Environmental Data

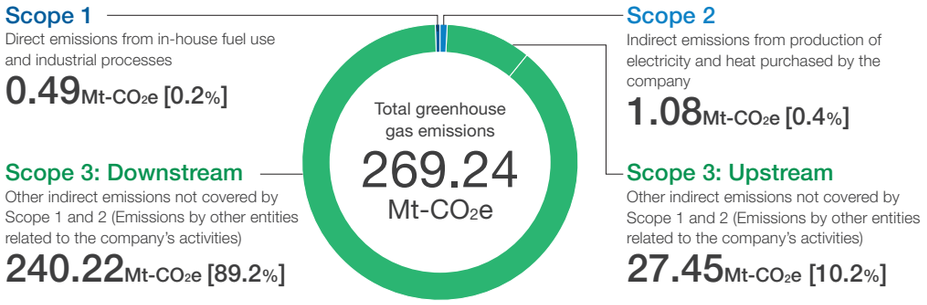
GHG Emissions Throughout the Value Chain

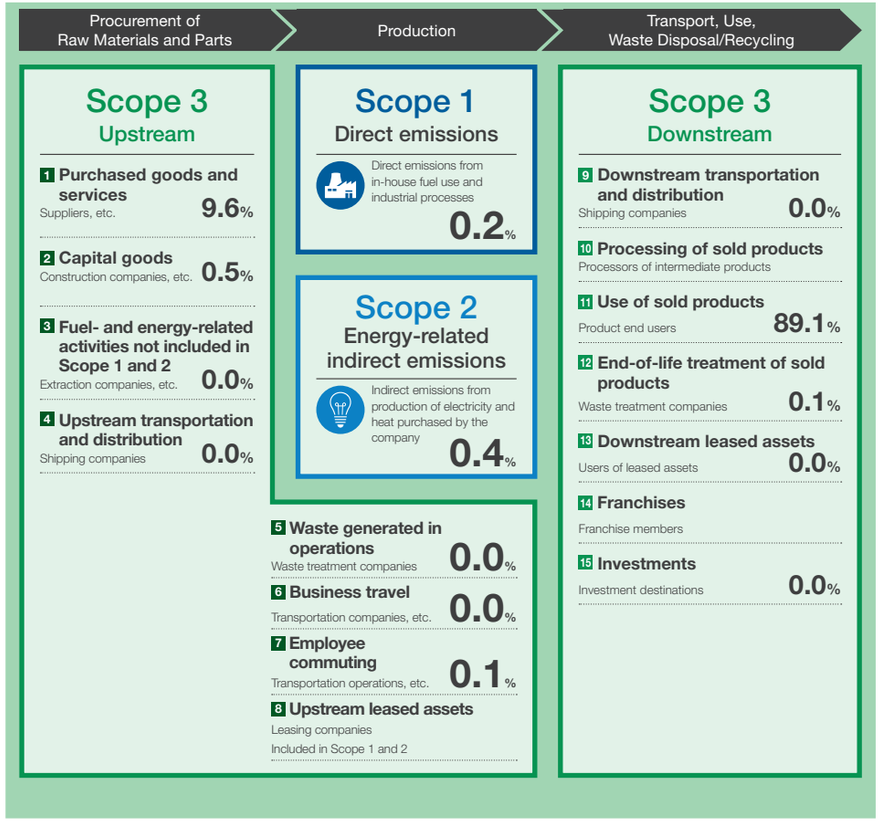
GRI 302-2/305-1/305-2/305-3/305-4/305-5

Calculating GHG Emissions Throughout the Value Chain (Fiscal 2022)

Hitachi calculates greenhouse gas (GHG) emissions throughout the value chain in conformance with GHG Protocol standards. This gives us a good grasp of emission hotspots in our value chain with which we can establish effective targets and reduction measures. Energy-related CO_2 accounts for almost all of Hitachi's GHG emissions, with there being negligible releases of other gases, making it all the more important to focus on CO_2 reduction efforts.

An extremely high share of our value chain emissions comes from the use of the products and services we sell. We thus believe that we can make a major contribution to decarbonization through our businesses by giving priority to enhancing the efficiency and energy-saving features of our products and services.





In-house: Within the scope of the company's organizational boundaries. In principle, all business activities of the company itself and activities within or controlled by its consolidated subsidiaries.
Upstream: In principle, activities related to products and services that are purchased.
Downstream: In principle, activities related to products and services that are sold.

Environmental

Detailed Data on GHG Emissions Throughout the Hitachi Value Chain (Hitachi Group, Fiscal 2022)

Category	Description	Reporting Boundary	Emissions (Mt-CO_2e)	Percentage (%)
Total Scope 1, 2, and 3		Hitachi Group	269.24	100.0
Total Scope 1 and 2		Hitachi Group	1.56*1	0.6
Scope 1*2				
Direct emissions	Direct emissions from in-house fuel use and industrial processes	Hitachi Group	0.49	0.2
Scope 2*3				
Energy-related indirect emissions	Indirect emissions from production of electricity and heat purchased by the company	Hitachi Group	1.08	0.4
Scope 3 Total*4		Hitachi Group	267.67	99.4
Scope 3 Upstream (other indirect emissions) upstream				
1 Purchased goods and services	Emissions from the resource extraction stage to the manufacturing stage, including raw materials, parts, supplied products, and sales	Hitachi Group	25.86	9.6
2 Capital goods	Emissions generated in the construction, manufacture, and shipping of the company's own capital goods, such as equipment, devices, buildings, facilities, and vehicles		1.22	0.5
3 Fuel- and energy-related activities not included in Scope 1 or Scope 2	Emissions from procuring the fuel necessary for electricity and other energy production, including resource extraction, production, and shipping		0.10	0.0
4 Upstream transportation and distribution	Emissions from the distribution of raw materials, parts, products supplied, and sales prior to the delivery of materials to the company, as well as other distribution activities of products for which the company bears the expense		0.03	0.0
5 Waste generated in operations	Emissions from the transportation, disposal, and treatment of waste generated from the company's operations		0.06	0.0
6 Business travel	Emissions generated from the fuel and electricity used by employees for business travel		0.05	0.0
7 Employee commuting	Emissions generated from the fuel and electricity used by employees commuting		0.13	0.0
8 Upstream leased assets	Emissions from the operation of assets leased by the company, excluding those counted in Scope 1 and 2		Included in Scope 1 and 2	—
Scope 3: Downstream (other indirect emissions)				
9 Downstream transportation and distribution	Emissions from the transportation, storage, loading and unloading, and retail sales of products	Hitachi Group	0.12	0.0
10 Processing of sold products	Emissions by downstream companies during the processing of intermediate products		N/A*5	—
11 Use of sold products*6	Emissions from the use of products by end users, such as consumers and businesses		239.85	89.1
12 End-of-life treatment of sold products sold*6	Emissions from the transportation, waste disposal, and treatment of products by end users, such as consumers and businesses		0.18	0.1
13 Downstream leased assets	Emissions from the operating of assets owned by the reporting company as the lessor, which are leased to other entities		0.02	0.0
14 Franchises	Emissions by franchises under Scope 1 and 2		N/A	—
15 Investments	Emissions related to the management of investments		0.05	0.0

*1 FY2022 CO_2 emissions of energy-related companies and automotive business companies included in the scope of consolidation since FY2020 are included in the figures above. Significant decrease due to deconsolidation of materials-related and construction machinery-related companies.
*2 Including SF_6, PFC, HFC, N_2O, NF_3, and CH_4. The gas and fuel oil conversion factors are based on the List of calculation methods and emission factors used in the Greenhouse Gas Emissions Calculation, Reporting and Publication System.
*3 CO_2 emissions from electricity consumption is calculated using a market-based calculation method. CO_2 electrical power conversion factors: We used adjusted conversion factors for individual power businesses based on the Act on Promotion of Global Warming Countermeasures in Japan. In China, we used the average emissions factor published by the government for the national power grid. For other countries, we used the latest values for each fiscal year supplied by the International Energy Agency (IEA) for individual countries and by power supply companies.
*4 FY2022 CO_2 emissions of energy-related companies included in the scope of consolidation since FY2020 are included in the figures above. The FY2022 volume for automotive business companies are not included in the figures above, as these are intermediate products.
*5 Cannot be determined due to insufficient information about the processing.
*6 CO_2 emissions per unit is based on the Inventory Database for Environmental Analysis (IDEA), developed by the National Institute of Advanced Industrial Science and Technology (AIST) and the Japan Environmental Management Association for Industry (JEMAI).

Environmental Load from Operations

GRI 301-1/301-2/302-1/302-4/303-1/303-2/303-3/303-4/303-5/305-4/305-5/305-7/306-1/306-2/306-3/306-4/306-5

Detailed Data on Resource Input and Environmental Load Output

Energy Inputs and GHG Emissions During Business Operations

The following is an outline of the energy consumed during Hitachi's business operations and the part of our environmental load consisting of greenhouse gas (GHG) emissions.

Energy Inputs

			Reporting Boundary	Unit	FY2018	FY2019	FY2020	FY2021	FY2022*1
Energy Inputs			Hitachi Group	GWh	14,605	12,427	9,674	9,957	5,387
Renewable energy	Electricity	Total	Hitachi Group	GWh	7	18	138	193	706
		(Self-generated amount)	Hitachi Group	GWh	7	18	22	34	25
		(Purchases: Includes non-fossil certificates)	Hitachi Group	GWh	—	—	116	159	681
Non-renewable energy	Electricity	Electricity	Hitachi Group	GWh	6,020	5,992	4,498	4,584	2,218
	Fuel and heat*2	City gas	Hitachi Group	GWh (billion m^3)	2,236 (0.18)	1,933 (0.15)	1,339 (0.11)	1,373 (0.11)	767 (0.06)
		LPG, LNG	Hitachi Group	GWh (kt)	3,741 (251)	2,015 (150)	1,646 (111)	1,705 (118)	1,217 (82)
		Other natural gas	Hitachi Group	GWh (billion m^3)	58 (0.005)	258 (0.02)	276 (0.02)	319 (0.03)	261 (0.02)
		Fuel oil (heavy oil, kerosene, etc.)	Hitachi Group	GWh (ML)	930 (87)	792 (75)	653 (61)	495 (47)	197 (19)
		Solid fuel (coke)	Hitachi Group	GWh (kt)	1,528 (188)	1,333 (162)	1,111 (137)	1,278 (156)	—
		Steam, hot water and cold water	Hitachi Group	GWh (PJ)	85 (0.31)	86 (0.31)	13 (0.05)	10 (0.04)	21 (0.08)

*1 Significant decrease due to deconsolidation of materials-related and construction machinery-related companies.
*2 Used 3.6MJ/kWh in the conversion from calorific value.

Environmental

Greenhouse Gases Emitted

		Reporting Boundary	Unit	FY2018	FY2019	FY2020	FY2021	FY2022*1*3
Total greenhouse gases*2		Hitachi Group	kt-CO_2e	5,026	4,415	3,313	3,412	1,565
Energy-related CO_2 emissions	Total	Hitachi Group	kt-CO_2	4,973	4,374	3,296	3,384	1,538
	(Direct emissions)	Hitachi Group	kt-CO_2	1,869	1,489	1,202	1,245	459
	(Indirect emissions)	Hitachi Group	kt-CO_2	3,104	2,885	2,094	2,139	1,079
GHG emissions other than energy-related CO_2	Total	Hitachi Group	kt-CO_2e	53	41	17	28	26.7
	Sulfur hexafluoride (SF_6)	Hitachi Group	kt-CO_2e	35	24	11	20	22.0
	Perfluorocarbons (PFC)	Hitachi Group	kt-CO_2e	5	4	0	2	1.3
	Hydrofluorocarbons (HFC)	Hitachi Group	kt-CO_2e	3	3	1	3	2.4
	Dinitrogen monoxide, nitrogen trifluoride, methane (N_2O, NF_3, CH_4)	Hitachi Group	kt-CO_2e	3	2	2	3	0.9
	CO_2 from non-energy sources	Hitachi Group	kt-CO_2e	7	8	3	0	0.2

Note: CO_2 emissions from electricity consumption is calculated using a market-based calculation method. CO_2 emission coefficients for Japan (including power plants) are the latest adjusted emission coefficients for each electric utility based on the Act on Promotion of Global Warming Countermeasures. For China, we use the average emissions factor for the national power grid published by the government. For countries other than Japan and China, we use the latest IEA emission factors by country for each fiscal year and the latest factors provided by power supply companies.
Note: The gas and fuel oil conversion factors are based on the List of calculation methods and emission factors used in the Greenhouse Gas Emissions Calculation, Reporting and Publication System.
*1 Significant decrease due to deconsolidation of materials-related and construction machinery-related companies.
*2 Total GHGs: Scope 1 and 2 total
*3 FY2022 CO_2 emissions of an energy-related company and auto parts-related companies included in the scope of consolidation since FY2020 are included in the figures.

Environmental

Raw Material Inputs and Waste and Valuables Generation During Business Operations

The following is an outline of the raw materials used during Hitachi's business operations and the part of our environmental load consisting of the generation of waste and valuables.

Raw Material Inputs

			Reporting Boundary	Unit	FY2018	FY2019	FY2020	FY2021	FY2022*1
Total amount of raw materials			Hitachi Group	kt	4,403	3,776	3,066	3,235	**788**
Raw materials	Metals	Total metals	Hitachi Group	kt	4,031	3,454	2,861	3,083	**685**
		New materials	Hitachi Group	kt	1,624	1,372	1,075	909	**614**
		Recycled materials, etc.	Hitachi Group	kt	2,407	2,082	1,786	2,175	**71**
	Plastics	Total plastics	Hitachi Group	kt	165	147	115	74	**43**
		New materials	Hitachi Group	kt	163	143	113	72	**40**
		Recycled materials, etc.	Hitachi Group	kt	2	4	2	2	**3**
	Other materials	Total other materials	Hitachi Group	kt	207	175	90	77	**61**
		New materials	Hitachi Group	kt	201	173	89	76	**54**
		Recycled materials, etc.	Hitachi Group	kt	6	2	1	1	**7**

Waste and Valuables Generated

		Reporting Boundary	Unit	FY2018	FY2019	FY2020	FY2021	FY2022*1*2
Total waste and valuables generated		Hitachi Group	kt	1,384	1,302	1,061	1,111	**356**
Waste reduction		Hitachi Group	kt	94 (5.6)	101 (17.5)	75 (9.8)	74 (10.5)	**47 (23.1)**
Recycle	Reuse	Hitachi Group	kt	1 (0.0)	5 (2.2)	35 (11.4)	36 (18.7)	**18 (6.2)**
	Materials recycled	Hitachi Group	kt	1,044 (25.6)	919 (25.3)	740 (17.6)	784 (19.3)	**256 (16.7)**
	Thermal recovery	Hitachi Group	kt	13 (1.4)	21 (4.9)	11 (5.4)	13 (6.5)	**16 (4.6)**
Landfill		Hitachi Group	kt	232 (3.7)	256 (6.1)	200 (4.9)	204 (5.7)	**20 (6.5)**
Nonhazardous (hazardous)		Hitachi Group	kt	1,348 (36)	1,246 (56)	1,012 (49)	1,050 (61)	**299 (57)**

Note: Figures in parentheses are the generation of waste defined as hazardous under the Basel Convention.
*1 Significant decrease due to deconsolidation of materials-related and construction machinery-related companies.
*2 Fiscal 2022 generation of waste and valuables of an energy-related company and auto parts-related companies that became consolidated subsidiaries in fiscal 2020 are included in the figures above.

Environmental

Water Inputs and Effluent Discharges During Business Operations GRI 2-27

The following is an outline of the total amount of water resources used during Hitachi's business operations and the part of our environmental load consisting of effluent discharges.

Water Input

		Reporting Boundary	Unit	FY2018	FY2019	FY2020	FY2021	FY2022*2*3
Total water usage*1		Hitachi Group	Million m^3	37.02	36.41	26.35	26.03	**14.23**
Surface water	Tap water (water for drinking and other household uses)	Hitachi Group	Million m^3	7.61	7.95	5.10	5.23	**5.53**
	Industrial water, river water	Hitachi Group	Million m^3	16.63	15.58	12.62	12.47	**5.17**
Groundwater		Hitachi Group	Million m^3	12.74	12.84	8.60	8.32	**3.52**
Rain water		Hitachi Group	Million m^3	0.01	0.02	0.01	0.01	**0.01**
Recycled water (recycled from the wastewater of other organizations)		Hitachi Group	Million m^3	0.03	0.02	0.01	0.01	**0.00**

Water Effluents Discharged

		Reporting Boundary	Unit	FY2018	FY2019	FY2020	FY2021	FY2022*2*3
Total water effluents discharged		Hitachi Group	Million m^3	34.10	33.41	23.25	26.03	**14.23**
Public water		Hitachi Group	Million m^3	22.44	22.46	15.29	15.40	**8.26**
Sewerage		Hitachi Group	Million m^3	8.18	7.74	5.44	5.31	**3.76**
Underground infiltration, evaporation, etc.		Hitachi Group	Million m^3	3.48	3.21	2.52	5.32	**2.21**
Water quality	BOD (biochemical oxygen demand)	Hitachi Group	t	392	232	204	156	**77**
	COD (chemical oxygen demand)	Hitachi Group	t	1,657	400	406	301	**137**

*1 Figures through FY2021 represent water usage in manufacturing processes and general daily usage at manufacturing sites, as well as general daily usage in locations other than manufacturing sites. Figures for FY2022 represent water usage in manufacturing processes and daily general usage at manufacturing sites.
*2 FY2022 water usage of an energy-related company included in the scope of consolidation since FY2020 is included in the reported figures above. FY2022 water usage of auto parts companies included in the scope of consolidation since FY2020 is not included in the reported figures above, but amounted to 412 million m^3.
*3 Significant decrease due to deconsolidation of materials-related and construction machinery-related companies.

Environmental

Inputs and Discharges of Chemical Substances During Business Operations GRI 2-27

The following is an outline of the chemical substances handled during Hitachi's business operations and the part of our environmental load consisting of chemical substance discharges.

Chemical Substances Handled

		Reporting Boundary	Unit	FY2018	FY2019	FY2020	FY2021	FY2022*3
Total chemical substances handled*1	Chemical substances handled	Hitachi Group	kt	88.29	83.68	47.49*2	26.20	**1.70**

Chemical Substances Discharged

		Reporting Boundary	Unit	FY2018	FY2019	FY2020	FY2021	FY2022*3
Total chemical substances discharged		Hitachi Group	kt	5.55	4.98	3.27	3.50	**1.39**
Chemical substances discharged	Chemical substances discharged	Hitachi Group	kt	4.35	3.88	2.37	2.50	**1.09*4**
	SOx (sulfur oxides)	Hitachi Group	kt	0.3	0.3	0.2	0.2	**0.01**
	NOx (nitrogen oxides)	Hitachi Group	kt	0.9	0.8	0.7	0.8	**0.29**

*1 We selected 50 substances from the perspective of hazards and atmospheric emissions.
*2 Significant decrease due to deconsolidation of a materials-related company.
*3 Significant decrease due to deconsolidation of materials-related and construction machinery-related companies.
*4 Approximately 100% of emissions classified as VOCs in FY2022.

Environmental Management Data

Number of ISO 14001 Certified Companies (Hitachi Group, as of March 2023)

	Reporting Boundary	Unit	FY2020	FY2021	FY2022*1
Total	Hitachi Group	Companies	202	185	**281**
Japan	Hitachi Group	Companies	85	66	**66**
China			43	43	**61**
ASEAN, India, and other Asian regions			42	43	**50**
North America			10	9	**13**
Europe			17	15	**52**
Other regions			5	9	**39**

Note: Companies with at least one certified business site.
*1 Significant changes in the figure, resulting from both the increase caused by the consolidation of an energy-related company and the decrease caused by the deconsolidation of materials-related and construction machinery-related companies.

Number of Regulatory Violations and Complaints

		Reporting Boundary	Unit	FY2018	FY2019	FY2020	FY2021	FY2022
Regulatory violations	Water quality	Hitachi Group	Cases	4	4	5	2	**0**
	Air quality			2	0	0	0	**2**
	Waste materials			3	0	4	3	**0**
	Other (equipment registration, etc.)			4	1	1	3	**0**
Complaints		Hitachi Group	Cases	3	5	3	3	**0**

Environmental Accounting GRI 201-1

Environmental Protection Costs

			Reporting Boundary	Unit	FY2018	FY2019	FY2020	FY2021	FY2022*2
Total			Hitachi Group	Billions of yen	94.16	105.71	86.62	79.97	**57.21**
Expenses	Business area	Maintenance costs for equipment with low environmental loads, depreciation, etc.*1	Hitachi Group	Billions of yen	23.57	22.62	19.14	19.56	**6.30**
	Upstream/Downstream	Green procurement expenses, recovery and recycling of products and packaging, recycling expenses			0.68	0.68	0.62	0.64	**0.08**
	Administration	Labor costs for environmental management and the implementation and maintenance of environmental management systems			6.72	4.98	5.88	5.40	**3.06**
	Research and development	Costs of research and development and product designs to reduce the environmental burden caused by products and production processes			61.86	77.01	60.64	53.79	**47.55**
	Social activities	Planting, beautification, and other environmental improvement costs			0.93	0.25	0.22	0.26	**0.11**
	Environmental remediation	Environmental mitigation costs, contributions, and charges			0.40	0.17	0.12	0.32	**0.11**

*1 Equipment depreciation costs are calculated using the straight-line method over five years.
*2 An energy-related company included in the scope of consolidation since FY2020 is not included in the reported cost figures for FY2022. Significant decrease due to deconsolidation of materials-related and construction machinery-related companies.

Environmental Protection Effects

Economic Effects*3

	Major FY2021 Activities	Reporting Boundary	Unit	FY2018	FY2019	FY2020	FY2021	FY2022*4
Total		Hitachi Group	Billions of yen	16.05	18.62	14.28	19.20	**11.95**
Net income effects	Recovering value from waste by sorting and recycling	Hitachi Group	Billions of yen	8.35	12.42	9.66	15.15	**7.89**
Cost reduction effects	Installing high-efficiency equipment (lighting, power supply, etc.)			7.70	6.20	4.62	4.05	**4.06**

*3 Economic effects include the following:
Net income effects: Real income from the sale of valuable materials and environmental technology patents.
Cost reduction effects: Reductions in electricity, waste treatment, and other expenses through activities that reduce environmental loads.
*4 An energy-related company included in the scope of consolidation since FY2020 is not included in the reported cost figures for FY2022. Significant decrease due to deconsolidation of materials-related and construction machinery-related companies.

Environmental Liability

As the amounts that we can reasonably project as future environmental liabilities as of end of March 2023, we recorded 4.2 billion yen in costs for the disposal of waste containing PCBs and 1.1 billion yen to clean up contaminated soil.