Climate Change

ENVIRONMENT

Policy and Concept

Social background

In line with the Paris Agreement, which sets the framework for climate change mitigation, the Japanese government announced in October 2020 its commitment to achieving carbon neutrality by 2050. Subsequently, in October 2021, it set a greenhouse gas emission reduction target for fiscal 2030 of 46% below fiscal 2013 levels. In February 2025, more ambitious targets were introduced—namely, a 60% reduction by fiscal 2035 and a 73% reduction by fiscal 2040—to align with the 1.5°C pathway.

◆ <Kansai Electric Power Group Environmental Policy 2. Responding to climate change>

2. Responding to climate change

At the Kansai Electric Power Group, recognizing climate change as a key business challenge, we actively work to reduce greenhouse gas emissions. We pursue the goal of carbon neutrality throughout the entirety of our business activities and support our customers and society in achieving decarbonization by 2050. In addition, we also work to adapt in preparation for the harmful impacts of climate change.

<Climate change-related information disclosure>

We proactively disclose climate change–related information annually through the Integrated Report and other channels in accordance with TCFD* recommendations. For details, see pages 30–37 of the Integrated Report.

* The Task Force on Climate-related Financial Disclosures (TCFD) was launched by the Financial Stability Board, an international organization comprising central banks and financial regulators from major countries. The TCFD was disbanded in October 2023. Discussions previously held by the TCFD have been taken over by the International Sustainability Standards Board (ISSB), while information disclosure will continue to follow TCFD recommendations until the ISSB standards come into effect.

Targets and efforts to achieve them

The Kansai Electric Power Group is committed to carbon neutrality by 2050 throughout the entirety of our business activities, including the power generation business, as declared in the Zero Carbon Vision 2050 and the Zero Carbon Roadmap, which provides a pathway to zero carbon.

Specific measures to reduce CO_2 emissions include transforming renewable energy into the main power source, leveraging nuclear power to the fullest, achieving zero carbon in thermal power generation, using zero-carbon hydrogen, and optimizing power grids to support the measures for zero-carbon society. At the same time, we will provide various solutions (electrification, storage batteries, etc.) to help customers and society reduce their CO_2 emissions. The Zero Carbon Roadmap, meanwhile, shows the path of our efforts to achieve our goals. Furthermore, as a member of the Electric Power Council for a Low Carbon Society (ELCS), which was established by a consortium of electric companies including the Company, we are contributing to the ELCS initiatives as well by working on these Group endeavors.

Goals

Advancement of efforts to reduce GHG emissions
- GHG emissions from our business activities (Scope 1, 2) FY 2025: -55%*1 FY 2030: -70%*1
- GHG emissions through the entire supply chain (Scope 1, 2, 3) FY 2030: -50%*1

Continuation of safe and stable operation of nuclear power plants*2
- Operation of nuclear power plants with top priority placed on safety

Further development and utilization of renewable energy sources
- Achieve 5 GW scale of new development and 9 GW scale of cumulative capacity in Japan by 2040

Maintain and improve thermal efficiency of thermal power plants*2
- Achieve benchmark indexes*3 (A: 1.00, B: 44.3%)

Introduction of equipment for GHG emission reduction
- Transformer with vegetable oil
- SF_6 alternative gas appliance

Efforts to introduce renewable energy and DER utilization in the grid network
- Efforts to introduce renewable energy and DER utilization in the grid network

Controlling SF_6 emissions (calendar year basis) (gas recovery rate upon inspection/removal of equipment)
- 97% (upon inspection)
- 99% (upon removal)

*1 Compared to FY 2013 *2 Targets and results apply only to the Company
*3 Indicators based on the benchmark system of the Act on Rationalizing Energy Use and Shifting to Non-fossil Energy

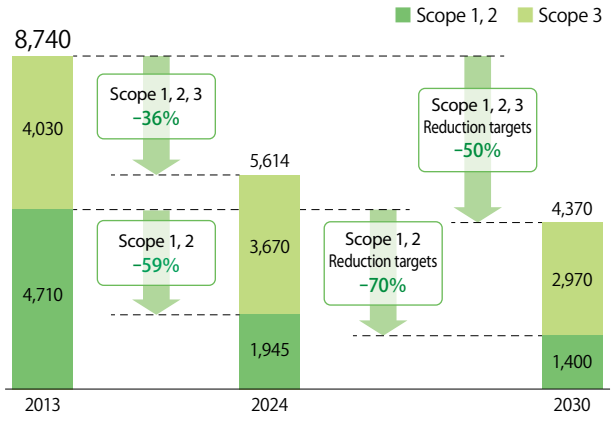
Efforts

Our Group's greenhouse gas (GHG) emissions

The Kansai Electric Power Group formulated its Zero Carbon Roadmap to achieve the Zero Carbon Vision 2050, with intermediate targets in place for fiscal 2030. We also set the status of zero carbon initiatives as a KPI in fiscal 2024 to monitor progress toward these goals. In the meantime, the previous target, which aims to reduce fiscal 2025 power generation CO_2 emissions by half from levels in fiscal 2013, was achieved two years ahead of schedule primarily through the restart of our seven nuclear reactors. Therefore, we introduced more challenging GHG emission reduction targets in the new Zero Carbon Roadmap revised in April 2024.
We are making steady progress in reducing GHG emissions: Scope 1 and 2 emissions in fiscal 2024 were down 59% from fiscal 2013 levels to 19.45 million t-CO_2, and Scope 1, 2, and 3 emissions were also down 36% from fiscal 2013 levels to 56.14 million t-CO_2.
The Group will continue to cooperate with all stakeholders to create a zero-carbon society toward the realization of the Zero Carbon Vision 2050.

		Targets	Results
GHG emissions*	Scope 1, 2 (compared to FY 2013)	55% reduction by FY 2025	59% reduction in FY 2024
		70% reduction by FY 2030	
	Scope 1, 2, 3 (compared to FY 2013)	50% reduction by FY 2030	36% reduction in FY 2024

*The Company, Kansai Transmission and Distribution, Inc., Kanden Energy Solution Co., Inc., Kanden Realty & Development Co., Ltd. and OPTAGE Inc. are included in the calculation.



Continuing safe and stable operation of nuclear power plants

As a power source that emits no CO_2, nuclear power generation is key to tackling global warming and must be utilized to the fullest extent possible. With the understanding of residents from relevant local communities, we ensure safe and stable operation of the plants. Dealing appropriately with investigations conducted by the Nuclear Regulation Authority, we will continuously promote voluntary safety measures that go beyond regulatory requirements.

Higher efficiency for thermal power generation, and achieving zero carbon

Thermal power generation plays a key role in promoting renewable energy and stabilizing grid operations by compensating for fluctuations in renewable electricity output. We are advancing zero carbon initiatives toward 2050 and enhancing power generation efficiency through facility renovation.

A renovation plan is underway at the Nanko Power Station to stabilize electricity supplies and support the achievement of zero-carbon energy goals. This renovation is expected to increase power generation efficiency by approximately 40% and reduce CO_2 emission factor by approximately 30%. Furthermore, we are working to introduce CCS technology or start hydrogen co-firing power generation in the late 2030s.

The Himeji No. 1 Power Station is under study for facility renovation and its business feasibility is being assessed, with requisite materials, including environmental impact assessment procedures, submitted to the Minister of Economy, Trade and Industry in accordance with the Environmental Impact Assessment Act.

Zero carbon roadmap for the Nanko Power Station

Power source	Decarbonization roadmap*			
	2020s	2030s	2040s	2050s
Nanko Power Station Unit 1	2026–2030 Renovation	2030– LNG exclusive firing	Late 2030s: 20–50% hydrogen co-firing Late 2030s: Full recovery by CCS	Mid 2040s: Hydrogen exclusive firing
Nanko Power Station Unit 2	2026–2030 Renovation	2030– LNG exclusive firing 2030– LNG exclusive firing	Late 2030s: 20–50% hydrogen co-firing Mid 2040s: Full recovery by CCS	Mid 2040s: Hydrogen exclusive firing
Nanko Power Station Unit 3	2026–2030 Renovation	2030– LNG exclusive firing 2030– LNG exclusive firing	Late 2030s: 20–50% hydrogen co-firing Mid 2040s: Full recovery by CCS	Mid 2040s: Hydrogen exclusive firing

* As for each power source's decarbonization roadmap, the upper line refers to the hydrogen scenario and the lower refers to the CCS scenario.

Toward the realization of a hydrogen-driven society

Hydrogen does not emit CO_2 when burned and can be produced from renewable energy sources. Its capability for storage and transportation makes it an ideal energy carrier for applications such as power generation, industrial processes, and mobility. Securing a stable and cost-competitive supply of hydrogen in large volumes is essential for the commercialization of the hydrogen business. As such, we are studying the feasibility of large-scale hydrogen production overseas and transportation, which entails developing a supply chain encompassing "production," "storage and transportation," and "utilization." On the domestic front, we are collaborating with local municipalities and related companies to study hydrogen transportation and utilization. Hydrogen co-firing power generation is also being demonstrated at the Himeji No. 2 Power Station.

We will continue pursuing every possibility and advancing various initiatives as we strive to realize a hydrogen-driven society.

Survey on large-scale green hydrogen transportation and utilization, with the Himeji area as a hub

Our project, "Survey on large-scale green hydrogen transportation and utilization, with the Himeji area as a hub" undertaken in collaboration with partner companies*1 was selected for the Development of Technologies for Realizing a Hydrogen Society Project 2024 by NEDO*2. Hydrogen transportation utilizing partner companies' infrastructure are under review from fiscal 2024 to fiscal 2025. Specific issues to be examined include rail freight transportation from the Himeji area; pipeline transportation using railway tracks and communication conduits; expansion of hydrogen applications, including fuel cells; and the review and development of models for hydrogen supply control systems.

We will work together with the partner companies to develop large-scale, low-cost, and low-carbon hydrogen supply chains, possibly in the 2030s.

*1 West Japan Railway Company, Japan Freight Railway Company, Nippon Telegraph and Telephone Corporation (NTT), NTT Anode Energy Corporation, Panasonic Corporation, the Kansai Electric Power Co., Inc.
*2 NEDO: New Energy and Industrial Technology Development Organization

Hydrogen co-firing demonstration at the Himeji No. 2 Power Station

Following the adoption of demonstrations in accordance with the Green Innovation Fund Project administered by the Ministry of Economy, Trade and Industry and NEDO, we conducted an in-depth review to identify technical challenges anticipated in feasibility studies on hydrogen power generation, along with potential solutions and retrofitting required for thermal power plants. The next phase, currently in progress, involves the design, manufacture, and installation of hydrogen power generation facilities and their ancillary systems for demonstration.

Himeji No. 2 Power Station

The retrofitting of existing power generation facilities, along with the installation and test run of hydrogen supply facilities, was completed in fiscal 2024, and the demonstration of hydrogen co-firing power generation started in April 2025. We conducted demonstrations of the co-firing ratio of up to 30% (by volume) and verified the reliability and safety of hydrogen power generation. We worked to establish integrated control techniques necessary for commercial operation, including those for operation, maintenance, and safety measures.

Since April 2025, a portion of the electricity generated through demonstrations had been supplied to the Expo 2025 Osaka, Kansai venue. Part of the hydrogen used as fuel for the demonstration was produced in Reinan, Fukui Prefecture, using electricity derived from nuclear power. These initiatives were communicated through projection mapping at the Shining Hat hall at the Expo venue as well as through displays installed at bus stops, both on media days right before the Expo opening and throughout the Expo period.

CO_2 capture technology research at the Maizuru Power Station

We are supporting NEDO's project at our Maizuru Power Station, R&D of CO_2 separation/capture technologies*. Following the commissioning run performed until the first half of fiscal 2023, the demonstration started at testing facilities in January 2024. The solid sorbent system is potentially a great deal more energy efficient than its conventional counterparts in capturing CO_2 and is therefore considered promising next-generation capture technology.

*Development of carbon recycling/next-generation thermal power generation technology / Research and development of CO_2 capture technology / Research on application of advanced CO_2 solid sorbents to treatment of coal-fired emissions

Constructing and demonstrating CO_2 capture pilot facilities at the Himeji No. 2 Power Station

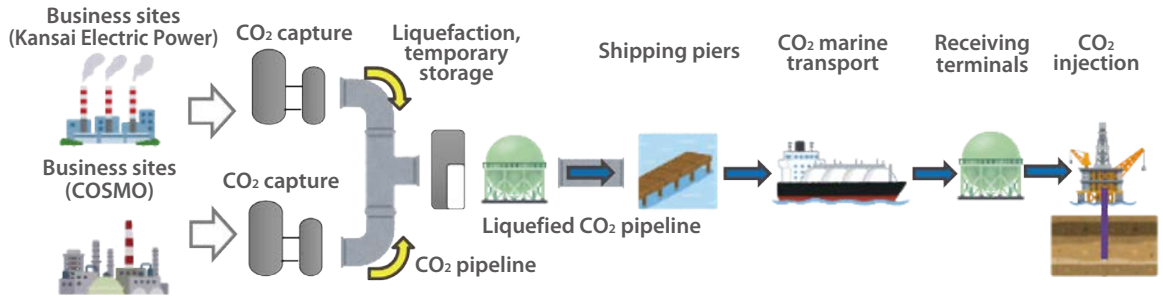
Pilot-scale facilities for the demonstration of a liquid amine-based CO_2 capture system were jointly constructed with Mitsubishi Heavy Industries, Ltd. at the Himeji No. 2 Power Station to study CO_2 capture technology for the separation and recovery of CO_2 from the flue gas. The demonstration tests started in May 2025 with the aim of developing a CO_2 capture process that can be adapted to the currently mainstream combined cycle system in thermal power generation facilities, and an even higher-performance absorbent solution.

Establishment of a CCS value chain in the Sakai Senboku area

We are conducting studies toward the establishment of a CCS value chain that encompasses separation, capture, transportation, and storage of CO_2. In the Sakai Senboku area, engineering designs and economic viability are under review in partnership with Cosmo Energy Holdings Co., Ltd. and Cosmo Oil Co., Ltd. In fiscal 2024, a project in which we are involved was selected for JOGMEC's* Engineering Design Work for Japanese Advanced CCS Project. We will also conduct studies with a view to future cooperation with other business operators that have CO_2 emission sources in the Sakai Senboku area.

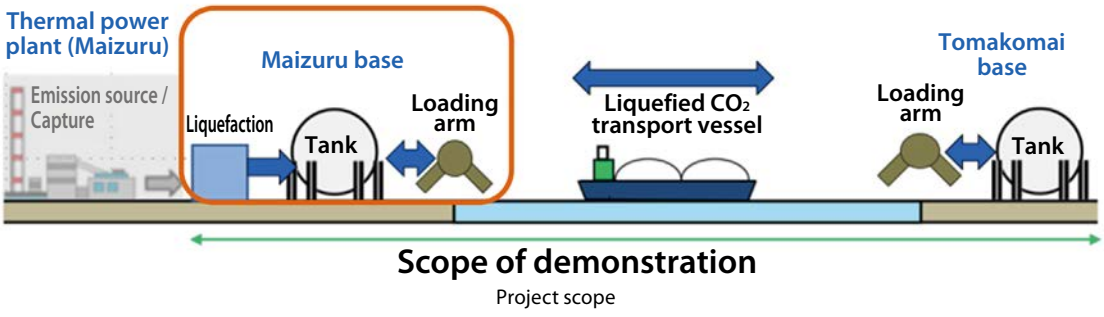
*JOGMEC: Japan Organization for Metals and Energy Security

◆ Conceptual diagram of CO_2 capture, storage, and transportation



Technological development and demonstration of CO_2 marine transport at the Maizuru Power Station

We participate and cooperate in the NEDO project, R&D and Demonstration of CO_2 Ship Transportation Project* at the Maizuru Power Station where facilities designed for the project (for liquefaction, storage, and shipping of CO_2) and a demonstration vessel are used to ① develop technology for integrated marine transport of liquefied CO_2, ② demonstrate liquefied CO_2 marine transport, and ③ study the feasibility of CO_2 marine transport for CCUS. The marine transport demonstration started in November 2024.



*CCUS R&D and demonstration project / Large-scale CCUS demonstration in Tomakomai / Demonstration of CO_2 transport / Technological development and demonstration of CO_2 marine transport

Encouraging efficient energy use

With the goals of realizing energy conservation, cost cutting and CO_2 reduction for our customers and society, we are offering high-efficiency systems that utilize renewable energy sources and heat pump technologies, as well as proposing effective operation procedures. We are also providing total support for energy management to customers and other members of society and undertaking activities that serve these purposes, including the services for visualizing energy use. The solution offered to residential customers is "total electric conversion," which, through efficient use of energy, can make our lives more comfortable and convenient. Specific products and services include an energy-efficient hot water supply system (EcoCute), safe, comfortable and convenient electric appliances (IH cooking heaters, etc.), and power consumption visualization (Hapi e-Miruden). The internet-based service Hapi e-Miruden monitors the amount and rate of electricity and gas consumed. By entering data on utility costs the system can automatically indicate the total household CO_2 emissions while providing useful information, such as tips on energy conservation according to registered equipment or power consumption patterns. For corporate customers, various services, including those provided by group companies, ranging from the CO_2 reduction plan formulation stage to the concrete implementation stage, are customized to meet their needs and offered as solutions (Zero Carbon Package) toward decarbonization and carbon neutrality, thereby helping customers achieve efficient energy use and reduce CO_2 emissions.
Specific solutions include onsite solar power generation services and Omaka-Save-Air. Additionally, energy consumption across multiple locations is carefully estimated, while service-related facilities and distributed energy resources (DERs) such as EVs and storage batteries are optimized by the cloud-based control system SenaSon to reduce CO_2 emissions and costs.

Greenhouse gas emission reduction initiatives

Kansai Transmission and Distribution, Inc. is committed to reducing greenhouse gas emissions by installing transformers with vegetable oil and SF_6 alternative gas appliances as part of its efforts toward zero-carbon emissions. As vegetable oil for transformer insulation absorbs CO_2 during cultivation of raw materials, it reduces CO_2 emissions in its life cycle. We are also utilizing eco-friendly dry air as an alternative to SF_6, the global warming potential (GWP) of which is about 23,500 times greater than that of CO_2.

Group companies' renewable energy programs

Kanden Energy Solution Co., Inc. leverages its solar and wind power plants to decarbonize energy systems. Moreover, as a comprehensive energy business operator, we are promoting distributed renewable energy sources, storage batteries, and energy conservation, particularly by upgrading and standardizing energy management systems, thereby helping customers and society achieve zero-carbon emissions.

Major achievements

Solar power generation

Arida Solar Power Station (Arida City, Wakayama Prefecture)

This station is the Group's largest solar power station with about 150,000 solar panels installed across a large area.

Power output	29,700 kW
Generated energy	Approx. 31 GWh/annum (Equivalent to the annual consumption by 10,000 standard households)
CO_2 emission reduction	Approx. 16,000 tonnes/annum*
Total site area	Approx. 45 ha
Commencement	October 2015

Wind power generation

Awaji Wind Power Station (Awaji City, Hyogo Prefecture)

While harmonizing with the community, this station operates by utilizing the wind blowing through the hills in northern Awaji City.

Power output	12,000 kW (6 turbines @2,000 kW)
Generated energy	Approx. 20 GWh/annum (Equivalent to the annual consumption by 6,500 standard households)
CO_2 emission reduction	Approx. 7,000 tonnes/annum*
Commencement	December 2012

* The reduction in CO_2 emissions was a figure calculated upon commencement of operations.

Performance data

GHG emissions*1

		Unit	FY 2022	FY 2023	FY 2024
Direct greenhouse gas emissions (Scope 1)*2		10,000 t-CO_2eq	2,304.3	1,987.5	1,944.7
	Energy-derived CO_2		2,370.4	1,977.7	1,932.6
	Vehicle-emitted CO_2		0.6	0.5	0.5
	Non-energy-derived CO_2		0.0	0.0	0.0
	CH_4		—	—	2.3
	N_2O		2.3	5.3	5.2
	HFC		0.0	0.0	0.0
	PFC		0.0	0.0	0.0
	SF_6		3.8	3.9	4.0
	NF_3		0.0	0.0	0.0
Indirect greenhouse gas emissions (Scope 2)*3	Market standards		0.5	0.2	0.0
	Location standards		0.5	0.3	0.0
Other indirect greenhouse gas emissions (Scope 3)*4			3,126.1	3,236.6	3,233.7
	Category 1*5		255.0	147.6	158.0
	Category 2*6		101.7	90.0	109.7
	Category 3*7		2,353.5	2,544.4	2,516.2
	Category 4*8		0.0	0.0	0.2
	Category 5*9		1.0	0.9	0.7
	Category 6*10		0.2	0.2	0.2
	Category 7*11		0.6	0.6	0.6
	Category 8*13		—	—	—
	Category 9*13		—	—	—
	Category 10*13		—	—	—
	Category 11*12		414.1	452.8	448.0
	Category 12*13		—	—	—
	Category 13*13		—	—	—
	Category 14*13		—	—	—
	Category 15*13		—	—	—

∗1 The amount of greenhouse gases emitted in our entire supply chain is calculated in accordance with the Basic Guidelines on Accounting for Greenhouse Gas Emissions Throughout the Supply Chain (ver. 2.7) issued by the Ministry of the Environment and the Ministry of Economy, Trade and Industry. Emission intensity is calculated based on the Emission Intensity Database for Calculation of Greenhouse Gas Emissions Throughout the Supply Chain (ver.3.5). The Company and Kansai Transmission and Distribution, Inc. are included in the calculation.

∗2 Direct GHG emissions (energy-derived CO_2, CH_4*1, N_2O, and SF_6*2) reported by electric companies in line with the Act on Promotion of Global Warming Countermeasures along with CO_2 emissions from transportation fuel use, which are excluded from the reporting obligations. ∗1: Included in the calculation from FY 2024. ∗2: Based on calendar year

∗3 Of emissions that should be reported by electric operators in line with the Act on Promotion of Global Warming Countermeasures, indirect CO_2 emissions include emissions from electricity and heat purchased from other companies. For electricity, emission factors adjusted for each electric operator are used. For heat, in principle, the emission intensity of each heat supplier is used from FY 2023.

∗4 Indirect emissions not covered by Scope 1 or Scope 2 (emissions from other corporations related to the business activities of the company concerned)

∗5 Σ {(amount data for products or services purchased)* × (emission intensity)} ∗The amount of gas purchased for the gas business is included in Category 1 for FY 2022 and readjusted with fuel and energy activities from FY 2023 for inclusion in Category 3. Nuclear power-related items (contributions to spent fuel reprocessing, etc.), however, are excluded from calculation as rational calculation is not possible without appropriate emission intensity available at present.

∗6 Σ {(capital expenditure)* × (emission intensity)} ∗Including intangible fixed assets (software)

∗7 Σ {(fuel and heat consumption) × (emission intensity)}*1 + Σ {(electricity purchased from other companies) × (emission intensity)}*2 + Σ {(electricity sold to other companies) × (individual electric operator emission factor)}*3 ∗1: The amount of gas purchased for the gas business is readjusted with fuel and energy activities from FY 2023 for inclusion in Category 3. The emission intensity is based on IDEA (ver. 3.5), using Climate Change IPCC 2021 GWP 100a without LULUCF. ∗2: CO_2 emissions from mining and transportation of electricity purchased from other companies. Supply and demand adjustment transactions in power transmission and distribution are excluded from the calculation. ∗3: CO_2 emissions from production of electricity sold to other companies. ∗2, ∗3 CO_2 emissions associated with sales to other companies are deducted from those procured from other companies.

∗8 Σ {(fuel consumption by trucks, materials, and equipment) × (emission intensity)}

∗9 CO_2 emissions from ① industrial waste disposal (landfill and recycling) and ② industrial waste transportation* ∗According to the Act on Rationalizing Energy Use and Shifting to Non-fossil Energy, CO_2 emissions from transportation as a consignor / outsourced transportation. Those from self-transportation are categorized as Scope 1 emissions.
① Σ {(waste disposal amount, excluding valuable resources) × (emission intensity by waste type and disposal method)} + ② Σ {(fuel consumption) × (emission intensity)}

∗10 Σ {(number of employees) × (emission intensity)}

∗11 Σ {(number of employees) × (number of operating days) × (emission intensity)} Calculated by work pattern and city classification

∗12 Σ {(total gas sales) × (emission intensity)}

∗13 None applicable due to the nature of the business

• GHG emissions, including values from group companies*1

		Unit	FY 2022	FY 2023	FY 2024
Direct greenhouse gas emissions (Scope 1)*2		10,000 t-CO_2eq	2,304.8	1,987.8	1,944.7
Indirect greenhouse gas emissions (Scope 2)*3	Market standards		1.5	0.4	0.2
	Location standards		1.6	0.6	0.2
Other indirect greenhouse gas emissions (Scope 3)*4			3,522.6	3,596.2	3,669.5
	Category 1*5		296.8	192.8	207.9
	Category 2*6		129.1	127.2	144.3
	Category 3*7		2,646.0	2,766.5	2,797.8
	Category 4*8		0.0	2.2	2.6
	Category 5*9		1.0	0.9	0.7
	Category 6*10		0.3	0.3	0.3
	Category 7*11		0.7	0.7	0.7
	Category 8*15		—	—	—
	Category 9*15		—	—	—
	Category 10*15		—	—	—
	Category 11*12		448.4	490.9	491.1
	Category 12*13		0.1	0.1	0.2
	Category 13*14		0.3	14.5	24.0
	Category 14*15		—	—	—
	Category 15*15		—	—	—

*1 The amount of greenhouse gases emitted in our entire supply chain is calculated in accordance with the Basic Guidelines on Accounting for Greenhouse Gas Emissions Throughout the Supply Chain (ver. 2.7) issued by the Ministry of the Environment and the Ministry of Economy, Trade and Industry. Emission intensity is calculated based on the Emission Intensity Database for Calculation of Greenhouse Gas Emissions Throughout the Supply Chain (ver. 3.5). The Company, Kansai Transmission and Distribution, Inc., Kanden Energy Solution Co., Inc., Kanden Realty & Development Co., Ltd. and OPTAGE Inc. are included in the calculation.

*2 Direct GHG emissions (energy-derived CO_2, CH_4*1, N_2O, and SF_6*2) reported by electric companies in line with the Act on Promotion of Global Warming Countermeasures along with CO_2 emissions from transportation fuel use, which are excluded from the reporting obligations.
*1 Included in the calculation from FY 2024.
*2 Based on calendar year

*3 Of emissions that should be reported by electric operators in line with the Act on Promotion of Global Warming Countermeasures, indirect CO_2 emissions include emissions from electricity and heat purchased from other companies. For electricity, emission factors adjusted for each electric operator are used. For heat, in principle, the emission intensity of each heat supplier is used from FY 2023.

*4 Indirect emissions not covered by Scope 1 or Scope 2 (emissions from other corporations related to the business activities of the company concerned)

5 Σ { (amount data for products or services purchased) × (emission intensity)}
*The amount of gas purchased for the gas business is included in Category 1 for FY 2022 and readjusted with fuel and energy activities from FY 2023 for inclusion in Category 3. Nuclear power-related items (contributions to spent fuel reprocessing, etc.), however, are excluded from calculation as rational calculation is not possible without appropriate emission intensity available at present.

6 Σ {(capital expenditure) × (emission intensity)}
*Including intangible fixed assets (software)

*7 Σ {(fuel and heat consumption) × (emission intensity)}*1 + Σ {(electricity purchased from other companies) × (emission intensity)}*2 + Σ {(electricity sold to other companies) × (individual electric operator emission factor)}*3
*1 The amount of gas purchased for the gas business is readjusted with fuel and energy activities from FY 2023 for inclusion in Category 3. The emission intensity is based on IDEA (ver. 3.5), using Climate Change IPCC 2021 GWP 100a without LULUCF.
*2 CO_2 emissions from mining and transportation of electricity purchased from other companies. Supply and demand adjustment transactions in power transmission and distribution are excluded from the calculation.
*3 CO_2 emissions from production of electricity sold to other companies
*2, *3 CO_2 emissions associated with wholesale sales to other companies are deducted from those wholesale procured from other companies. CO_2 emissions associated with retail sales transactions outsourced by the calculation target groups to Kanden Energy Solution Co., Inc. are excluded from the calculation.

*8 Σ {(fuel consumption by trucks, materials, and equipment) × (emission intensity)} CO_2 emissions from sales of LNG transported by Kanden Energy Solution Co., Inc. trucking is included from FY 2023, calculated according to: Σ {(haul distance) ÷ (gas mileage) × (unit calorific value) × (emission factor) × 44/12}

9 CO_2 emissions from ① industrial waste disposal (landfill and recycling) and ② industrial waste transportation
*According to the Act on Rationalizing Energy Use and Shifting to Non-fossil Energy, CO_2 emissions from transportation as a consignor / outsourced transportation. Those from self-transportation are categorized as Scope 1 emissions.
① Σ {(waste disposal amount, excluding valuable resources) × (emission intensity by waste type and disposal method)} + ② Σ {(fuel consumption) × (emission intensity)}

*10 Σ {(number of employees) × (emission intensity)}

*11 Σ {(number of employees) × (number of operating days) × (emission intensity)} Calculated by work pattern and city classification

*12 CO_2 emissions from ① gas sales, ② real estate sales and ③ communication services sales
① Σ {(total gas sales) × (emission intensity)} + ② Σ {(amount of real estate sold (number of residences or total floor area)) × (emission intensity) × (remaining useful legal life)} + ③ Σ {(number of openings in the year concerned) × (service life emission period) × (electricity consumption per day of product use) × (emission intensity)}

*13 CO_2 emissions from ① real estate sales and ② communication services sales
① Σ {(amount of real estate sales (m^2)) × (emission intensity)} + ② Σ {(product sales weight)* × (emission intensity)}
*Products other than sold out products are not included in calculation

*14 Σ {(energy consumption) × (emission intensity)}
Newly added companies for calculation included for FY 2022 are Kanden Realty & Development Co., Ltd. and OPTAGE Inc., with Kanden Energy Solution Co., Inc. also included from FY 2023. CO_2 emissions from leased real estate, information communication equipment, and energy-related facilities used by customers

*15 None applicable due to the nature of the business

• Group's CO_2 emissions and their factors associated with power generation in Japan

	Unit	FY 2022	FY 2023	FY 2024
CO_2 emissions*1	10,000 t-CO_2	2,470	2,120	2,050
CO_2 emission factor (per power generation output)*2	kg-CO_2/kWh	0.283	0.219	0.198

*1 CO_2 emissions refer to those produced by fuel combustion at the Group's thermal power plants in Japan.
*2 CO_2 emission factor corresponds CO_2 emissions per kWh of the Group's domestic power generation business (excluding pumped storage power generation).

• CO_2 emissions and retail emission factors of the Company

	Unit	FY 2022	FY 2023	FY 2024
CO_2 emissions (before adjustment)*1	10,000 t-CO_2	4,012	3,733	3,872
CO_2 emissions (after adjustment)*2		4,689	4,704	4,571
CO_2 emission factor (before adjustment) (per amount of electric power sold)*3	kg-CO_2/kWh	0.360	0.318	0.335
CO_2 emission factor (after adjustment) (per amount of electric power sold)*3		0.420	0.401	0.396

*1 CO_2 emissions refer to emissions originating from electricity sold to customers.
*2 Adjusted CO_2 emissions refer to values adjusted according to FIT, non-FIT non-fossil fuel power source procurement, and certified emission reduction in Japan and abroad.
*3 CO_2 emission factor corresponds CO_2 emissions per kWh of the Kansai Electric Power Co., Inc. electricity used.
*1,2,3 The results for FY 2024 are provisional; the actual CO_2 emission factor will be officially announced by the government in accordance with the Act on Promotion of Global Warming Countermeasures, etc

• Greenhouse gases other than CO_2 (10,000 t-CO_2eq)

	FY 2022	FY 2023	FY 2024
N_2O (dinitrogen oxide)*1	2.1	5.3	5.2
SF_6 (sulfur hexafluoride)*1*2	4.0	3.9	4.0

*1 The results were first made public in fiscal 2010. CO_2 equivalent
*2 SF_6 emissions are based on the calendar year.

• Utilization rate of nuclear power facilities and net thermal efficiency of thermal power facilities (%)

	FY 2022	FY 2023	FY 2024
Utilization rate of nuclear power facilities*1*3	48.5	76.6	88.5
Net thermal efficiency of thermal power facilities*2*3	48.1	49.4	49.7

*1 Utilization rate of nuclear power facilities = amount of power generated ÷ (permitted output × calendar hours) × 100
*2 Net thermal efficiency of thermal power facilities = (amount of power transmitted × quantity of heat per kWh) ÷ total amount of input heat (lowest heat value standard) × 100
*3 Figures representing the Company only

• Energy consumption

		Unit	FY 2022	FY 2023	FY 2024
Total energy consumption*1		1,000 GJ	370,022	337,005	341,272
Thermal fuel consumption*2	Coal	1,000 t	3,294	3,453	2,947
	Heavy oil	1,000 kL	822	115	126
	Crude oil		183	46	11
	LNG	1,000 t	4,150	3,801	4,096
	Wood pellets	1,000 kL (heavy oil equivalent)	2	0	0
	Other		197	4	2
Fuels for nuclear power generation (weight of pre-irradiation uranium)*2		tU	114	137	74

*1 These figures are reported to the government in accordance with the Act on Rationalization of Energy Use and Shift to Non-fossil Energy. (Fossil fuel consumption, purchased electricity, and purchased heat)
*2 Figures representing the Company only