries), AAC, NTI, HZI(included HZI Jönköping Biogas AB), Osmoflo, HZV, H&F, IMEX, VTEX, UFT, Ohnami, NP/ST (20 companies)	82.38%	-
FY2020	[PRTR]	HZC, IMEX (2 companies)	50.99%	-
	[SOx]	HZC	45.62%	-
	[NOx]	HZC, IMEX (2 companies)	50.99%	-

3 Energy input

1) For the electricity calorific value conversion for overseas subsidiaries, the Japanese leveled hourly calorific value (9.97 GJ/MWh) was used.
2) HZI Jönköping Biogas AB is engaged in the business of selling electricity, but data on electricity sales is not available at this time.

4 Greenhouse Gases Emitted

1) Main Criteria and Factors for Scope 1 and 2 Calculations
   The subject is Consolidation based on GHG Protocol financial standards. The GHG emissions were calculated with reference to GHG Protocol "Emission-Factors-from-Cross-Sector-Tools-(March2017)", and the Law Concerning the Rational Use of Energy (Energy Conservation Law).
   Scope2 of overseas subsidiaries was calculated by referring to information published by the country in which they are located or by electric power companies.
2) Breakdown of Scope1 GHG gases
   - All CO2 purchased for R&D purposes is included in Scope1.
   - Although methane is temporarily generated during R&D and demonstration process of the methanation facility, there is no CH4 emission because the entire amount is released as CO2.
   - N2O may be generated in the manufacturing process of denitrification equipment, but we have not confirmed its emissions.
   - There are no emissions of hydrofluorocarbons, perfluorocarbons (derived from CFCs and alternative CFCs), sulfur hexafluoride (SF6), and nitrogen trifluoride NF3).

5 Raw materials input

- The amount of paper used is the amount of waste paper generated from general waste.

6 Water resource input

1) If the amount of wastewater is unknown, it is calculated as water intake = wastewater.
2) See site report for information on water quality.

7 Amount of waste and valuables generated

1) The amount generated is the sum of general waste and industrial waste generated.
2) The amount of industrial waste generated at sites of construction work, etc. commissioned by HZC is as follows.
   FY2022 4,712t
3) The volume reduction is the amount of thermal recycling in Japan, which is the amount of intermediate treatment minus the amount of residual intermediate treatment.
4) The treatment of recycled amount is as follows:
   Reuse: Not surveyed
   Material recycling: The sum of valuable materials and the amount recycled.
   Thermal recycling: Difference between the amount of intermediate treatment and the amount of residual intermediate treatment
5) The final disposal volume is the landfill amount.
6) Hazardous waste emissions include cinders and strong acids.

8　Amount of chemical substances, input, released/transferred

1) Hitz-Group does not produce, consume, or emit ozone-depleting substances or CFC alternatives, and uses them only in air conditioning equipment.
2) The above ozone-depleting substances and chlorofluorocarbon substitutes are used as the amount of greenhouse gas substances handled, but they are not included in GHG emissions because they are not released.The above ozone-depleting substances and chlorofluorocarbon substitutes are used as the amount of greenhouse gas substances handled, but they are not included in GHG emissions because they are not released.

9　Site Report

1) Representative items are listed.
2) For items that are measured regularly, such as water quality, the highest measured value is listed.
3) If there is more than one facility to be measured, the highest measured value is listed.
4) Items for which there are no measured values or no target facilities are indicated with "-".
5) Data for group companies that conduct business activities on the premises of each site are included.