

Disclosure based on the TCFD Recommendations: Recognition of and Action on Risks and Opportunities

Principle and Outline

Tackling climate change is seen as one of the Sustainable Development Goals (SDGs) adopted by the United Nations. Since the Paris Agreement came into force in November 2016, initiatives to tackle climate change are being undertaken around the world. In Japan, the country declared carbon neutral by 2050 in October 2020, making it even more important to address climate change.

For the Daigas Group, which is engaged primarily in the energy business, climate change represents an important management challenge, and initiatives to reduce CO₂ emissions are a crucial mission. In January 2021, the Daigas Group established and announced the “Daigas Group Carbon Neutral Vision,” indicating its vision of how it strives to become carbon neutral by 2050. In March of the same year, the Company announced its “Medium-Term Management Plan 2023.”

In March 2023, we released “Energy Transition 2030,” which outlines the overall roadmap for the transition to low-carbon energy and decarbonization, as well as our Group’s specific initiatives of our group and the solutions we can offer our customers toward 2030.

The recommendations of the Task Force on Climate-Related Financial Disclosures (TCFD) announced in June 2017 (the “TCFD recommendations”) encourage companies to disclose climate change-related financial information to promote appropriate investment decisions by investors. Osaka Gas supports the TCFD recommendations, and utilizes them as indicators to validate its climate change response. We also participate in the TCFD Consortium,* where discussions take place on efforts toward information disclosure on responses to climate change based on the TCFD recommendations.

* TCFD Consortium

The TCFD Consortium was established on May 27, 2019, whose members from the Japanese private sector discuss how companies can effectively disclose information on tackling climate change and how financial institutions can use the disclosed information to make appropriate investment decisions. From the Japanese government, the Ministry of Economy, Trade and Industry, the Financial Services Agency, and the Ministry of the Environment participate as observers in the consortium.

Climate Change Governance

The Daigas Group regards tackling climate change as a key management issue. Just as with other important business activities across the Group, the Board of Directors is responsible for making decisions on and supervising activities aimed at tackling climate change and other environmental issues. At the ESG Council (Management Meeting), which is held three times a year, executives discuss activity plans and activity reports related to ESG issues, including climate change issues, and submit reports to the President.

The Group also has the ESG Committee, chaired by the Executive in Charge of ESG Promotion (Representative Director and Vice President), who supervises the Group’s sustainability activities, and consisting of the heads of related organizations. The ESG Committee meets four times a year for the cross-organizational deliberation, coordination, and supervision of climate-change-related issues, including the planning and promotion of related business activities, progress in achieving relevant targets, and risk management. The committee submits to the Board of Directors deliberation proposals and reports on important agenda items, such as the status of achievement of sustainability-related ESG management targets and business projects expected to sustain a major financial impact due to climate change.

Directors other than Outside Directors are paid performance-linked remuneration, and one of the performance indicators is the ESG indicators achievement coefficient. For ESG indicators, CO₂ emissions aimed at carbon neutrality and other climate change-related indicators are employed.

Strategy

Scenario analysis

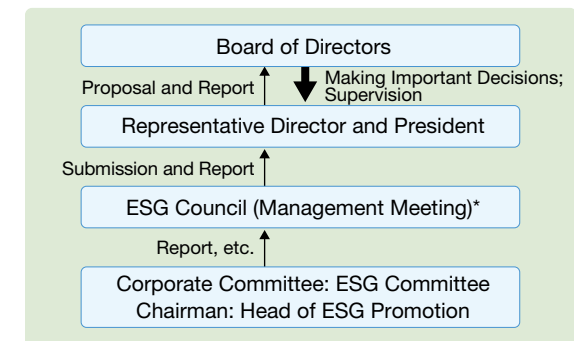
The Daigas Group has been working on climate change scenario analysis that is intended to be utilized as reference material in the evaluation and preparation of countermeasures, and to understand the impact of climate change on the Group’s business on a medium- and long-term basis. For the analysis, we used the scenarios* published by IEA.

We assessed our energy businesses (gas, electricity and related businesses in Japan and overseas) which are expected to experience the greatest impact from climate change among the Group’s businesses, assuming a multi-track scenario (1.5°C Scenario (NZE2050), 2.6°C Scenario (STEPS)*) that takes into account the progress of energy conservation and changes in the composition of power sources, etc.

We steadily implement initiatives to increase the resilience of the Group’s businesses, while applying the suggestions gained from scenario analysis to our evaluation of medium- and long-term business strategies. Moreover, as the global response to climate change continues to progress, the scenario’s preconditions may also change in the future. We will continue to deepen our scenario analysis, renewing our assumptions in line with the latest conditions as necessary, taking into account scenarios established by external authorities.

Source: IEA “World Energy Outlook 2021”

■ Governance System for Climate Change



- Board of Directors
10 Directors (6 Internal Directors and 4 Outside Directors)
- ESG Council (Management Meeting)
1 Executive President, 3 Executive Vice Presidents and 7 Senior Executive Officers
* In principle, it is held three times per year as “ESG Council.”
- ESG Committee
Executive Vice President (Head of ESG Promotion) and heads of related business units, etc.

(As of June 23, 2023)

Recognition of risks and opportunities

Using a multi-track scenario analysis, the Daigas Group identified anticipated risks and opportunities, based on the environment surrounding its domestic and overseas energy businesses, evaluated them, and examined countermeasures in the short- to medium-term toward 2030 and the long-term toward 2050.

The Group is engaged in gas and electricity businesses, primarily in the Kansai region, which use natural gas as their main raw material and fuel. The external environment is undergoing various changes due to climate change. We have classified the major factors associated with these changes into “transition risks” and “physical risks,” and identified the major risks and opportunities. Significant risks for the Group related to climate change include the possibility that rising sea levels and natural disasters such as typhoons and torrential rains due to localized abnormal weather events, etc. may cause damage to our manufacturing equipment. In addition, it is possible that our businesses may be affected by significant increases in the carbon tax rate in Japan, or an increased desire among our customers to switch to non-fossil fuels. However, promotion of the development and spread of renewable energy and decarbonization technologies also represents a significant opportunity for the Group.



The Group will respond appropriately to identified risks and opportunities by promoting diverse businesses through portfolio management.

■ Evaluation of Risks and Opportunities

		Impact on Business				
		Scenario	Impact	Short- and Medium-Term	Long-Term	
Risks	Physical	Physical risks	2.6°C	Damage to facilities arising from meteorological disasters	Increase in capital investment costs and insurance premiums	Increase in facilities countermeasure costs
		Market	2.6°C	Switch to natural gas	Increase in prices due to greater competition in LNG procurement	Further price hikes and impediments to procurement, due to increasing competition in LNG procurement
	Transition	Market	1.5°C	Switch to non-fossil fuel energy	Fall in sales of gas and thermal power	Fall in sales of gas and thermal power
		Reputation	1.5°C	Focus of investment criteria on low-carbon or decarbonized businesses	Diminished capital procurement power in gas-related businesses	Declining investment in fossil fuels businesses
		Policy and framework	1.5°C 2.6°C	Introduction of a carbon tax	Carbon tax burden on gas and thermal power businesses	Increasing burden with rising carbon tax rates
Opportunity	Physical	Physical opportunity	2.6°C	Increase in awareness and support measures for weather disaster countermeasures	Increase in sales of products/services with disaster response function	Expansion of decentralized energy systems
		Market	2.6°C	Switch to natural gas	Switch to LNG in Japan; Expansion of LNG business oversea	Switch to LNG and expansion of sales of high-efficiency equipment abroad
	Transition	Technology	1.5°C	Development of renewable energy and CCUS technologies	Expansion of development of renewable energy sources	Introduction of “e-methane,” expansion of renewable energy sources, utilization of thermal power generation with CCS
		Policy and framework	1.5°C 2.6°C	Implementation of a national policy for the mass introduction of renewable energy sources	Expansion of sales of electricity from renewable energy sources	Expansion of sales of electricity from renewable energy sources
		Technology	1.5°C 2.6°C	Development of AI/IoT	Participation in decentralized power sources aggregation business	Expansion of decentralized power sources aggregation business

Financial impact : Small □ □ Financial impact : Large ■ ■

■ Strategies/Countermeasures for Risks and Opportunities

		Short- and Medium-Term	Long-Term
Risks	Physical	● Implement disaster countermeasures for facilities	
	Transition	<ul style="list-style-type: none"> ● Diversify procurement sources ● Develop and expand sales of renewable energy power sources in Japan and abroad ● Engage in dialogue with investors Please see the following material for our major initiatives 	
		<ul style="list-style-type: none"> ● Investigate, develop, and verify CCUS/“e-methane” technologies 	<ul style="list-style-type: none"> ● Full-scale introduction and establishment of supply chains of CCUS/“e-methane,” hydrogen, etc.
Opportunity	Physical	● Development and sale of equipment with disaster response functions	
	Transition	<ul style="list-style-type: none"> ● Develop and expand sales of renewable energy power sources in Japan and abroad ● Develop and market high efficiency, compact decentralized power sources (CHP, fuel cells) ● Expand fuel switching, sales of high efficiency equipment in Japan and abroad ● Verify and participate in the decentralized power sources aggregation business Please see the following material for our major initiatives 	
		<ul style="list-style-type: none"> ● Further develop energy-saving technologies 	<ul style="list-style-type: none"> ● Full-scale introduction and establishment of supply chains of CCUS/“e-methane,” hydrogen, etc.

Financial Impact of Climate Change Risks and Opportunities

The Daigas Group’s Medium-Term Management Plan has identified “achieving a low carbon/carbon neutral society” as a priority issue, and expects to spend 150 billion yen on decarbonization related investments in the period from 2021 to 2023 as it works toward achieving the goal of carbon neutrality in 2050.

The Daigas Group is actively contributing to the spread of renewable energy, and estimates that the impact on sales of its renewable energy business expansion will be in the order of 100 billion yen in fiscal 2031.3.

It should be noted that there are uncertainties and assumptions in the above estimation of financial impact. In practice, the impact may vary significantly as a result of changes in key factors.

Initiatives to Reduce Greenhouse Gas Emissions

Initiatives to reduce greenhouse gas emissions are a crucial mission for the Daigas Group. We focus on reducing CO₂ emissions, not only from our own business activities, but also from customers who use the energy we provide.

In the Daigas Group Energy Transition 2030 (ET2030), we have set a target of reducing CO₂ emissions in our domestic supply chain by 5 million tonnes by FY2031.3 compared to FY2018.3, and we are taking various initiatives to reduce CO₂ emissions.

Under the Daigas Group Carbon Neutral Vision, we have established the goal of contributing 10 million tons per year of CO₂ emissions reductions in FY 2031.3. This indicator will enable us to contribute to reductions throughout society, and we therefore use it as a management target linked to the Group's business initiatives.

Please see P.38-44 for details on the specific initiatives by the Daigas Group to reduce greenhouse gas emissions.

Initiatives Ensuring Resiliency for a Decarbonized Society

Securing a stable supply of energy, a core social infrastructure, is one of the major climate change-driven challenges facing society as a whole. By continuing to provide a range of services, including multiple sources of clean energy such as gas and electricity utilizing decarbonization technologies, disaster response equipment, and the widespread and advanced use of energy, the Daigas Group will strive to contribute to society in terms of stable supply and resilience for a decarbonized society.

Please see P.39 for an overall picture of the Daigas Group's efforts for low carbonization and decarbonization of energy.

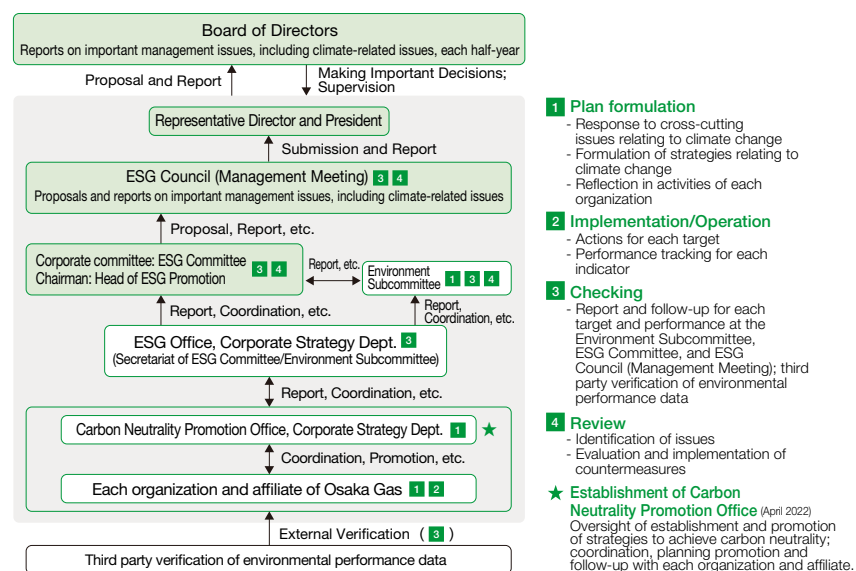
Risk Management

When deciding on the Daigas Group's business plan and investment plan, the internal organizations responsible for the gas, electricity, and other businesses analyze the risk factors and their impact on each business, distill and identify risks, and submit these together with other business risks, etc. to Management Meeting for deliberation. Climate change risks in the formulated plans are managed through a PDCA cycle, and are reported and followed up at the Environment Subcommittee, ESG Committee, and ESG Council (Management Meeting). The PDCA (plan-do-check-act) cycle is used to manage such actions.

Decisions on climate-related risk and sustainability, including investment decisions, are made by the Board of Directors and the Management Meeting. Matters related to climate change that were proposed or reported by March 31, 2023, included those listed to the right.

- Resolutions for collaboration and participation in projects for a decarbonized society, based on the Carbon Neutral Vision
- Formulation and disclosure of ET2030
- Monitoring of the results for indicators used to manage climate change response, etc.

Risk Management System for Climate Change



Indicators and Targets

The Daigas Group will proceed to contribute to radically reducing CO₂ emissions and realizing a decarbonized society, through initiatives such as energy conservation, the advanced use of natural gas, and the widespread use of renewable energies.

Field	Indicators	Targets	Target FY
Climate Change	CO ₂ emissions of Daigas Group	Net-zero CO ₂ emissions	2051.3
		27.02 million tons* (5 million tons less than FY18.3)	2031.3
	Percentage of renewables in our power generation portfolio in Japan	Nearly 50%	2031.3
		Contribution to developing renewables capacity on a global basis	5 GW
	2.5 GW		2024.3
	CO ₂ emissions reductions at customer sites and through the value chain	<ul style="list-style-type: none"> Promote carbon reduction and decarbonization through more widespread use of high efficiency, high value-added equipment with natural gas, renewable energy, etc. Efficient operation of LNG tankers and expanded use of low emission vehicles, etc. Provide environmental value through the dissemination of high-quality solutions in the fields of information, real estate, and materials 	Each year until 2031.3
Contribution to CO ₂ emissions reductions across society	Avoided emissions (t-CO ₂ e) (Including reductions contributed at customer sites and overseas)	10 million tons (baseline: FY2017.3)	2031.3

*Emissions in domestic supply chain (Scopes 1, 2 and 3) (Targets for FY2031.3 newly set in the "ET2030")