Mitigation of Global Warming

Basic Approach

Approach Policy

The Toppan Group has formulated the following basic policies for mitigating global warming.

Global climate change has huge impacts on corporate activities and the lives of people around the world. Recognizing this burden, Toppan positions global warming mitigation as a critical challenge for management. Based on the Toppan Group Declaration on the Global Environment, every person in the Group is firmly committed to the creation of a sustainable society and strives to address climate change as a responsible member of the international community.

Toppan focuses on energy management and the rational use of energy in implementing activities towards climate security. The Group will continue to adopt renewable energy sources on a preferential basis and encourage the broad use of renewables into the future.

Activities

Activity results, performance data

Reducing Greenhouse Gas Emissions

The Toppan Group has been reducing total emissions of carbon dioxide (CO_2) and other greenhouse gases (GHGs) to help mitigate global warming. To reduce Scope 1 GHG emissions (direct emissions from industrial processes or fuels consumed at the Group), Toppan is systematically replacing utility facilities used for long periods with high-efficiency alternatives. The Group is also installing systems to abate high-global-warming-potential (GWP) gases emitted from semiconductor production processes and replacing those gases with lower-GWP alternatives.

Toppan also reduces Scope 2 GHG emissions (indirect emissions associated with the consumption of electricity, heating, or cooling purchased or acquired by the Group) by operating a nationwide demand-monitoring system to control peak power demand across Japan, redressing power demand-and-supply imbalances, and reducing the nonessential use of power by suspending the operation of equipment during vacations.

Toppan Logistics Co., Ltd., the logistics specialist for the Group, is working with shippers from Toppan Group companies to optimize transportation conditions and further improve transportation efficiency. Together they endeavor to reduce the energy consumption per unit of transport volume by company vehicles and the total volume of CO_2 emissions from transport.

As a member of the Japan Federation of Printing Industries (JFPI), Toppan has driven industry-wide efforts to spawn global warming mitigation measures, primarily through its involvement in JFPI activities to address climate change and promote low carbonization. Under the leadership of Toshiro Kinoshita from Toppan Inc.'s Ecology Center, the JFPI's Working Group for Voluntary Action Plans on the Environment (under the Environmental Management Task Force of the Global Environment Committee) pursues industry-wide global warming mitigation initiatives by devising voluntary action plans for reducing VOC emissions and implementing various other measures towards the realization of a low-carbon, circular economy.

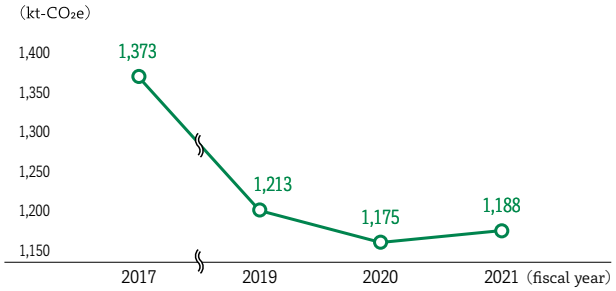
Data on Greenhouse Gas Emissions

Activity results, performance data

Greenhouse Gas Emissions

Scope 1 and 2 Greenhouse Gas Emissions

(subject to the Group medium-and-long-term environmental targets) ☑

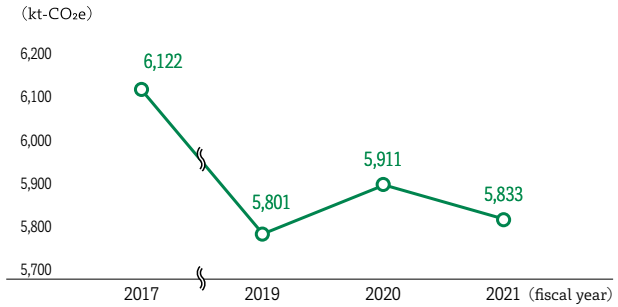


*For Scope 1 and 2 emissions, greenhouse gas (GHG) emissions associated with electricity consumption at domestic sites are calculated using the adjusted emission factor according to the method specified in the Ministerial Ordinance Concerning the Calculation of Greenhouse Gas Emissions from the Business Activities of Specified Dischargers issued by the Ministry of the Environment (MOE) of Japan. Meanwhile, GHG emissions associated with electricity consumption at overseas sites are calculated using country-specific conversion factors published by the International Energy Agency (IEA).

GHG emissions associated with fuel consumption, excluding electricity consumption, are calculated globally by the MOE method specified in the Ministerial Ordinance Concerning the Calculation of Greenhouse Gas Emissions from the Business Activities of Specified Dischargers.

Scope 3 Greenhouse Gas Emissions

(subject to the Group medium-and-long-term environmental targets) ☑

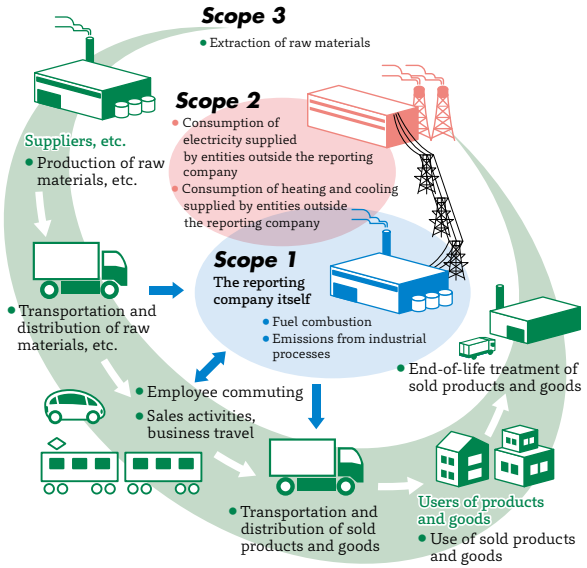


*Methods for calculating the Scope 3 GHG emissions are presented on page 106.

Scope 1, 2, 3 Greenhouse Gas Emissions

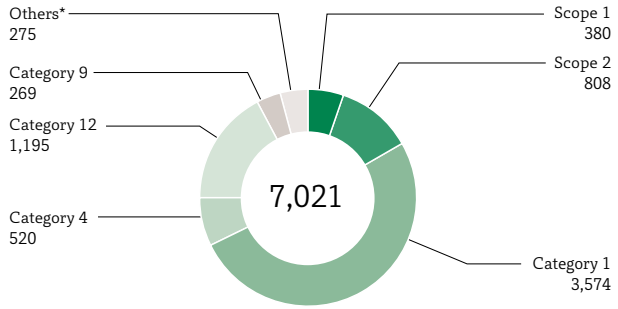
Based on the fiscal 2021 results, Toppan calculated Groupwide Scope 3 greenhouse gas (GHG) emissions (indirect emissions not included in Scope 2, associated with business operations throughout the entire value chain of the Group) to identify the categories of corporate activity that emitted more GHGs and to establish priority targets in the Group's GHG-emission reduction strategy. This calculation showed that several categories related to raw material consumption collectively accounted for the largest share of the Group's GHG emissions, primarily: category 1 (manufacturing of products purchased by Toppan), categories 4 and 9 (transportation and distribution of products purchased and sold by Toppan), and category 12 (end-of-life treatment of products sold by Toppan).

Calculating Scope 3 Greenhouse Gas Emissions



Scope 1, 2, 3 Greenhouse Gas Emissions

(kt-CO₂e) ☑



*Others:

Category 2	147
Category 3	95
Category 5	3
Category 6	5
Category 7	24
Category 8	1

*Every indicator assured by an independent assurance provider is marked with an assurance stamp ☑.

Details of the Scope 1, 2, and 3 Categories

Emissions Types	
Direct emissions (Scope 1)	Direct emissions from industrial processes or fuels consumed at the reporting company
Indirect emissions (Scope 2)	Indirect emissions associated with the consumption of electricity, heating, or cooling purchased or acquired by the reporting company

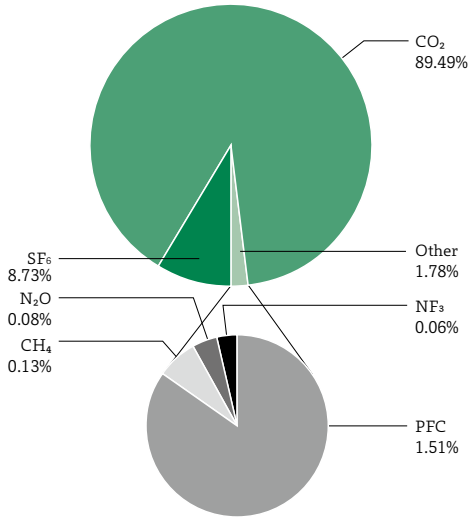
- For Scope 1 and 2 emissions, greenhouse gas (GHG) emissions associated with electricity consumption at domestic sites are calculated using the adjusted emission factor according to the method specified in the Ministerial Ordinance Concerning the Calculation of Greenhouse Gas Emissions from the Business Activities of Specified Dischargers issued by the Ministry of the Environment (MOE) of Japan. Meanwhile, GHG emissions associated with electricity consumption at overseas sites are calculated using country-specific conversion factors published by the International Energy Agency (IEA).
- GHG emissions associated with fuel consumption, excluding electricity consumption, are calculated globally by the MOE method specified in the Ministerial Ordinance Concerning the Calculation of Greenhouse Gas Emissions from the Business Activities of Specified Dischargers.

Indirect Emissions Not Included in Scope 2 (Scope 3)			Calculation Methods	
			Activity Quantity	Basic Unit from
Category 1	Purchased goods and services	Emissions associated with activities up to the point of the production of raw materials, components, goods, sales-related materials, or the like purchased or acquired by the reporting company	Materials purchased or acquired (by weight)	CFP-DB*2
Category 2	Capital goods	Emissions that occur during the construction or production of capital goods purchased or acquired by the reporting company	Capital investments by business field	MOE-DB*1
Category 3	Fuel- and energy-related activities (not included in Scope 1 or Scope 2)	Emissions associated with the procurement of fuels supplied by entities outside the reporting company or fuels necessary for the generation, etc. of electricity, heating, cooling, etc. consumed by the reporting company	1. Electricity and steam consumption 2. Fuel consumption	1. MOE-DB*1 2. CFP-DB*2
Category 4	Upstream transportation and distribution	Emissions associated with logistics up to the point of the arrival of incoming raw materials, components, goods, sales-related materials, or the like purchased or acquired by the reporting company; transportation and distribution of products sold by the reporting company	1. Freight ton-kilometers as a designated shipper classified under the Energy Saving Act of Japan 2. Estimated freight ton-kilometers of procurement logistics	1. Energy Saving Act of Japan 2. CFP-DB*2
Category 5	Waste generated in operations	Emissions associated with the transportation and treatment of waste generated at the reporting company	Waste discharge by type	MOE-DB*1
Category 6	Business travel	Emissions associated with business travel by employees	Business travel expenses by transport mode	MOE-DB*1
Category 7	Employee commuting	Emissions associated with the commuting of employees between their homes and worksites	Commuter fares or petrol costs	MOE-DB*1
Category 8	Upstream leased assets	Emissions associated with the operation of assets leased by the reporting company (lessee), excluding Scope 1 and Scope 2 emissions	Electricity and gas consumed at tenant premises	Emission factors by business
Category 9	Downstream transportation and distribution	Emissions associated with the transportation, storage, loading, or retailing of sold products after delivery to customers	Estimated freight ton-kilometers by product	CFP-DB*2
Category 10	Processing of sold products	Emissions associated with the processing of sold intermediate products by downstream companies	Excluded from calculation because there are no scenarios or units that apply universally to Toppan's diversified products	
Category 11	Use of sold products	Emissions associated with the end use of sold products by users (consumers, downstream companies)	Not applicable	
Category 12	End-of-life treatment of sold products	Emissions associated with the transportation and treatment of sold products at the end of their life by users (consumers, downstream companies)	Waste disposal by product (estimated)	CFP-DB*2
Category 13	Downstream leased assets	Emissions associated with the operation of assets owned by the reporting company (lessor)	Not applicable	
Category 14	Franchises	Emissions from franchise members	Not applicable	
Category 15	Investments	Emissions related to the operation of investments	Excluded from calculation	

Notes
- Toppan calculates the Group's Scope 3 GHG emissions for categories 1-9 and 12.
- The calculation boundary covers Groupwide GHG emissions associated with Toppan Inc. and Group entities consolidated for accounting purposes.
- For "freight ton-kilometers as a designated shipper classified under the Energy Saving Act of Japan" in category 4, "business travel" in category 6, and "employee commuting" in category 7, Toppan has estimated total values across the calculation boundary in terms of the proportion of production volume or employee numbers based on the values counted for organizations whose activities are quantifiable.

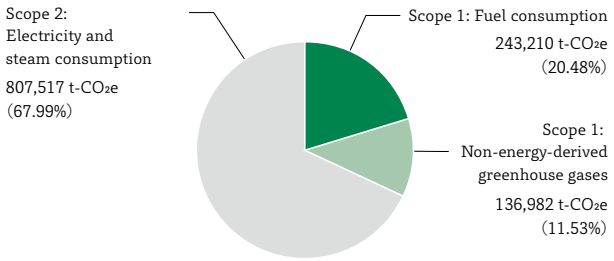
*1 MOE-DB: Emission unit database for calculating the greenhouse gas emissions, etc. of organizations throughout the entire supply chain (ver. 2.5) issued by the Ministry of the Environment of Japan
*2 CFP-DB: Standard database (ver. 1.01) of the Japan Environmental Management Association for Industry (JEMAI) Carbon Footprint of Products (CFP) Communication Program

Percentages of Greenhouse Gas Emissions by Type (in tons of CO_2 equivalent)



Total: 1,187,710 t-CO_2e

Percentages of Greenhouse Gas Emissions by Source (in tons of CO_2 equivalent)



Notes

- For Scope 1 and 2 emissions, greenhouse gas (GHG) emissions associated with electricity consumption at domestic sites are calculated using the adjusted emission factor according to the method specified in the Ministerial Ordinance Concerning the Calculation of Greenhouse Gas Emissions from the Business Activities of Specified Dischargers issued by the Ministry of the Environment (MOE) of Japan. Meanwhile, GHG emissions associated with electricity consumption at overseas sites are calculated using country-specific conversion factors published by the International Energy Agency (IEA).
  GHG emissions associated with fuel consumption, excluding electricity consumption, are calculated globally by the MOE method specified in the Ministerial Ordinance Concerning the Calculation of Greenhouse Gas Emissions from the Business Activities of Specified Dischargers.
- Fiscal 2021 GHG emissions from domestic sites (including Group company sites) and overseas sites are based on calculations of energy-derived CO_2 emissions and non-energy-derived GHG emissions (namely, CO_2, CH_4, N_2O, HFC, PFC, SF_6, and NF_3 emissions associated with dry etching, dry ice consumed, waste burned in incinerators, combusted refuse-derived fuel, and fuel consumed in cogeneration systems). GHG emissions accounting for 0.01% or more of total emissions from these sites in CO_2-equivalent values are included.

Calculated Level of Fluorocarbon Leakage (Fiscal 2021)

Domestic Sites	1,097 t-CO_2e
Overseas Sites	1,435 t-CO_2e

Notes

- The value shown for domestic sites (including Group company sites) is calculated in conformance with the Act on Rational Use and Proper Management of Fluorocarbons enforced in April 2015 in Japan.
- The value shown for overseas sites is calculated by a method corresponding to the Japanese Act on Rational Use and Proper Management of Fluorocarbons.

Values, Results, and Evaluation of Environmental Targets for Fiscal 2021

	Performance Target	Performance Indicator	Fiscal 2021			
			Target Value	Result	Achievement Rate	Evaluation
Contributing to decarbonization	Reduce CO_2 emissions	Scope 1 and 2 greenhouse gas emissions	1,174 kt-CO_2e	1,188 kt-CO_2e ☑	98.8%	B
		Scope 3 greenhouse gas emissions	5,745 kt-CO_2e	5,833 kt-CO_2e ☑	98.5%	B

Evaluation criteria
S: Results achieved far surpass the targets (achievement rate [%] ≧ 105)
A: Targets achieved (100 ≦ achievement rate [%] < 105)
B: Activities fully carried out, but targets unachieved (70 ≦ achievement rate [%] < 100)
C: Activities insufficient (achievement rate [%] < 70)
Achievement rate: 200 – (values actually achieved / target values) x 100 [%]

*Every indicator assured by an independent assurance provider is marked with an assurance stamp ☑.

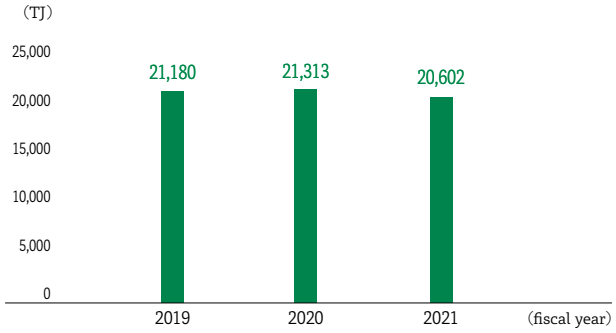
Associated Data

Activity results, performance data

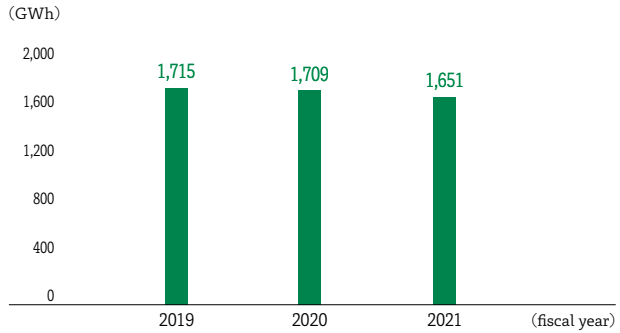
Energy Consumption

Toppan evaluates and discloses Groupwide environmental data, including data at overseas Group subsidiaries.

Energy Consumption ☑

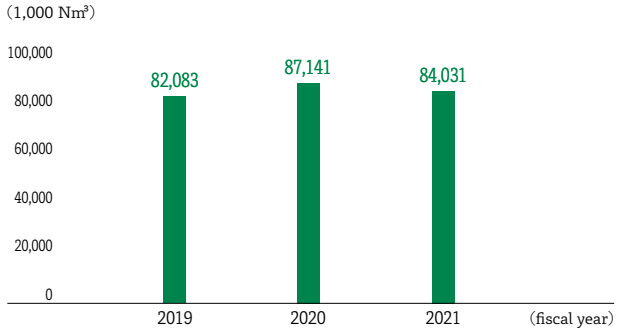


Electricity Consumption ☑

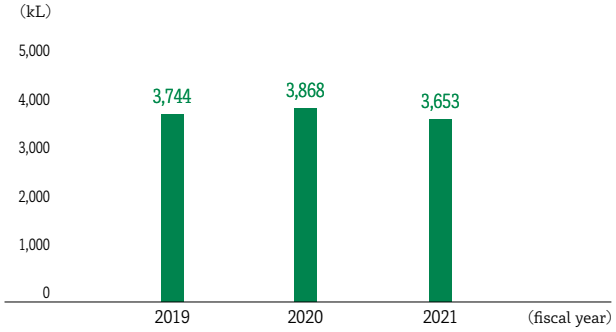


*The Group consumes electricity derived from renewable energy sources, in addition to the electricity shown above.

Natural Gas Consumption ☑



Kerosene Consumption ☑



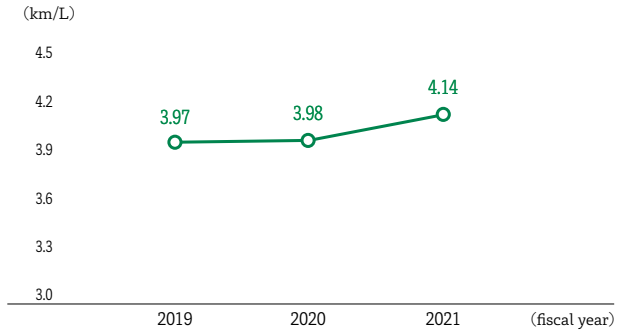
Renewable-derived Energy: Amount and Ratio

Fiscal Year	Renewable-derived Energy (GWh/year)	Ratio (%)
2021	11.10	0.67 ☑

*Renewable-derived energy (electricity derived from renewable energy sources) is the renewable energy procured from electricity retailers plus the total energy generated at renewable energy power facilities (solar power and hydro power) installed at Toppan Group sites.

*The ratio of renewable-derived energy is the percentage of electricity derived from renewable energy sources out of the Group's overall power consumption.

Fuel Efficiency of Vehicles Owned by Toppan Logistics



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