Contributing to Decarbonization

Basic Approach

Climate change affecting the entire planet is having a significant impact on corporate activities and the lives of people around the world. In light of this, the TOPPAN Group positions its contribution to decarbonization as a key management issue and, based on the TOPPAN Group Declaration on the Global Environment, maintains a commitment to contributing to a sustainable society and strives to resolve these issues as a responsible member of the international community.

The TOPPAN Group's contributions to decarbonization focus mainly on rationalizing energy use and energy management, while also proactively working to utilize and promote the spread of renewable energy.

Activities

Reducing Greenhouse Gas Emissions

The TOPPAN Group has been reducing the total emissions of carbon dioxide (CO_2) and other greenhouse gases (GHGs) to help decarbonize society. To reduce Scope 1 GHG emissions (direct emissions from industrial processes or fuels consumed at the Group), we are systematically replacing utility facilities operated for extended periods with high-efficiency alternatives. Systems are also installed to abate high-global-warming-potential (GWP) gases emitted from semiconductor production processes, and high-GWP gases are switched to lower-GWP alternatives.

To reduce Scope 2 GHG emissions (indirect emissions associated with the consumption of electricity, heating, or cooling purchased or acquired by the Group), we are scaling down power consumption by adopting energy-efficiency measures and renewables such as solar panels. A switch to electricity contracts with lower CO_2 emission factors is now being considered.

We are also scaling up the installation of energy-efficient, renewable-energy-driven facilities using carbon prices set under the internal carbon pricing (ICP) system introduced across the Group in fiscal 2023.

Meanwhile, Toppan Logistics Co., Ltd. (renamed to TOPPAN Logistics Inc. in April 2025), the logistics specialist for the Group, is working with Group company shippers to optimize transportation conditions and further enhance transportation efficiency. These companies are pooling their efforts 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 Holdings Inc. has driven industry-wide efforts to spawn decarbonization measures, chiefly through its involvement in JFPI activities to address climate change and promote low carbonization. The JFPI's Working Group for Voluntary Action Plans on the Environment (under the Environmental Management Task Force of the Global Environment Committee) has supported decarbonization efforts across the printing industry by implementing volatile organic compound (VOC)-emission reduction measures and various other measures targeting the realization of a low-carbon, circular economy.

In May 2023, TOPPAN Holdings became a member of the GX League, an industry-government-academia forum established by the Ministry of Economy, Trade and Industry of Japan. This forum advocates for social structural change to achieve Japan's goal of carbon neutrality by 2050. TOPPAN will drive green transformation (GX) towards the transformation of Japan's socio-economy in cooperation with other companies, financial institutions, universities, public research institutions, and government bodies. The discussions and knowledge gained at the GX League rule-making working groups reinforce our Groupwide endeavors to address global environmental issues, especially climate change.

Energy Management Programs

The energy management programs (EMPs) we are pursuing towards a decarbonized society follow a cycle of monitoring, target-setting, and continual improvement in energy efficiency within the ISO 14001 framework. Specifically, we monitor and measure energy consumption and implement measures for saving energy. We also assess impact on the environment as a basis for deciding specific targets for enhancing energy efficiency. Progress towards the targets has been regularly reviewed and managed throughout the Group.

By implementing these EMPs in conformance with the ISO 14001 requirements, TOPPAN is enhancing energy efficiency to contribute to a decarbonized society. ISO 14001 provides us with a clear framework for achieving continual improvement in the effectiveness of our energy management.

● Energy Audits to Identify Opportunities for Improving Energy Performance

Energy audits are an important method for assessing an organization's energy consumption and identifying specific

measures for increased efficiency and reduction. Energy audits are conducted once a year based on the requirements of the Energy Saving Act of Japan, reviewing the energy consumption of individual facilities as well as the ratio to total energy consumption using a comprehensive list by business site. This approach enables us to identify opportunities for improvement by reflecting changes, such as increases or decreases in equipment. And by entering and reporting the monthly consumption of electricity, natural gas and other types of energy into the Companywide management system, we can quickly detect significant increases or decreases and conduct ad hoc energy audits as necessary.

● Quantified Targets for Energy Conservation Efforts

To achieve the TOPPAN Group Medium-and-Long-Term Environmental Targets for Fiscal 2030, the single-year Scope 1 and 2 targets are set with approval from the Board of Directors. The annual energy consumption reduction target through energy conservation has been set at 0.8% with these efforts. This target is broken down by the TOPPAN Holdings Ecology Center into targets for each business site, and each site sets their own energy reduction targets to achieve them.

● Actions to Reduce Energy Consumption

To reduce energy consumption, real-time monitoring and visualization of electricity consumption enables employees and other stakeholders to easily understand the status of energy consumption. This makes it possible to identify any areas of unnecessary energy use and achieve efficient energy management. Furthermore, by analyzing energy consumption data, unnecessary energy use is identified and measures for improvement can be implemented. In addition, outdated equipment with lower energy efficiency is listed by the TOPPAN Holdings Ecology Center, where guidance is provided to facilitate planned replacement with high-efficiency equipment.

● Evaluation of Progress in Energy Consumption Reduction

The TOPPAN Holdings Ecology Center receives monthly energy performance reports from each business site via the management system to check progress against the previous month and set targets for energy consumption reductions. Based on this, monthly progress in energy consumption reduction is collected and evaluated. Results are regularly reported to management, which provides supervision and feedback on the progress toward goals.

● Use of Clean or Green Energy

The TOPPAN Group Medium-and-Long-Term Environmental Targets for Fiscal 2030 set a target of a 25% renewable energy ratio. To achieve this, we are promoting the procurement of renewable electricity and low-carbon electricity.

● Investment in Innovation and R&D for Energy Consumption Reduction

To promote investment in equipment enabling significant energy consumption reduction through innovation, we have introduced an Internal Carbon Pricing (ICP) system.

Disclosure in Accordance with the TCFD and TNFD Recommendations: Strategy C. Assessing the Impact of Climate Change on Our Business, Strategy, and Financial Planning through Scenario Analysis (see page 109) ›

● Training on Energy Efficiency for Employees to Raise Awareness on Energy Consumption Reduction

To improve employee environmental literacy on energy consumption reduction, we provide the following types of training on social trends in the environmental field and key annual environmental activities across all Group companies.

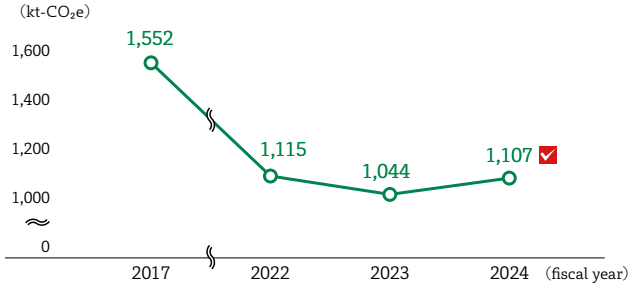
- Rank-based training (group training, e-learning)
- Optional training
- Internal auditor training
- For all employees (e-learning)

Data

Data on Greenhouse Gas Emissions

● Greenhouse Gas Emissions

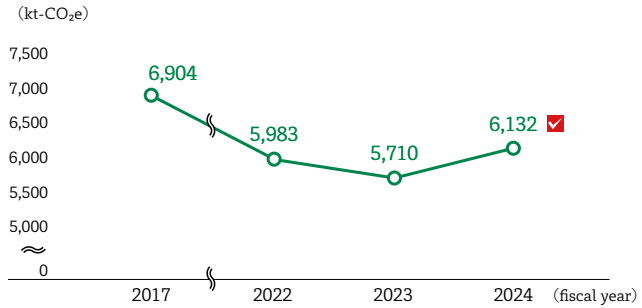
Scope 1 & 2 Greenhouse Gas Emissions (subject to the Group medium-and-long-term environmental targets)



*For Scope 1 & 2 emissions, greenhouse gas (GHG) emissions associated with electricity consumption at domestic sites are calculated using the base emission factors 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. The conversion factors used to calculate GHG emissions associated with electricity consumption at overseas sites are prioritized in the following order: 1) the factors independently set by the electric utilities from which Group sites purchase electricity, 2) the factors published by central and local governments, and 3) the latest 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.

*The result for fiscal 2024 of 1,107 thousand t-CO_2e includes 69 thousand t-CO_2e from NMVOC combustion

Scope 3 Greenhouse Gas Emissions (subject to the Group medium-and-long-term environmental targets)

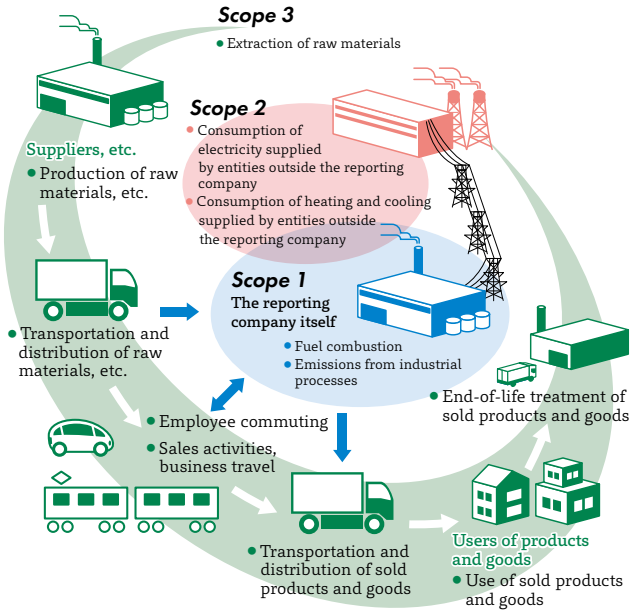


*The methods for calculating Scope 3 GHG emissions are presented on page 126.

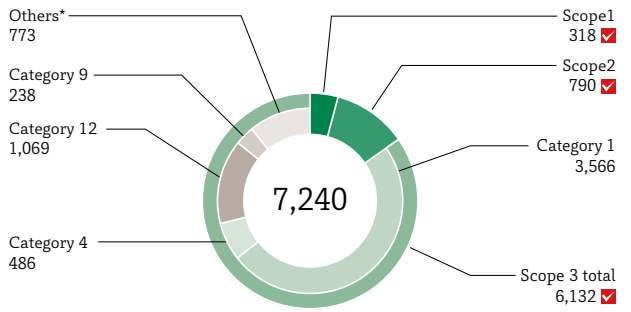
● Scope 1, 2, 3

Based on the fiscal 2024 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 our GHG emissions, primarily: category 1 (manufacturing of products purchased by the Group), categories 4 and 9 (transportation and distribution of products purchased and sold by the Group), and category 12 (end-of-life treatment of products sold by the Group).

Calculating Scope 3 Greenhouse Gas Emissions



Scope 1, 2, 3 Greenhouse Gas Emissions (kt-CO_2e)



*Others

Category 2	463
Category 3	278
Category 5	1
Category 6	9
Category 7	22
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

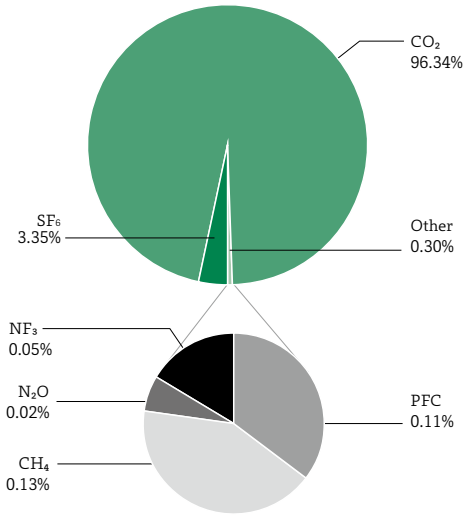
Indicator	
Direct emissions (Scope 1)	Direct emissions from industrial processes or fuels consumed at the reporting company
Indirect emissions (Scope 2)	Indirect emissions associated with the consumption of electricity, heating, or cooling purchased or acquired by the reporting company

For Scope 1 & 2 emissions, greenhouse gas (GHG) emissions associated with electricity consumption at domestic sites are calculated using the base emission factors 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. The conversion factors used to calculate GHG emissions associated with electricity consumption at overseas sites are prioritized in the following order: 1) the factors independently set by the electric utilities from which Group sites purchase electricity, 2) the factors published by central and local governments, and 3) the latest 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)	・IDEA*2 ・Supplier primary data*3 ・ecoinvent*4
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) Steam consumption (2) Fuel and electricity consumption	1. MOE-DB*1 2. IDEA*2 ecoinvent*4
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. Act on Rationalization of Energy Use and Shift to Non-fossil Energy (Energy Saving Act) of Japan 2. IDEA*2 ecoinvent*4
Category 5	Waste generated in operations	Emissions associated with the transportation and treatment of waste generated at the reporting company	Waste discharge by type	・IDEA*2
Category 6	Business travel	Emissions associated with business travel by employees, excluding emissions associated with accommodation for business travelers	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	1. Commuter fares 2. Petrol costs	1. MOE-DB*1 2. IDEA*2
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	・IDEA*2 ・ecoinvent*4
Category 10	Processing of sold products	Emissions associated with the processing of sold intermediate products by downstream companies	Excluded	
Category 11	Use of sold products	Emissions associated with the end use of sold products by users (consumers, downstream companies)	Excluded	
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)	・IDEA*2 ・ecoinvent*4
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	
Other	Upstream	Other upstream emissions	Not applicable	
Other	Downstream	Other downstream emissions	Not applicable	

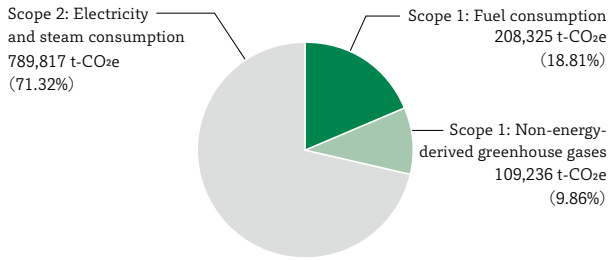
Notes
・TOPPAN calculates the Group's Scope 3 GHG emissions for categories 1-9 and 12.
・The calculation boundary covers Groupwide GHG emissions associated with TOPPAN Holdings Inc. and Group entities consolidated for accounting purposes.
・For "1. Freight ton-kilometers as a designated shipper classified under the Energy Saving Act of Japan" in category 4, "business travel" in category 6, and "employee commuting" in category 7, we have 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. 3.5) issued by the Ministry of the Environment of Japan
*2 IDEA: Inventory Database for Environmental Analysis (IDEA) version 3.5.1, a life cycle inventory (LCI) database from the National Institute of Advanced Industrial Science and Technology of Japan
*3 Supplier primary data: Numerical values provided by key suppliers are used
*4 ecoinvent: LCI database ecoinvent Database version 3.11 (ecoinvent Association)

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



Total: 1,107,379 t-CO_2e ☑

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



Notes
- For Scope 1 & 2 emissions, greenhouse gas (GHG) emissions associated with electricity consumption at domestic sites are calculated using the base emission factors 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. The conversion factors used to calculate GHG emissions associated with electricity consumption at overseas sites are prioritized in the following order: 1) the factors independently set by the electric utilities from which Group sites purchase electricity, 2) the factors published by central and local governments, and 3) the latest 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 2024 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, 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.
- The fiscal 2024 results include 68,730 t-CO_2e from NMVOC combustion.

Calculated Level of Fluorocarbon Leakage (Fiscal 2024)

Domestic Sites	1,533 t-CO_2e
Overseas Sites	2,381 t-CO_2e

Notes
- The value shown for domestic 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 aligned with that prescribed under the Japanese act.

Values, Results, and Evaluation of Environmental Targets for Fiscal 2024

	Performance Target	Performance Indicator	Fiscal 2024			
			Target Value	Result	Achievement Rate	Evaluation
Contributing to decarbonization	Reduce CO_2 emissions	Scope 1 & 2 greenhouse gas emissions	1,019 kt-CO_2e	1,107 kt ☑	91.4%	B
		Scope 3 greenhouse gas emissions	4,875 kt-CO_2e	6,132 kt ☑	74.2%	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

● Energy Consumption

We evaluate and disclose Groupwide performance data, including that from overseas Group subsidiaries.

Energy Consumption

Fiscal Year	Consumption	Unit
2022	20,885	TJ
2023	18,388	TJ
2024	2,758,840	MWh

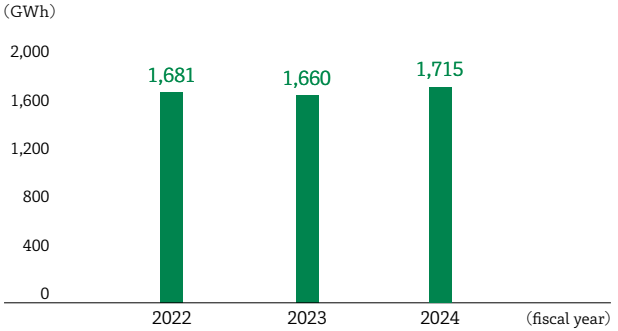
*From the fiscal 2024 results, the unit for figures assured by an independent assurance provider has been changed from J (joule) to Wh (watt-hour)

Renewable-derived Energy: Amount and Ratio

Fiscal Year	Renewable-derived Energy (GWh/year)	Ratio (%)
2022	20.22	1.19
2023	41.81	2.52
2024	59.27	3.46

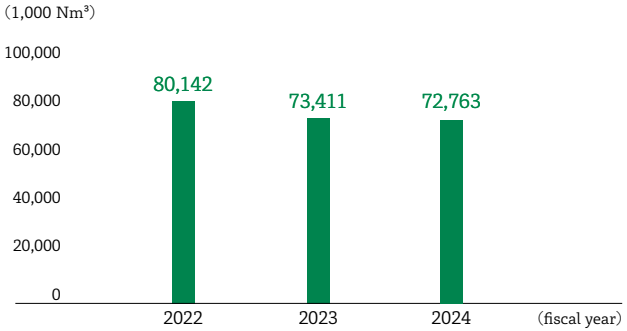
*Renewable-derived energy (electricity derived from renewable energy sources) is the renewable energy procured from PPA providers and electricity retailers plus the total energy generated at renewable energy power facilities (for solar power and hydro power) installed at Group sites.
*The ratio of renewable-derived energy is the percentage of electricity derived from renewable energy sources out of our overall power consumption.

Electricity Consumption

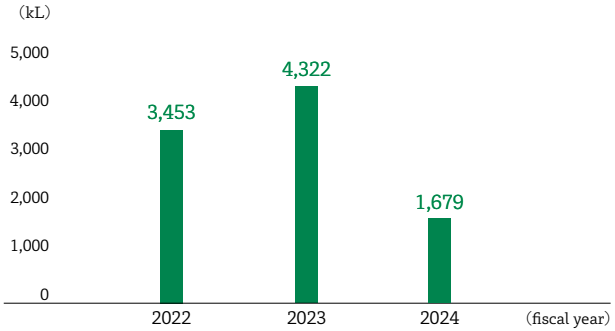


*The fiscal 2023 result includes electricity derived from renewable energy sources.

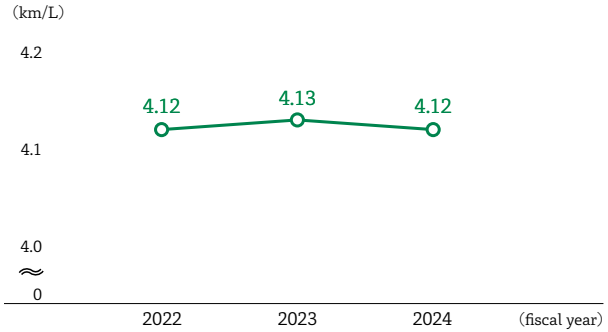
Natural Gas Consumption



Kerosene Consumption



Fuel Efficiency of Outsourced Cargo Vehicles



*The data for fiscal 2023 and earlier are adjusted based on revised calculation methods.

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