CDP

Scores

CDP Climate Change 2023 : A-

CDP Water Security 2023 : B

Responses to the CDP questionnaire

CDP Climate Change 2023 Questionnaire

C0. Introduction

C0.1

(C0.1) Give a general description and introduction to your organization.

Company Name: Tohoku Electric Power Co., Inc.
Established: May 1, 1951
Capital: 251.4 billion yen
Total Assets (as of March 31, 2022): 3,928.9 billion yen (consolidated: 4,725.6 billion yen)
Operating revenue (FY2021): 1,566.2 billion yen (consolidated: 2,104.4 billion yen)
Ordinary income (FY2021): -86.8 billion yen (consolidated: -49.2 billion yen)
Representatives (as of July 31, 2022)
- Representative Director & Chairman of the Board: Jiro Masuko
- Representative Director & President: Kojiro Higuchi

Number of shareholders (as of March 31, 2022): 189,131
Supply area: Prefectures of Aomori, Iwate, Akita, Miyagi, Yamagata, Fukushima, Niigata and others.
Number of employees (as of March 31, 2022): 4,927 (consolidated: 24,833)
Electricity sales (FY2021): Lighting (Residential) 20,990 GWh, Power: 46,356 GWh, Total: 67,346 GWh
* In April 2020, the Company was split into Tohoku Electric Power Co., Inc., which handles the power generation and retail sectors, and Tohoku Electric Power Network Co., Inc., which handles the power transmission and power distribution sectors.

C0.2

(C0.2) State the start and end date of the year for which you are reporting data and indicate whether you will be providing emissions data for past reporting years.

Reporting year

Start date

April 1, 2021

End date

March 31, 2022

Indicate if you are providing emissions data for past reporting years

No

C0.3

(C0.3) Select the countries/areas in which you operate.

Japan

C0.4

(C0.4) Select the currency used for all financial information disclosed throughout your response.

JPY

C0.5

(C0.5) Select the option that describes the reporting boundary for which climate-related impacts on your business are being reported. Note that this option should align with your chosen approach for consolidating your GHG inventory.

Other, please specify

Other (The scope of reporting includes Tohoku Electric Power Co., Inc. and its major subsidiary Tohoku Electric Power Network Co., Inc.)

C-EU0.7

(C-EU0.7) Which part of the electric utilities value chain does your organization operate in? Select all that apply.

Row 1

Electric utilities value chain

Electricity generation

Transmission

Distribution

Other divisions

Smart grids / demand response

C0.8

(C0.8) Does your organization have an ISIN code or another unique identifier (e.g., Ticker, CUSIP, etc.)?

Indicate whether you are able to provide a unique identifier for your organization	Provide your unique identifier
Yes, an ISIN code	JP3605400005

C1. Governance

C1.1

(C1.1) Is there board-level oversight of climate-related issues within your organization?

Yes

C1.1a

(C1.1a) Identify the position(s) (do not include any names) of the individual(s) on the board with responsibility for climate-related issues.

Position of individual or committee	Responsibilities for climate-related issues
Board Chair	The Representative Director & Chairman of the Board serves as the Board Chair. The Board Chair determines important matters of business execution related to climate change, receives regular reports on the status of business execution from Directors and supervises the execution of duties by Directors. For example, in the current Tohoku Electric Power Group's Medium-to Long-Term Vision "Working alongside next", we have set forth "Highlight 1: Change" as the focus of the Group's efforts to thoroughly strengthen competitiveness through drastic reforms of the power supply business. One focus area of our measures is to develop 2 million kW of renewable energy centered around the six Tohoku prefectures and Niigata prefecture. The Tohoku Electric Power Group's Medium-to Long-Term Vision "Working alongside next" has been approved by the Board of Directors, which is chaired by the Chairman of the Board. Progress on various measures, including "Promotion of the Renewable Energy Business," is reported at regular intervals to the Board of Directors; review, guidance, and other supervision is provided, where necessary.

C1.1b

(C1.1b) Provide further details on the board's oversight of climate-related issues.

Frequency with which climate-related issues are a scheduled agenda item	Governance mechanisms into which climate-related issues are integrated	Please explain
Scheduled - some meetings	Overseeing and guiding employee incentives	At the Board of Directors, important matters of business execution are determined, and reports on the status of business execution from Directors and execution of duties by Directors are mutually supervised. The Board of Directors will strengthen our response to

	Overseeing and guiding the development of a transition plan Reviewing and guiding the risk management process	climate change by examining climate-related risks, opportunities, and responses and incorporating the results into management strategy. Climate-related responses are reported to the Board of Directors annually through the Sustainability Promotion Council as a Tohoku Electric Power Group priority sustainability topic (materiality topic), following review of progress under an environmental management framework that consists of the Committee of Environmental Management and the Promotion Council of Carbon Neutrality and Environmental Management, the latter of which has a membership drawn from members of management on the business execution side. Each operating business section also submits proposals and reports to the Board as necessary on formulating and implementing business plans. In addition, a structure is in place for reporting climate-related risks having major impacts on management in particular to the Board of Directors twice a year, through an integrated risk management framework in combination with non-climate-related risks.

C1.1d

(C1.1d) Does your organization have at least one board member with competence on climate-related issues?

	Board member(s) have competence on climate-related issues	Criteria used to assess competence of board member(s) on climate-related issues
Row 1	Yes	To realize “Working alongside next,” the Tohoku Electric Power Group’s Medium- to Long-Term Vision, based on the policy on nomination of candidates for the Board of Directors we have identified as qualities and abilities required of Company Directors imagination, decisiveness, tenacity, sensitivity, and integrity. We also have identified clearly the skills required of Directors in the Skills Matrix. These constitute standards to ensure that Director nominees are selected through an objective and transparent process.

C1.2

(C1.2) Provide the highest management-level position(s) or committee(s) with responsibility for climate-related issues.

Position or committee

President

Climate-related responsibilities of this position

Developing a climate transition plan
Assessing climate-related risks and opportunities
Managing climate-related risks and opportunities

Coverage of responsibilities

Reporting line

Reports to the board directly

Frequency of reporting to the board on climate-related issues via this reporting line

Quarterly

Please explain.

As the chair of the Promotion Council of Carbon Neutrality and Environmental Management, which deliberates on companywide environmental management aiming for sustainable development along with local communities from a comprehensive perspective, the President bears ultimate responsibility for addressing climate change. In addition, under the Promotion Council of Carbon Neutrality and Environmental Management, the President has established a Committee of Environmental Management. Chaired by the Managing Executive Officer, this Committee deliberates on company-wide environmental management policies and plans, specific measures, and performance evaluations across various divisions; it also submits proposals and reports to the Promotion Council of Carbon Neutrality and Environmental Management.

C1.3

(C1.3) Do you provide incentives for the management of climate-related issues, including the attainment of targets?

	Provide incentives for the management of climate-related issues	Comment
Row 1	Yes	

C1.3a

(C1.3a) Provide further details on the incentives provided for the management of climate-related issues (do not include the names of individuals).

Entitled to incentive

Director on board

Type of incentive

Monetary reward

Incentive(s)

Bonus - % of salary

Performance indicator(s)

Energy efficiency improvement

Incentive plan(s) this incentive is linked to

Short-term and long-term incentive plan

Further details of incentive(s)

We aim to achieve the benchmark index (A index 1.00 or higher: an index that evaluates the degree of achievement of power generation efficiency for each fuel type (coal 41%, LNG 48%, oil 39%), and B index 44.3% or higher: an overall power generation efficiency that integrates power generation efficiency for each fuel type), which is the efficiency target for thermal power generation under the Japanese Energy Conservation Act. Efforts to improve the thermal efficiency of thermal power generation to achieve benchmark indices will contribute to the reduction of fuel costs and, in turn, the achievement of performance targets for consolidated cash income and will be linked to executive compensation.

Explain how this incentive contributes to the implementation of your organization's climate commitments and/or climate transition plan.

Efforts to improve the thermal efficiency of thermal power generation to achieve benchmark indices will contribute to the reduction of fuel costs and, in turn, the achievement of performance targets for consolidated cash income and will be linked to executive compensation.

Entitled to incentive

All employees

Type of incentive

Monetary reward

Incentive(s)

Provide further details.

Monetary awards and commendations

Performance indicator(s)

Implementation of employee awareness campaign or training program on climate-related issues

Incentive plan(s) this incentive is linked to

Short-term and long-term incentive plan

Further details of incentive(s)

We have established awards programs that grant monetary compensation to recognize outstanding efforts to prevent and respond to disasters and contributions in areas such as environmental activities.

These awards programs are intended to ensure mutual recognition of such efforts and attitudes, raise awareness of achievements internally, and promote similar efforts across the organization to encourage creativity and stimulate motivation to improve company performance.

Explain how this incentive contributes to the implementation of your organization's climate commitments and/or climate transition plan.

These awards programs are intended to ensure mutual recognition of such efforts and attitudes, raise awareness of achievements internally, and promote similar efforts across the organization to encourage creativity and raise motivation to improve company performance.

C2. Risks and opportunities

C2.1

(C2.1) Does your organization have a process for identifying, assessing, and responding to climate-related risks and opportunities?

Yes

C2.1a

(C2.1a) How does your organization define short-, medium- and long-term time horizons?

	From (years)	To (years)	Comment
Short-term	0	1	Fiscal year 2021 - 2022
Medium-term	1	3	Fiscal year 2022 - 2024
Long-term	3		Fiscal year 2024 -

C2.1b

(C2.1b) How does your organization define substantive financial or strategic impact on your business?

We will ensure stable earnings by thoroughly strengthening our competitiveness through structural reforms in the electricity supply business. At the same time, we will take on the challenge of a "business for realizing a smart society" and make major changes to our business model by strategically investing management resources. We have set a financial target of JPY 320 billion for consolidated cash income* by FY2024 with the aim of improving our ability to generate cash, which is necessary to achieve the transformation of our business model.

With regard to climate change impacts, we have incorporated into our valuation model certain assumptions based on comparable events, both internal and external, with reference to the scale of losses incurred due to past large-scale natural disasters. We define climate-related risks posing significant management risks as those involving risks at or above a certain monetary value. We have developed a structure for assessing climate-related risks that pose significant management risks as well as non-climate-related risks along the two axes of impact and importance. This structure also requires reports to be submitted to the Board of Directors as part of the integrated risk management framework. The goal of our integrated risk management is to cap risks to no more than the amount of our consolidated equity.
* Consolidated cash income = operating income + depreciation + amortization of nuclear fuel + share of profit of entities accounted for using equity method (operating income excludes the time lag effects of the fuel cost adjustment system)

C2.2

(C2.2) Describe your process(es) for identifying, assessing and responding to climate-related risks and opportunities.

Value chain stage(s) covered

Direct operations
Upstream
Downstream

Risk management process

Integrated into multi-disciplinary company-wide risk management process

Frequency of assessment

More than once a year

Time horizon(s) covered

Short-term
Medium-term
Long-term

Description of process

<Process applied to assess essential financial or strategic impacts from risks and opportunities>
We conduct annual surveys of short-, medium- and long-term "climate change risks and opportunities" to identify business and financial impacts. Specific processes include identifying climate-related risks and opportunities in each department and assessing the impact on the supervising department for each risk factor. Based on the scenario analysis, each supervisory department examines "possible changes in the external environment and unfavourable events," "the target and extent of damage to us derived from these events" and "the assumption of the financial loss amount of damage derived from them." Also, each supervisory department examines "countermeasures to avoid and mitigate the examined damages." In studying the Medium-Term Environmental

Plan, including responses to climate-related risks and opportunities, the Board of Directors exercises oversight by reviewing proposals and reports that emerge from the deliberations by the Committee of Environmental Management, which meets several times each year, and the Promotion Council of Carbon Neutrality and Environmental Management. Each operating business section also submits proposals and reports to the Board as necessary on the formulation and implementation of business plans.
In addition, as part of an interdisciplinary companywide integrated risk management framework, a structure is in place for reporting climate-related risks and other risks that pose significant management risks to the Board of Directors based on deliberations and study of risk response at the Integrated Risk Management Council chaired by the President. The Integrated Risk Management Council meets twice annually to provide guidance and advice on assessing the management of risks important to business administration and implementing and deploying risk-management activities, among other issues. The results of these deliberations are provided as feedback to each business execution section and related committees, including the Committee of Environmental Management, to enhance risk-management activities.

<Process applied to physical risks and opportunities>
Climate change risks that could have a significant impact on our operations include physical risks such as "sudden changes in rainfall" affecting our 205 hydroelectric plants, which is the largest number of this type of plants run by a company in Japan (on an individual company basis). Specifically, 60% of our hydroelectric power based on power capacity is mainly located in the Tadami River and Agano River water systems, which flow through the Niigata and Fukushima Aizu regions. In the event of a rapid change in precipitation in the region, there is a risk of serious equipment damage to the plants. We also have many hydroelectric power stations in rivers that are relatively short and steep on the Pacific Ocean side, and we recognize that there is a relatively high risk of equipment damage to those plants due to rapid changes in precipitation in these rivers. In addition to hydroelectric power plants, we have a large number of facilities throughout the Tohoku and Niigata regions, with a total of 223 power plants, transmission line facilities of 15,460 km in length and distribution line facilities of 149,120 km in length, exposing us to a wide range of physical risks.
To this end, each business section of the company identifies the impact on the supervising division for each risk factor based on data published by the Meteorological Agency and its Sendai Regional Headquarters (such as specific rainfall/snowfall data and future forecasts for the number of days on extreme heat and cold) as well as examples of disasters caused by major typhoons that we have experienced in the past. The magnitude of these impacts is assessed to the extent possible, and measures to deal with risks are examined.
In studying the Medium-Term Environmental Plan, including management of these risks and opportunities, the Committee of Environmental Management deliberates across divisions and then proposals and reports are submitted to the Board of Directors based on deliberations by the Promotion Council of Carbon Neutrality and Environmental Management.
In addition, a structure is in place for reporting climate-related risks that pose significant management risks in particular to the Board of Directors, through an interdisciplinary

companywide integrated risk management framework in combination with non-climate-related risks.

<Process applied to transition risks and opportunities>
If regulations to reduce GHG emissions are tightened in the future, we expect the importance and competitiveness of our 205 hydroelectric plants, which is the largest number of this type of plant run by a company in Japan (on an individual company basis), to rise. In addition, as stated in our Medium-to-Long-Term Vision "Working alongside next," we aim to achieve sustainable growth by improving the efficiency of thermal power generation (such as promoting development of the Joetsu Thermal Power Plant Unit No. 1, which aims to achieve the world's highest thermal efficiency, and discontinuing aging thermal power plants), developing 2 million kW of renewable energy, and commercializing VPPs.
For this reason, as with physical risks and opportunities, each business section identifies what impact each risk factor (such as tightening regulations on CO_2 emissions targets, expanding renewable energy introduction, and anticipated changes in customer behavior) has on the transition risks and opportunities of the supervising division. To the extent possible, the division assesses the magnitude of these impacts, and considers countermeasures for risks.
In studying the Medium-Term Environmental Plan, including management of risks and opportunities, the Committee of Environmental Management deliberates across divisions, then submits proposals and reports to the Board of Directors based on deliberations by the Promotion Council of Carbon Neutrality and Environmental Management, which is chaired by the President.
In addition, through an interdisciplinary companywide integrated risk management framework, a structure is in place for reporting climate-related risks that pose significant risks to management, in particular, to the Board of Directors in combination with non-climate-related risks.

C2.2a

(C2.2a) Which risk types are considered in your organization's climate-related risk assessments?

	Relevance & inclusion	Please explain
Current regulation	Relevant, always included	As for policies and regulations related climate change, we identify the risks that lead to an increase in electricity generation costs and a decrease in recoverability of investment on renewable energy projects due to tightening of current environmental regulations such as strengthening CO_2 emission targets and non-fossil ratio targets under the Act on Sophisticated Methods of Energy Supply Structures, adoption of the FIP system and phasing out of inefficient coal-fired power generation. In the process of formulating the Medium-Term Environmental Plan

		based on the framework of environmental management, we aggregate and list company-wide climate-related risks, which are extracted by each division in charge and evaluated by the degree of financial impact and grasp the priority of responses to each risk based on the degree of financial impact. The Board of Directors oversees studies of and deliberations on the Medium-Term Environmental Plan, including climate-related responses. The Promotion Council of Carbon Neutrality and Environmental Management, consisting of executive management personnel, and the Committee of Environmental Management submit proposals and reports to the Board based on deliberations in these bodies. Also, each division in charge makes proposals and reports to the Board of Directors as necessary regarding the formulation and implementation of business plans. In addition, we have established a mechanism for reporting climate-related risks, which have a particularly large impact on management, to the Board of Directors through an integrated risk management system, together with non-climate-related risks.
Emerging regulation	Relevant, always included	As for policies and regulations related to climate change, we seek to identify the risk of introducing new renewable energy systems and carbon pricing that would increase power generation costs, reductions in the investment recoverability of renewable power sources, and intensifying competition in the renewable energy business. In the process of formulating the Medium-Term Environmental Plan based on the framework of environmental management, we aggregate and list company-wide climate-related risks, which are extracted by each division in charge and evaluated by the degree of financial impact, and grasp the priority of responses to each risk based on the degree of financial impact. To discuss the Medium-Term Environmental Plan including responses to climate change, we have established the Committee of Environmental Management and the Promotion Council of Carbon Neutrality and Environmental Management, which consists of executive management teams. These committees propose and report to the Board of Directors after deliberation by the committees to receive its oversight. Also, each division in charge makes proposals and reports to the Board of Directors as necessary regarding the formulation and implementation of business plans. In addition, we have established a mechanism for reporting climate-related risks, which have a particularly large impact on management, to the Board of Directors through an integrated risk management system, together with non-climate-related risks.
Technology	Relevant, always included	We are examining risks such as a decrease in grid power demand due to the spread of distributed power sources, an increase in grid countermeasure costs, an increase in capital investment related to decarbonization technology and a decrease in power demand due to advances in energy-saving technology.

		In the process of formulating the Medium-Term Environmental Plan based on the framework of environmental management, we aggregate and list company-wide climate-related risks, including the Technology risk, which are extracted by each division in charge and evaluated by the degree of financial impact, and grasp the priority of responses to each risk based on the degree of financial impact. To discuss the Medium-Term Environmental Plan including responses to climate change, we have established the Committee of Environmental Management and the Promotion Council of Carbon Neutrality and Environmental Management, which consists of executive management teams. These committees propose and report to the Board of Directors after deliberation by the committees to receive its oversight. Also, each division in charge makes proposals and reports to the Board of Directors as necessary regarding the formulation and implementation of business plans. In addition, we have established a mechanism for reporting climate-related risks, which have a particularly large impact on management, to the Board of Directors through an integrated risk management system, together with non-climate-related risks.
Legal	Relevant, always included	We are considering the impact on our business performance and financial position in the event of resident litigations or shareholder lawsuits arise against hydroelectric power plants due to frequent heavy rain disasters and accompanying river flooding caused by climate change. We are aware of the relatively high risk associated with our hydroelectric power business, as we have the largest number of hydroelectric power plants in the country. In the process of formulating the Medium-Term Environmental Plan based on the framework of environmental management, we aggregate and list company-wide climate-related risks, including the Legal risk, which are extracted by each division in charge and evaluated by the degree of financial impact, and grasp the priority of responses to each risk based on the degree of financial impact. To discuss the Medium-Term Environmental Plan including responses to climate change, we have established the Committee of Environmental Management and the Promotion Council of Carbon Neutrality and Environmental Management, which consists of executive management teams. These committees propose and report to the Board of Directors after deliberation by the committees to receive its oversight. Also, each division in charge makes proposals and reports to the Board of Directors as necessary regarding the formulation and implementation of business plans. In addition, we have established a mechanism for reporting climate-related risks, which have a particularly large impact on management, to the Board of Directors through an integrated risk management system and process, together with non-climate-related risks.

Market	Relevant, always included	We see renewable energy as an integral component of its portfolio of power sources. As a responsible business operator in the six Tohoku prefectures and in Niigata prefecture, we will prioritize management resources with the aim of developing 2 million kW, centering on the six Tohoku prefectures and Niigata prefecture, by undertaking new development and business participation, while drawing on our accumulated expertise in hydroelectric, solar, geothermal, and biomass power, with a primary focus on wind power. With regard to risks facing the power generation business, we consider the potential financial impact should the numbers of participating operators in the renewable energy market increase; competition intensify; or demand for J-Credits and non-fossil fuel energy certificates increase due to progress towards a low carbon society, resulting in price increases. We are also considering as a risk to the power sales business the possibility of a decline in grid demand due to expanding distributed power sources. In the process of formulating the Medium-Term Environmental Plan based on the framework of environmental management, we aggregate and list company-wide climate-related risks, which are extracted by each division in charge and evaluated by the degree of financial impact, and grasp the priority of responses to each risk based on the degree of financial impact. To discuss the Medium-Term Environmental Plan including responses to climate change, we have established the Committee of Environmental Management and the Promotion Council of Carbon Neutrality and Environmental Management, which consists of executive management teams. These committees propose and report to the Board of Directors after deliberation by the committees to receive its oversight. Also, each division in charge makes proposals and reports to the Board of Directors as necessary regarding the formulation and implementation of business plans. In addition, we have established a mechanism for reporting climate-related risks, which have a particularly large impact on management, to the Board of Directors through an integrated risk management system and process, together with non-climate-related risks.
Reputation	Relevant, always included	In March 2021, we formulated Tohoku Electric Power Group Carbon Neutral Challenge 2050, under which we will tackle the challenge of achieving carbon neutrality by 2050 by accelerating reductions in CO_2 emissions, founded on the three pillars of maximum use of renewable energy and nuclear power, decarbonization of thermal power, and achieving electrification and a smart society. In addition, we are striving to halve FY2030 CO_2 emissions from FY2013 levels. We are considering the risk of negative evaluations by investors and other stakeholders if our response is delayed and targets not achieved as planned, despite changes in customer behaviour, such as growing demand for electricity from renewable energy sources and other low-

		carbon energy sources. We are also considering the risk of higher financing costs and a drop in stock prices if divestment from thermal power generation, for which no decarbonization efforts have been made, were to accelerate. In the process of formulating the Medium-Term Environmental Plan based on the framework of environmental management, we aggregate and list company-wide climate-related risks, which are extracted by each division in charge and evaluated by the degree of financial impact, and grasp the priority of responses to each risk based on the degree of financial impact. To discuss the Medium-Term Environmental Plan including responses to climate change, we have established the Committee of Environmental Management and the Promotion Council of Carbon Neutrality and Environmental Management, which consists of executive management teams. These committees propose and report to the Board of Directors after deliberation by the committees to receive its oversight. Also, each division in charge makes proposals and reports to the Board of Directors as necessary regarding the formulation and implementation of business plans. In addition, we have established a mechanism for reporting climate-related risks, which have a particularly large impact on management, to the Board of Directors through an integrated risk management system and process, together with non-climate-related risks.
Acute physical	Relevant, always included	The Typhoon No. 19, which occurred in 2019, suffered a financial loss of approximately JPY6.2 billion due to equipment damage, including flooding of hydroelectric power plant buildings, slope and collapse of utility poles because of record heavy rains and flooding of rivers. More frequent and severe natural disaster such as typhoons and heavy rains due to climate change may damage power generation facilities or transmission and distribution facilities, including those of other companies that we receive electricity, and cause a long-term power outage for some reasons other than facility damage. In order to prepare for such cases, we are studying the impact that we may receive in terms of our business performance and financial condition, resulting from issues including rising cost for restoring facilities and generating electricity. In the process of formulating the Medium-Term Environmental Plan based on the framework of environmental management, we aggregate and list company-wide climate-related risks, including the Acute physical risk, which are extracted by each division in charge and evaluated by the degree of financial impact, and grasp the priority of responses to each risk based on the degree of financial impact. To discuss the Medium-Term Environmental Plan including responses to climate change, we have established the Committee of Environmental Management and the Promotion Council of Carbon Neutrality and Environmental Management, which consists of executive management

		teams. These committees propose and report to the Board of Directors after deliberation by the committees to receive its oversight. Also, each division in charge makes proposals and reports to the Board of Directors as necessary regarding the formulation and implementation of business plans. In addition, we have established a mechanism for reporting climate-related risks, which have a particularly large impact on management, to the Board of Directors through an integrated risk management system and process, together with non-climate-related risks.
Chronic physical	Relevant, always included	The chronic physical risks of climate change include the risk of flooding in the event of a disaster due to sea level rise and the risk of drought if rainfall or snowfall declines. We are examining the risk of an increase in heatstroke due to the temperature rise and the impact on the electricity demand. We own 205 hydroelectric power plants in the six Tohoku prefectures and in Niigata prefecture. This is the largest scale of such ownership in Japan (for an individual company). Therefore, we are evaluating the financial impact, resulting from changes in the patterns of snowfall and rainfall, which largely affect the power output of hydroelectric power plant. Drought risk may reduce the power generated by hydroelectric power stations, which may in turn increase fuel costs. However, since certain adjustments are made in accordance with the system for "Provision of reserve for fluctuation in water levels," the impact on business performance appears likely to be limited. There is a risk that inland thermal power stations could be shut down due to restrictions on water intake for cooling in response to droughts. However, since our thermal power stations are located on the coast and mainly use seawater for cooling, it is considered highly unlikely that they would be impacted by such water intake restrictions. In the process of formulating the Medium-Term Environmental Plan based on the framework of environmental management, we aggregate and list company-wide climate-related risks, including the Chronic physical risk, which are extracted by each division in charge and evaluated by the degree of financial impact, and grasp the priority of responses to each risk based on the degree of financial impact. To discuss the Medium-Term Environmental Plan including responses to climate change, we have established the Committee of Environmental Management and the Promotion Council of Carbon Neutrality and Environmental Management, which consists of executive management teams. These committees propose and report to the Board of Directors after deliberation by the committees to receive its oversight. Also, each division in charge makes proposals and reports to the Board of Directors as necessary regarding the formulation and implementation of business plans.

C2.3

(C2.3) Have you identified any inherent climate-related risks with the potential to have a substantive financial or strategic impact on your business?

Yes

C2.3a

(C2.3a) Provide details of risks identified with the potential to have a substantive financial or strategic impact on your business.

Identifier

Risk 1

Where in the value chain does the risk driver occur?

Upstream

Risk type / Primary climate-related risk driver

Chronic physical

Changing precipitation patterns and types (rain, hail, snow/ice)

Primary potential financial impact

Increased direct costs

Company-specific description

Hydropower accounts for 14% of our total generating equipment capacity. Of these plants, 60 percent are concentrated along the Tadami River and Agano River waterways. These are among the areas in Japan associated with the heaviest snowfall. We recognize the relatively high risk of changing snowfall patterns. For example, should the annual snowfall pattern chronically change and power supply by hydroelectric power decline due to reduced snowfall and precipitation, fuel costs associated with the necessary increase in thermal power generation may increase, with concomitant adverse financial results.

Time horizon

Short-term

Likelihood

About as likely as not

Magnitude of impact

High

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

2,280,000,000

Potential financial impact figure - minimum (currency)

Potential financial impact figure - maximum (currency)

Explanation of financial impact figure

Droughts can lead to higher fuel costs (direct costs). The impact of a drought comparable to that in FY2021, when the water flow rate was negative, is estimated to be JPY2.28 billion: the product of roughly JPY600 million in fuel cost fluctuations corresponding to a 1% fluctuation in hydroelectric power generation (the impact on earnings per percent of the FY2021 water flow rate) multiplied by 3.8 (based on a water flow rate of 96.2% in FY2021, the most recent year in which the rate was negative [down 3.8% from the average year]).

JPY600 million/% × 3.8% = JPY2.28 billion

Cost of response to risk

20,600,000,000

Description of response and explanation of cost calculation

Status:

We own and operate 205 hydropower plants in six Tohoku prefectures and in Niigata prefecture. This is by far the largest number of plant holdings of this type operated by any company in Japan (on an individual company basis). Hydropower accounts for 14% of our total generating equipment capacity. Of these plants, 60 percent (capacity-based) are concentrated along the Tadami River and Agano River waterways.

Issues:

Tadami is among the areas in Japan associated with the heaviest snowfall. We recognize the relatively high risk of changing snowfall patterns. For example, should the annual snowfall pattern chronically change and power supply by hydroelectric power decline due to reduced snowfall and precipitation, fuel costs associated with the necessary increase in thermal power generation may increase, with concomitant adverse financial results.

Response:

By effectively utilizing water resources through the construction and renewal of hydroelectric power plants, we are improving power generation efficiency without changing the amount of water used. By doing so, we are mitigating the risk of increase in fuel costs due to the increase in thermal power generation operation during drought to the extent possible. For example, the Kanose power plant had been aging so a large-scale renewal work was carried out on the power plant, and the construction was completed in September 2017.

In addition, a certain amount of financial impact will be adjusted by the "reserve for drought system" in preparation for an increase in fuel costs in the case of a drought.

Results:

By decreasing the number of turbine generator from 6 to 2 and adopting a highly efficient vertical valve turbine, we have achieved a maximum output increase of about 10% (49,500 to 54,200kW) without changing the amount of water used.
Estimated cost of response:
The risk response cost of JPY20.6 billion includes the book value increase of JPY19.5 billion for hydroelectric power generation facilities in FY2017 and the reversal of reserve for drought in FY2017 of JPY1.1 billion.
JPY19.5 billion (FY2017 increase in book value of hydroelectric power facilities) + JPY1.1 billion (FY2017 drought reserves amount) = JPY20.6 billion

Comment

Identifier

Risk 2

Where in the value chain does the risk driver occur?

Direct operations

Risk type / Primary climate-related risk driver

Acute physical
Cyclone, hurricane, typhoon

Primary potential financial impact

Increased indirect (operating) costs

Company-specific description

We have numerous facilities located across the Tohoku and Niigata regions, and operate a total of 223 power plants, 15,460 km of power transmission lines, and 149,120 km of power distribution lines. In recent years, the frequency of typhoons making landfall in the Tohoku region, once rare, has increased, and the power of these typhoons is growing. In October 2019, Typhoon No. 19 damaged various facilities, inundating hydroelectric power plant buildings and causing the tilting and collapse of utility poles following record heavy rains and flooding of rivers. These events resulted in power outage for some 144,724 households in six prefectures in Tohoku and Niigata prefecture. At the same time, since the area has numerous locations well suited to wind power and other renewable energy sources, demand is growing for direct connections of such facilities to the power grid.
In the event of equipment damage, long-term power outages and large-scale power outages due to further intensification of natural disasters caused by climate change (increasing frequency of major typhoons, for example), our business performance and financial position may be affected by the growing cost of equipment repairs and alternative fuel.

Time horizon

Short-term

Likelihood

About as likely as not

Magnitude of impact

High

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

6,200,000,000

Potential financial impact figure - minimum (currency)

Potential financial impact figure - maximum (currency)

Explanation of financial impact figure

The financial impact of JPY6.2 billion is based on the amounts recorded as extraordinary loss during Typhoon No. 19 in FY2019, the event that accounted for the greatest amount of damage over the past five years. (Breakdown: Book value equivalent of lost assets JPY550 million, disaster recovery costs for damaged equipment JPY5,648 million.) We expect a similar financial impact in the event of a typhoon on the same scale as Typhoon No. 19 in FY2019.

Cost of response to risk

1,022,000,000

Description of response and explanation of cost calculation

Status: We operate numerous facilities across the Tohoku and Niigata regions, exposing us to physical risks across a wide geographical area. The Tohoku and Niigata area, where we supply power, includes numerous sites ideally suited to wind power and other renewable energy; for this reason, we have received growing numbers of requests for connection to our power transmission lines.
Issues: We are exposed to a wide range of physical risks. Nevertheless, we are committed to our mission of delivering a stable supply of electric power.
Response: We are constantly striving to improve our ability to respond to emergencies through training and skill competitions so that we can respond quickly and accurately to damage to distribution equipment caused by natural disasters such as typhoons. At the competition, we add sudden events that is not informed to participants in advance to the items and try to improve the ability of each competition participants to respond to the situation.
We are also taking measures to mitigate the negative impact on our business performance and financial position by utilizing non-life insurance. Risk response costs of JPY1.022 billion include estimated training costs of JPY294 million and casualty insurance premiums of JPY728 million for FY2021. Since these training costs are included in those for the network department, the estimated cost for the training is calculated by multiplying companywide training costs of JPY501 million in FY2021 by

the personnel ratio of the network department (58.7%), for convenience.
In the above cost calculation, the total of individual costs and the total of all costs may not match due to rounding.
Results: Such initiatives help enhance disaster resilience and our capacity to recover from a disaster. As indicators, we monitor the average time until recovery from a single power failure, annual average duration of power failures per user, and annual average number of power failures per user.
Estimated cost of response:
JPY501 million (companywide training cost) × 58.7% (personnel ratio of the network department) = JPY294 million (estimated training costs)
JPY728 million (FY2021 casualty insurance premiums) + JPY294 million (estimated training costs) = JPY1.022 billion

Comment

Identifier

Risk 3

Where in the value chain does the risk driver occur?

Upstream

Risk type / Primary climate-related risk driver

Market
Increased cost of raw materials

Primary potential financial impact

Increased direct costs

Company-specific description

If the global warming countermeasure tax on fossil fuels is increased more than expected because of climate change, there is a risk that fuel costs will rise. We also recognize that the environment surrounding fuel procurement is undergoing major changes as there is a global movement toward divestment from fossil fuels, especially coal-related businesses.
Thermal power based on fossil fuels such as coal, oil, and gas accounts for 85.7% of the power we generate. This figure exceeds the nationwide average of 72.9% given in national energy supply-demand figures.

Time horizon

Short-term

Likelihood

About as likely as not

Magnitude of impact

High

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

106,000,000,000

Potential financial impact figure - minimum (currency)

Potential financial impact figure - maximum (currency)

Explanation of financial impact figure

The fuel cost adjustment system makes it possible to reduce the risk of fuel cost price fluctuations. It calculates the fuel cost adjustment unit price two months later based on the three-month average value (average fuel price) of the fuel price and reflects it in the monthly electricity price. Due to fluctuations in fuel prices, there will be a time lag between the reflection of fuel costs (expense) and fuel cost adjustments (electricity tariff income), which will cause a temporary increase or decrease in profits. We assume JPY106.0 billion for the potential financial impact, accounting for the time lag due to the fuel cost adjustment system enacted in FY2021. We anticipate a similar financial impact in the event of fuel-price fluctuations equivalent to those in FY2021.

Cost of response to risk

1,125,000,000

Description of response and explanation of cost calculation

Status:
Thermal power based on fossil fuels such as coal, oil, and gas accounts for 85.7% of the power we generate. This figure exceeds the nationwide average of 72.9% given in national energy supply-demand figures.
Issues:
If the global warming countermeasure tax on fossil fuels is increased more than expected because of climate change, there is a risk that fuel costs will rise. We also recognize that the environment surrounding fuel procurement is undergoing major changes as there is a global movement toward divestment from fossil fuels, especially coal-related businesses. For these reasons, our business performance and financial position may be impacted by fluctuations in CIF prices and exchange rates for coal, LNG, and heavy/crude oil.
Response:
In considering the development of renewable energy sources as a medium- to long-term growth strategy, the Group is accelerating related development efforts based on the pillars of accelerating new development, capitalizing on existing power sources, and pursuing new business opportunities.
Results:
Since issuing our first green bonds in FY2019, we have aggressively promoted green finance. In FY2021, seeking to diversify fundraising methods in light of the scope and period of development of each green project, we began raising funds through green

loans, implementing a total of four green loans. We issued our third Tohoku Electric Power Green Bonds in June 2022. As with the previous bonds, these green bonds have been granted CBI certification based on a rigorous third-party certification process. These bonds specify that the funds raised will be used for new investments in and refinancing of projects related to renewable energy development, construction, operation, and renovation. The green bonds raised JPY10 billion.
In addition, the book value of our new energy power generation facilities, including capital investments in renewable energy power generation facilities, was up JPY1.125 billion in FY2021.
The financial impact is indicated by the increase in book value of new energy and similar power-generating facilities in FY2021. Amounts raised through green loans in FY2021 are excluded in the scope of disclosure.
Estimated cost of response:
The increase in book value of new energy and similar power-generation facilities in FY2021, including capital investments in renewable energy power-generation facilities, was JPY1.125 billion.

Comment

C2.4

(C2.4) Have you identified any climate-related opportunities with the potential to have a substantive financial or strategic impact on your business?

Yes

C2.4a

(C2.4a) Provide details of opportunities identified with the potential to have a substantive financial or strategic impact on your business.

Identifier

Opp1

Where in the value chain does the opportunity occur?

Direct operations

Opportunity type

Markets

Primary climate-related opportunity driver

Access to new markets

Primary potential financial impact

Increased revenues through access to new and emerging markets

Company-specific description

The Tohoku and Niigata areas, regions to which we supply electric power, have some of the largest renewable energy reserves in Japan. We have worked steadily to make effective use of renewable energy, including through use of the 205 hydroelectric power plants in our possession—the largest number in Japan (on an individual company basis). This region offers significant potential for the development of renewable energy; the coast from Aomori through Akita prefectures has been designated a promotion zone and potential zone for offshore wind power under the Act on Promoting the Utilization of Sea Areas for the Development of Marine Renewable Energy Power Generation Facilities. Furthermore, in the Tohoku Electric Power Group's medium- to long-term vision "Working alongside next," we are aiming to develop 2 million kW of renewable energy and expand the development of renewable energy, particularly wind power. Projections call for an expanding non-fossil value trading market and advancing institutional transitions, which are expected to help reveal the true extent of the non-fossil value associated with our business. Should the demand for non-fossil value increase, new markets, including the non-fossil value trading market, will expand further. By entering this market, we expect to increase sales from non-fossil certificates—in short, to expand business opportunities given the significant potential for the development of renewable energy in our region.

Time horizon

Long-term

Likelihood

About as likely as not

Magnitude of impact

High

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

2,500,000,000

Potential financial impact figure - minimum (currency)

Potential financial impact figure - maximum (currency)

Explanation of financial impact figure

JPY2.50 billion is calculated by multiplying 8,326 GWh of electricity generated by our renewable energy power plants in FY2021 (hydropower, wind power, solar power, geothermal) by JPY0.3/kWh, the lowest contract price on the renewables value trading market.

Cost to realize opportunity

100,000,000,000

Strategy to realize opportunity and explanation of cost calculation

Status:
The area we serve in the Tohoku and Niigata regions has one of the largest amounts of renewable energy reserves in Japan. We own the largest number of hydroelectric power plants in Japan (on a single-company basis) at 205 locations. As such, our potential for adoption of renewable energy is high. We consider this high potential, as the non-fossil fuel value trading market and demand for non-fossil fuel value grow, to be a business opportunity.
Issues:
To leverage these renewable energy-related business opportunities, we must adopt renewable energy power-generation facilities. To be an enterprise responsible for renewable energy reserves in the six Tohoku prefectures and Niigata Prefecture, we need to participate in new development and business projects based mainly on wind power but also including hydroelectric, solar, geothermal, and biomass power generation.
Response:
We are striving to develop 2 million kW of capacity soon after FY2030, centered on the six Tohoku prefectures and Niigata Prefecture.
Results:
These efforts have already begun. As of the end of March 2023, the development projects in which we participate have a total output capacity of some 650 kW.
Cost to realize opportunity:
The cost to realize opportunity is the amount invested in these efforts to develop renewable energy sources through 2030. We expect this to be JPY100 billion.

Comment

Identifier

Opp2

Where in the value chain does the opportunity occur?

Direct operations

Opportunity type

Energy source

Primary climate-related opportunity driver

Use of new technologies

Primary potential financial impact

Reduced direct costs

Company-specific description

It is conceivable that the improvement of thermal power plant efficiency will be further promoted by the progress of climate change countermeasures and the growing need for

low-carbon power sources. Thermal power stations based on fossil fuels such as coal, oil, gas account for 85.7% of all of the power we generate. This exceeds the industry average. For thermal power generation, improved thermal efficiency is crucial both to promoting economic efficiency and reducing environmental burdens. Efficiency contributes not just to the reduced fossil fuel consumption and efficient use of energy resources, but to reductions in CO_2 emissions. The Joetsu Thermal Power Station, with thermal efficiency of 63% or more and its world-leading ranking as gas combined cycle power generation facility, and Noshiro Thermal Power Station Unit No. 3, boasting a world-beating thermal efficiency of some 46% (low calorific value standard) for coal-based power generation facility, together provide opportunities to overcome the competition and generate inexpensive, stable power to support the reconstruction and development of the region, thus we are actively introducing our thermal power generation technology to capitalize on this high thermal efficiency.

Time horizon

Medium-term

Likelihood

About as likely as not

Magnitude of impact

High

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

7,900,000,000

Potential financial impact figure - minimum (currency)

Potential financial impact figure - maximum (currency)

Explanation of financial impact figure

The financial impact amount of JPY7.9 billion represents the reduction in fossil fuel costs in FY2019 associated with the commencement of operations at Noshiro Thermal Power Plant's Unit No. 3. Noshiro Thermal Power Plant's Unit No. 3 can reduce fuel costs by about 3% compared to existing Unit Nos. 1 and 2.

Cost to realize opportunity

20,281,000,000

Strategy to realize opportunity and explanation of cost calculation

Status:

It is conceivable that the improvement of thermal power plant efficiency will be further promoted by the progress of climate change countermeasures and the growing need for low-carbon power sources.

Issues:
Thermal power stations based on fossil fuels such as coal, oil, gas account for 85.7% of all of the power we generate. This exceeds the industry average. For thermal power generation, improved thermal efficiency is crucial both to promoting economic efficiency and reducing environmental burdens. Efficiency contributes not just to the reduced fossil fuel consumption and efficient use of energy resources, but to reductions in CO_2 emissions.
Response:
Under the Group's Medium-to Long-Term Vision, "Working alongside next," which aims to create a corporate group that contributes to the realization of a new smart society originating in Tohoku and grows alongside sustainable development of society, the Group aims to "steadily promote the development of Joetsu Thermal Power Plant's Unit No. 1, which aims to achieve the world's highest thermal efficiency, and to further strengthen the competitiveness of power sources and respond to changes in supply and demand associated with the expansion of the introduction of renewable energy sources by considering and implementing the shutdown of aging thermal power plants, which are not environmentally friendly or economically efficient."
Results:
Noshiro Thermal Power Plant's Unit No. 3, which began commercial operation in FY2019, achieved the world's highest level of thermal efficiency of approximately 46% (lower heating value standard) as a power generation facility that uses coal by adopting the ultra-super critical pressure method and improving steam. Completed in FY2022, the Joetsu Thermal Power Station introduced next generation gas turbines that adopt the economical and environmentally-friendly forced air cooling combustor system, and achieved a thermal efficiency of at least 63%, world-leading performance for a gas combined cycle power generation facility.
Cost to realize opportunity:
We are unable to disclose the scale of the investment, which constitutes the cost of realizing the opportunity, since this involves sensitive management information. However, we estimate this to be similar to the increase in the book value of steam power generation facilities in FY2021 of JPY20.281 billion. Steam power is power generated by steam created by burning fossil fuels.

Comment

Identifier
Opp3

Where in the value chain does the opportunity occur?
Direct operations

Opportunity type
Products and services

Primary climate-related opportunity driver

Development and/or expansion of low emission goods and services

Primary potential financial impact

Increased revenues through access to new and emerging markets

Company-specific description

Among Japan's regions, the Tohoku and Niigata region, where the Tohoku Electric Power Group's businesses are based, is often regarded as a bellwether of the societal consequences of population decline, an aging society, and declining birth rates. In the Group's Medium-to Long-Term Vision "Working alongside next," which addresses our aspirations for the 2030s, we define a "smart society" as a comfortable, safe, and reliable society in which we can address and resolve, by applying next-generation digital technologies and innovations, the societal issues associated with population decline, low-birth rate, and aging society emerging in various fields, like transportation, education, and welfare.

We are pursuing a number of new businesses to realize a "smart society." In particular, we are focusing on two business domains: next generation energy and electricity plus services.

With regard to next generation energy, we will contribute to decarbonatization of society while growing the business domains of next generation energy services through providing services that capitalize on the region’s diverse energy resources using VPP technology and providing installation services for distributed renewable energy sources and storage batteries.

To capitalize on the region’s diverse energy resources, we engage in market trading of power based on virtual power plant (VPP) technology to consolidate customers’ distributed energy resources, and provide a share of the gains to customers. We’re continuing to make progress on the promotion and effective use of renewable energy in various ways. We launched a renewable energy aggregation service in 2022 to support renewable energy generation businesses in accordance with supply and demand conditions.

Tohoku EPCO Solar e Charge established in April 2021 provides installation services for distributed renewable energy sources and storage batteries under the name of Aozora Charge Service. Specifically, mainly in newly built detached houses, we install solar power generation equipment and storage batteries without any upfront costs. The customer is required to pay a fixed monthly fee only. In return, we provide a service that gives reliable access to clean electricity and to generated and stored power in the event of a disaster or emergency. These businesses will enable the development of low-emission products and services, providing an opportunity to increase our sales.

Time horizon

Long-term

Likelihood

About as likely as not

Magnitude of impact

High

Are you able to provide a potential financial impact figure?

Yes, an estimated range

Potential financial impact figure (currency)

Potential financial impact figure - minimum (currency)

3,500,000,000

Potential financial impact figure - maximum (currency)

5,300,000,000

Explanation of financial impact figure

The figure is based on preliminary projections of total sales in FY2030 (for a single fiscal year) for the two businesses (next-generation energy services and installation services for distributed energy and storage batteries described above) under the assumption that growing demand for low-carbon energy will result in a certain degree of growth and dissemination of solar power generation facilities, storage batteries, and EVs and that demand for our services will emerge in some of these areas. The figure is an estimated range of JPY3.5 billion to JPY5.3 billion due to uncertainty of market trends.

Cost to realize opportunity

2,700,000,000

Strategy to realize opportunity and explanation of cost calculation

Status:
Among Japan's regions, the Tohoku and Niigata region, where the Tohoku Electric Power Group's businesses are based, is often regarded as a bellwether of the societal consequences of population decline, an aging society, and declining birth rates.
Issues:
In the Group's Medium-to Long-Term Vision "Working alongside next," which addresses our aspirations for the 2030s, we define a "smart society" as a comfortable, safe, and reliable society in which we can address and resolve, by applying next-generation digital technologies and innovations, the societal issues associated with population decline, low-birth rate, and aging society emerging in various fields, like transportation, education, and welfare. We are pursuing a number of new businesses to realize a "smart society." In particular, we are focusing on two business domains: next generation energy and electricity plus services.
Response:
With regard to next generation energy, we will contribute to decarbonatization of society while growing the business domains of next generation energy services through providing services that capitalize on the region’s diverse energy resources using VPP technology and providing installation services for distributed renewable energy sources and storage batteries.
Results:
With regard to services that capitalize on the region’s diverse energy resources, we engage in market trading of power adjusted through a demand-response system based on VPP technology. We’re also accelerating development of energy management

services for household customers and a renewable energy aggregation service (described below).
To provide installation services for distributed energy and storage batteries, we established Tohoku Electric Power Solar e Charge in April 2021. Under a third-party ownership model, this company installs solar power generation equipment and storage batteries for community households without any upfront costs. These services, enabled through synergies with Tohoku Electric Power Frontier Co., Ltd., which plays a central role in smart-society building businesses, will help toward comfortable, safe, and secure living for our customers.
In order to realize a smart society, we will develop marketing methods that meet customer needs, such as awareness of improving resilience and heightened environmental awareness due to the frequent occurrence of disasters in recent years, and develop technologies that can control various resources through business other than those mentioned above. We will realize early commercialization and then grow our business over the medium to long term.
Cost to realize opportunity:
Based on the results anticipated for the above initiatives, we project expenses in the smart society business of approximately JPY2.3 billion to JPY3.1 billion as of FY2030, of which the cost of realized opportunity of JPY2.7 billion is the median.

* Example of services that capitalize on the region's diverse energy resources
As a specific example of these services, since 2019 we have used a demand-response system for corporate resources such as factories to participate in bidding in the adjustment power source I', capacity market auction for 2024, and are considering entering the supply-demand adjustment market. In the future, we will test demand-response services for households to control household storage batteries remotely in response to factors such as power market price fluctuation and severe supply and demand conditions. Through these efforts, we will help encourage adoption of storage batteries, aiming to operate tens of thousands of cells in the future to assist with decarbonization. With the scaling back of the FIT program and the adoption of the FIP program in FY2022, renewable energy generation businesses are obligated to provide services in accordance with balancing rules. In FY2022, we began offering supply-demand operation support services (renewable energy aggregation services) in areas such as power generation forecasts for renewable energy generation businesses.
Demand is growing for corporate PPAs as a means of renewable energy procurement by corporate customers through long-term contracts with renewable energy generation businesses. We will grow orders received by using our renewable energy aggregation technologies to meet these needs as well. We believe these efforts will contribute to promoting and making effective use of renewable energy.

Comment

C3. Business strategy

C3.1

(C3.1) Does your organization's strategy include a climate transition plan that aligns with a 1.5°C world?

Row 1

Climate transition plan

Yes, we have a climate transition plan which aligns with a 1.5°C world.

Publicly available climate transition plan

Yes

Mechanism by which feedback is collected from shareholders on your climate transition plan

We have a different feedback mechanism in place.

Description of feedback mechanism

The officers responsible meet twice a year with major shareholders to brief them individually on the details of financial results, including the transition plan. These meetings make it possible to incorporate shareholder opinions into management strategies.
In addition, we post video and documents on Company financial results to the website for individual investors, and these include contact telephone numbers through which we can receive feedback.

Frequency of feedback collection

More frequently than annually

Attach any relevant documents which detail your climate transition plan (optional)

C3.2

(C3.2) Does your organization use climate-related scenario analysis to inform its strategy?

	Use of climate-related scenario analysis to inform strategy
Row 1	Yes, qualitative and quantitative

C3.2a

(C3.2a) Provide details of your organization's use of climate-related scenario analysis.

Climate-related scenario	Scenario analysis coverage	Temperature alignment of scenario	Parameters, assumptions, analytical choices
Transition scenarios IEA NZE 2050	Company-wide		We announced our support for TCFD in April 2019. While using climate scenarios such as the IEA2050 Net Zero Scenario as transition risk scenarios and RCP8.5 and other representative climate scenarios (e.g., 2°C, 4°C, and 1.5°C scenarios) as physical risk scenarios in accordance with the scenario analysis methods presented in TCFD's recommendations, we are currently seeking to identify companywide risks and opportunities related to climate change and to analyse their impact over the medium-to long-term time horizon of 2050 and beyond. In the 1.5°C and 2°C scenario, which entail a large transition risk, we assumed that measures would be taken to realize a carbon-free society and that thermal power sources would shrink due to policies, markets, and other factors, while low-carbonization of electricity and electrification would greatly advance. In this scenario, rises in the cost of CO_2 emissions due to policies, markets, and other factors could reduce the competitiveness of conventional power sources and adversely affect us financially. In terms of measures and opportunities to respond to this, we intend to mitigate the adverse financial impact and generate profits by taking on the challenges of "low-carbonization of electricity"; supplying electricity with superior economic efficiency and environmental performance in virtue of improving the efficiency of thermal power and expanding the development of renewable energy, and by promoting electrification, including for mobility, through switching to a variety of service provider businesses and promoting digital innovation.
Physical climate scenarios RCP 8.5	Company-wide		Under the 4°C scenario, where physical risks are high, the impact of climate change is conspicuous. We assumed that the importance of electricity supply resilience would increase due to anticipated damage to our facilities and supply interruptions due to frequent and severe weather disasters as acute risks, as well as the potential impact to hydroelectric power generation due to changes in precipitation

			and snowfall patterns as chronic risks. Under this scenario, climate change could adversely affect our finances by causing damage to our facilities and expanding impacts on electricity supply. However, we believe that adverse financial impacts can be mitigated, and profit generated through actions such as making facilities more resilient, improving recovery responsiveness and considering business opportunities utilizing distributed energy.
Transition scenarios Customized publicly available transition scenario	Company-wide	Unknown	We conduct our business in compliance with the Act on Rationalizing Energy Use, which was formulated by Japan based on the NDC and stipulates standards for new thermal power plants, etc. and benchmarks for the efficiency of thermal power generation, as well as the Act on Sophisticated Methods of Energy Supply Structures, which requires retailers to achieve the annual target of 44% for the ratio of non-fossil fuel power sources in 2030 and the annual interim targets up to that point. For 2030, we are analysing and making assumptions according to these regulations based on the NDC, such as examining the power mix consistent with the energy mix assuming S+3E in the power generation sector in Japan. This has an impact on our medium-to long-term strategic decisions.

C3.2b

(C3.2b) Provide details of the focal questions your organization seeks to address by using climate-related scenario analysis, and summarize the results with respect to these questions.

Row 1

Focal questions

<Transition risks>

Thermal power using fossil fuels such as coal, oil, and gas accounts for 85.7% of the power we generate. This figure exceeds the nationwide average of 72.9% given in national energy supply-demand figures. We must also confront the issue of improving the efficiency of region-specific energy use. As one example, kerosene accounts for a large share of the composition of emissions by energy type in the household sector in the Tohoku area, where heavy snowfall and cold weather are typical.

In responding to these transition risks, we must accelerate CO_2 emissions reductions and promote technological development under Tohoku Electric Power Group Carbon Neutral Challenge 2050. In light of such challenges, we are implementing initiatives

based on three pillars: making maximum use of renewable energy and nuclear power; thermal power decarbonization; and achieving electrification and a smart society.
<Physical risks>
We operate 223 power plants, 15,460 km of power transmission lines, and 149,120 km of power distribution lines. We operate the most extensive network of overhead power transmission lines and largest number of pylons of any general power distribution business in Japan. We are exposed to a broad range of physical risks. In responding to physical risks, we must improve our electric power resilience. We will strive to make power sources and supply facilities more robust and recoverable.

Results of the climate-related scenario analysis with respect to the focal questions

Under the 1.5°C and 2°C scenarios, which anticipate increasing transition risks, we anticipate significant progress in decarbonizing power sources in various ways, including reducing thermal power generation using coal and other fossil fuels, as part of measures to achieve a carbon zero society. At the same time, we expect business opportunities resulting from factors such as the growth in market share in low- and zero-carbon products and services, including renewable energy sources, growing demand for electricity resulting from higher rates of electrification, including EV use, lower cost of renewable energy power generation facilities, and progress and growing adoption of technologies in areas such as storage cells and CCUS.
Under the 4°C scenario, which anticipates considerable physical risk, we expect more damage to our facilities and obstacles to power supply due to more frequent and severe climate-related disasters, acute risks attributable to climate change.
Based on the above, our main initiatives to date are outlined below.
March 2021: announced the Tohoku Electric Power Group Carbon Neutral Challenge 2050
July 2021: set the target of halving FY2030 CO_2 emissions compared to FY2013 level
August 2021: joined Niigata Higashiminato biomass power generation project (planned to commence commercial operation in October 2024)
December 2022: opened Office of Corporate PPA to promote use of renewable energy through distributed energy services
December 2022: began commercial operation of Noshirominato Offshore Wind Farm, Japan's first large-scale offshore wind farm
Under the Tohoku Electric Power Group Carbon Neutral Challenge 2050, in addition to decarbonizing thermal power sources, we will accelerate CO_2 emission reductions by maximal use of renewable energy and nuclear power generation as well as developing smart-society building businesses.

C3.3

(C3.3) Describe where and how climate-related risks and opportunities have influenced your strategy.

	Have climate-related risks and opportunities influenced your strategy in this area?	Description of influence
Products and services	Yes	Climate risks and opportunities are reflected in the business fields of various services provided to customers and strategies for realizing them in the Tohoku Electric Power Group's Medium-to Long-Term Vision "Working alongside next," which expresses our aspirations for the 2030s. Specifically, in the FY2021 Group Medium-Term Plan, which outlines measures for realizing this vision, we focus on positioning renewable energy as a power source that will play a part in our future power source portfolio under Highlight 1 and formulating a strategy to develop services that reflect customers' environmental needs by utilizing renewable energy under Highlight 2. The following example illustrates efforts under these strategies. [Tokyu Setagaya Line (light railway)] In March 2019, together with Tokyu Corporation and Tokyu Power Supply Co., Ltd., we realized the operation of the Setagaya Line with 100% renewable energy generated solely from hydro and geothermal power. This initiative was the first in Japan to run all trains of an urban railway track using 100% renewable energy. The Setagaya Line, which previously emitted 1,263 tons of CO_2, equivalent to about 0.5 units of the Tokyo Dome in one year, has been operated as "Japan's first urban commuter train with zero CO_2 emissions." Through this initiative, which serves as an advanced example of the use of renewable energy in Japan, the three companies will continue to promote sustainable urban development and work toward further enhancing the value of areas along the rail line. [Offering electricity rate plans to deliver renewable energy from public hydropower] We have established new plans to deliver (CO_2-free) renewable energy from public hydropower generation in Iwate, Akita, and Yamagata prefectures. Specifically, we offer the following electricity rate plans with environmental added value to corporate and other customers

		receiving high-voltage and special-high-voltage power supplies in Iwate, Akita, and Yamagata prefectures: • Iwate Recovery Power Hydropower Premium (limited to business sites in Iwate Prefecture) • Akita E-Ne! Option 100% Hydropower (limited to business sites in Akita Prefecture) • Yamagata Hydropower Premium (limited to business sites in Yamagata Prefecture) Businesses and other companies using these plans receive power generated by hydropower plants operated by the enterprise bureau of each prefecture, by paying rates corresponding to the environmental value and other value provided in addition to current electricity rates. Hydropower does not generate any CO_2 emissions during power generation. For this reason, businesses and other companies using these plans are able to realise a level of zero CO_2 emissions from electricity use and contribute to local production and local consumption of renewable energy in their regions through designation of the power plants where the power they use is generated.
Supply chain and/or value chain	Yes	It affected the collaboration in the supply chain, especially the strategy for the efficient upgrading of the transmission and distribution network outlined in the Tohoku Electric Power Group's Medium-to Long-Term Vision "Working alongside next" which is our aspiration for the 2030s. The following is an example of a major strategic decisions aimed at this. [Low-loss wire with fins with Kitanihon Electric Cable] We have jointly developed a low-loss wire with fins with Kitanihon Electric Cable Co., Ltd., a wire supplier, to reduce the environmental impact of electricity transportation, including the reduction of CO_2 emissions, and to build electric power infrastructures that can withstand the severe climates caused by snowfall in the six prefectures of Tohoku and Niigata prefecture. We are expanding the introduction of these low-loss wires. "Low-loss wire with fins" can reduce electrical resistance by 20% or more and contribute to CO_2 emission control by reducing power loss during power transmission. In addition, "low-loss wire with fins" is shaped to inhibit snow adhesion and prevent equipment damage caused by snow accretion during winter, thereby contributing to a stable supply of electric power. Expanded deployment is also

		expected to have the effect of increasing resilience to large-scale disasters. "Low-loss wire with fins" is measured by the installation volume (thousand km), and the status of introduction is monitored on an ongoing basis.
Investment in R&D	Yes	The Company has formulated strategies based on changes in the business environment, such as the conversion of renewable energy into a mainstay power source and the expansion of distributed energy, and is actively investing in research and development in order to realize the Tohoku Electric Power Group's Medium-to Long-Term Vision "Working alongside next" which is our aspiration for the 2030s. As renewable energy is becoming increasingly popular, it is important to work on upgrading power networks to adapt to changes in supply and demand. The following is an example of a major strategic decision aimed at this. [Solar Demand Forecast, R&D Report] Recognizing the risks and opportunities of climate change, the Company actively invests in research and development related to climate change. For example, with growing interest in renewable energy, solar power generation (PV) interconnections are expanding. However, since PV is characterized by instantaneous and large fluctuations in output depending on the weather, there are concerns that if a large volume of PV is introduced into the power system, it may affect aspects of power quality and supply and demand operations. For this reason, we have studied methods for estimating and predicting the accuracy of solar radiation, which has a significant impact on PV output, and methods for estimating and predicting PV output, and developed a system for estimating the solar power output of the entire Tohoku region. The results of numerous other studies are available on our website. Reference: https://www.tohoku-epco.co.jp/rdcenter/
Operations	Yes	This affected our strategies for upgrading our power network to realize a smart society in the Tohoku Electric Power Group's Medium-to Long-Term Vision "Working alongside next" which is our aspiration for the 2030s. The use of transmission and distribution facilities and smart meter data

		allows us to upgrade the operational aspects of our power network. As an example of our main strategic decisions aimed at this, we made the decision to install smart meters for all customers in our service area by the end of FY2023. With the introduction of renewable energy and the proliferation of distributed energy, we will consider ways to efficiently build facilities and grid operation adapted to changes in supply and demand, as well as work to upgrade our power networks to realize a smart society. In addition, we will consider and develop new businesses by utilizing transmission and distribution facilities and smart meter data.

C3.4

(C3.4) Describe where and how climate-related risks and opportunities have influenced your financial planning.

	Financial planning elements that have been influenced	Description of influence
Row 1	Access to capital	To realize our medium-to long-term financial strategy, in February 2020, the Company became the first ex-general electric utility to issue a green bond, the Tohoku Electric Power Green Bond, from the viewpoint of expanding the renewable energy business and securing diverse funding. The use of proceeds of this green bond is limited to businesses that improve the environment in Japan and overseas, such as the development of renewable energy. The green bond had an issue amount of JPY5 billion and will mature in 10 years. In addition, the Company issued the "Second Tohoku Electric Power Green Bond" in September 2020, of which the issue amount is JPY10 billion and maturity period is 10 years, and the "Third Tohoku Electric Power Green Bond" in June 2022, of which the issue amount is JPY10 billion and maturity period is 10 years. We aim to develop 2 million kW of renewable energy, mainly from wind power generation, in the six Tohoku prefectures and Niigata prefecture. Funds procured through the Tohoku Electric Power Green Bond will be used primarily for this project. In addition, the status of the use of proceeds and the effects of environmental improvements such as annual CO_2 reductions associated with the introduction of renewable energy is published in the Group's annual Integrated Report. The issuance of the Tohoku Electric Power Green Bond has been evaluated and verified by DNV GL Business Assurance Japan K.K. (DNV

		GL), a third-party evaluation organization, for compliance with various standards related to the issuance of green bonds. In addition, we were the first ex-general electric utility to acquire certification from the CBI (Climate Bonds Initiative), an international NGO that sets strict standards for ensuring the reliability and transparency of green bonds. In recent years, there has been a growing trend among shareholders and institutional investors, particularly in terms of medium-to long-term corporate growth potential and sustainability, toward companies seeking non-financial ESG management that emphasizes corporate ethics and legal compliance, environmental conservation considerations, and contributes to the development of local communities, in addition to their financial status. Given these circumstances, we are strengthening our ESG management initiatives and will continue to actively engage in the renewable energy business and further promote ESG management.

C3.5

(C3.5) In your organization's financial accounting, do you identify spending/revenue that is aligned with your organization's climate transition?

	Identification of spending/revenue that is aligned with your organization's climate transition
Row 1	Yes, we identify alignment with our climate transition plan.

C3.5a

(C3.5a) Quantify the percentage share of your spending/revenue that is aligned with your organization's climate transition.

Financial metric

CAPEX

Type of alignment being reported for this financial metric

Alignment with our climate transition plan

Taxonomy under which information is being reported

Objective under which alignment is being reported

Amount of selected financial metric that is aligned in the reporting year (unit currency as selected in C0.4)

1,125,000,000

Percentage share of selected financial metric aligned in the reporting year (%)

2.34

Percentage share of selected financial metric planned to align in 2025 (%)

Percentage share of selected financial metric planned to align in 2030 (%)

Describe the methodology used to identify spending/revenue that is aligned

This is identified from the figure of JPY1.125 billion in increased book value of new energy and other power generation facilities in the statement of changes in fixed assets during the term included in the FY2021 Financial Report. The ratio is calculated against the increase in book value of electric utility plant and equipment of JPY48.135 billion.

C4. Targets and performance

C4.1

(C4.1) Did you have an emissions target that was active in the reporting year?

Absolute target

C4.1a

(C4.1a) Provide details of your absolute emissions target(s) and progress made against those targets.

Target reference number

Abs 1

Is this a science-based target?

No, and we do not anticipate setting one in the next two years.

Target ambition

Year target was set

2020

Target coverage

Company-wide

Scope(s)

Scope 1

Scope 3

Scope 2 accounting method

Scope 3 category(ies)

Category 3: Fuel- and energy-related activities (not included in Scope 1 or 2)

Base year

2013

Base year Scope 1 emissions covered by target (metric tons CO_2e)

36,777,400

Base year Scope 2 emissions covered by target (metric tons CO_2e)

Base year Scope 3, Category 1: Purchased goods and services emissions covered by target (metric tons CO_2e)

Base year Scope 3, Category 2: Capital goods emissions covered by target (metric tons CO_2e)

Base year Scope 3, Category 3: Fuel- and energy-related activities (not included in Scope 1 or 2) emissions covered by target (metric tons CO_2e)

13,167,550

Base year Scope 3, Category 4: Upstream transportation and distribution emissions covered by target (metric tons CO_2e)

Base year Scope 3, Category 5: Waste generated in operations emissions covered by target (metric tons CO_2e)

Base year Scope 3, Category 6: Business travel emissions covered by target (metric tons CO_2e)

Base year Scope 3, Category 7: Employee commuting emissions covered by target (metric tons CO_2e)

Base year Scope 3, Category 8: Upstream leased assets emissions covered by target (metric tons CO_2e)

Base year Scope 3, Category 9: Downstream transportation and distribution emissions covered by target (metric tons CO_2e)

Base year Scope 3, Category 10: Processing of sold products emissions covered by target (metric tons CO_2e)

Base year Scope 3, Category 11: Use of sold products emissions covered by target (metric tons CO_2e)

Base year Scope 3, Category 12: End-of-life treatment of sold products emissions covered by target (metric tons CO_2e)

Base year Scope 3, Category 13: Downstream leased assets emissions covered by target (metric tons CO_2e)

Base year Scope 3, Category 14: Franchises emissions covered by target (metric tons CO_2e)

Base year Scope 3, Category 15: Investments emissions covered by target (metric tons CO_2e)

Base year Scope 3 other (upstream) emissions (metric tons CO_2e)

Base year Scope 3 other (downstream) emissions covered by target (metric tons CO_2e)

Base year total Scope 3 emissions covered by target (metric tons CO_2e)

13,167,550

Total base year emissions covered by target in all selected Scopes (metric tons CO_2e)

49,944,950

Base year Scope 1 emissions covered by target as % of total base year emissions in Scope 1

100

Base year Scope 2 emissions covered by target as % of total base year emissions in Scope 2

Base year Scope 3, Category 1: Purchased goods and services emissions covered by target as % of total base year emissions in Scope 3, Category 1: Purchased goods and services (metric tons CO_2e)

Base year Scope 3, Category 2: Capital goods emissions covered by target as % of total base year emissions in Scope 3, Category 2: Capital goods (metric tons CO_2e)

Base year Scope 3, Category 3: Fuel- and energy-related activities (not included in Scope 1 or 2) emissions covered by target as % of total base year emissions in Scope 3, Category 3: Fuel- and energy-related activities (not included in Scope1 or 2) (metric tons CO_2e)

100

Base year Scope 3, Category 4: Upstream transportation and distribution emissions covered by target as % of total base year emissions in Scope 3, Category 4: Upstream transportation and distribution (metric tons CO_2e)

Base year Scope 3, Category 5: Waste generated in operations emissions covered by target as % of total base year emissions in Scope 3, Category 5: Waste generated in operations (metric tons CO_2e)

Base year Scope 3, Category 6: Business travel emissions covered by target as % of total base year emissions in Scope 3, Category 6: Business travel (metric tons CO_2e)

Base year Scope 3, Category 7: Employee commuting emissions covered by target as % of total base year emissions in Scope 3, Category 7: Employee commuting (metric tons CO_2e)

Base year Scope 3, Category 8: Upstream leased assets emissions covered by target as % of total base year emissions in Scope 3, Category 8: Upstream leased assets (metric tons CO_2e)

Base year Scope 3, Category 9: Downstream transportation and distribution emissions covered by target as % of total base year emissions in Scope 3, Category 9: Downstream transportation and distribution (metric tons CO_2e)

Base year Scope 3, Category 10: Processing of sold products emissions covered by target as % of total base year emissions in Scope 3, Category 10: Processing of sold products (metric tons CO_2e)

Base year Scope 3, Category 11: Use of sold products emissions covered by target as % of total base year emissions in Scope 3, Category 11: Use of sold products (metric tons CO_2e)

Base year Scope 3, Category 12: End-of-life treatment of sold products emissions covered by target as % of total base year emissions in Scope 3, Category 12: End-of-life treatment of sold products (metric tons CO_2e)

Base year Scope 3, Category 13: Downstream leased assets emissions covered by target as % of total base year emissions in Scope 3, Category 13: Downstream leased assets (metric tons CO_2e)

Base year Scope 3, Category 14: Franchises emissions covered by target as % of total base year emissions in Scope 3, Category 14: Franchises (metric tons CO_2e)

Base year Scope 3, Category 15: Investments emissions covered by target as % of total base year emissions in Scope 3, Category 15: Investments (metric tons CO_2e)

Scope 3: Other (upstream) emissions covered by target as % of total base year emissions in Scope 3: Other (upstream) (metric tons CO_2e)

Scope 3: Other (downstream) emissions covered by target as % of total base year emissions in Scope 3: Other (downstream) (metric tons CO_2e)

Base year Scope 3 emissions covered by target as % of total base year emissions in Scope 3 (in all Scope 3 categories)

100

Base year emissions covered by target in all selected Scopes as % of total base year emissions in all selected Scopes

100

Target year

2050

Targeted reduction from base year (%)

100

Total emissions in target year covered by target in all selected Scopes (metric tons CO_2e) [auto-calculated]

0

Scope 1 emissions in reporting year covered by target (metric tons CO_2e)

32,815,000

Scope 2 emissions in reporting year covered by target (metric tons CO_2e)

Scope 3, Category 1: Purchased goods and services emissions in reporting year covered by target (metric tons CO_2e)

Scope 3, Category 2: Capital goods emissions in reporting year covered by target (metric tons CO_2e)

Scope 3, Category 3: Fuel- and energy-related activities (not included in Scope 1 or 2) emissions in reporting year covered by target (metric tons CO_2e)

13,130,000

Scope 3, Category 4: Upstream transportation and distribution emissions in reporting year covered by target (metric tons CO_2e)

Scope 3, Category 5: Waste generated in operations emissions in reporting year covered by target (metric tons CO_2e)

Scope 3, Category 6: Business travel emissions in reporting year covered by target (metric tons CO_2e)

Scope 3, Category 7: Employee commuting emissions in reporting year covered by target (metric tons CO_2e)

Scope 3, Category 8: Upstream leased assets emissions in reporting year covered by target (metric tons CO_2e)

Scope 3, Category 9: Downstream transportation and distribution emissions in reporting year covered by target (metric tons CO_2e)

Scope 3, Category 10: Processing of sold products emissions in reporting year covered by target (metric tons CO_2e)

Scope 3, Category 11: Use of sold products emissions in reporting year covered by target (metric tons CO_2e)

Scope 3, Category 12: End-of-life treatment of sold products emissions in reporting year covered by target (metric tons CO_2e)

Scope 3, Category 13: Downstream leased assets emissions in reporting year covered by target (metric tons CO_2e)

Scope 3, Category 14: Franchises emissions in reporting year covered by target (metric tons CO_2e)

Scope 3, Category 15: Investments emissions in reporting year covered by target (metric tons CO_2e)

Scope 3: Other (upstream) emissions in reporting year covered by target (metric tons CO_2e)

Scope 3: Other (downstream) emissions in reporting year covered by target (metric tons CO_2e)

Total Scope 3 emissions in reporting year covered by target (metric tons CO_2e)

13,130,000

Total emissions in reporting year covered by target in all selected Scopes (metric tons CO_2e)

45,946,000

Does this target cover any land-related CO_2 emissions?

No, it does not cover any land-related emissions (e.g., non-FLAG SBT).

% of target achieved relative to base year [auto-calculated]

8.0067153936

Target status in reporting year

Underway

Please explain target coverage and identify any exclusions.

Targets are companywide with no exclusions.

Plan for achieving target, and progress made to the end of the reporting year

On March 24, 2021, we formulated the Tohoku Electric Power Group Carbon Neutral Challenge 2050 as our long-term course of action for achieving carbon neutrality.
The Group considers countering global warming to be an important management topic, and through now we have proactively strived to reduce CO_2 emissions through means including development of renewable energy and improving the efficiency of thermal power generation in addition to promoting use of eco-friendly electric heat pumps.
Under the Tohoku Electric Power Group Carbon Neutral Challenge 2050, the Group is accelerating efforts to reduce CO_2 emissions centred on maximum utilisation of renewable energy and nuclear power and realising a smart society in addition to decarbonization of thermal power.
Specifically, we aim to achieve swiftly our target of development of 2 million kW of renewable energy, for which the Tohoku and Niigata regions have a wealth of reserves, and to grow this amount further, mainly through wind power generation. In addition, we also will make progress in areas such as advances in the power network, use of storage cells, and use of hydrogen, in order to expand adoption of renewable energy.
We also will strive to achieve more advanced energy management and put distributed energy to effective use in communities, through deployment of smart society businesses including VPP services. Through these initiatives, we aim to accelerate CO_2 emissions reductions in the Group and contribute to reductions on the part of customers in the Tohoku and Niigata region and elsewhere.
The Group will take on the challenge of carbon neutrality proactively to realise a sustainable society as a company grounded in close ties to our communities and customers.

List the emissions reduction initiatives which contributed most to achieving this target

Target reference number

Abs 2

Is this a science-based target?

No, and we do not anticipate setting one in the next two years.

Target ambition

Year target was set

2021

Target coverage

Company-wide

Scope(s)

Scope 1

Scope 3

Scope 2 accounting method

Scope 3 category(ies)

Category 3: Fuel- and energy-related activities (not included in Scope 1 or 2)

Base year

2013

Base year Scope 1 emissions covered by target (metric tons CO_2e)

36,777,400

Base year Scope 2 emissions covered by target (metric tons CO_2e)

Base year Scope 3, Category 1: Purchased goods and services emissions covered by target (metric tons CO_2e)

Base year Scope 3, Category 2: Capital goods emissions covered by target (metric tons CO_2e)

Base year Scope 3, Category 3: Fuel- and energy-related activities (not included in Scope 1 or 2) emissions covered by target (metric tons CO_2e)

13,167,550

Base year Scope 3, Category 4: Upstream transportation and distribution emissions covered by target (metric tons CO_2e)

Base year Scope 3, Category 5: Waste generated in operations emissions covered by target (metric tons CO_2e)

Base year Scope 3, Category 6: Business travel emissions covered by target (metric tons CO_2e)

Base year Scope 3, Category 7: Employee commuting emissions covered by target (metric tons CO_2e)

Base year Scope 3, Category 8: Upstream leased assets emissions covered by target (metric tons CO_2e)

Base year Scope 3, Category 9: Downstream transportation and distribution emissions covered by target (metric tons CO_2e)

Base year Scope 3, Category 10: Processing of sold products emissions covered by target (metric tons CO_2e)

Base year Scope 3, Category 11: Use of sold products emissions covered by target (metric tons CO_2e)

Base year Scope 3, Category 12: End-of-life treatment of sold products emissions covered by target (metric tons CO_2e)

Base year Scope 3, Category 13: Downstream leased assets emissions covered by target (metric tons CO_2e)

Base year Scope 3, Category 14: Franchises emissions covered by target (metric tons CO_2e)

Base year Scope 3, Category 15: Investments emissions covered by target (metric tons CO_2e)

Base year Scope 3 other (upstream) emissions (metric tons CO_2e)

Base year Scope 3 other (downstream) emissions covered by target (metric tons CO_2e)

Base year total Scope 3 emissions covered by target (metric tons CO_2e)

13,167,550

Total base year emissions covered by target in all selected Scopes (metric tons CO_2e)

49,944,950

Base year Scope 1 emissions covered by target as % of total base year emissions in Scope 1

100

Base year Scope 2 emissions covered by target as % of total base year emissions in Scope 2

Base year Scope 3, Category 1: Purchased goods and services emissions covered by target as % of total base year emissions in Scope 3, Category 1: Purchased goods and services (metric tons CO_2e)

Base year Scope 3, Category 2: Capital goods emissions covered by target as % of total base year emissions in Scope 3, Category 2: Capital goods (metric tons CO_2e)

Base year Scope 3, Category 3: Fuel- and energy-related activities (not included in Scope 1 or 2) emissions covered by target as % of total base year emissions in Scope 3, Category 3: Fuel- and energy-related activities (not included in Scope 1 or 2) (metric tons CO_2e)

100

Base year Scope 3, Category 4: Upstream transportation and distribution emissions covered by target as % of total base year emissions in Scope 3, Category 4: Upstream transportation and distribution (metric tons CO_2e)

Base year Scope 3, Category 5: Waste generated in operations emissions covered by target as % of total base year emissions in Scope 3, Category 5: Waste generated in operations (metric tons CO_2e)

Base year Scope 3, Category 6: Business travel emissions covered by target as % of total base year emissions in Scope 3, Category 6: Business travel (metric tons CO_2e)

Base year Scope 3, Category 7: Employee commuting emissions covered by target as % of total base year emissions in Scope 3, Category 7: Employee commuting (metric tons CO_2e)

Base year Scope 3, Category 8: Upstream leased assets emissions covered by target as % of total base year emissions in Scope 3, Category 8: Upstream leased assets (metric tons CO_2e)

Base year Scope 3, Category 9: Downstream transportation and distribution emissions covered by target as % of total base year emissions in Scope 3, Category 9: Downstream transportation and distribution (metric tons CO_2e)

Base year Scope 3, Category 10: Processing of sold products emissions covered by target as % of total base year emissions in Scope 3, Category 10: Processing of sold products (metric tons CO_2e)

Base year Scope 3, Category 11: Use of sold products emissions covered by target as % of total base year emissions in Scope 3, Category 11: Use of sold products (metric tons CO_2e)

Base year Scope 3, Category 12: End-of-life treatment of sold products emissions covered by target as % of total base year emissions in Scope 3, Category 12: End-of-life treatment of sold products (metric tons CO_2e)

Base year Scope 3, Category 13: Downstream leased assets emissions covered by target as % of total base year emissions in Scope 3, Category 13: Downstream leased assets (metric tons CO_2e)

Base year Scope 3, Category 14: Franchises emissions covered by target as % of total base year emissions in Scope 3, Category 14: Franchises (metric tons CO_2e)

Base year Scope 3, Category 15: Investments emissions covered by target as % of total base year emissions in Scope 3, Category 15: Investments (metric tons CO_2e)

Scope 3: Other (upstream) emissions covered by target as % of total base year emissions in Scope 3: Other (upstream) (metric tons CO_2e)

Scope 3: Other (downstream) emissions covered by target as % of total base year emissions in Scope 3: Other (downstream) (metric tons CO_2e)

Base year Scope 3 emissions covered by target as % of total base year emissions in Scope 3 (in all Scope 3 categories)

100

Base year emissions covered by target in all selected Scopes as % of total base year emissions in all selected Scopes

100

Target year

2030

Targeted reduction from base year (%)

50

Total emissions in target year covered by target in all selected Scopes (metric tons CO_2e) [auto-calculated]

24,972,475

Scope 1 emissions in reporting year covered by target (metric tons CO_2e)

32,815,000

Scope 2 emissions in reporting year covered by target (metric tons CO_2e)

Scope 3, Category 1: Purchased goods and services emissions in reporting year covered by target (metric tons CO_2e)

Scope 3, Category 2: Capital goods emissions in reporting year covered by target (metric tons CO_2e)

Scope 3, Category 3: Fuel- and energy-related activities (not included in Scopes 1 or 2) emissions in reporting year covered by target (metric tons CO_2e)

13,130,000

Scope 3, Category 4: Upstream transportation and distribution emissions in reporting year covered by target (metric tons CO_2e)

Scope 3, Category 5: Waste generated in operations emissions in reporting year covered by target (metric tons CO_2e)

Scope 3, Category 6: Business travel emissions in reporting year covered by target (metric tons CO_2e)

Scope 3, Category 7: Employee commuting emissions in reporting year covered by target (metric tons CO_2e)

Scope 3, Category 8: Upstream leased assets emissions in reporting year covered by target (metric tons CO_2e)

Scope 3, Category 9: Downstream transportation and distribution emissions in reporting year covered by target (metric tons CO_2e)

Scope 3, Category 10: Processing of sold products emissions in reporting year covered by target (metric tons CO_2e)

Scope 3, Category 11: Use of sold products emissions in reporting year covered by target (metric tons CO_2e)

Scope 3, Category 12: End-of-life treatment of sold products emissions in reporting year covered by target (metric tons CO_2e)

Scope 3, Category 13: Downstream leased assets emissions in reporting year covered by target (metric tons CO_2e)

Scope 3, Category 14: Franchises emissions in reporting year covered by target (metric tons CO_2e)

Scope 3, Category 15: Investments emissions in reporting year covered by target (metric tons CO_2e)

Scope 3: Other (upstream) emissions in reporting year covered by target (metric tons CO_2e)

Scope 3: Other (downstream) emissions in reporting year covered by target (metric tons CO_2e)

Total Scope 3 emissions in reporting year covered by target (metric tons CO_2e)

13,130,000

Total emissions in reporting year covered by target in all selected scopes (metric tons CO_2e)

45,946,000

Does this target cover any land-related CO_2 emissions?

% of target achieved relative to base year [auto-calculated]

16.0134307873

Target status in reporting year

Underway

Please explain target coverage and identify any exclusions.

Targets are companywide with no exclusions.

Plan for achieving target, and progress made to the end of the reporting year

In July 2021, we decided to advance practical measures such as feasibility studies and research on decarbonization of thermal power, with the goal of reducing CO_2 emissions in FY2030 while also enhancing our study and promotion structures to accelerate further our initiatives toward achievement of the Carbon Neutral Challenge 2050.

Specific examples are provided below.

• To accelerate initiatives toward realization of carbon neutrality, we have established the Promotion Council of Carbon Neutrality and Environmental Management, which is chaired by the President, and set up the Carbon-Neutral / Environmental Strategy Unit to consider and draft strategies inside the Group strategy section, in order to enhance our structures for related study and promotion.

• Seeking to reduce CO_2 emissions in FY2030, we have set a target for that year of halving the level from FY2013.

• To decarbonize thermal power, we will promote the activities of feasibility testing of mixed burning of hydrogen and ammonia at the Niigata Thermal Power Station, feasibility testing of mixed burning of black pellets at the Noshiro Thermal Power Station, and research on CO_2-methane conversion.

In addition to measures such as these initiatives related to decarbonization of thermal power, we intend to continue accelerating CO_2 emissions reductions by promoting maximum utilisation of renewable energy and nuclear power and realising electrification and a smart society.

The Group will take on the challenge of carbon neutrality proactively to realise a sustainable society as a company grounded in close ties to our communities and customers.

List the emissions reduction initiatives which contributed most to achieving this target

C4.2

(C4.2) Did you have any other climate-related targets that were active in the reporting year?

Target(s) to increase low-carbon energy consumption or production

Net-zero target(s)

C4.2a

(C4.2a) Provide details of your target(s) to increase low-carbon energy consumption or production.

Target reference number
Low 1

Year target was set
2015

Target coverage
Company-wide

Target type: energy carrier
Electricity

Target type: activity
(Production of raw materials)

Target type: energy source
Low-carbon energy source(s)

Base year
2015

Consumption or production of selected energy carrier in base year (MWh)
8,796,000

% share of low-carbon or renewable energy in base year
19

Target year
2030

% share of low-carbon or renewable energy in target year
44

% share of low-carbon or renewable energy in reporting year
21

% of target achieved relative to base year [auto-calculated]
8

Target status in reporting year
Underway

Is this target part of an emissions target?

No, this target is not part of the emission target because it is a non-fossil fuel power supply ratio target. However, we believe that an increase in the ratio of non-fossil fuel power sources will directly contribute to the reduction of our emissions.

Is this target part of an overarching initiative?

No, it's not part of an overarching initiative.

Please explain target coverage and identify any exclusions.

Targets are companywide with no exclusions.

Plan for achieving target, and progress made to the end of the reporting year

As part of our efforts to reduce CO_2 emissions in order to realize a low-carbon society, the entire Group will work together to achieve the 44% or more ratio of non-fossil fuel power sources by FY2030 stipulated in the Act on Sophisticated Methods of Energy Supply Structures. While aiming to expand the use of non-fossil fuel energy in supply, such as the utilization of nuclear power, with safety assured as a major prerequisite, and the utilization of renewable energy, we will continue to promote initiatives in both demand and supply, based on the pursuit of an optimal power source structure from the viewpoint of "S+3E."

List the actions which contributed most to achieving this target.

C4.2c

(C4.2c) Provide details of your net-zero target(s).

Target reference number

NZ1

Target coverage

Company-wide

Absolute/intensity emission target(s) linked to this net-zero target

Int1

Target year for achieving net zero

2050

Is this a science-based target?

No, and we do not anticipate setting one in the next 2 years.

Please explain target coverage and identify any exclusions.

Targets are companywide with no exclusions.

Do you intend to neutralize any unabated emissions with permanent carbon removals at the target year?

Yes

Planned milestones and/or near-term investments for neutralization at target year

In March 2021, the Tohoku Electric Power Group announced the "Tohoku Electric Power Group Carbon Neutral Challenge 2050" as a long-term direction toward the realization of carbon neutrality in 2050. Under this goal, in addition to decarbonizing thermal power sources, we will accelerate CO_2 emission reductions by focusing on maximizing the use of renewable energy and nuclear power generation as well as developing smart-society building businesses. In addition, in July 2021 we set the target of halving FY2030 CO_2 emissions compared to FY2013 levels, as an interim goal toward achieving carbon neutrality.

Specifically, we will actively take on the challenge of carbon neutrality through the following initiatives:

• Aim to achieve early achievement and further expansion of 2 million kW development primary focus on wind power generation in order to maximize the use of renewable energy,

• Implement stable and efficient operation of nuclear power generation with a top priority on safety,

• Contribution to expanding the introduction of renewable energy through the sophistication of electric power networks, storage batteries and hydrogen utilization,

• For thermal power generation, actively work on technological development such as practical application of hydrogen / ammonia power generation and examination of CCUS and

• Promote the sophistication of energy management by introducing digital technology and aiming for effective utilization of distributed energy in the region through the development of smart-society building businesses (such as implementation of VPP services).

Planned actions to mitigate emissions beyond your value chain (optional)

C4.3

(C4.3) Did you have emissions reduction initiatives that were active within the reporting year? Note that this can include those in the planning and/or implementation phases.

Yes

C4.3a

(C4.3a) Identify the total number of initiatives at each stage of development, and for those in the implementation stages, the estimated CO_2e savings.

	Number of initiatives	Total estimated annual CO_2e savings in metric tons CO_2e (only for rows marked *)
Under investigation	0	0
To be implemented*	6	0
Implementation commenced*	0	0
Implemented*	1	94.65
Not to be implemented	0	0

C4.3b

(C4.3b) Provide details on the initiatives implemented in the reporting year in the table below.

Initiative category / Initiative type

Energy efficiency in production processes
Machine/equipment replacement

Estimated annual CO_2e savings (metric tons CO_2e)

94.65

Scope(s) or Scope 3 category(ies) where emissions savings occur

Scope 1

Voluntary/ Mandatory

Voluntary

Annual monetary savings (unit currency – as specified in C0.4)

2,296,408

Investment required (unit currency – as specified in C0.4)

10,339,000,000

Payback period

21-25 years

Estimated lifetime of the initiative

21-30 years

Comment

We are replacing power generation facilities to curb CO_2 emissions and reduce power generation costs. For example, in FY2021 we carried out construction to replace the water turbines at the Yokogawa Power Station in order to put water resources to more effective use. Work began in December 2021 with output increased by 200 kW from 1,800 kW to 2,000 kW. The improved power generating efficiency makes it possible to

produce more low-carbon hydroelectric power than before the replacement, as well as an estimated yearly CO_2e emissions reduction of 214,618 kWh × 0.000441 t-CO_2/kWh (using FY2021 emission factors by power company [substitute value]).
The decrease in annual expenses is estimated roughly by assuming power generation costs. Annual power generating capacity is some 214,618 kWh/year × JPY10.7/kWh.*
Since the investment amount includes sensitive information in terms of management, we answered by providing the book value increase of hydroelectric power generation equipment in 2021 of JPY10.339 billion. For the payback period, the useful life of depreciable assets under tax law was used.
* Estimated using the 2020 figure for LNG power generation costs from the Power Generation Cost Working Group, assuming that power generated from this initiative would reduce LNG power generation.

C4.3c

(C4.3c) What methods do you use to drive investment in emissions reduction activities?

Method	Comment
Compliance with regulatory requirements/standards	Make investment decisions in consideration of national policy trends and regulations imposed or expected to be imposed to businesses.

C4.5

(C4.5) Do you classify any of your existing goods and/or services as low-carbon products?

Yes

C4.5a

(C4.5a) Provide details of your products and/or services that you classify as low-carbon products.

Level of aggregation

Product or service

Taxonomy used to classify product(s) or service(s) as low-carbon

Green Bond Principles (ICMA)

Type of product(s) or service(s)

Power

Hydropower

Description of product(s) or service(s)

[Supplying electricity from 100% renewables]

We have 205 hydropower plants, the largest number of any single company in Japan, and we believe that these plants play very important roles in supplying environmental value to our customers, as clean, CO_2-free energy sources. We offer Eco-Denki Premium services as an option for household users to supply electricity from renewable sources—our hydropower and geothermal power plants—in exchange for payment of rates corresponding to CO_2-free power (i.e., power that generates zero CO_2 emissions) in addition to our standard rates. This makes it possible to achieve a level of zero CO_2 emissions from the customer's use of electricity. In addition, in response to rising corporate demand for environmental value (e.g., CO_2 emissions reductions, SDG performance, and RE100 compatibility) in recent years, in cooperation with Iwate, Akita, and Yamagata prefectures we offer rate plans utilising prefecture-operated hydropower plants. These rate plans enable customers to achieve a level of zero CO_2 emissions from their use of electricity through supply of power from specific hydropower plants in each prefecture, in exchange for payment of rates corresponding to the environmental value achieved in addition to our standard rates. Companies purchasing power under these plans are able to realise publicity benefits from local production and local consumption of renewable energy and use of hydropower from each prefecture. We also offer Yori, Sou Energy-saving Electricity services that supply corporate users with CO_2-free hydroelectric and geothermal power from the Company and Group members. These renewable energy options have been certified by the Ministry of the Environment as eligible for its subsidies for 100% renewable energy options.

In addition, since March 25, 2019 in cooperation with Tokyu Power Supply Co., Ltd. we have been supplying energy from 100% renewable sources, generated solely from hydropower and geothermal power, to the Tokyu Setagaya Line (light railway) operated by Tokyu Corporation. This initiative became Japan's first example of operation of an urban railway line running 100% on renewable energy, for all vehicles on a full-year basis.

Under the Tohoku Electric Power Group's Medium-to Long-Term Vision "Working alongside next," our goal aims to develop the capacity to generate 2 million kW of renewable energy as early as possible in the 2030s. We regard this as a key business opportunity. We are using green bonds and green loans to raise the funds needed to achieve this goal. For example, with the Tohoku Electric Power Green Bonds issued in February 2020, we became the first of the former general electric power businesses to issue green bonds. The green bond had an issue amount of JPY5 billion and will mature in 10 years. In addition, the Company issued the "Second Tohoku Electric Power Green Bond" in September 2020, of which the issue amount is JPY10 billion and maturity period is 10 years, and the "Third Tohoku Electric Power Green Bond" in June 2022, of which the issue amount is JPY10 billion and maturity period is 10 years.

We are also raising funds through green loans, which are restricted to funding eco-friendly projects in areas such as renewable energy development. For example, in February 2023, we raised funds through green loans for use in covering costs related to construction at the Tamagawa No. 2 Hydroelectric Power Plant (located in Yamagata Prefecture; maximum output 14,640 kW), a facility operated by Group member company

Tohoku Sustainable & Renewable Energy Co., Inc.

Have you estimated the avoided emissions of this low-carbon product(s) or service(s)

No

Methodology used to calculate avoided emissions

Life cycle stage(s) covered for the low-carbon product(s) or services(s)

Functional unit used

Reference product/service or baseline scenario used

Life cycle stage(s) covered for the reference product/service or baseline scenario

Estimated avoided emissions (metric tons CO_2e per functional unit) compared to reference product/service or baseline scenario

Explain your calculation of avoided emissions, including any assumptions.

Revenue generated from low-carbon product(s) or service(s) as % of total revenue in the reporting year

12

C-EU4.6

(C-EU4.6) Describe your organization's efforts to reduce methane emissions from your activities.

For the following reasons, no link exists between our business activities and methane emissions.

Conceivable methane leaks in our core business of supplying electric power consist mainly of those from fuel-production facilities that generate methane and boil-off gas (BOG: a gas consisting mainly of methane, generated from gasification of a part of LNG in storage due to natural heating from outside the storage tanks). However, we operate no fuel-production facilities that generate methane. The Shin-Sendai Thermal Power Station, which does have LNG storage facilities, employs a structure capable of consuming, inside the generation equipment, 100% of the BOG generated from LNG in storage; thus, no methane leaks from the facilities. For these reasons, we firmly believe there is no connection between our business activities and methane emissions from leaks.

Furthermore, in FY2019 we modified the gas-turbine combustors in the Higashi-Niigata Thermal Power Unit 4-2 System to make them compatible with gases characterized by high methane densities, such as shale gas. In addition, the Higashi-Niigata Thermal Power Unit 4-1 System has been capable of consuming gases characterized by high methane densities since FY2020 when we transferred gas turbines from Akita Thermal Power Unit 5 and Higashi-Niigata Thermal Power Unit 5, emergency power sources for which use was discontinued in March 2019. These efforts help reduce CO_2 emissions by allowing more efficient consumption of methane in power-generation equipment.
The Joetsu Thermal Power Station, which boasts the world's highest thermal efficiency figure of 63.6%, alongside other measures to make thermal power generation more efficient, can help reduce methane emissions at the oil and gas production stage through progress on reducing fuel consumption.

C5. Emissions methodology

C5.1

(C5.1) Is this your first year of reporting emissions data to CDP?

No

C5.1a

(C5.1a) Has your organization undergone any structural changes in the reporting year, or are any previous structural changes being accounted for in this disclosure of emissions data?

Row 1

Has there been a structural change?

No

C5.1b

(C5.1b) Has your emissions accounting methodology, boundary, and/or reporting year definition changed in the reporting year?

	Change(s) in methodology, boundary, and/or reporting year definition?
Row 1	No

C5.2

(C5.2) Provide your base year and base year emissions.

Scope 1

Base year start

01/04/2013

Base year end

31/03/2014

Base year emissions (metric tons CO_2e)

36,777,400

Comment

Scope 2 (location-based)

Base year start

01/04/2013

Base year end

31/03/2014

Base year emissions (metric tons CO_2e)

0

Comment

Scope 2 (market-based)

Base year start

01/04/2013

Base year end

31/03/2014

Base year emissions (metric tons CO_2e)

0

Comment

As the company (including headquarters) uses electricity generated by the company itself, Scope 2 emissions are 0 t.

Scope 3 category 1: Purchased goods and services

Base year start

01/04/2013

Base year end

31/03/2014

Base year emissions (metric tons CO_2e)

596,000

Comment

Referring to p. 19 of the Ministry of the Environment Supply-chain Emissions Calculations Q&A (revised March 2022) (https://www.env.go.jp/earth/ondanka/supply_chain/gvc/files/tools/QandA_202203.pdf), calculations use the emissions intensities from the Emission Intensity Unit Database for Calculating an Organization's Greenhouse Gas Emissions etc. through the Supply Chain (Ver. 3.3), published by the Japanese Ministry of the Environment in March 2023. (https://www.env.go.jp/earth/ondanka/supply_chain/gvc/estimate.html).

Scope 3 category 2: Capital goods

Base year start

01/04/2013

Base year end

31/03/2014

Base year emissions (metric tons CO_2e)

633,000

Comment

Referring to p. 19 of the Ministry of the Environment Supply-chain Emissions Calculations Q&A (revised March 2022) (https://www.env.go.jp/earth/ondanka/supply_chain/gvc/files/tools/QandA_202203.pdf), calculations use the emissions intensities from the Emission Intensity Unit Database for Calculating an Organization's Greenhouse Gas Emissions etc. through the Supply Chain (Ver. 3.3), published by the Japanese Ministry of the Environment in March 2023. (https://www.env.go.jp/earth/ondanka/supply_chain/gvc/estimate.html).

Scope 3 category 3: Fuel- and energy-related activities (not included in Scope 1 or 2)

Base year start

01/04/2013

Base year end

31/03/2014

Base year emissions (metric tons CO_2e)

13,167,550

Comment

Scope 3 category 4: Upstream transportation and distribution

Base year start

01/04/2013

Base year end

31/03/2014

Base year emissions (metric tons CO_2e)

19,000

Comment

Referring to p. 19 of the Ministry of the Environment Supply-chain Emissions Calculations Q&A (revised March 2022) (https://www.env.go.jp/earth/ondanka/supply_chain/gvc/files/tools/QandA_202203.pdf), calculations use the emissions intensities from the Emission Intensity Unit Database for Calculating an Organization's Greenhouse Gas Emissions etc. through the Supply Chain (Ver. 3.3), published by the Japanese Ministry of the Environment in March 2023. (https://www.env.go.jp/earth/ondanka/supply_chain/gvc/estimate.html).

Scope 3 category 5: Waste generated in operations

Base year start

01/04/2013

Base year end

31/03/2014

Base year emissions (metric tons CO_2e)

14,000

Comment

Referring to p. 19 of the Ministry of the Environment Supply-chain Emissions Calculations Q&A (revised March 2022) (https://www.env.go.jp/earth/ondanka/supply_chain/gvc/files/tools/QandA_202203.pdf), calculations use the emissions intensities from the Emission Intensity Unit Database for Calculating an Organization's Greenhouse Gas Emissions etc. through the Supply Chain (Ver. 3.3), published by the Japanese Ministry of the Environment in March 2023. (https://www.env.go.jp/earth/ondanka/supply_chain/gvc/estimate.html).

Scope 3 category 6: Business travel

Base year start

01/04/2013

Base year end

31/03/2014

Base year emissions (metric tons CO_2e)

2,000

Comment

Referring to p. 19 of the Ministry of the Environment Supply-chain Emissions Calculations Q&A (revised March 2022)

(https://www.env.go.jp/earth/ondanka/supply_chain/gvc/files/tools/QandA_202203.pdf), calculations use the emissions intensities from the Emission Intensity Unit Database for Calculating an Organization's Greenhouse Gas Emissions etc. through the Supply Chain (Ver. 3.3), published by the Japanese Ministry of the Environment in March 2023. (https://www.env.go.jp/earth/ondanka/supply_chain/gvc/estimate.html).

Scope 3 category 7: Employee commuting

Base year start

01/04/2013

Base year end

31/03/2014

Base year emissions (metric tons CO_2e)

8,000

Comment

Referring to p. 19 of the Ministry of the Environment Supply-chain Emissions Calculations Q&A (revised March 2022) (https://www.env.go.jp/earth/ondanka/supply_chain/gvc/files/tools/QandA_202203.pdf), calculations use the emissions intensities from the Emission Intensity Unit Database for Calculating an Organization's Greenhouse Gas Emissions etc. through the Supply Chain (Ver. 3.3), published by the Japanese Ministry of the Environment in March 2023. (https://www.env.go.jp/earth/ondanka/supply_chain/gvc/estimate.html).

Scope 3 category 8: Upstream leased assets

Base year start

Base year end

Base year emissions (metric tons CO_2e)

Comment

Scope 3 category 9: Downstream transportation and distribution

Base year start

Base year end

Base year emissions (metric tons CO_2e)

Comment

Scope 3 category 10: Processing of sold products

Base year start

Base year end

Base year emissions (metric tons CO_2e)

Comment

Scope 3 category 11: Use of sold products

Base year start

Base year end

Base year emissions (metric tons CO_2e)

Comment

Scope 3 category 12: End-of-life treatment of sold products

Base year start

Base year end

Base year emissions (metric tons CO_2e)

Comment

Scope 3 category 13: Downstream leased assets

Base year start

Base year end

Base year emissions (metric tons CO_2e)

Comment

Scope 3 category 14: Franchises

Base year start

Base year end

Base year emissions (metric tons CO_2e)

Comment

Scope 3 category 15: Investments

Base year start

Base year end

Base year emissions (metric tons CO_2e)

Comment

Scope 3: Other (upstream)

Base year start

Base year end

Base year emissions (metric tons CO_2e)

Comment

Scope 3: Other (downstream)

Base year start

Base year end

Base year emissions (metric tons CO_2e)

Comment

C5.3

(C5.3) Select the name of the standard, protocol, or methodology you have used to collect activity data and calculate emissions.

Act on the Rational Use of Energy
Law Concerning the Promotion of the Measures to Cope with Global Warming, Superseded by Revision of the Act on Promotion of Global Warming Countermeasures (Japan)

C6. Emissions data

C6.1

(C6.1) What were your organization's gross global Scope 1 emissions in metric tons CO_2e?

Reporting year

Gross global Scope 1 emissions (metric tons CO_2e)

32,815,000

Comment

C6.2

(C6.2) Describe your organization's approach to reporting Scope 2 emissions.

Row 1

Scope 2, location-based

We are reporting a Scope 2, location-based figure.

Scope 2, market-based

We are reporting a Scope 2, market-based figure.

Comment

C6.3

(C6.3) What were your organization's gross global Scope 2 emissions in metric tons CO_2e?

Reporting year

Scope 2, location-based

1,000

Scope 2, market-based (if applicable)

1,000

Comment

C6.4

(C6.4) Are there any sources (e.g., facilities, specific GHGs, activities, geographies, etc.) of Scope 1, Scope 2 or Scope 3 emissions that are within your selected reporting boundary which are not included in your disclosure?

No

C6.5

(C6.5) Account for your organization’s gross global Scope 3 emissions, disclosing and explaining any exclusions.

Purchased goods and services

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO_2e)

274,000

Emissions calculation methodology

Average data method

Percentage of emissions calculated using data obtained from suppliers or value chain partners

100

Please explain.

Consumables consumed JPY2,169 million × office supplies (890000) emission factor 5.40 t/JPY million = 11,719
Subcontracting costs JPY37,012 million × other business site services (851909) emission factor 0.69 t/JPY million = 25,606
Repairs JPY51,283 million × power-facility construction (413202) emission factor 4.62

t/JPY million = 236,968
11,719 + 25,606 + 236,968 = 274,293
* Source for each cost figure: 2021 Financial Report, p. 124
* Source of Emission Factors: Emission Intensity Unit Database for Calculating an Organization's Greenhouse Gas Emissions etc. through the Supply Chain (Ver. 3.3) published by the Japanese Ministry of the Environment in March 2023
https://www.env.go.jp/earth/ondanka/supply_chain/gvc/estimate.html

Capital goods

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO_2e)

159,000

Emissions calculation methodology

Average data method

Percentage of emissions calculated using data obtained from suppliers or value chain partners

100

Please explain.

Increase in book value of electric utility plant and equipment JPY48,135 million × emission factor of capital goods (20-0690) 3.30 t/million JPY = 158,887 t
* Source for increase in book value of electric utility plant and equipment: 2021 Financial Report, p. 139
* Source of Emission Factors: Emission Intensity Unit Database for Calculating an Organization's Greenhouse Gas Emissions etc. through the Supply Chain (Ver. 3.3) published by the Japanese Ministry of the Environment in March 2023
https:// www.env.go.jp/earth/ondanka/supply_chain/gvc/estimate.html

Fuel- and energy-related activities (not included in Scope 1 or 2)

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO_2e)

13,130,000

Emissions calculation methodology

Average data method

Percentage of emissions calculated using data obtained from suppliers or value chain partners

100

Please explain.

Emissions from electricity received from other companies
Electricity received from other companies: 19,463.814 GWh × Substitute value: 453 t-CO_2/GWh = 8,817,108 t
Emissions from fuel extraction and transport
Fuel use × IDEAv2 intensity by fuel type = 4,312,407 t
8,817,108 t + 4,312,407 t = 13,129,515
* Category 3 is subject to independent verification.
https://www.tohoku-epco.co.jp/ir/report/integrated/pdf/tohoku_sustainabilityreport2022_jp.pdf#page=25

Upstream transportation and distribution

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO_2e)

18,000

Emissions calculation methodology

Fuel-based method

Percentage of emissions calculated using data obtained from suppliers or value chain partners

100

Please explain.

CO_2 emissions from domestic cargo transports submitted to the government every year under the Act on the Rational Use of Energy.
Calculated by aggregating the calorific values consumed by each type of vehicle and vessel, and multiplying them by the emission factor for each type of fuel reported in the "Ordinance Concerning the Calculation of Greenhouse Gas Emissions Associated with Business Activities of Specified Emitters" by the Japanese Ministry of Economy, Trade and Industry and Ministry of the Environment (Ordinance No. 3, 2006). For vessels for which fuels are indistinguishable, the coefficients of internal vessels specified in the "Guideline for Calculation of CO_2 Emissions in the Distribution Business" by the Japanese Ministry of Economy, Trade and Industry and Ministry of Land, Infrastructure, Transport and Tourism are used.

Waste generated in operations

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO_2e)

8,000

Emissions calculation methodology

Average data method

Percentage of emissions calculated using data obtained from suppliers or value chain partners

100

Please explain.

Final disposal amount of industrial waste 176,000 t × Emission Factor 0.0472 t-CO_2/t = 8,297 t-CO_2
* Source of Final disposal amount of industrial waste: Environment-Related Data 2022 Tohoku Electric Power Group
https://www.tohoku-epco.co.jp/enviro/envirodata/download/envirodata2022.pdf
* Source of Emission Factors: Emission Intensity per unit by waste types and processing methodologies from the Emission Intensity Unit Database for Calculating an Organization's Greenhouse Gas Emissions etc. through the Supply Chain (Ver. 3.3) published by the Japanese Ministry of the Environment in March 2023
https://www.env.go.jp/earth/ondanka/supply_chain/gvc/files/tools/DB_V3-3.xlsx

Business travel

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO_2e)

2,000

Emissions calculation methodology

Average data method

Percentage of emissions calculated using data obtained from suppliers or value chain partners

100

Please explain.

Number of employees (12,350) × Emission Factor 0.130 t-CO_2/person-year = 1,610 t-CO_2
* Source for number of employees: Tohoku Electric Power Group Sustainability Report 2022
* Source of Emission Factors: Emission Intensity per unit per employee from the Emission Intensity Unit Database for Calculating an Organization's Greenhouse Gas Emissions etc. through the Supply Chain (Ver. 3.3) published by the Japanese Ministry of the Environment in March 2023
https://www.env.go.jp/earth/ondanka/supply_chain/gvc/files/tools/DB_V3-3.xlsx

Employee commuting

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO_2e)

8,000

Emissions calculation methodology

Average data method

Percentage of emissions calculated using data obtained from suppliers or value chain partners

100

Please explain.

Number of employees (12,350) × Business days 365 days × Emission Factor 1.84 kg-CO_2/person-year = 8,288 t-CO_2

* Source for number of employees: Tohoku Electric Power Group Sustainability Report 2022

* Source of Emission Factors: Emission Intensity per unit per Employee and business day" from the Emission Intensity Unit Database for Calculating an Organization's Greenhouse Gas Emissions etc. through the Supply Chain (Ver. 3.3) published by the Japanese Ministry of the Environment in March 2023 https://www.env.go.jp/earth/ondanka/supply_chain/gvc/files/tools/DB_V3-3.xlsx

Upstream leased assets

Evaluation status

Not relevant, explanation provided

Please explain.

This is due to the low numerical value, since these activities are only loosely related to our main power business.

Downstream transportation and distribution

Evaluation status

Not relevant, explanation provided

Please explain.

This is due to the low numerical value, since these activities are only loosely related to our main power business.

Processing of sold products

Evaluation status

Not relevant, explanation provided

Please explain.

As termination of production of sold products cannot be conducted.

Use of sold products

Evaluation status

Not relevant, explanation provided

Please explain.

Because it is aggregated into Scope 1 and has not been calculated separately.

End-of-life treatment of sold products

Evaluation status

Not relevant, explanation provided

Please explain.

As termination of production of sold products cannot be conducted.

Downstream leased assets

Evaluation status

Not relevant, explanation provided

Please explain.

This is due to the low numerical value, since these activities are only loosely related to our main power business.

Franchises

Evaluation status

Not relevant, explanation provided

Please explain.

This is due to the low numerical value, since these activities are only loosely related to our main power business.

Investments

Evaluation status

Not relevant, explanation provided

Please explain.

This is due to the low numerical value, since these activities are only loosely related to our main power business.

Other (upstream)

Evaluation status

Please explain.

Other (downstream)

Evaluation status

Please explain.

C6.7

(C6.7) Are carbon dioxide emissions from biogenic carbon relevant to your organization?

No

C6.10

(C6.10) Describe your gross global combined Scope 1 and 2 emissions for the reporting year in metric tons CO_2e per unit currency total revenue and provide any additional intensity metrics that are appropriate to your business operations.

Intensity figure

0.000015594

Metric numerator (Gross global combined Scope 1 and 2 emissions, metric tons CO_2e)

32,816,000

Metric denominator

Unit total revenue

Metric denominator: Unit total

2,104,448,000

Scope 2 figure used

Market-based

% change from previous year

14.51

% change from previous year

Increased

Reason(s) for change

Change in revenue

Please explain.

We have applied ASBJ Statement No. 29 (March 31, 2020), the Accounting Standard for Revenue Recognition, since the start of this consolidated fiscal year. As a result, the denominator of sales decreased by JPY452.9 billion vs. a case in which this standard was not applied. This contributed to worsening of intensity.

Intensity figure

0.54212648

Metric numerator (Gross global combined Scope 1 and 2 emissions, metric tons CO_2e)

32,816,000

Metric denominator

Megawatt hour generated (MWh)

Metric denominator: Unit total

60,532,000

Scope 2 figure used

Market-based

% change from previous year

3.6

% change from previous year

Increased

Reason(s) for change

Change in physical operating conditions

Please explain.

CO_2 intensity worsened due to the effects of factors such as higher use of oil-fired thermal power stations, which have higher emissions, than in a normal year, as an alternative power source to gas-fired thermal power stations under conditions in which procurement of LNG was difficult.

C7. Emissions breakdown

C7.1

(C7.1) Does your organization break down its Scope 1 emissions by greenhouse gas type?

Yes

C7.1a

(C7.1a) Break down your total gross global Scope 1 emissions by greenhouse gas type and provide the source of each used global warming potential (GWP).

Greenhouse gas	Scope 1 emissions (metric tons in CO_2e)	GWP Reference

CO_2	32,737,000	IPCC Fourth Assessment Report (AR4 - 100 year)
N_2O	45,000	IPCC Fourth Assessment Report (AR4 - 100 year)
CH_4	0	IPCC Fourth Assessment Report (AR4 - 100 year)
SF_6	33,000	IPCC Fourth Assessment Report (AR4 - 100 year)
HFCs	0	IPCC Fourth Assessment Report (AR4 - 100 year)

C-EU7.1b

(C-OG7.1b) Break down your total gross global Scope 1 emissions from electric utilities value chain activities by greenhouse gas type.

	Gross Scope 1 carbon dioxide emissions (metric tons CO_2)	Gross Scope 1 methane emissions (metric tons CH_4)	Gross Scope 1 SF_6 emissions (metric tons SF_6)	Total gross Scope 1 GHG emissions (metric tons CO_2e)	Comment
Fugitives	0	0	1.45	33,000	
Combustion (Electric utilities)	32,737,000		151	32,782,000	The value listed in the SF_6 column is N_2O emissions
Combustion (Gas utilities)	0	0	0	0	
Combustion (Other)	0	0	0	0	
Emissions not elsewhere classified	0	0	0	0	

C7.2

(C7.2) Break down your total gross global Scope 1 emissions by country/area/region.

Country/area/region	Scope 1 emissions (metric tons CO_2e)
Japan	32,815,000

C7.3

(C7.3) Indicate which gross global Scope 1 emissions breakdowns you are able to provide.

By activity

C7.3c

(C7.3c) Break down your total gross global Scope 1 emissions by business activity.

Activity	Scope 1 emissions (metric tons CO_2e)
Electricity generation	32,815,000

C-CE7.4/C-CH7.4/C-CO7.4/C-EU7.4/C-MM7.4/C-OG7.4/C-ST7.4/C-TO7.4/C-TS7.4

(C-CE7.4/C-CH7.4/C-CO7.4/C-EU7.4/C-MM7.4/C-OG7.4/C-ST7.4/C-TO7.4/C-TS7.4) Break down your organization's total gross global Scope 1 emissions by sector production activity in metric tons CO_2e.

	Gross Scope 1 emissions, metric tons CO_2e	Comment
Electric utility activities	32,815,000	

C7.7

(C7.7) Is your organization able to break down your emissions data for any of the subsidiaries included in your CDP response?

No

C7.9

(C7.9) How do your gross global emissions (Scope 1 and 2 combined) for the reporting year compare to those of the previous reporting year?

Increased

C7.9a

(C7.9a) Identify the reasons for any change in your gross global emissions (Scope 1 and 2 combined), and for each of them specify how your emissions compare to the previous year.

	Reason Change in emissions (metric tons CO_2e)	Direction of change in emissions	Emissions value (percentage)	Please explain calculation

Change in renewable energy consumption	0	No change	0	
Other emissions reduction activities	1,183,842	Increased	3.8	(FY2021 Scope 1 + 2 emissions 32,816,000 t − FY2020 Scope 1 + 2 emissions 31,141,000 t) − increased emissions due to change in production amounts (491,158 t) = 1,183,842 t Reduced emissions due to increase / previous fiscal year's Scope 1 + 2 emissions = 1,183,842 t / 31,140,000 t = 3.80%
Divestment				
Acquisitions				
Mergers				
Change in output	491,158	Increased	1.58	(FY2021 self-generated electricity 60,532 GWh − FY2020 self-generated electricity 59,513 GWh) × FY2021 Tohoku Electric Power Group emissions factor 482 t-CO_2 / GWh = 491,158 t-CO_2 Reduced emissions due to decrease / previous fiscal year's Scope 1 emissions = 491,158 t / 31,140,000 t = 1.58%
Change in methodology				
Change in boundary				
Change in physical operating conditions				
Unidentified				
Other				

C7.9b

(C7.9b) Are your emissions performance calculations in C7.9 and C7.9a based on a location-based Scope 2 emissions figure or a market-based Scope 2 emissions figure?

Market-based

C8. Energy

C8.1

(C8.1) What percentage of your total operational spend in the reporting year was on energy?

More than 25% but less than or equal to 30%

C8.2

(C8.2) Select which energy-related activities your organization has undertaken.

	Indicate whether your organization undertook this energy-related activity in the reporting year
Consumption of fuel (excluding feedstocks)	Yes
Consumption of purchased or acquired electricity	Yes
Consumption of purchased or acquired heat	No
Consumption of purchased or acquired steam	No
Consumption of purchased or acquired cooling	No
Generation of electricity, heat, steam, or cooling	Yes

C8.2a

(C8.2a) Report your organization's energy consumption totals (excluding feedstocks) in MWh.

	Heating value	MWh from renewable sources	MWh from non-renewable sources	Total (renewable + non-renewable) MWh

Consumption of fuel (excluding feedstock)	HHV (higher heating value)	0	128,247,323	128,247,323
Consumption of purchased or acquired electricity		0	628	628
Consumption of self-generated non-fuel renewable energy		0		0
Total energy consumption		0	128,247,951	128,247,951

C8.2b

(C8.2b) Select the applications of your organization's consumption of fuel.

	Indicate whether your organization undertakes this fuel application
Consumption of fuel for the generation of electricity	Yes
Consumption of fuel for the generation of heat	No
Consumption of fuel for the generation of steam	No
Consumption of fuel for the generation of cooling	No
Consumption of fuel for co-generation or tri-generation	No

C8.2c

(C8.2c) State how much fuel in MWh your organization has consumed (excluding feedstocks) by fuel type.

Sustainable biomass

Heating value

Unable to confirm heating

Total fuel MWh consumed by the organization

0

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

0

Comment

Other biomass

Heating value

HHV

Total fuel MWh consumed by the organization

229,400

MWh fuel consumed for self-generation of electricity

229,400

MWh fuel consumed for self-generation of heat

0

Comment

Other renewable fuels (e.g., renewable hydrogen)

Heating value

Unable to confirm heating

Total fuel MWh consumed by the organization

0

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

0

Comment

Coal

Heating value

HHV

Total fuel MWh consumed by the organization

65,677,830

MWh fuel consumed for self-generation of electricity

65,677,830

MWh fuel consumed for self-generation of heat

0

Comment

Oil

Heating value

HHV

Total fuel MWh consumed by the organization

4,847,226

MWh fuel consumed for self-generation of electricity

4,847,226

MWh fuel consumed for self-generation of heat

0

Comment

Gas

Heating value

HHV

Total fuel MWh consumed by the organization

56,600,045

MWh fuel consumed for self-generation of electricity

56,600,045

MWh fuel consumed for self-generation of heat

0

Comment

Other non-renewable fuels (e.g., non-renewable hydrogen)

Heating value

Unable to confirm heating

Total fuel MWh consumed by the organization

0

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

0

Comment

Total fuel

Heating value

HHV

Total fuel MWh consumed by the organization

127,354,502

MWh fuel consumed for self-generation of electricity

127,354,502

MWh fuel consumed for self-generation of heat

0

Comment

C-EU8.2d

(C-EU8.2d) For your electric utility activities, provide a breakdown of your total power plant capacity, generation, and related emissions during the reporting year by source.

Coal – hard

Nameplate capacity (MW)

3,750

Gross electricity generation (GWh)

27,008

Net electricity generation (GWh)

27,008

Absolute Scope 1 emissions (metric tons CO_2e)

21,413,583

Scope 1 emissions intensity (metric tons CO_2e per GWh)

792.86

Comment

Lignite

Nameplate capacity (MW)

0

Gross electricity generation (GWh)

0

Net electricity generation (GWh)

0

Absolute Scope 1 emissions (metric tons CO_2e)

0

Scope 1 emissions intensity (metric tons CO_2e per GWh)

0

Comment

Oil

Nameplate capacity (MW)

600

Gross electricity generation (GWh)

1,504

Net electricity generation (GWh)

1,504

Absolute Scope 1 emissions (metric tons CO_2e)

1,243,193

Scope 1 emissions intensity (metric tons CO_2e per GWh)

826.59

Comment

Gas

Nameplate capacity (MW)

6,899

Gross electricity generation (GWh)

23,313

Net electricity generation (GWh)

23,313

Absolute Scope 1 emissions (metric tons CO_2e)

10,088,672

Scope 1 emissions intensity (metric tons CO_2e per GWh)

432.75

Comment

Sustainable biomass

Nameplate capacity (MW)

0

Gross electricity generation (GWh)

0

Net electricity generation (GWh)

0

Absolute Scope 1 emissions (metric tons CO_2e)

0

Scope 1 emissions intensity (metric tons CO_2e per GWh)

0

Comment

Other biomass

Nameplate capacity (MW)

50

Gross electricity generation (GWh)

66

Net electricity generation (GWh)

62

Absolute Scope 1 emissions (metric tons CO_2e)

0

Scope 1 emissions intensity (metric tons CO_2e per GWh)

0

Comment

Maximum generating capacity is converted from thermal value due to use of mixed burning.

Waste (non-biomass)

Nameplate capacity (MW)

0

Gross electricity generation (GWh)

0

Net electricity generation (GWh)

0

Absolute Scope 1 emissions (metric tons CO_2e)

0

Scope 1 emissions intensity (metric tons CO_2e per GWh)

0

Comment

Nuclear

Nameplate capacity (MW)

2,750

Gross electricity generation (GWh)

0

Net electricity generation (GWh)

0

Absolute Scope 1 emissions (metric tons CO_2e)

0

Scope 1 emissions intensity (metric tons CO_2e per GWh)

0

Comment

Fossil-fuel plants fitted with CCS

Nameplate capacity (MW)

0

Gross electricity generation (GWh)

0

Net electricity generation (GWh)

0

Absolute Scope 1 emissions (metric tons CO_2e)

0

Scope 1 emissions intensity (metric tons CO_2e per GWh)

0

Comment

Geothermal

Nameplate capacity (MW)

188.8

Gross electricity generation (GWh)

687

Net electricity generation (GWh)

687

Absolute Scope 1 emissions (metric tons CO_2e)

0

Scope 1 emissions intensity (metric tons CO_2e per GWh)

0

Comment

Hydropower

Nameplate capacity (MW)

2,450

Gross electricity generation (GWh)

8,028

Net electricity generation (GWh)

8,028

Absolute Scope 1 emissions (metric tons CO_2e)

0

Scope 1 emissions intensity (metric tons CO_2e per GWh)

0

Comment

Wind

Nameplate capacity (MW)

0

Gross electricity generation (GWh)

0

Net electricity generation (GWh)

0

Absolute Scope 1 emissions (metric tons CO_2e)

0

Scope 1 emissions intensity (metric tons CO_2e per GWh)

0

Comment

Solar

Nameplate capacity (MW)

4.5

Gross electricity generation (GWh)

6

Net electricity generation (GWh)

6

Absolute Scope 1 emissions (metric tons CO_2e)

0

Scope 1 emissions intensity (metric tons CO_2e per GWh)

0

Comment

Marine

Nameplate capacity (MW)

0

Gross electricity generation (GWh)

0

Net electricity generation (GWh)

0

Absolute Scope 1 emissions (metric tons CO_2e)

0

Scope 1 emissions intensity (metric tons CO_2e per GWh)

0

Comment

Other renewable

Nameplate capacity (MW)

0

Gross electricity generation (GWh)

0

Net electricity generation (GWh)

0

Absolute Scope 1 emissions (metric tons CO_2e)

0

Scope 1 emissions intensity (metric tons CO_2e per GWh)

0

Comment

Other non-renewable

Nameplate capacity (MW)

0

Gross electricity generation (GWh)

0

Net electricity generation (GWh)

0

Absolute Scope 1 emissions (metric tons CO_2e)

0

Scope 1 emissions intensity (metric tons CO_2e per GWh)

0

Comment

Total

Nameplate capacity (MW)
16,692

Gross electricity generation (GWh)
60,612

Net electricity generation (GWh)
60,608

Absolute Scope 1 emissions (metric tons CO_2e)
32,745,448

Scope 1 emissions intensity (metric tons CO_2e per GWh)
540.25

Comment

C8.2g

(C8.2g) Provide a breakdown by country/area of your non-fuel energy consumption in the reporting year.

Country/area
Japan

Consumption of purchased electricity (MWh)
515,230

Consumption of self-generated electricity (MWh)
2,252,806

Consumption of purchased heat, steam, and cooling (MWh)
4,543.61

Consumption of self-generated heat, steam, and cooling (MWh)
0

Total non-fuel energy consumption (MWh) [auto-calculated]
2,772,579.61

C-EU8.4

(C-EU8.4) Does your electric utility organization have a transmission and distribution business?
Yes

C-EU8.4a

(C-EU8.4a) Disclose the following information about your transmission and distribution business.

Country/area/region
Japan

Voltage level
Transmission (high voltage)

Annual load (GWh)
83,692

Annual energy losses (% of annual load)
5.6

Scope where emissions from energy losses are accounted for
Scope 2 (market-based)

Emissions from energy losses (metric tons CO_2e)

Length of network (km)
15,460

Number of connections
58,504

Area covered (km^2)
8.7

Comment
We disclose annual load and annual energy losses as Transmission and Distribution.

Country/area/region
Japan

Voltage level
Distribution (low voltage)

Annual load (GWh)
83,692

Annual energy losses (% of annual load)
5.6

Scope where emissions from energy losses are accounted for

Scope 2 (market-based)

Emissions from energy losses (metric tons CO_2e)

Length of network (km)

149,120

Number of connections

3,159,229

Area covered (km^2)

0.18

Comment

We disclose annual load and annual energy losses as Transmission and Distribution.

C9. Additional metrics

C9.1

(C9.1) Provide any additional climate-related metrics relevant to your business.

Description

Other, please specify

Thermal efficiency of thermal power plant

Metric value

46

Metric numerator

Gross thermal efficiency (Lower Heating Value (LHV) standard) (%)

Metric denominator (intensity metric only)

% change from previous year

Direction of change

Please explain.

The improvement of thermal efficiency in thermal power generation not only reduces the use of fossil fuels and contributes to the efficient use of energy resources, but also contributes to the reduction of CO_2 emissions, so we are actively introducing thermal

power generation technologies with higher thermal efficiency.
Higashi Niigata Unit No. 3 system, which began commercial operation in 1985, was the first large-capacity combined-cycle power plant in Japan to achieve a thermal efficiency of approximately 48%, the highest level at that time.
Since then, we have achieved even higher thermal efficiency at Higashi Niigata Unit No.4 system and Sendai Thermal Power Plant's Unit No.4, and at the Shin-Sendai Unit No.3 system (which began commercial operation on a full scale in July 2016) we have achieved a thermal efficiency of 60% or higher, the highest level in the world at that time.
Joetsu Thermal Power Station Unit No. 1, which started commercial operations in December 2022, uses the forced air cooling combustor system, which is highly economical and environmentally friendly as it reduces both fuel consumption and CO_2 emissions. As a result, it achieved a thermal efficiency of at least 63%, world-beating performance for a gas combined cycle power generation facility.

C-EU9.5a

(C-EU9.5a) Break down, by source, your organization's CAPEX in the reporting year and CAPEX planned over the next 5 years.

Coal – hard

CAPEX in the reporting year for power generation from this source (unit currency as selected in C0.4)

34,515,556,405

CAPEX in the reporting year for power generation from this source as % of total CAPEX for power generation in the reporting year

22.7

CAPEX planned over the next 5 years for power generation from this source as % of total CAPEX planned for power generation over the next 5 years

Most recent year in which a new power plant using this source was approved for development

Explain your CAPEX calculations, including any assumptions

Calculated by prorating the amount of capital investment in the financial reports for the reporting year by maximum power generating capacity in the answer to C-EU8.2d.

Lignite

CAPEX in the reporting year for power generation from this source (unit currency as selected in C0.4)

0

CAPEX in the reporting year for power generation from this source as % of total CAPEX for power generation in the reporting year

0

CAPEX planned over the next 5 years for power generation from this source as % of total CAPEX planned for power generation over the next 5 years

Explain your CAPEX calculations, including any assumptions.

Calculated by prorating the amount of capital investment in the financial reports for the reporting year by maximum power generating capacity in the answer to C-EU8.2d.

Oil

CAPEX in the reporting year for power generation from this source (unit currency as selected in C0.4)

5,449,824,696

CAPEX in the reporting year for power generation from this source as % of total CAPEX for power generation in the reporting year

3.58

CAPEX planned over the next 5 years for power generation from this source as % of total CAPEX planned for power generation over the next 5 years

Most recent year in which a new power plant using this source was approved for development

Explain your CAPEX calculations, including any assumptions.

Calculated by prorating the amount of capital investment in the financial reports for the reporting year by maximum power generating capacity in the answer to C-EU8.2d.

Gas

CAPEX in the reporting year for power generation from this source (unit currency as selected in C0.4)

62,663,900,957

CAPEX in the reporting year for power generation from this source as % of total CAPEX for power generation in the reporting year

41.21

CAPEX planned over the next 5 years for power generation from this source as % of total CAPEX planned for power generation over the next 5 years

Most recent year in which a new power plant using this source was approved for development

Explain your CAPEX calculations, including any assumptions.

Calculated by prorating the amount of capital investment in the financial reports for the reporting year by maximum power generating capacity in the answer to C-EU8.2d.

Sustainable biomass

CAPEX in the reporting year for power generation from this source (unit currency as selected in C0.4)

0

CAPEX in the reporting year for power generation from this source as % of total CAPEX for power generation in the reporting year

0

CAPEX planned over the next 5 years for power generation from this source as % of total CAPEX planned for power generation over the next 5 years

Explain your CAPEX calculations, including any assumptions.

Calculated by prorating the amount of capital investment in the financial reports for the reporting year by maximum power generating capacity in the answer to C-EU8.2d.

Other biomass

CAPEX in the reporting year for power generation from this source (unit currency as selected in C0.4)

454,152,058

CAPEX in the reporting year for power generation from this source as % of total CAPEX for power generation in the reporting year

0.3

CAPEX planned over the next 5 years for power generation from this source as % of total CAPEX planned for power generation over the next 5 years

Most recent year in which a new power plant using this source was approved for development

Explain your CAPEX calculations, including any assumptions

Calculated by prorating the amount of capital investment in the financial reports for the reporting year by maximum power generating capacity in the answer to C-EU8.2d.

Waste (non-biomass)

CAPEX in the reporting year for power generation from this source (unit currency as selected in C0.4)

0

CAPEX in the reporting year for power generation from this source as % of total CAPEX for power generation in the reporting year

0

CAPEX planned over the next 5 years for power generation from this source as % of total CAPEX planned for power generation over the next 5 years

Explain your CAPEX calculations, including any assumptions.

Calculated by prorating the amount of capital investment in the financial reports for the reporting year by maximum power generating capacity in the answer to C-EU8.2d.

Nuclear

CAPEX in the reporting year for power generation from this source (unit currency as selected in C0.4)

24,978,363,188

CAPEX in the reporting year for power generation from this source as % of total CAPEX for power generation in the reporting year

16.43

CAPEX planned over the next 5 years for power generation from this source as % of total CAPEX planned for power generation over the next 5 years

Most recent year in which a new power plant using this source was approved for development

Explain your CAPEX calculations, including any assumptions.

Calculated by prorating the amount of capital investment in the financial reports for the reporting year by maximum power generating capacity in the answer to C-EU8.2d.

Geothermal

CAPEX in the reporting year for power generation from this source (unit currency as selected in C0.4)

1,714,878,171

CAPEX in the reporting year for power generation from this source as % of total CAPEX for power generation in the reporting year

1.13

CAPEX planned over the next 5 years for power generation from this source as % of total CAPEX planned for power generation over the next 5 years

Most recent year in which a new power plant using this source was approved for development

Explain your CAPEX calculations, including any assumptions.

Calculated by prorating the amount of capital investment in the financial reports for the reporting year by maximum power generating capacity in the answer to C-EU8.2d.

Hydropower

CAPEX in the reporting year for power generation from this source (unit currency as selected in C0.4)

22,253,450,840

CAPEX in the reporting year for power generation from this source as % of total CAPEX for power generation in the reporting year

14.63

CAPEX planned over the next 5 years for power generation from this source as % of total CAPEX planned for power generation over the next 5 years

Most recent year in which a new power plant using this source was approved for development

Explain your CAPEX calculations, including any assumptions.

Calculated by prorating the amount of capital investment in the financial reports for the reporting year by maximum power generating capacity in the answer to C-EU8.2d.

Wind

CAPEX in the reporting year for power generation from this source (unit currency as selected in C0.4)

0

CAPEX in the reporting year for power generation from this source as % of total CAPEX for power generation in the reporting year

0

CAPEX planned over the next 5 years for power generation from this source as % of total CAPEX planned for power generation over the next 5 years

Explain your CAPEX calculations, including any assumptions.

Calculated by prorating the amount of capital investment in the financial reports for the reporting year by maximum power generating capacity in the answer to C-EU8.2d.

Solar

CAPEX in the reporting year for power generation from this source (unit currency as selected in C0.4)

40,873,685

CAPEX in the reporting year for power generation from this source as % of total CAPEX for power generation in the reporting year

0.03

CAPEX planned over the next 5 years for power generation from this source as % of total CAPEX planned for power generation over the next 5 years

Most recent year in which a new power plant using this source was approved for development

Explain your CAPEX calculations, including any assumptions.

Calculated by prorating the amount of capital investment in the financial reports for the reporting year by maximum power generating capacity in the answer to C-EU8.2d.

Marine

CAPEX in the reporting year for power generation from this source (unit currency as selected in C0.4)

0

CAPEX in the reporting year for power generation from this source as % of total CAPEX for power generation in the reporting year

0

CAPEX planned over the next 5 years for power generation from this source as % of total CAPEX planned for power generation over the next 5 years

Explain your CAPEX calculations, including any assumptions.

Calculated by prorating the amount of capital investment in the financial reports for the reporting year by maximum power generating capacity in the answer to C-EU8.2d.

Fossil-fuel plants fitted with CCS

CAPEX in the reporting year for power generation from this source (unit currency as selected in C0.4)

0

CAPEX in the reporting year for power generation from this source as % of total CAPEX for power generation in the reporting year

0

CAPEX planned over the next 5 years for power generation from this source as % of total CAPEX planned for power generation over the next 5 years

Explain your CAPEX calculations, including any assumptions.

Calculated by prorating the amount of capital investment in the financial reports for the reporting year by maximum power generating capacity in the answer to C-EU8.2d.

Other renewable (e.g., renewable hydrogen)

CAPEX in the reporting year for power generation from this source (unit currency as selected in C0.4)

0

CAPEX in the reporting year for power generation from this source as % of total CAPEX for power generation in the reporting year

0

CAPEX planned over the next 5 years for power generation from this source as % of total CAPEX planned for power generation over the next 5 years

Explain your CAPEX calculations, including any assumptions.

Calculated by prorating the amount of capital investment in the financial reports for the reporting year by maximum power generating capacity in the answer to C-EU8.2d.

Other non-renewable (e.g., non-renewable hydrogen)

CAPEX in the reporting year for power generation from this source (unit currency as selected in C0.4)

0

CAPEX in the reporting year for power generation from this source as % of total CAPEX for power generation in the reporting year

0

CAPEX planned over the next 5 years for power generation from this source as % of total CAPEX planned for power generation over the next 5 years

Explain your CAPEX calculations, including any assumptions.

Calculated by prorating the amount of capital investment in the financial reports for the reporting year by maximum power generating capacity in the answer to C-EU8.2d.

C-EU9.5b

(C-EU9.5b) Break down your total planned CAPEX in your current CAPEX plan for products and services (e.g., smart grids, digitalization, etc.).

Products and services	Description of product/service	CAPEX planned for product/ service	Percentage of total CAPEX planned for products and services	End year of CAPEX plan
Distributed generation	We are actively promoting the use of renewable energy, but on the other hand, renewable energy may be greatly affected by nature such as weather and temperature, so it is difficult to avoid fluctuations in power generation or output. Therefore, we are working on "the Virtual Power Plant (VPP)" business, which we connect storage batteries and electric vehicles scattered in the area to each other with new information and communication technology such as IoT and perform remote control to utilize it for balancing the supply and demand of electric power. The main initiatives are listed below: - Strategic partnership with Next Kraftwerke, the world's largest VPP operator, to further enhance VPP-related knowledge and technology, including technologies for accurately controlling energy resources - Verifying remote control of storage batteries and deploying large-capacity storage batteries in partnership with local governments - Participation in a Municipal VPP Demonstration Project - Implementation of VPP demonstration project for home use - Participation in a Vehicle to Grid Demonstration Project - Demonstration of P2P power trading based on blockchain technology	1,125,000,000	0.74	2023

	- Consideration of a storage-battery sharing service - Providing renewable-energy aggregation services for renewable-energy power-generating businesses. Planned CAPEX includes the increased book value of new energy and other power generation facilities in FY2021. Total facility construction costs in power supplies in FY2021 are used for the total planned CAPEX.			

C-CE9.6/C-CG9.6/C-CH9.6/C-CN9.6/C-CO9.6/C-EU9.6/C-MM9.6/C-OG9.6/C-RE9.6/C-ST9.6/C-TO9.6/C-TS9.6

(C-CE9.6/C-CG9.6/C-CH9.6/C-CN9.6/C-CO9.6/C-EU9.6/C-MM9.6/C-OG9.6/C-RE9.6/C-ST9.6/C-TO9.6/C-TS9.6) Does your organization invest in research and development (R&D) of low-carbon products or services related to your sector activities?

	Investment in low-carbon R&D	Comment
Row 1	Yes	Under the Tohoku Electric Power Group's Medium-to Long-Term Vision, "Working alongside next," we aim to help realize a smart society for the future starting from Tohoku, through structural reforms to the power supply business and swift attainment of profitability for the smart society building business. We are also taking on the challenge of achieving carbon neutrality by 2050 through power supply initiatives and realizing a smart society. For the Group to continue growing, it will be essential to enhance our ability to tackle issues and generate revenue through innovations in areas such as adoption of innovative technologies in our facilities and proposing solutions to customers, as well as thoroughly enhancing our competitive strengths, including those in our core power business. By swiftly implementing innovations groupwide under the following three priorities, we will aim to grow together with the sustainable progress of our region. • Contributing to progress on the Carbon Neutral Challenge • Realizing a smart society and creating new revenue sources • Steady efforts toward smart, secure, resilient electric power

C-CO9.6a/C-EU9.6a/C-OG9.6a

(C-CO9.6a/C-EU9.6a/C-OG9.6a) Provide details of your organization's investments in low-carbon R&D for your sector activities over the last three years.

Technology area	Stage of development in the reporting year	Average % of total R&D investment over the last 3 years	R&D investment figure in the reporting year (unit currency as selected in C0.4) (optional)	Average % of total R&D investment planned over the next 5 years	Explain how your R&D investment in this technology area is aligned with your climate commitments and/or climate transition plan
Other, please specify Smart energy storage	Pilot demonstration	21			To further expand the introduction of renewable energy, we started operation of the Hydrogen Production System in March 2017 to conduct research on hydrogen production and are conducting research using this system. Specifically, we have installed new solar power generation facilities and hydrogen production equipment in the buildings of our Research and Development Center to produce and store hydrogen using electricity generated by solar power and generate electricity for Research and Development Center using this hydrogen as fuel.
Other, please specify Steam turbine and/or other component upgrades	Large scale commercial deployment	21			In 1984, we became the first company in Japan to introduce a large-capacity gas turbine combined cycle for business use as the Higashi Niigata Unit No. 3 system (Seiro town, Niigata

					Prefecture). Since then, we have been developing pioneering technologies for gas turbines that contribute to reducing energy consumption and pollution in emissions. We have accumulated knowledge and expertise through developing high-efficiency gas combined-cycle power generation facilities. Incorporating fundamental technologies for heat-resistant materials, blade-cooling technologies, and high-temperature and low NOX combustors developed for 1,500°C class high-efficiency gas turbines, the Higashi Niigata Unit No. 4 system achieved a world-leading figure in thermal efficiency (55% or above; lower calorific value) in 2006. A world-leading figure for thermal efficiency (58%) was once again achieved when Sendai Unit No. 4 began operating commercially in 2010. Unit No. 3-1 and Unit No. 3-2 at the Shinsendai thermal power plant also commenced operations in 2015 and 2016, respectively. They

					achieved the world-leading figure (for that era) of 60%. As further expansion of the introduction of renewable energy will require thermal power generation facilities to absorb further natural fluctuations, it is anticipated that the operation of these facilities will result in an increase in operations at parts that will be inefficient. Accordingly, research and development (from FY2019 to FY2021) was conducted to further improve operational efficiency and improve efficiency, including partial output. Specifically, we are working on the development of steam turbines compatible with the minimum output reduction operation to increase the amount of output change, the development of an operation method to shorten the start-up time within a range where the environmental load does not increase, the development of a method to optimize the cooling air flow rate at the partial output, and the development of

					heat-resistant materials to further improve the combustion temperature. Some of the results of this research conducted through FY2021 were adopted for Joetsu Thermal Power Station Unit 1 and existing combined-cycle power generation equipment. Since FY2021, we have also advanced technological development efforts to achieve carbon neutrality through various feasibility studies, including studies to assess the burning stability and potential environmental burdens of non-fossil fuels such as hydrogen. As for power development (from FY2019 to FY2021), the Noshiro Thermal Power Station Unit No. 3, 600MW, which started commercial operation in March 2020, achieved the world's highest thermal efficiency of about 46% as a power generation facility that uses coal. In May 2019, we began constructing Joetsu Thermal Power Station Unit 1, which introduces a next generation gas turbine using a forced air-

					cooled combustor system (which also received the highest industry award, the Minister of Economy, Trade and Industry Award, in the 2018 Excellent Energy-Saving Equipment and System Awards), jointly developed by our company and a plant manufacturer. We are striving to achieve a thermal efficiency of 63% or higher—world-leading performance for a gas combined cycle power generation facility. The plant entered operation in December 2022.

C10. Verification

C10.1

(C10.1) Indicate the verification/assurance status that applies to your reported emissions.

	Verification/assurance status
Scope 1	Third-party verification or assurance process in place
Scope 2 (location-based or market-based)	Third-party verification or assurance process in place
Scope 3	Third-party verification or assurance process in place

C10.1a

(C10.1a) Provide further details of the verification/assurance undertaken for your Scope 1 emissions and attach the relevant statements.

Verification or assurance cycle in place

Annual process

Status in the current reporting year

Complete

Type of verification or assurance

Limited assurance

Attach the statement

Independent Assurance Report.pdf

Page/section reference

See page 1 for Independent Assurance Report, see page 2 for Letters from independent third parties for CDP responses, see page 2 for scope 1 emissions.

Relevant standard

ISAE3000

Proportion of reported emissions verified (%)

100

C10.1b

(C10.1b) Provide further details of the verification/assurance undertaken for your Scope 2 emissions and attach the relevant statements.

Scope 2 approach

Scope 2 market-based

Verification or assurance cycle in place

Annual process

Status in the current reporting year

Complete

Type of verification or assurance

Limited assurance

Attach the statement

Independent Assurance Report.pdf

Page/section reference

See page 1 for Independent Assurance Report, see page 2 for Letters from independent third parties for CDP responses, see page 2 for scope 2 emissions.

Relevant standard

ISAE3000

Proportion of reported emissions verified (%)

100

C10.1c

(C10.1c) Provide further details of the verification/assurance undertaken for your Scope 3 emissions and attach the relevant statements.

Scope 3 category

Scope 3: Fuel- and energy-related activities (not included in Scope 1 or 2)

Verification or assurance cycle in place

Annual process

Status in the current reporting year

Complete

Type of verification or assurance

Limited assurance

Attach the statement

Independent Assurance Report.pdf

Page/section reference

See page 1 for Independent Assurance Report, see page 2 for Letters from independent third parties for CDP responses, see page 2 for scope 3 emissions.

Relevant standard

ISAE3000

Proportion of reported emissions verified (%)

97

C10.2

(C10.2) Do you verify any climate-related information reported in your CDP disclosure other than the emissions figures reported in C6.1, C6.3, and C6.5?

No, but we are actively considering verifying within the next two years.

C11. Carbon pricing

C11.1

(C11.1) Are any of your operations or activities regulated by a carbon pricing system (i.e., ETS, Cap & Trade or Carbon Tax)?

Yes

C11.1a

(C11.1a) Select the carbon pricing regulation(s) which impacts your operations.

Japan carbon tax

C11.1c

(C11.1c) Complete the following table for each of the tax systems you are regulated by.

Japan carbon tax

Period start date

01/04/2021

Period end date

31/03/2022

% of total Scope 1 emissions covered by tax

100

Total cost of tax paid

9,400,000,000

Comment

Total cost of tax paid is calculated by multiplying the global warming tax rate by fuel consumption in FY2021.

C11.1d

(C11.1d) What is your strategy for complying with the systems you are regulated by or anticipate being regulated by?

"Tax for Climate Change Mitigation" is the tax based on the amount of fossil fuels procured. Therefore, as a strategic measure to comply with this system, we believe that reducing fossil fuels consumption and further improving efficiency will be effective while aiming for an optimal power source portfolio based on S+3E. Specifically, under the Carbon Neutral Challenge 2050, we are moving forward with various measures to reduce carbon emissions, including restarting nuclear power plants with a top priority on safety; expanding the introduction of renewable energy; increasing the efficiency of thermal power generation; and discontinuing use of aged thermal power generation facilities. Our goal is to halve FY2030 CO_2 emissions from FY2013 levels. We expect reductions in carbon taxes as a result.

At our nuclear power plants, we are targeting the early restart of Onagawa Nuclear Power Plant's Unit No. 2 and Higashidori Nuclear Power Plant's Unit No. 1, both based on the premise of assured safety. We are seeking to complete the construction of Onagawa Nuclear Power Plant's Unit No. 2 by November 2023. We plan to synchronize generator equipment with the

grid and begin power generation with that unit in February 2024. While these estimates are based on assumptions, we expect lower thermal fuel costs of approximately JPY40 billion per year once Onagawa Nuclear Power Plant's Unit No. 2 resumes operations and approximately JPY25 billion per year once Higashidori Nuclear Power Plant's Unit No. 1 resumes operations.
Next, regarding renewable energy, we are undertaking new development and new business participation while drawing on our accumulated expertise in hydroelectricity, solar, geothermal, and biomass power, with a primary focus on wind power. Aiming for 2 million kW mainly in the six prefectures of Tohoku and in Niigata Prefecture, we will preferentially devote our management resources to the effort. In addition, in order to utilize renewable energy in the long term and sustainably, we will participate in all aspects of the renewable energy life cycle with due consideration for efforts in areas such as operation and maintenance (O&M) and power source replacement.
Furthermore, regarding thermal power generation, our Noshiro Thermal Power Plant’s Unit No.3 came online in March 2020. Employing ultra-supercritical (USC) technology and by boosting steam temperatures, Noshiro Thermal Power Plant’s Unit No.3 has achieved thermal efficiency of 46%, among the world’s highest levels of thermal efficiency recorded to date (based on low-level heat generation volume) for coal-fired power generation equipment. Joetsu Thermal Power Station Unit No. 1 began operating commercially in December 2022, using the forced air cooling combustor system, which is highly economical and environmentally friendly as it reduces both fuel consumption and CO_2 emissions, with the goal of achieving a thermal efficiency of at least 63%, world-beating performance for a gas combined cycle power generation facility. In addition, Akita Thermal Power Plant Unit No. 3 terminated operation in September 2019 and No. 2 in March 2020 to suspend and decommission old and inefficient thermal power plants, which are not environmentally friendly or economical. In March 2019, we discontinued the use of gas turbines at Akita Thermal Power Plant's Unit No. 5 and Higashi Niigata Thermal Power Plant’s Unit No. 5. In FY 2020, we utilized the decommissioned facilities effectively and reduce fuel consumption and CO_2 emissions by improving operability and thermal efficiency by diverting gas turbines to Higashi Niigata Unit No. 4-1 system.
Furthermore, the Higashi Niigata Thermal Power Plant's Minato Unit No. 1 and No. 2 are currently in planned long-term suspension that began in March 2021. Supply plans reflect the discontinuation of operations at Akita Thermal Power Plant's Unit No. 4 in July 2024, based on overall assessments of various considerations, including the age of its facilities and future maintenance costs. In addition, we introduced a system incorporating IoT technology in FY2019. We continue to strive to maintain and improve heat efficiency by conducting careful daily operation management and stable operation of high-efficiency plants. In this way, we are devising strategies to comply with regulations while aiming to reduce fossil fuel use and further improve efficiency.

C11.2

(C11.2) Has your organization canceled any project-based carbon credits within the reporting year?

No

C11.3

(C11.3) Does your organization use an internal price on carbon?

Yes

C11.3a

(C11.3a) Provide details of how your organization uses an internal price on carbon.

Type of internal carbon price

Shadow price

How the price is determined

Cost of required measures to achieve emissions reduction targets

Objective(s) for implementing this internal carbon price

Drive energy efficiency
Drive low-carbon investment

Scope(s) covered

Scope 1

Pricing approach used – spatial variance

Differentiated

Pricing approach used – temporal variance

Evolutionary

Indicate how you expect the price to change over time.

We refer to the latest prices of non-fossil fuel energy certificates that can be used to report the CO_2 emission factors of electric power companies under the Act on Promotion of Global Warming Countermeasures. Note that they are contracted market prices fluctuating over time.

Actual price(s) used – minimum (currency as specified in C0.4 per metric ton CO_2e)

1,333

Actual price(s) used – maximum (currency as specified in C0.4 per metric ton CO_2e)

2,888

Business decision-making processes this internal carbon price is applied to

Risk management
Opportunity management

Mandatory enforcement of this internal carbon price within these business decision-making processes

No

Explain how this internal carbon price has contributed to the implementation of your organization's climate commitments and/or climate transition plan.

With regard to the risks and opportunities associated with investing in a power plant, we undertake assessments based on the CO_2 emission factors of the power plant and the internal carbon price noted above. In actual application, we use prices that reflect the properties of individual projects and recent conditions. Prices that reflect recent conditions are converted based on a national average coefficient, assumed as 0.45 kg-CO_2/kWh, and a near-term contracted price in markets to achieve the advancement obligation. The minimum price is JPY0.6/kWh, and the maximum is estimated using the upper limit of JPY1.3/kWh.

We anticipate that this pricing will promote investment in facilities equipped with low-carbon technologies.

C12. Engagement

C12.1

(C12.1) Do you engage with your value chain on climate-related issues?

Yes, our customers/clients

Yes, other partners in the value chain

C12.1b

(C12.1b) Give details of your climate-related engagement strategy with your customers.

Type of engagement

Education/information sharing

Executed an ad-based campaign intended to inform consumers about the positive effects on climate change of using our products, goods, and/or services.

% of customers by number

100

% customer-related Scope 3 emissions as reported in C6.5

100

Please explain the rationale for selecting this group of customers and scope of engagement.

Since electricity supply is our core business, cooperation with all entities in demand of electricity is vital to promote energy conservation. For this reason, we aim to engage

with 100% of customers. For example, compared to other regions in Japan, kerosene accounts for a large share of emissions by energy type in the household sector in the Tohoku area, a region where heavy snowfall and cold weather are typical. Given this situation, in order to promote energy conservation at home, it is also essential to promote high-efficiency, highly airtight houses that improve the performance of houses themselves, while taking into account the regional characteristics of customers' residences, along with high-efficiency hot water supply and heating systems that utilize heat pump technology. We provide energy services to customers who use our electricity, including factories, hospitals and welfare facilities, school-related facilities, and agricultural facilities, that lead to energy savings and cost savings.

Impact of engagement, including measures of success

We provide energy services to our customers who use our electricity, including homes, factories, hospitals and welfare facilities, school-related facilities and agricultural facilities, that lead to energy savings and cost savings. In particular, since a large share of energy consumption by households in the Tohoku area (a region where heavy snowfall and cold weather are typical) is related to heating water, one potential key to protecting the environment is to minimize this consumption. Heat pumps use relatively small amounts of electricity to capture heat in the air and to deliver it to the destination, which means they offer outstanding energy efficiency. EcoCute, a hot water supply system based on heat pump technology, reduces CO_2 emissions otherwise generated by water heating.

We cooperate with manufacturers, electric appliance stores, and housing builders to propose the introduction of EcoCute to customers. In addition, in conjunction with the introduction of equipment, we are working to conserve energy in terms of electricity use and to equalize load by proposing a menu of electricity rates for each time zone that matches lifestyles. We monitor on an ongoing basis the cumulative total of EcoCute units introduced through our company as a metric for our climate-related engagement, and this number has grown steadily from 43,175 in FY2019 to 44,475 in FY2020 and to 51,753 in FY2021. We believe we are making steady progress in this area, having achieved our goal of growth from previous levels.

C12.1d

(C12.1d) Give details of your climate-related engagement strategy with other partners in the value chain.

Status, background: To reduce CO_2 emissions, both our own emissions-reduction measures (on the supply side) and those implemented by customers (on the demand side) play important roles. Some 17% of Japan's total CO_2 emissions in FY2021 came from the transport sector. The Japanese government's Global Warming Countermeasure Plan calls for increasing use of next-generation vehicles such as plug-in hybrids (PHVs). A PHV is a hybrid vehicle that can be charged by an external power supply. PHVs exhibit outstanding environmental performance, combining the strengths of electric vehicles, which generate no CO_2 or other emissions while driving, and the strengths of highly fuel-efficient hybrids.

Issues: The Global Warming Countermeasure Plan sets a goal of roughly 50-70% of new vehicle sales consisting of next-generation vehicles by 2030. In FY2017, this figure was just 37%. PHVs in particular accounted for less than 1% of new vehicle sales in the Japanese market.
Actions: To improve consumer energy efficiency and promote the adoption of eco-friendly PHVs, we have partnered with Toyota Motor, Japan's largest automaker and a producer of PHVs, to introduce the PHV Yori, Sou e-Drive Points Program. This program awards consumers who purchase PHVs with Yori, Sou e-Points in accordance with considerations such as distances driven in EV mode. (Applications were accepted April 2020 – May 2021.) Participants can exchange their collected points for various items, including local products from Tohoku and Niigata Prefecture, donations, points in compatible reward programs, and gift certificates.
Results: By providing customers with incentives and promoting use of vehicles with improved environmental performance, the PHV Yori, Sou e-Drive Points Program contributes to climate-change solutions while helping customers improve their energy efficiency and reduce CO_2 emissions. The program is also unique in helping to protect the natural environment of the region to make it possible to pass on this heritage to future generations. We will continue to pursue various initiatives based on a sensitive understanding of customer needs while reducing our environmental impact.

C12.2

(C12.2) Do your suppliers have to meet climate-related requirements as part of your organization’s purchasing process?

Yes, suppliers have to meet climate-related requirements, but they are not included in our supplier contracts.

C12.2a

(C12.2a) Provide details of the climate-related requirements that suppliers have to meet as part of your organization’s purchasing process and the compliance mechanisms in place.

Climate-related requirement

Complying with regulatory requirements

Description of this climate related requirement

We ask all our business partners to comply with all laws, regulations, and social norms; proactively strive to reduce CO_2 emissions to realize carbon neutrality; and promote green procurement.

% suppliers by procurement spend that have to comply with this climate-related requirement

100

% suppliers by procurement spend in compliance with this climate-related requirement

100

Mechanisms for monitoring compliance with this climate-related requirement

First-party verification

Response to supplier non-compliance with this climate-related requirement

Retain and engage

C12.3

(C12.3) Does your organization engage in activities that could either directly or indirectly influence policy, law, or regulation that may impact the climate?

Row 1

External engagement activities that could directly or indirectly influence policy, law, or regulation that may impact the climate

Yes, our membership of/engagement with trade associations could influence policy, law, or regulation that may impact the climate.

Does your organization have a public commitment or position statement to conduct your engagement activities in line with the goals of the Paris Agreement?

Yes

Attach commitment or position statement(s)

challenge_zero.pdf

Describe the process(es) your organization has in place to ensure that your external engagement activities are consistent with your climate commitments and/or climate transition plan.

We applied to the Keidanren's Challenge Zero program for recognition of our efforts to achieve a hydrogen society and our efforts to achieve VPP commercialization as innovation case studies. Progress on such measures is reported to the Management Committee and the Board of Directors.

C12.3b

(C12.3b) Provide details of the trade associations your organization is a member of, or engages with, which are likely to take a position on any policy, law or regulation that

may impact the climate.

Trade association

Japan Business Federation (Keidanren)

Is your organization's position on climate change policy consistent with theirs?

Consistent

Has your organization attempted to influence their position in the reporting year?

Yes, we publicly promoted their current position.

Describe how your organization’s position is consistent with or differs from the trade association’s position, and any actions taken to influence their position.

Positions of trade organizations on climate change and our positions are largely identical.

As a participating company, we are asked to make declarations on innovations, investment, finance, and other factors in net-zero carbon technologies and to submit examples of practical initiatives. Specifics are posted on the Keidanren's Challenge Zero website (https://www.challenge-zero.jp).

Funding figure your organization provided to this trade association in the reporting year (currency as selected in C0.4)

Describe the aim of your organization’s funding.

Have you evaluated whether your organization’s engagement with this trade association is aligned with the goals of the Paris Agreement?

Yes, we have evaluated, and it is aligned.

C12.4

(C12.4) Have you published information about your organization’s response to climate change and GHG emissions performance for this reporting year in places other than in your CDP response? If so, please attach the publication(s).

Publication

In mainstream reports

Status

Complete

Attach the document

2021_ho.pdf

Page/Section reference

Governance: p. 43-49
Strategy: p. 11-15
Risks & Opportunities: p. 16-19
Opportunities: p. 30

Content elements

- Governance
- Strategy
- Risks & Opportunities

Comment

Publication

In voluntary communications

Status

Complete

Attach the document

tohoku_integrated2022_jp.pdf

Page/Section reference

Governance: pp. 28, 70, 83
Strategy: pp. 29-31
Risks & Opportunities: pp. 28, 30-31, 67-69
Emissions figures: pp. 32, 90
Emission targets: p. 24

Content elements

Governance
Strategy
Risks & Opportunities
Emissions figures
Emission targets

Comment

Publication

In voluntary sustainability report

Status

Complete

Attach the document

tohoku_sustainabilityreport2022_jp.pdf

Page/Section reference

Governance: pp. 4, 13-14
Emissions figures: pp. 24, 25
Other metrics: p. 75

Content elements

Governance
Emissions figures
Other metrics

Comment

C12.5

(C12.5) Indicate the collaborative frameworks, initiatives and/or commitments related to environmental issues for which you are a signatory/member.

	Environmental collaborative framework, initiative and/or commitment	Describe your organization's role within each framework, initiative and/or commitment
Row 1	IIF Forum on Implementation of TCFD Recommendations UN Global Compact	• Task Force on Climate-Related Financial Disclosures (TCFD) We announced our support for the TCFD recommendations in April 2019. Since then, we have promoted our environmental policies as a growth strategy by further enhancing communication with stakeholders and improving environmental management and environmental disclosure. • UN Global Comact Solutions to increasingly diverse and complex social challenges will require stronger partnerships among various businesses and organizations. By participating in the UN Global Compact, we expect to be able to advance our sustainability initiatives through cooperation and exchange with other participants.

C15. Biodiversity

C15.1

(C15.1) Is there board-level oversight and/or executive management-level responsibility for biodiversity-related matters within your organization?

	Board-level oversight and/or executive management-level responsibility for biodiversity-related issues	Description of oversight and objectives relating to biodiversity
Row 1	Yes, both board-level oversight and executive management-level responsibility	The Tohoku Electric Power Group sees protecting the environment as a key management topic. Our approach to implementing environmental initiatives alongside local communities, based on the Tohoku Electric Power Group Environmental Policy, for which the President has decision-making authority, is steadfast. In addition to making decisions on important matters of Company business execution such as major management plans, the Board of Directors receives reports from directors concerning the state of business execution and carries out mutual oversight of the execution of the duties of the directors. Biodiversity-related responses are reported to the Board of Directors annually through the Sustainability Promotion Council as a Tohoku Electric Power Group priority sustainability topic (materiality topic), following review of progress under an environmental management framework that consists of the Committee of Environmental Management and the Promotion Council of Carbon Neutrality and Environmental Management, the latter of which has a membership drawn from management on the business execution side.

C15.2

(C15.2) Has your organization made a public commitment and/or endorsed any initiatives related to biodiversity?

	Indicate whether your organization made a public commitment or endorsed any initiatives related to biodiversity	Biodiversity-related public commitments	Initiatives endorsed
Row 1	Yes, we have made public commitments and publicly	Other, please specify The Tohoku Electric Power Group Environmental Policy includes	SDG

	endorsed initiatives related to biodiversity.	"Safeguard and coexist with the rich natural environment" as one of its four environmental action principles.	Other, please specify Initiative on the Declaration of Biodiversity by Keidanren

C15.3

(C15.3) Does your organization assess the impacts and dependencies of its value chain on biodiversity?

Impacts on biodiversity

Indicate whether your organization undertakes this type of assessment.

No, but we plan to within the next two years.

Dependencies on biodiversity

Indicate whether your organization undertakes this type of assessment.

No, but we plan to within the next two years.

C15.4

(C15.4) Does your organization have activities located in or near to biodiversity-sensitive areas in the reporting year?

No

C15.5

(C15.5) What actions has your organization taken in the reporting year to progress your biodiversity-related commitments?

	Have you taken any actions in the reporting period to progress your biodiversity-related commitments?	Type of action taken to progress biodiversity-related commitments
Row 1	Yes, we are taking action to advance our biodiversity-related commitments.	Land/water protection Land/water management Species management

C15.6

(C15.6) Does your organization use biodiversity indicators to monitor performance across its activities?

	Does your organization use indicators to monitor biodiversity performance?	Indicators used to monitor biodiversity performance

Row 1	No	

C15.7

(C15.7) Have you published information about your organization's response to biodiversity-related issues for this reporting year in places other than in your CDP response? If so, please attach the publication(s).

Report type	Content elements	Attach the document and indicate where in the document the relevant biodiversity information is located
In voluntary sustainability report or other voluntary communications	Content of biodiversity-related policies or commitments Impacts on biodiversity	• Sustainability Report: p. 32 • Grun Environmental Communication Booklet: pp. 19-24 1, 2

[1]tohoku_sustainabilityreport2022_jp.pdf

[2]grun.pdf

C16. Signoff

C-FI

(C-FI) Use this field to provide any additional information or context that you feel is relevant to your organization's response. Please note that this field is optional and is not scored.

C16.1

(C16.1) Provide details for the person that has signed off (approved) your CDP climate change response.

	Job title	Corresponding job category
Row 1	President	President

SC. Supply chain

SC0.0

(SC0.0) If you would like to do so, please provide a separate introduction to this module.

SC0.1

(SC0.1) What is your company's annual revenue for the stated reporting period?

	Annual revenue
Row 1	

SC1.1

(SC1.1) Allocate your emissions to your customers listed below according to the goods or services you have sold them in this reporting period.

SC1.2

(SC1.2) Where published information has been used in completing SC1.1, please provide a reference(s).

SC1.3

(SC1.3) What are the challenges in allocating emissions to different customers, and what would help you to overcome these challenges?

Allocation challenges	Please explain what would help you overcome these challenges

SC1.4

(SC1.4) Do you plan to develop your capabilities to allocate emissions to your customers in the future?

SC2.1

(SC2.1) Please propose any mutually beneficial climate-related projects you could collaborate on with specific CDP Supply Chain members.

SC2.2

(SC2.2) Have requests or initiatives by CDP Supply Chain members prompted your organization to undertake organizational-level emissions reduction initiatives?

SC4.1

(SC4.1) Are you providing product level data for your organization's goods or services?

Submit your response

In which language are you submitting your response?

Japanese

Please confirm how your response should be handled by CDP.

	I understand that my response will be shared with all requesting stakeholders	Public or Non-Public Submission
Please select your submission options	Yes	Public

Confirm the following:

We have read and consent to the applicable conditions.

CDP Water Security 2023 Questionnaire

W0. Introduction

W0.1

(W0.1) Give a general description of and introduction to your organization.

Company Name: Tohoku Electric Power Co., Inc.
Established: May 1, 1951
Capital: 251.4 billion yen
Total Assets (as of March 31, 2022): 3,928.9 billion yen (consolidated: 4,725.6 billion yen)
Operating revenue (FY2021): 1,566.2 billion yen (consolidated: 2,104.4 billion yen)
Ordinary income (FY2021): -86.8 billion yen (consolidated: -49.2 billion yen)
Representatives (as of July 31, 2022)
- Representative Director & Chairman of the Board: Jiro Masuko
- Representative Director & President: Kojiro Higuchi

Number of shareholders (as of March 31, 2022): 189,131
Supply area: Prefectures of Aomori, Iwate, Akita, Miyagi, Yamagata, Fukushima, Niigata and others.
Number of employees (as of March 31, 2022): 4,927 (consolidated: 24,833)
Electricity sales (FY2021): Lighting (Residential) 20,990 GWh, Power: 46,356 GWh, Total: 67,346 GWh

W-EU0.1a

(W-EU0.1a) Which activities in the electric utilities sector does your organization engage in?

Electricity generation
Transmission
Distribution

W-EU0.1b

(W-EU0.1b) For your electricity generation activities, provide details of your nameplate capacity and the generation for each technology.

	Nameplate capacity (MW)	% of total nameplate capacity	Gross electricity generation (GWh)
Coal – hard	3,750	22.5	27,008

Lignite	0	0	0
Oil	600	3.6	1,504
Gas	6,899	41.3	23,313
Biomass	50	0.3	66
Waste (non-biomass)	0	0	0
Nuclear	2,750	16.5	0
Fossil-fuel plants fitted with carbon capture and storage	0	0	0
Geothermal	188.8	1.1	687
Hydropower	2,450	14.7	8,028
Wind	0	0	0
Solar	4.5	0	6
Marine	0	0	0
Other renewable	0	0	0
Other non-renewable	0	0	0
Total	16,692.3	100	60,612

W0.2

(W0.2) State the start and end date of the year for which you are reporting data.

	Start date	End date
Reporting year	01/04/2021	31/03/2022

W0.3

(W0.3) Select the countries/areas in which you operate.

Japan

W0.4

(W0.4) Select the currency used for all financial information disclosed throughout your response.

JPY

W0.5

(W0.5) Select the option that best describes the reporting boundary for companies, entities, or groups for which water impacts on your business are being reported.

Other, please specify

The scope of reporting includes Tohoku Electric Power Co., Inc. and its major subsidiary Tohoku Electric Power Network Co., Inc.

W0.6

(W0.6) Within this boundary, are there any geographies, facilities, water aspects, or other exclusions from your disclosure?

No

W0.7

(W0.7) Does your organization have an ISIN code or another unique identifier (e.g., Ticker, CUSIP, etc.)?

Indicate whether you are able to provide a unique identifier for your organization.	Provide your unique identifier
Yes, an ISIN code	JP3605400005

W1. Current state

W1.1

(W1.1) Rate the importance (current and future) of water quality and water quantity to the success of your business.

	Direct use importance rating	Indirect use importance rating	Please explain
Sufficient amounts of good quality freshwater available for use	Important	Not very important	(1) Direct use At our hydroelectric power stations, which account for about 15% of our power generating capacity, we use fresh water sourced from rivers to power water turbines by withdrawing reservoir water via pipes and other facilities from our dams built on rivers or from dams and other facilities managed by local governments. The fresh water from nearby rivers or water supplied by waterworks services (sourced mainly from rivers) is used as industrial plant water to operate steam turbines at nuclear and thermal power stations. Since any interruption of this supply can affect the volume of power generated by hydroelectric power, thermal power, or nuclear power facilities, we believe direct use of fresh water is important. For hydroelectric power generation in particular, since we operate the largest number of hydroelectric power stations in Japan on an

			individual company basis (205 stations) and expect to make the most of hydroelectric power as a renewable energy source into the future, any decrease in the available volume of water may significantly impact our ability to generate clean energy, as well as our earnings. Since we expect no major changes in the power generation process in the future and will continue to use fresh water for power generation at nuclear power stations, thermal power stations, and hydroelectric power stations, our assessment of its importance will remain unchanged. (2) Indirect use Major suppliers in our power generation business supply coal, natural gas, petroleum, and other fossil fuels. High quality fresh water is less important for the extraction and processing of fossil fuels. To ensure a stable supply of energy, we strive to diversify and distribute our fuel procurement sources; indirect use of fresh water is of limited importance. We anticipate no future changes in its importance because we expect no major changes in power generation processes or in our relationships with suppliers.
Sufficient amounts of recycled, brackish and/or produced water available for use	Not important at all	Not very important	(1) Direct use We do not use recycled water, brackish water, or produced water. The availability of recycled, brackish, and/or produced water is unimportant. (2) Indirect use Major suppliers in our power generation business supply coal, natural gas, petroleum, and other fossil fuels. While water other than fresh water, such as sea water and recycled water, is used in the processing of fossil fuels—mainly for cooling and similar purposes—we strive to diversify and distribute our fuel procurement sources to ensure a stable energy supply. For this reason, the indirect use of water other than fresh water is of limited importance. We anticipate no future changes in its importance because we expect no major changes in power generation processes or in our relationships with suppliers.

W1.2

(W1.2) Across all your operations, what proportion of the following water aspects are regularly measured and monitored?

	% of sites/ facilities/ operations	Frequency of measurement	Method of measurement	Please explain
Water withdrawals - total volume	100%	Yearly	We check total water intake by water source.	As part of our environmental management efforts, we check total water intake of all power stations and other sites annually.
Water withdrawals - volumes by source	100%	Continuously	(2) Freshwater (river water): We measure and monitor freshwater use at hydroelectric power stations by constantly monitoring water levels in reservoirs and canals along with power generation output and by converting these measurements to water flows. At nuclear and thermal power stations, water volumes are monitored using integrated flow meters.	As part of environmental management efforts, we measure and monitor water intake at all power stations and other sites annually. In our businesses, we use (1) freshwater (water purchased from third parties), (2) freshwater (river water), and (3) sea water (cooling water). We monitor various data, including water levels and flows, as part of facility management efforts, and communicate this information to national and local governments and to the public. The scope encompasses all power stations and other sites. We have elected to provide information on measurement frequencies and methods for (2) freshwater (river water), which accounts for a significant volume of water intake. (1) Freshwater (water purchased from third parties) and (3) sea water

				(cooling water) are monitored as follows: (1) Freshwater (water purchased from third parties) Measurement frequency: Monthly Measurement method: Water purchased (intake) is measured and monitored using bills from local governments. (3) Sea water (cooling water) Checked by conversion from sea water pump rated flow and power plant usage rate (daily).
Water withdrawals quality	100%	Daily	(1) Freshwater (river water): We constantly monitor the turbidity of water used at hydroelectric power stations and conduct water quality surveying about once a month for items as specified in water use regulations, etc.	The scope encompasses all power stations and other sites. Regarding measurement frequencies and methods, we provide water use at hydroelectric power stations under (1) freshwater (river water). In the catchments of (pumping-up) hydroelectric power stations, operations are based on constant measurements of turbidity obtained with turbidimeters. We strive to preserve water quality through monthly water quality surveys of the parameters stipulated as subject to frequent measurement based on water use regulations and other rules and regulations. Other (1) freshwater (river water) used as industrial water and (2) sea water

				(cooling water) are monitored as follows: (1) Freshwater (river water) Measurement frequency: Daily Measurement method: Water used as industrial water by thermal power stations and other facilities is monitored daily based on the results of measurement by local governments (turbidity, pH, temperature, hardness, etc.). Description: Industrial water from fresh river water or water supplied by waterworks services (sourced mainly from rivers) is used as plant water for power generation or other purposes. We check its water quality (pH, turbidity, hardness components, etc.) for this purpose, using sources such as instrument readings and results of analysis published by local governments. (2) Sea water (cooling water) Measurement frequency: Constant Measurement method: Intake and discharge sea water temperature is constantly measured and monitored using thermometers. Description: At nuclear and thermal power stations, based on arrangements with local governments, we constantly monitor seawater temperature at water intake

				and discharge points using thermometers.
Water discharges - total volume	100%	Yearly	This is monitored by totaling water discharge by discharge destination.	As part of our environmental management efforts, we calculate total water discharge at all power stations and other sites, as our total water discharge.
Water discharges - volumes by destination	100%	Continuously	(1) Fresh groundwater (river water): Water intake at hydroelectric power stations is measured based on the assumption that water discharge is identical.	As part of our environmental management efforts, we measure and monitor water discharge at all power stations and other sites. In our businesses, we release water through (1) fresh groundwater (river water), (2) sea water, and (3) third-party discharge. We check and ascertain data such as water levels, flows, and purchased volumes as part of facility management, and for notification to national and local governments and disclosure purposes. Under measurement frequency and methods, we describe typical information for (1) fresh groundwater (river water), which accounts for the largest volume of water discharge. (2) Sea water and (3) third-party discharge are outlined below: (2) Sea water This refers to water discharged after plant processing and cooling water at nuclear and thermal power stations. Each is measured as described below: (i) Plant processing water

				Measurement frequency: Constant Measurement method: Measured using flow meters and discharge tank water level gauges (ii) Cooling water Measurement frequency: Annual Measurement method: Water discharge is monitored using water intake, since this water is released without any consumption. (3) Third-party discharge This mainly refers to tap water used at and discharged from business sites. Measurement frequency: Monthly Measurement method: Monitored based on the assumption that it is identical to water volume purchased from the waterworks system
Water discharges - volumes by treatment method	100%	Continuously	For river water used by hydroelectric power stations, which is released without any consumption, intake and outtake are identical. These values are measured constantly (hourly).	Water discharge is processed differently by water use method. We employ tertiary treatment or no processing. Regarding measurement frequencies and methods, for unprocessed discharge, we provide river water discharge at hydroelectric power stations that release significant volumes of water, as typical examples. These use water only as potential energy to rotate

				turbines, returning it to the river unprocessed. Other processing methods include no processing (sea water) and tertiary treatment. Details are provided below: Unprocessed discharge (sea water) This refers to sea water used as cooling water at nuclear and thermal power stations. It is used to cool turbine steam and is released unprocessed to the sea after thermal exchange, with no consumption. Measurement frequency: Annual Measurement method: Water discharge is monitored using water intake, since this water is released without any consumption. Tertiary-treated discharge Plant water used at nuclear and thermal power stations is released after processing based on the Water Pollution Prevention Act and agreements with local governments. Measurement frequency: Constant Measurement method: Measured using flow meters and discharge tank water level gauges. Tap water used at each site is released into the public sewer system.
Water discharge	100%	Continuously	These are measured and monitored as	The scope encompasses nuclear and thermal power

quality - by standard effluent parameters			described below, based on laws, regulations, agreements with local governments, and other provisions. Constant monitoring is conducted using instruments that satisfy national standards.	stations, which use heat and potential energy only and use water for purposes other than tap water. (1) Nuclear power stations We measure substances that are potentially harmful to water ecosystems or human health using analytical and other equipment based on manuals conforming to the Water Pollution Prevention Act, the Reactor Regulation Act, and agreements with local governments. This is conducted using the methods and frequencies specified for each measurement item. Management efforts seek to ensure that base levels are not exceeded, and we report the results of measurement to local governments. (2) Thermal power stations We measure substances that are potentially harmful to water ecosystems or human health using analytical and other equipment based on manuals conforming to the Water Pollution Prevention Act and agreements with local governments on a monthly basis. Management efforts seek to ensure that base levels are not exceeded, and we report the results of measurement to local governments. We have entered constant monitoring by permanently

				deployed instruments as a typical example of monitoring frequencies and methods. We also undertake measurements through manual analysis periodically, based on in-house standards and manuals conforming to Japanese regulations and standards. Some examples of subjects of monitoring are provided below: pH, oil film (constant), ss, n-hexane (once a month), COD (once a year)
Water discharge quality – emissions to water (nitrates, phosphates, pesticides, and/or other priority substances)	100%	Yearly	Under the Act on the Assessment Releases of Specified Chemical Substances in the Environment, we ascertain volumes released into water using the calculation methods specified by the Japanese government and related agencies. At nuclear and thermal power stations, we measure harmful substances as prescribed by laws and regulations at least once a year, mainly through manual analysis. This manual analysis is conducted based on in-house standards and manuals conforming to Japanese regulations and standards.	For all our power stations and other sites, we disclose information on harmful substances and other substances identified under the Act on the Assessment Releases of Specified Chemical Substances in the Environment as part of our environmental management, and individual sites report any excesses over regular levels to their local governments. We employ results of measurement of harmful substances at our nuclear and thermal power stations in management efforts to ensure that base levels are not exceeded, and we report the results of measurement to local governments and attain community understanding.

Water discharge quality – temperature	100%	Continuously	Nuclear and thermal power stations measure and monitor the temperature of seawater discharge constantly.	Facilities subject to these efforts include nuclear and thermal power stations that use seawater as cooling water. While they operate, nuclear and thermal power plants use sea water to cool the steam used in steam turbines through thermal exchange. We monitor and manage water discharge temperatures to ensure that any increases in temperature do not exceed the levels agreed upon with local governments.
Water consumption – total volume	100%	Yearly	We measure differences between total water intake and total water discharge.	While we do ascertain our current water use, we do not use this information in environmental management. We plan to make progress in areas such as disclosure of water use within the coming few years.
Water recycled/reused	100%	Continuously	We use permanently deployed instruments to check water circulation and supply levels and estimate this using the difference between the two.	At coal-fired power plants, which use particularly high volumes of freshwater, we reuse water through recirculation and reuse some discharge water on the plant site.
The provision of fully-functioning, safely managed WASH services to all workers	100%	Daily	At coal-fired power plants, which use particularly high volumes of freshwater, we reuse water through recirculation and reuse some discharge water on the plant site.	We consider it important to provide fully managed water, sanitation, and hygiene (WASH) services to all employees in all of our business sites. We constantly check for any abnormalities based on information concerning water quality and other topics provided by waterworks bureaus and

				other agencies and on results of inspections.

W-EU1.2a

(W-EU1.2a) For your hydropower operations, what proportion of the following water aspects are regularly measured and monitored?

	% of sites/facilities/operations measured and monitored	Please explain
Fulfilment of downstream environmental flows	100%	Based on the requirements specified in permits for use of river water in power generation and the Japanese government's power generation guidelines (on maintaining steady river flows when renewing rights to use water for power generation), we discharge sufficient volumes of water to maintain steady river flows downstream. We measure and monitor flows constantly to ensure steady river flows.
Sediment loading	100%	We also undertake annual depth measurements and dredging for sedimentation in reservoirs in a regular basis at hydroelectric power stations.
Other, please specify	Not relevant	No other related information.

W1.2b

(W1.2b) What are the total volumes of water withdrawn, discharged, and consumed across all your operations, how do they compare to the previous reporting year, and how are they forecasted to change?

	Volume (megaliters/ year)	Comparison with previous reporting year	Primary reason for comparison with previous reporting year	Five-year forecast	Primary reason for forecast	Please explain
Total withdrawals	114,763,151	About the same	Change in accounting methodology	About the same	Other, please specify Since power generation processes are unlikely to change, this figure is	While we have included sea water (cooling water), which was not recorded last year, it

					relatively constant, aside from fluctuations due to volumes of power generated and inspections at nuclear and thermal power stations.	accounts for less than 10% of total water use, and total intake is largely constant. Since power generation processes are unlikely to change, we expect these figures to remain relatively constant, aside from fluctuations due to volumes of power generated and inspections at nuclear and thermal power stations.
Total discharges	114,755,536	About the same	Change in accounting methodology	About the same	Other, please specify Since power generation processes are unlikely to change, this figure is relatively constant, aside from fluctuations due to volumes of power generated and inspections at nuclear and thermal power stations.	While we have included sea water (cooling water), which was not recorded last year, it accounts for less than 10% of total water use, and total intake is largely constant. Since power generation processes are unlikely to change, we expect these figures to

						remain relatively constant, aside from fluctuations due to volumes of power generated and inspections at nuclear and thermal power stations.
Total consumption	7,615	About the same	Other, please specify Since power generation processes are unlikely to change, this figure is relatively constant, aside from fluctuations due to volumes of power generated and inspections at nuclear and thermal power stations.	About the same	Other, please specify Since power generation processes are unlikely to change, this figure is relatively constant, aside from fluctuations due to volumes of power generated and inspections at nuclear and thermal power stations.	Since power generation processes are unlikely to change, we expect these figures to remain relatively constant, aside from fluctuations due to volumes of power generated and inspections at nuclear and thermal power stations.

W1.2d

(W1.2d) Indicate whether water is withdrawn from areas with water stress, provide the proportion, how it compares with the previous reporting year, and how it is forecasted to change.

	Withdrawals are from areas with water stress	Identification tool	Please explain
Row 1	No	WRI Aqueduct (Aqueduct (water pipes and canals))	Our nuclear, thermal, and hydroelectric power stations are located in Aomori, Iwate, Akita, Miyagi, Yamagata, Fukushima, and Niigata prefectures. We undertake reviews to identify water stress in these regions. Water

			stress is assessed using the WRI Water Aqueduct water risk evaluation tool. Since the results of Water Aqueduct evaluations show overall water risk levels of low or low to moderate in the regions in which our power stations are located, we have concluded that we do not withdraw water from areas experiencing water stress.

W1.2h

(W1.2h) Provide total water withdrawal data by source.

	Relevance	Volume (megaliters/ year)	Comparison with previous reporting year	Primary reason for comparison with previous reporting year	Please explain
Fresh surface water, including rainwater, water from wetlands, rivers, and lakes	Relevant	108,390,161	About the same	Other, please specify Since power generation processes are unlikely to change, this figure is relatively constant, aside from fluctuations due to volumes of power generated and inspections conducted.	At hydroelectric power stations, we use river water to power water turbines in the power generation process by withdrawing reservoir water, via pipes or other facilities, from our dams built on rivers or from dams and other facilities managed by local governments. We monitor water levels in reservoirs and canals, along with power generation output and convert these measurements to water flows. Water from nearby rivers or water supplied by waterworks services (sourced mainly from rivers) is used as industrial plant water to operate steam turbines at nuclear and thermal power stations. Intake volumes are monitored

					using integrated flow meters.
Brackish surface water/Seawater	Relevant	6,372,688	This is our first year of measurement	Other, please specify First year of measurement	Sea water intake is used as cooling water at nuclear and thermal power stations and released after thermal exchange.
Groundwater – renewable	Not relevant				We operate no equipment that uses renewable groundwater.
Groundwater – non-renewable	Not relevant				We operate no equipment that uses non-renewable groundwater.
Produced/ Entrained water	Not relevant				We operate no equipment that uses produced/entrained water.
Third party sources	Relevant	302	About the same	Other, please specify No major change in number of employees	We purchase tap water from local governments for uses such as drinking water at Group business sites. The volume of such water used is identified from invoices and other sources. Under our environmental management system, we manage this water on a monthly basis and conduct assessments roughly once every half-year. We provide feedback to each business site based on the results.

W1.2i

(W1.2i) Provide total water discharge data by destination.

	Relevance	Volume (megaliters/ year)	Comparison with previous reporting year	Primary reason for comparison with previous reporting year	Please explain
Fresh surface water	Relevant	108,379,666	About the same	Other, please specify Since power generation processes are unlikely to change, this figure is relatively constant, aside from fluctuations due to volumes of power generated and inspections conducted.	All water withdrawn from rivers at hydroelectric power stations is used in the power generation process and returned to rivers as is. For this reason, this type of water is relevant to our businesses. Since the entire water intake is released, discharge and intake volumes are identical. We measure and monitor intake by monitoring water levels in reservoirs and canals along with power generation output and converting these measurements to water flows.
Brackish surface water/ seawater	Relevant	6,375,569	Higher	Other, please specify Added sea water used as cooling water.	Water from nearby rivers or water supplied by waterworks services (sourced mainly from rivers) is used as industrial plant water at nuclear and thermal power stations. Since treated surplus water from these sources is discharged to the sea, this type of water is relevant to our businesses. Discharge volumes are monitored based on flow meter readings and discharge tank water levels.

Groundwater	Not relevant				None of our businesses discharges water underground.
Third-party destinations	Relevant	302	About the same	Other, please specify No major change in number of employees	We purchase tap water from local governments and other providers for various purposes, including use as drinking water at business sites and other facilities. Water generated by or remaining from these uses is discharged to public sewer systems. Water discharged is estimated as the same volume as that of purchased tap water.

W1.2j

(W1.2j) Within your direct operations, indicate the highest level(s) to which you treat your discharge.

	Relevance of treatment level to discharge	Volume (megaliters/ year)	Comparison of treated volume with previous reporting year	Primary reason for comparison with previous reporting year	% of your sites/ facilities/ operations this volume applies to	Please explain
Tertiary treatment	Relevant	2,880	About the same	Other, please specify Since power generation processes are unlikely to change, this figure is relatively constant, aside from fluctuations due to volumes of power generated	100%	Thermal power stations discharge water. Plant water used to drive steam turbines is eventually recycled and discharged to the sea. Since it contains impurities and other contamination, in

				and inspections conducted.		compliance with the Water Pollution Prevention Act and pollution prevention agreements with local governments, this water discharge is treated to meet water discharge standards in various ways, including coagulating sedimentation, filtration, and purification. In general, we measure and monitor water quality based on pH, COD, SS, and other established parameters. These discharge volumes are continually monitored based on flow meter readings and discharge tank water levels. Nuclear power stations discharge water. Since it contains impurities and other contamination, in compliance with the Water Pollution

						Prevention Act, the Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors, and other applicable laws and regulations, this water discharge is treated by a combination of various methods, including filtration, desalination, and evaporative concentration, based on the quality of the water discharged. In general, we measure and monitor water quality based on pH, COD, SS, and other established parameters. These discharge volumes are continually monitored based on flow meter readings and discharge tank water levels.
Secondary treatment	Not relevant					This type of water does not pertain to our businesses because we employ no treatment or

						tertiary or later treatment in our treatment of discharged water and do not subject any discharge to secondary treatment only.
Primary treatment only	Not relevant					This type of water does not pertain to our businesses because we employ no treatment or tertiary or later treatment in our treatment of discharged water. We do not subject any discharge to primary treatment only.
Discharge to the natural environment without treatment	Relevant	114,752,354	About the same	Other, please specify Since power generation processes are unlikely to change, this figure is relatively constant, aside from fluctuations due to volumes of power generated and inspections conducted.	100%	All water withdrawn from rivers at hydroelectric power stations is used in the power generation process. Since the power generation process has no effect on water quality, discharge and intake volumes are identical. We measure intake by monitoring water levels in reservoirs and canals along with

						power generation output and converting these measurements to water flows. While nuclear power stations do withdraw sea water as cooling water for use in condensers and discharge the water as is, the water used in this way is not contaminated by chemical or radioactive substances. None of the water is consumed and the intake volume is managed when discharging industrial water into the sea. Since it is not subjected to constant measurement and monitoring, it is exempt from reporting requirements. Although intake and discharge volumes are not continually monitored, we measure and record water temperature at water intake and discharge points based on safety

						agreements and other arrangements with local governments. Similarly, while thermal power stations do withdraw and discharge sea water as cooling water for use in condensers, the water quality remains unchanged during the power generation process. In addition, none of the water is consumed and the intake volume is managed when discharging industrial water into the sea. Since it is not subjected to constant measurement and monitoring, it is exempt from reporting requirements. Although intake and discharge volumes are not continually monitored, we measure and record water temperature at water intake and discharge points

						constantly based on pollution prevention agreements and other arrangements with local governments.
Discharge to a third party without treatment	Relevant	302	About the same	Other, please specify No major change in number of employees	100%	We purchase tap water from local governments and other providers for various purposes, including use as drinking water at business sites and other facilities. Water generated by or remaining from these uses is discharged to public sewer systems after use. Water discharged is estimated as the same volume as that of purchased tap water. The volume purchased from third parties (e.g., local governments) is measured and monitored once a month based on invoices. We are not aware of the highest level of treatment by the third parties

						(public sewers) at the discharge destinations.
Other	Not relevant					No other relevant treatment methods.

W1.2k

(W1.2k) Provide details of your organization's emissions of nitrates, phosphates, pesticides, and other priority substances to water in the reporting year.

	Emissions to water in the reporting year (metric tonnes)	Category(ies) of substances included	List the specific substances included	Please explain
Row 1	0	Nitrates Phosphates Priority substances listed under the EU Water Framework Directive	No subject substances were emitted.	These are ascertained based on periodic analysis and Japan's PRTR Act. No such emissions occurred in FY2021.

W1.3

(W1.3) Provide a figure for your organization's total water withdrawal efficiency.

	Revenue	Total water withdrawal volume (megaliters)	Total water withdrawal efficiency	Anticipated forward trend
Row 1	1,566,203,000,000	114,763,151	13,647.2638329702	Since the power generation process is unlikely to change, we expect these figures to remain relatively constant except for fluctuations due to volumes of power generated and inspections conducted at nuclear and thermal power stations.

W-EU1.3

(W-EU1.3) Do you calculate water intensity for your electricity generation activities?

Yes

W-EU1.3a

(W-EU1.3a) Provide the following intensity information associated with your electricity generation activities.

Water intensity value (m^3)	Numerator: water aspect	Denominator	Comparison with previous reporting year	Please explain
1,895.92	Total water withdrawals	MWh	About the same	As an indicator of water intensity, we measure and manage total water intake divided by the volume of water used in the power generation process. This value can be used to ascertain the volume of water used for the given power volume generated by the Group. We believe this contributes to an improved understanding and the promotion of efficient use of water resources. Specifically, by improving generating efficiency through new construction and renovation of hydroelectric power stations, we can generate more electricity using the same volume of water and suppress fuel consumption for thermal power generation. We expect no major changes in our power generation processes and intend to continue making the most of the abundant hydroelectric power sources available in the Tohoku and Niigata regions. In light of considerations such as improvements in the power generation efficiency of our facilities, we expect water intensity to decrease gradually in the future, except for fluctuations due to volumes of power generated and inspections.

W1.4

(W1.4) Do any of your products contain substances classified as hazardous by a regulatory authority?

	Products contain hazardous substances	Comment
Row 1	No	Our product, electricity, does not contain any harmful substances.

W1.5

(W1.5) Do you engage with your value chain on water-related issues?

	Engagement	Primary reason for no engagement	Please explain
Suppliers	Yes		
Other value chain partners (e.g., customers)	No	Judged to be unimportant	There are no cooperative projects with customers concerning water issues at present.

W1.5a

(W1.5a) Do you assess your suppliers according to their impact on water security?

Row 1

Assessment of supplier impact

No, we do not assess the impact of our suppliers and have no plans to do so within the next two years.

Please explain.

Our primary suppliers extract fossil fuels and other resources. They use sea water, recycled water, and other water as cooling water in fossil-fuel processing. Although we do not conduct impact assessments of these suppliers, we do ascertain the state of effective use of water resources through CSR surveys. If any issues are identified, we ascertain conditions through interviews and other means and request improvements. Since quality freshwater is not vital for fossil-fuel extraction and refining processes, we believe the current practice of ascertaining conditions through surveys is sufficient.

W1.5b

(W1.5b) Do your suppliers have to meet water-related requirements as part of your organization's purchasing process?

	Suppliers have to meet specific water-related requirements	Comment
Row 1	No, and we do not plan to introduce water-related requirements within the next two years	Although this is not a contractual requirement, we identify effective use of water resources though CSR surveys. If any issues are identified, we ascertain conditions through interviews and other means and request improvements.

W1.5d

(W1.5d) Provide details of any other water-related supplier engagement activity.

Type of engagement

Information collection

Details of engagement

Other, please specify

We conduct CSR surveys on the use of water resources at least once every few years.

% of suppliers by number

100%

Rationale for your engagement

To fulfil our corporate social responsibility, we have formulated a Basic Policy of Procurement and ask suppliers to exercise consideration for the environment. We also survey regular suppliers.

Impact of the engagement and measures of success

Since at this stage we are ascertaining current conditions and conducting interviews on any concerns, we have yet to perform detailed assessments. In certain cases, we demand improvements or other measures.

Comment

W2. Business impacts

W2.1

(W2.1) Has your organization experienced any detrimental water-related impacts?

No

W2.2

(W2.2) In the reporting year, was your organization subject to any fines, enforcement orders, and/or other penalties for water-related regulatory violations?

	Water-related regulatory violations	Comment
Row 1	No	

W3. Procedures

W3.1

(W3.1) Does your organization identify and classify potential water pollutants associated with its activities that could have a detrimental impact on water ecosystems or human health?

	Identification and classification of potential water pollutants	How potential water pollutants are identified and classified
Row 1	Yes, we identify and classify our potential water pollutants	[Policies and processes intended to identify and categorize potential water pollutants] We identify and manage subject substances and emissions based on the Water Pollution Prevention Act, the Soil Contamination Countermeasures Act, the PCB Special Measures Act, the Act on the Assessment Releases of Specified Chemical Substances in the Environment, and other environmental laws and regulations as well as agreements with local governments. When establishing a new power plant, we carry out environmental impact assessments under the Environmental Impact Assessment Act, which establishes procedures on prevention and mitigation of environmental impacts on water, air, etc., and explain the specifics to local governments and local residents. Based on the results of such assessments, we implement various measures with consideration for the surrounding air, water, and natural environment, and we strive to protect the environment in the vicinity. We also conduct voluntary environmental assessments when setting up power plants and other facilities that also include aspects not addressed by laws and ordinances. [Details of applicable regulations] In addition to the base values for regulated substances identified in the Water Pollution Prevention Act, the Soil Contamination Countermeasures Act, and other laws and regulations, for some items we comply with base levels even stricter than those of laws and regulations, as established under agreements with local governments. [Measurement indicators and other indicators used to identify pollutants] We identify pollutants with reference to emissions standards, etc., through sampling and analysis based on the methods established in environmental standards and elsewhere.

W3.1a

(W3.1a) Describe how your organization minimizes the adverse impacts of potential water pollutants on water ecosystems or human health associated with your activities.

Water pollutant category

Other physical pollutants

Description of water pollutant and potential impacts

Temperature rises from thermal exchange of cooling water qualify as another physical pollutant. Nuclear and thermal power plants use sea water for thermal exchange to cool the steam used in steam turbines, releasing the water at depth in the sea as thermal discharge water. The Environmental Impact Assessment Act and other laws and ordinances identify thermal discharge water as subject to predictive assessment of water temperature, to avoid impacting aquatic ecosystems through temperature increases in the water and effects of flows of thermal discharge water on the terrain, aquatic migrations, seafloor creatures, and fisheries. To attain the understanding of the community, we believe it's important to identify substances that could affect the surrounding environment.

Value chain stage

Direct operations

Actions and procedures to minimize adverse impacts

Discharge treatment using sector-specific processes to ensure compliance with regulatory requirements

Please explain.

At nuclear power stations, we conclude safety agreements with relevant individual local governments that address environmental concerns. As part of these efforts, together with relevant local governments, we survey the impact of thermal discharge water in the water near nuclear power stations (i.e., physical surveys of matters such as water temperature, salinity, and current and biological surveys on matters such as eggs, fry, and plankton). If results are outside norms, we make the reasons clear. Results of thermal discharge water environmental impact surveys are studied and evaluated by third-party committees established by individual prefectures, and improvements are made in response to any issues identified as a result. The results of study, assessment, and improvement are announced by the local governments. The following have been identified as possible impacts of thermal discharge water on the natural environment: impacts on aquatic creatures due to rising temperatures in the surrounding water; the geological effects of thermal discharge water flows; and impacts on fish migration and benthic organisms, as well as impact on commercial fisheries. Water is discharged to the sea in front of the power station while measuring water temperature to maintain differences in temperature at water intake and discharge points below a certain level (7°C).

At thermal power stations, we conclude pollution prevention agreements with relevant individual local governments that address environmental concerns. Considering regional characteristics, we apply stricter values than those in national regulations, according to which we measure temperature differences between the water at intake and discharge and report the results to relevant local governments. Water is discharged to the sea in front of the power station in a manner designed to keep these figures at or below the levels specified in these agreements.

We control differences in temperature at water intake and discharge points at these

power stations via the constant monitoring and control of circulation pumps. We also constantly remove shellfish that can adhere to heat exchangers and impede their efficiency. In certain cases, we restrain power-generating loads to conform to the regulatory values agreed upon with local governments on differences in temperature at water intake and discharge points.

In building a new power station, alongside environmental impact assessments based on the Environmental Impact Assessment Act, which establishes procedures for avoiding and reducing environmental impacts such as those on water and air, we explain the specifics to local governments and local residents. Based on the results of these environmental assessments, we strive to protect the local environment in various ways that reflect consideration for the surrounding air, water, and natural environments. Even in aspects not addressed by laws and ordinances, we undertake voluntary environmental assessments when building new power stations.
As a member of the local community, in pursuing our business activities, the Group complies thoroughly with environmental laws and regulations across our entire value chain. Applicable policies and procedures are the same as with our direct operations.

W3.3

(W3.3) Does your organization undertake a water-related risk assessment?

Yes, water-related risks are assessed.

W3.3a

(W3.3a) Select the options that best describe your procedures for identifying and assessing water-related risks.

Value chain stage

Direct operations
Supply chain

Coverage

Full

Risk assessment procedure

Water risks are assessed as part of an established enterprise risk management framework.

Frequency of assessment

More than once a year

How far into the future are risks considered?

More than 6 years

Type of tools and methods used

Tools on the market
Enterprise Risk Management
International methodologies and standards
Databases

Tools and methods used

WRI Aqueduct
Enterprise Risk Management
Environmental Impact Assessment
Regional government databases

Contextual issues considered

Water availability at a basin/catchment level
Water quality at a basin/catchment level
Stakeholder conflicts concerning water resources at a basin/catchment level
Water regulatory frameworks
Status of ecosystems and habitats
Access to fully-functioning, safely managed WASH services for all employees

Stakeholders considered

Customers
Employees
Investors
Local communities
Regulators
Suppliers
Water utilities at a local level
Other water users at the basin/catchment level

Comment

W3.3b

(W3.3b) Describe your organization's process for identifying, assessing, and responding to water-related risks within your direct operations and other stages of your value chain.

	Rationale for approach to risk assessment	Explanation of contextual issues considered	Explanation of stakeholders considered	Decision-making process for risk response
Row 1	We implement appropriate management of water resources as required by laws, regulations, etc. Additionally,	Water availability at a basin/catchment level Industrial water from nearby rivers or water supplied by waterworks services (sourced mainly from rivers) is	Customers A power station relies on the trust of its stakeholders, including the community and customers. Violations of laws and regulations or	Each year, the Group surveys climate risks and opportunities over the short, medium, and long term and ascertains their business and financial impacts. Since

	we deploy widely used tools to assess water risks, including WRI's Aqueduct. The scope of assessment is our service area of Aomori, Iwate, Akita, Miyagi, Yamagata, Fukushima, and Niigata prefectures. Through these efforts, we seek to identify any regions subject to water stress within this scope.	refined to high levels of purity for use as plant water at nuclear and thermal power stations. An inability to secure industrial water could make it difficult to operate the power stations, resulting in a decrease in power generated. For this reason, we conduct site surveys and confirm past water-flow volumes at the time of construction to assess volumes of water resources and select points where water will be withdrawn and withdrawal volumes. At hydroelectric power stations, we use fresh water sourced from rivers to power water turbines by withdrawing reservoir water, via pipes and other facilities, from our dams built on rivers or from dams and other facilities managed by local governments. If we were unable to secure enough river water, then power generated could decrease. For this reason, it is essential to assess available water resources in the river basin. Water quality at a basin/catchment level	of the provisions of agreements with local authorities can call into question our approach as a business rooted in the community. Employees Providing Water, Sanitation, and Hygiene (WASH) services to employees is a key consideration because the absence thereof would pose challenges to employees in carrying out their duties. We check constantly for anomalies based on information provided by waterworks bureaus and other agencies and on inspection results. Investors Violations of laws and regulations can not only impact our business due to operational suspension, but also pose the risk of alienating investors and difficulty raising funds, given growing ESG awareness in recent years, as these are issues related to our compliance. In light of growing environmental awareness among investors, we also disclose environmental information, including information related to water, in our Integrated Report. We engage in	water risks such as those of drought and flooding are caused by climate risks, they are identified and assessed as part of this process. Specifically, we identify climate risks and resulting water risks in direct operations by each section and throughout the supply chain as a whole and assess the impact of each risk factor on the division responsible. Impact assessment is conducted based on data announced by the Japan Meteorological Agency (JMA), the Sendai Regional Headquarters of the JMA, and other authorities, including projections of precipitation, numbers of days on which the maximum temperature is 35°C or more, and numbers of days on which the temperature stays below 0°C, along with other forecasts. We also use WRI Aqueduct and WWF Water Risk Filter assessments, and consider past disasters caused by typhoons and other causes and scenario analysis based on them. The findings are assessed from the perspectives of conceivable external environmental changes,

		Industrial water from nearby rivers or water supplied by waterworks services that is sourced mainly from rivers is refined to high levels of purity for use as plant water at nuclear and thermal power stations. The water quality of water intake is assessed because failure to satisfy water-quality standards could affect operation of power stations, resulting in a decrease in power generated. Stakeholder conflicts concerning water resources at a basin/catchment level At hydroelectric power stations, since there will be other water users in the river basin, in operating the power stations we obtain the understanding of local governments and local residents in addition to consensus-building with stakeholders. Water regulations framework In nuclear, thermal, and hydroelectric power generation, water is discharged into public water bodies such as rivers and the sea. Accordingly, compliance with the Water Pollution Prevention Act, the	ESG dialogue with shareholders as part of our IR activities to improve transparency and enhance communication. Local communities This item was selected because we maintain constant close ties with the communities in which power plants and other facilities are located in various ways, including environmental assessments of construction work and reports on managerial status during operation. Regulators There is a possibility that strengthening of regulations on water intake and discharge by authorities could have impacts such as restriction on power generation output or rising power-generation costs in our power generation business. Suppliers Some of our suppliers do use significant volumes of water. Local water utilities At thermal power stations, we purchase the industrial water and tap water used for drinking water and other uses at each	phenomena with negative effects on our company, subjects and degrees of resulting damage to our company, and estimates of financial losses resulting from such damage, and the divisions in charge formulate countermeasures to avoid and mitigate such damage. Study of medium-term environmental plans, including the risks identified and assessed through this process and responses to them, is subjected to oversight by the Board of Directors through proposals and reports submitted based on deliberations in the Committee of Environmental Management, which meets several times each year, and the Promotion Council of Carbon Neutrality and Environmental Management, which is chaired by the President. Each business-execution section also submits proposals and reports to the Board as necessary regarding the formulation and implementation of business plans. A structure is in place for reporting water risks having major impacts on management in

		River Act, and other environmental laws and agreements with local authorities is important. Violations can affect public confidence in the Group and result in suspended operations and reductions in the power generated. State of ecosystems and habitats The thermal discharge water from nuclear and thermal power stations, and dam-building related to hydroelectric power generation could impact marine and river-basin ecosystems. Access to WASH services Providing Water, Sanitation, and Hygiene (WASH) services to employees is a key consideration because the absence thereof would pose challenges to employees in carrying out their duties. We check constantly for anomalies based on information provided by waterworks bureaus and other agencies and on inspection results.	business site from individual waterworks operators. Since the stable supply and quality of this water impacts power station operations and employee job performance, they are key factors in water risk assessments. We periodically monitor the volumes and quality of water purchased from waterworks operators and work in close partnership with the operators. Other water users in the river basin/watershed Use of water resources for hydroelectric power generation creates various risks for downstream water users after the water is discharged. We assess impacts on such users at all times. We announce the results of environmental impact assessments both during dam construction and after operations begin. Through dialogue with local residents and communities, we identify factors that can impact residents and assess the risk of conflicts.	particular to the Board of Directors through an interdisciplinary companywide integrated risk management framework, in combination with non-water risks. Chaired by the President, the Integrated Risk Management Council meets twice annually to provide guidance and advice on assessing the state of management of risks important to business administration, including water risks, and implementing and deploying risk-management activities, among other topics. The results of these deliberations are provided as feedback to each business execution section and related committees, to enhance risk-management activities.

W4. Risks and opportunities

W4.1

(W4.1) Have you identified any inherent water-related risks with the potential to have a substantive financial or strategic impact on your business?

No

W4.1a

(W4.1a) How does your organization define substantive financial or strategic impact on your business?

We are currently proceeding with structural reforms of the power supply business to enhance its competitive strengths and secure stable earnings. At the same time, we seek to achieve a large-scale transformation of our business model through the strategic investment of management resources into a growth business to realize a smart society. To transform our business model and improve our ability to generate the required cash flow, we have set a financial target of JPY320 billion in consolidated cash income by FY2024. Any obstacles to achieving this target will have significant financial impact. In particular, in our core electricity business, it is vital to secure the power generation and distribution facilities needed to deliver a stable supply of power. We recognize facility risks that would result in damage to facilities or the long-term suspension of power supply as important operational risks. These risks include climate change and its consequences for the water supply, typically acute or chronic physical risks, chiefly under the 4°C scenario. In the short-term (through 2025), medium-term (through 2030), and long-term (through c. 2050) time perspectives, we calculate and assess financial impact by using an assessment model that incorporates assumptions based on similar events, both internal and external, referring to the scale of losses we incurred from large-scale natural disasters in the past. We define a potential financial impact as small, moderate, or large along the axis of anticipated companywide losses. For example, we define the risk of reduced power generation output due to changing precipitation patterns as a water-related risk with moderate financial impact over the long term.

W4.2b

(W4.2b) Why does your organization not consider itself exposed to water risks in its direct operations with the potential to have a substantive financial or strategic impact?

	Primary reason	Please explain
Row 1	Risks exist, but no substantive impact anticipated	A sufficient supply of quality fresh water is essential for nuclear, thermal, and hydroelectric power station operations. Water shortages caused by drought may significantly affect our ability to secure fresh water. However, we believe our nuclear power stations are not exposed to water

		risks. We have secured, using freshwater tanks and other facilities, sufficient surplus capacity for the water supply needed by the plants, in anticipation of the inability to secure river water intake due to a problem related to intake facilities. At thermal power stations, we secure surplus water capacity in freshwater tanks, transport industrial water from other power stations, and deploy mobile desalination equipment as countermeasures in the event that drought and water shortages make it difficult to secure industrial water. Accordingly, none of our thermal power stations have been subject to load restrictions or power generation stoppages and we assume that they are not exposed to water risks. In addition to the above considerations, our main business territory—the Tohoku and Niigata region—is a very broad area of 79,531 km^2, accounting for one-third of the land mass of Honshu Island and about 20% of Japan's entire land mass. We operate nuclear power stations in Aomori and Miyagi prefectures and thermal power stations along the Pacific and Japan Sea coasts in Aomori, Akita, Miyagi, Fukushima, and Niigata prefectures. These facilities are unlikely to suffer from simultaneous water shortages. At hydroelectric power stations, while drought may reduce power generation volumes and increase fuel costs, since earnings can be adjusted using the drought reserves system, we consider the likely financial impact to be minimal. According to World Resources Institute (WRI) Aqueduct and WWF Water Risk Filter assessments, the bulk of our business territory of the Tohoku and Niigata area is assessed to pose Low risk, while some other areas pose Low-Moderate risk. Thus, we believe the risk posed by drought is limited.

W4.2c

(W4.2c) Why does your organization not consider itself exposed to water risks in its value chain (beyond direct operations) with the potential to have a substantive financial or strategic impact?

	Primary reason	Please explain
Row 1	Risks exist, but no substantive impact anticipated	The major suppliers on whom we depend in our power generation business supply fossil fuels such as coal, natural gas, and petroleum. Quality fresh water is relatively unimportant to the processes of fossil fuel extraction and refining. Fossil fuel refining processes depend on water other than fresh water, such as sea water and recycled water, chiefly for use as cooling

		water. We do not recognize a major risk here because the risks are distributed; we are currently striving to diversify and distribute our fuel procurement sources in order to ensure a stable supply of energy. We send CSR surveys to suppliers to monitor their use of water resources; if any concerns are identified, we meet with them individually and take other steps to identify their operational status and ask them to make improvements.

W4.3

(W4.3) Have you identified any water-related opportunities with the potential to have a substantive financial or strategic impact on your business?

Yes, we have identified opportunities, and some/all are being realized.

W4.3a

(W4.3a) Provide details of opportunities currently being realized that could have a substantive financial or strategic impact on your business.

Type of opportunity

Efficiency

Primary water-related opportunity

Improved water efficiency in operations

Company-specific description & strategy to realize opportunity

Under the Group's Medium-to Long-Term Vision, "Working alongside next," which envisions our aspirations for the 2030s, we aim to be a group of companies growing in step with sustained societal progress by helping to establish a smart society for a new age, starting in Tohoku. This vision includes, as Priority 1, "Change: Thoroughly enhancing our competitive strengths through power supply business reforms," under which we identify as the goals of practical hydroelectric power generation initiatives the maintenance and expansion of power generating capacity (as expressed in kWh) by renovating aging facilities.

Specifically, by putting water resources to effective use through new construction and renovations of hydroelectric power stations, we can boost power generation efficiency without changing the volumes of water used, thereby suppressing increases in fuel costs accompanying the expanded use of thermal power during droughts. Boosting hydroelectric power generation also generates business opportunities for the Group through participation in non-fossil fuel value trading markets, contributing to sales growth. These water-related opportunities will strengthen our ability to generate the cash flow required for business model transformation, and help us achieve our financial target of JPY320 billion yen in consolidated cash income by FY2024.

We regard these opportunities as strategic opportunities for the Group. In September

2017, we completed large-scale renovations at the aging Kanose Power Station. Reducing the number of water turbines from six to two and adopting high-efficiency vertical shaft water turbines made it possible to increase maximum output by about 10%, from 49,500 kW to 54,200 kW, without affecting water use in any way. The changes also make it possible to increase maximum output by increasing water intake from 290.00 m^3/s to 315.00 m^3/s and making use of surplus capacity, without changing the existing water turbines or other facilities. Seeking the stable operation of this power station with safety afforded top priority, we are striving to put hydroelectricity to more effective use as a renewable domestic energy source. This, in turn, will help achieve our vision for the 2030s as described in the Medium-to Long-Term Vision “Working alongside next.”

Estimated timeframe for realization

More than 6 years

Magnitude of potential financial impact

Low-medium

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

40,000,000

Potential financial impact figure - minimum (currency)

Potential financial impact figure - maximum (currency)

Explanation of financial impact

While the impact has not been quantified financially, boosting the hydroelectric power supply through new construction and renovations can have a positive impact on finances by reducing use of thermal power generation and associated fuel costs. Estimates show that an increase of 1% in hydroelectric power generation can cut fuel costs by about JPY1 billion (impact on revenues and expenditures per 1% of the FY2021 water output rate). In FY 2021, we generated 8,028 GWh of electricity from hydroelectric power, and the volume generated by pumping up hydroelectric power generation fell by 314 GWh to a total of 7,714 GWh. The increase in maximum output capacity at Kanose Power Station 2 resulted in an increase of about 3.1 GWh in power generation per year, and this accounted for about 0.04% of the hydroelectric power generated in FY2021. Since fuel costs decrease JPY1 billion for each 1% increase in hydroelectric power generation, fuel costs at the 0.04% level fell by about JPY40 million.

W6. Governance

W6.1

(W6.1) Does your organization have a water policy?

Yes, we have a documented water policy that is publicly available.

W6.1a

(W6.1a) Select the options that best describe the scope and content of your water policy.

	Scope	Content	Please explain
Row 1	Company-wide	Description of business dependency on water Description of business impact on water Commitment to reduce water withdrawal and/or consumption volumes in direct operations Commitment to safely managed Water, Sanitation and Hygiene (WASH) in the workplace Commitment to the conservation of freshwater ecosystems Reference to company water-related targets	The abundant water resources of the Tohoku and Niigata regions are essential to our business operations. In addition to using sea water as cooling water at nuclear and thermal power stations, we use river water as plant water and to power water turbines at hydroelectric power stations. The Tohoku Electric Power Group sees environmental conservation as a key management topic. We seek to steadily implement environmental initiatives alongside the community based on the Tohoku Electric Power Group Environmental Policy. As a shared understanding among all employees is essential to environmental initiatives and continued efforts even in an ever-changing business environment, the Tohoku Electric Power Group Environmental Policy was established and is deployed to make its basic vision a core part of organizational and site culture. Since our business operations have an impact on the environment as we use water as an energy resource in the power generation business, we manage water-related matters in accordance with this policy. We strive to secure a stable supply of energy while balancing environmental and economic considerations and making safety a top priority, with a particular focus on four environmental action principles: Appreciate the earth's bounty and make careful use of its limited resources; minimize environmental impact; safeguard and coexist with the rich natural environment; and think and act with the local communities and our customers in mind. In formulating this policy, we organized our basic environmental courses of action from the four perspectives of proceeding as a group of companies that moves

			forward alongside the community, as an energy supplier, as a citizen of the planet, and as an organization that works together with local communities and customers, which when taken together represent our vision. The Tohoku Electric Power Group Environmental Policy identifies water as an important element, since it is used as an energy resource and has an appreciable environmental impact. Our policy identifies the following specific aspects concerning water and guides our business operations: <Business dependency on water> The hydroelectric power generation business depends on the abundant water resources in the Tohoku and Niigata regions. As a citizen of the planet, we strive to utilize this limited resource within the planetary boundaries while also reducing the resulting environmental impact to the extent possible. <Business impact on water> As an energy business, our unchanging mission is to achieve stable energy supplies, environmental protection, and economic performance simultaneously, with safety kept paramount. We recognize that this business inevitably will have an impact on the environment, and thus that it is our ongoing responsibility to keep this impact as small as possible. In nuclear, thermal, and hydroelectric power generation, water is discharged into public waters such as rivers and the sea. Accordingly, we comply with water-related regulations such as the Water Pollution Prevention Act, the River Act, and other environmental laws and agreements with local authorities, aiming to keep our environmental impact to as low a level as possible. <Commitment to reduce water withdrawal and/or consumption volumes in direct operations> By putting water resources to effective use through new construction and renovations of hydroelectric power stations as specified in our medium- to long-term vision, we can boost power generation efficiency by using water resources more efficiently. This improves water intensity and reduces water intake without affecting power generation. <Commitment to safely managed Water, Sanitation and

			Hygiene (WASH) in the workplace> We consider it important to provide fully managed water, sanitation and hygiene (WASH) services to all employees in all of our business sites. We constantly check for any abnormalities based on information concerning water quality and other topics and on results of inspections. <Commitment to the conservation of freshwater ecosystems> We employ full consideration to ensure that the environmental impact of our business activities does not affect ecosystems, and we implement measures to protect freshwater ecosystems through means such as maintenance of biotopes at thermal power stations and installation of fish channels at hydroelectric power stations. <Reference to company water-related targets> We have established a medium-term environmental plan based on the Tohoku Electric Power Group Environmental Policy, which sets targets such as developing 2 million kW of renewable energy swiftly, including new development of hydroelectric power stations, in 2030 or later, and the goal of compliance with environmental laws and regulations, including the Water Pollution Prevention Act and other water-related environmental laws and regulations.

W6.2

(W6.2) Is there board level oversight of water-related issues within your organization?

Yes

W6.2a

(W6.2a) Identify the position(s) (do not include any names) of the individual(s) on the board with responsibility for water-related issues.

Position of individual or committee	Responsibilities for water-related issues
Board Chair	The chairperson chairs the board of directors. The board of directors makes decisions concerning important matters of business execution related to climate change and water and receives periodic reports from directors on the status of duties related to climate change to oversee the performance of their duties. Since many water risks are related to climate change, water-related issues are also subject to oversight by the board of directors. For example, the Group's current

	Medium-to Long-Term Vision “Working alongside next” includes as Priority 1, “Change: Thoroughly enhancing our competitive strengths through power supply business reforms.” One measure under this priority item calls for developing 2 million kW of renewable energy centered on the Tohoku and Niigata regions. The Group Medium-to Long-Term Vision “Working alongside next” has been approved by the board of directors. The progress of measures to develop renewable energy, including hydroelectric power, is reported to the board of directors periodically and subject to oversight, including reviews and guidance as needed. These decisions on “Working alongside next” were made in 2020, within two years from the base year of 2021. Progress is monitored and review and guidance undertaken and provided annually.

W6.2b

(W6.2b) Provide further details on the board’s oversight of water-related issues.

	Frequency that water-related issues are a scheduled agenda item	Governance mechanisms into which water-related issues are integrated	Please explain
Row 1	Scheduled - some meetings	Monitoring implementation and performance Overseeing major capital expenditures Reviewing and guiding annual budgets Reviewing and guiding business plans Reviewing and guiding major plans of action Reviewing and guiding risk management policies Reviewing and guiding strategy Setting performance objectives	The board of directors makes decisions concerning important Group business matters, including important management-related plans, as well as soliciting and reviewing reports from directors on the state of business execution and facilitating mutual oversight among directors on the performance of their duties. With regard to climate-related and water-related issues, in addition to deciding on important matters of business execution it receives periodic reports from directors on the state of business execution and facilitates mutual oversight among directors on the performance of their duties. For example, the Group’s current Medium-to Long-Term Vision “Working alongside next” includes as Priority 1, “Change: Thoroughly enhancing our competitive strengths through power supply business reforms.” One measure under this priority item calls for developing 2 million kW of renewable energy centered on the Tohoku and Niigata regions. The Group Medium-to Long-Term Vision “Working alongside next” has been approved by the board of directors, and the progress of measures to develop renewable energy, including hydroelectric power, is reported to the board of directors

			periodically and subjected to oversight, including review and guidance as needed.

W6.2d

(W6.2d) Does your organization have at least one board member with competence on water-related issues?

	Board member(s) have competence on water-related issues	Criteria used to assess competence of board member(s) on water-related issues
Row 1	Yes	Based on the policies on nominating candidate directors, to realize the Group's medium- to long-term vision ("Working alongside next") we identify as the capabilities required for Company directors "imagination, decisiveness, tenacity, sensitivity, and integrity." We also have clarified the skills required of the board of directors in a skills matrix. In this way, we have formulated standards to enable objective and transparent choices in nomination of directors.

W6.3

(W6.3) Provide the highest management-level position(s) or committee(s) with responsibility for water-related issues (do not include the names of individuals).

Name of the position(s) and/or committee(s)

Chief Executive Officer (CEO)

Water-related responsibilities of this position

Managing water-related risks and opportunities
Managing public policy engagement that may impact water security
Integrating water-related issues into business strategy

Frequency of reporting to the board on water-related issues

More frequently than quarterly

Please explain.

The President is the chair of the Promotion Council of Carbon Neutrality and Environmental Management, where we deliberate on company-wide environmental management, including climate change and water issues, from a comprehensive perspective and promote environmental management targeting sustainable development with the local community.
The President has established, under the Promotion Council of Carbon Neutrality and Environmental Management, the Committee of Environmental Management which is chaired by a Managing Executive Officer and deliberates on company-wide environmental management policies and plans, individual measures, and performance

evaluation across divisions, including climate change and water issues. The Committee of Environmental Management also submits proposals and reports to the Promotion Council of Carbon Neutrality and Environmental Management.
In evaluating the policies, plans, individual measures, and results of company-wide environmental management, we have formulated the Medium-Term Environmental Plan, which identifies as its pillars “Further intensification of measures to counter climate change,” “Comprehensive environmental protection,” and “Maintenance and promotion of communication with communities.” The President is responsible of the policy in formulating the Medium-Term Environmental Plan. We are implementing a plan-do-check-act (PDCA) cycle of measures to address water-related issues, including development of 2 million kilowatts of renewable energy, including hydroelectric power, mainly in the Tohoku region and Niigata prefecture; compliance with environmental laws and regulations; and ascertaining and managing climate-related risks and opportunities, including water-related risks.
In addition, we have established an environmental management organization under the leadership of the Chief Environmental Officer, a Managing Executive Officer appointed by the President, to oversee companywide activities as part of our environmental management. Heads of sections and sites serve as the persons responsible for environmental management, promoting environmental activities as part of our business activities. In business execution, we properly ascertain and comply with various applicable laws and regulations, including those that are related to water. In the event of an emergency we respond swiftly and appropriately to minimize resulting damage in addition to taking necessary initial responses immediately in corporation with relevant parties. In the event of an emergency that requires immediate judgment and decisions by top management, we establish an emergency task force, chaired by the president of the affected company or an executive or other person appointed by that president, to respond to the situation.

W6.4

(W6.4) Do you provide incentives to C-suite employees or board members for the management of water-related issues?

	Provide incentives for management of water-related issues	Comment
Row 1	Yes	

W6.4a

(W6.4a) What incentives are provided to C-suite employees or board members for the management of water-related issues (do not include the names of individuals)?

	Role(s) entitled to incentive	Performance indicator	Contribution of incentives to the achievement of your organization’s water commitments	Please explain
Monetary reward	Director on board	Improvements in water	The Tohoku Electric Power Group Medium-/Long-Term	Our policy on compensation for Directors

	Other, please specify All employees	efficiency – direct operations	Vision calls for developing 2 million kW of renewable energy, mainly in the six Tohoku prefectures and Niigata Prefecture. This includes development of hydroelectric power facilities, and achievement of this goal is related to more efficient use of water as well. Results of these efforts are utilized in evaluation and incentives by the Nomination and Compensation Advisory Committee. We also have established a system of rewards for all employees who have earned the national water-quality qualification of pollution control supervisor (water quality).	(excluding Directors serving as members of the Audit and Supervisory Committee) is intended to improve Directors' performance over the medium to long term and to increase their motivation to contribute to increasing corporate value, by making clear the links among compensation, performance, and stock price. The Tohoku Electric Power Group Medium-/Long-Term Vision includes the aims of developing 2 million kW of renewable energy and thorough renovation of aging hydroelectric facilities to improve generating efficiency. Since this will contribute to enhancing our ability to generate the cash needed for business model transformation and affect consolidated cash income, executive compensation is linked to the state of achievement of water-related initiatives. In addition, maintenance and expansion of generating capacity through full renovation of aged facilities and development of new power sources will contribute to our ability to address the water-related risk of decreasing hydroelectric power generation capacity due to changing precipitation

				patterns.
Non-monetary reward	No one is entitled to these incentives			Because no nonfinancial compensation is provided at present.

W6.5

(W6.5) Do you engage in activities that could either directly or indirectly influence public policy on water through any of the following?

Yes, trade associations

W6.5a

(W6.5a) What processes do you have in place to ensure that all of your direct and indirect activities seeking to influence policy are consistent with your water policy/water commitments?

Information on developments that could impact the power business, such as those concerning policies and regulations on water, is shared at the management level through the Federation of Electric Power Companies of Japan, an industry association, and as a result we are able to reflect it in management strategies. The Federation of Electric Power Companies of Japan was established in 1952. Its membership consists of the 10 major power companies across Japan. Its main duties are publicity and awareness-raising regarding the electricity business, collecting and distributing data, information, etc. on the electricity business, conducting surveys, research, and preparation of statistics on the electricity business, and expressing opinions concerning the electricity business.

In particular, in making decisions on important matters such as public policy related to the power business, the Federation checks on the views of member companies and reflects these in expressing the industry perspective. We too offer our opinions in light of our own policies, and in the event of a conflict with our policies we express our opinions with the aim of ensuring that the views expressed by the industry conform with our policies.

W6.6

(W6.6) Did your organization include information about its response to water-related risks in its most recent mainstream financial report?

Yes (you may attach the report – this is optional)

W7. Business strategy

W7.1

(W7.1) Are water-related issues integrated into any aspects of your long-term strategic business plan, and if so how?

	Are water-related issues integrated?	Long-term time horizon (years)	Please explain
Long-term business objectives	Yes, water-related issues are integrated.	11-15	In response to the water risk of decreased hydroelectric power generation due to changing precipitation patterns, our long-term business goals include improving the efficiency of water use (for example, by thoroughly renovating aging facilities). Details of this long-term business goal are reviewed below. The Tohoku Electric Power Group's medium- to long-term vision, "Working alongside next," states the following: "…renewable energy is positioned as a power source that will play a part in our future power supply portfolio and boost our capacity to be a responsible entity for renewable energy business in the six Tohoku and Niigata prefectures. We are committed to the new development and business participation required to reach two million kilowatts, centered on wind power generation, while utilizing the know-how that the Group has cultivated so far, including hydroelectric power generation, solar power generation, geothermal power generation and biomass power generation. We will prioritize the investment of management resources." A major initiative based on the medium- to long-term vision "Working alongside next" in hydroelectric power generation using water resources is to promote comprehensive renovations of aging facilities, including groupwide efforts to promote development activities, including the development of the Naruse Power Station. Major projects include the Naruse Power Station in Kami, Kami-gun, Miyagi Prefecture (slated to come online FY2034; output: 2,300 kW), and the Shinkamimatsuzawa Power Station in Aomori, Aomori Prefecture (slated to come online November 2031; output: 9,400 kW). Capacity enhancements through such maintenance and expansion of power generating capacity (as expressed in kWh) by renovating aging facilities and development of new sources contribute to responding to the water-related risk of decreased hydroelectric power generation due to changing precipitation patterns. The Group's Medium-to Long-Term Vision "Working alongside next" identifies the years FY2020-2024 as a period of business model transformation and the years

			FY2025-2030 as a period of accelerated growth. As we aim to achieve our goals for the 2030s, we also will aim to develop 2 million kW of renewable energy swiftly in 2030 or later. Accordingly, we have identified “11-15 years” as the subject period.
Strategy for achieving long-term objectives	Yes, water-related issues are integrated.	11-15	In response to the water risk of decreased hydroelectric power generation due to changing precipitation patterns, our long-term business goals include improving the efficiency of water use (for example, by thoroughly renovating aging facilities), and measures toward this aim are reflected in our strategies as well. The strategies are outlined below: We consider renewables to be an important power source in our portfolio, and we are striving, as a responsible business operator, to develop renewable energy in the six Tohoku prefectures and in Niigata Prefecture. To realize our Medium-to Long-Term Vision “Working alongside next,” we are aiming to develop 2 million kW of renewable energy swiftly in 2030 or later. As of March 2023, we are participating in 27 development projects (for output of approximately 600,000 kW if all projects are commercialized successfully). To help achieve the target of developing 2 million kW of renewable energy, the Group’s medium-term plan for FY2022 calls for enhancement of internal development of renewables and expanding the geographical scope of such development. Identifying as medium-to long-term growth fields the business of renewable energy, including enhancement of power transmission and distribution networks, and businesses to realize a smart society, we are aiming to grow these businesses. A major initiative related to the hydroelectric power generation to achieve a target of generating 2 million kW from renewable energy based on the medium- to long-term vision, “Working alongside next” includes groupwide efforts to promote development activities, including the development of the Naruse Power Station. Major projects include the Naruse Power Station in

			Kami, Kami-gun, Miyagi Prefecture (slated to come online FY2034; output: 2,300 kW), and the Shinkamimatsuzawa Power Station in Aomori, Aomori Prefecture (slated to come online November 2031; output: 9,400 kW). In addition to new development of renewable energy sources, we also are striving to introduce and expand renewable energy sources from the abundant resources in the region, through activities throughout the life cycle from development through operation and maintenance of renewable energy facilities as well as promoting thorough renovations of aging facilities. Such development of new sources and maintenance and expansion of power generating capacity (as expressed in kWh) and thorough renovations of aging facilities will contribute to responding to the water-related risk of decreased hydroelectric power generation due to changing precipitation patterns. The Group's Medium-to Long-Term Vision "Working alongside next" identifies the years FY2020-2024 as a period of business model transformation and the years FY2025-2030 as a period of accelerated growth. As we aim to achieve our goals for the 2030s, we also will aim to develop 2 million kW of renewable energy swiftly in 2030 or later. Accordingly, we have identified "11-15 years" as the subject period.
Financial planning	Yes, water-related issues are integrated.	11-15	We are raising funds to improve the efficiency of water use (for example, by thoroughly renovating aging facilities) in response to the water risk of decreased hydroelectric power generation due to changing precipitation patterns. Details are outlined below: The Tohoku Electric Power Group's medium- to long-term vision, "Working alongside next" identifies renewable energy as a power source that will play a part in our power supply portfolio. We are striving, as a responsible business operator, to develop renewable energy in the six Tohoku prefectures and in Niigata Prefecture. To help achieve the target of developing 2 million kW of renewable energy, the Group's medium-

			term plan for FY2022 calls for enhancement of internal development of renewables and expanding the geographical scope of such development. Identifying as medium-to long-term growth fields the business of renewable energy, including enhancement of power transmission and distribution networks, and businesses to realize a smart society, we are aiming to grow these businesses. To realize our medium- to long-term financial strategies by expanding the renewable energy business and securing diversity of means of fund raising, with the Tohoku Electric Power Green Bonds issued in February 2020 we became the first among the former general electric power businesses in Japan to issue green bonds, which can be issued only to fund projects planned to contribute to domestic or international environmental improvements, such as renewable energy development. The first green bonds raised JPY5 billion, and the Second Tohoku Electric Power Green Bonds, issued in September 2020, raised JPY10 billion. Both of these issues had maturities of 10 years. Plans call for allocating the funds raised to projects related to development, construction, operation, and renovations of hydro, wind, geothermal, solar, and biomass power. We also are raising funds through green loans, use of which is restricted to funding eco-friendly projects in areas such as renewable energy development. For example, in October 2021 we raised funds through green loans for use in covering costs related to construction work in response to aging facilities at the Chojahara Power Plant (located in Yamagata Prefecture; maximum output 12,400 kW), a facility operated by Group member company Tohoku Sustainable & Renewable Energy Co., Inc. In this way, funds raised through green loans are being used to cover the costs of construction work and work in response to aging facilities at hydroelectric power plants operated by Tohoku Sustainable & Renewable Energy Co., Inc.

			Such capacity enhancements and maintenance and expansion of power generating capacity (as expressed in kWh) by renovating aging facilities and development of new sources contribute to responding to the water-related risk of decreased hydroelectric power generation due to changing precipitation patterns. The Group's Medium-to Long-Term Vision "Working alongside next" identifies the years FY2020-2024 as a period of business model transformation and the years FY2025-2030 as a period of accelerated growth. As we aim to achieve our goals for the 2030s, we also will aim to develop 2 million kW of renewable energy swiftly in 2030 or later. Accordingly, we have identified "11-15 years" as the subject period.

W7.2

(W7.2) What is the trend in your organization's water-related capital expenditure (CAPEX) and operating expenditure (OPEX) for the reporting year, and the anticipated trend for the next reporting year?

Row 1

Water-related CAPEX (+/- % change)

-13.7

Anticipated forward trend for CAPEX (+/- % change)

16

Anticipated forward trend for CAPEX (+/- % change)

1.2

Anticipated forward trend for OPEX (+/- % change)

6.9

Please explain.

Since the amount invested includes sensitive management information, water-related capital expenditures (CAPEX) indicate trends in changes in the increase in book value (mainly expenditures related to new acquisition of hydroelectric power facilities) of Tohoku Electric Power's hydroelectric power generation facilities from FY2020 to FY2021. Water-related operating expenses (OPEX) indicate trends in changes in hydroelectric power generation expenses (labor, maintenance, and other expenses related to the hydroelectric power generation business) of Tohoku Electric Power's hydroelectric power from FY2020 to FY2021. The increase in the book value of

hydroelectric power generation facilities reflects mainly the price of new acquisition of hydroelectric power generation facilities. It varies slightly from year to year. We are pursuing continual capital investments with a target of generating 2 million kW from renewables. OPEX remained largely unchanged from FY2020 to FY2021 since no hydroelectric power stations were newly opened or closed and there were no changes to power generation processes during the period.
Water-related CAPEX in the next reporting year shows the trend in changes in the increase in book value (mainly expenditures related to the acquisition of hydroelectric power facilities) of Tohoku Electric Power's hydroelectric power generation facilities in FY2022, while water-related OPEX in the next reporting year shows the trend in changes in hydroelectric power generation expenses (labor, maintenance, and other expenses related to the hydroelectric power generation business) of Tohoku Electric Power's hydroelectric power in FY2022.

W7.3

(W7.3) Does your organization use scenario analysis to inform its business strategy?

	Use of scenario analysis	Comment
Row 1	Yes	

W7.3a

(W7.3a) Provide details of the scenario analysis, what water-related outcomes were identified, and how they have influenced your organization's business strategy.

	Type of scenario analysis used	Parameters, assumptions, analytical choices	Description of possible water-related outcomes	Influence on business strategy
Row 1	Climate-related	We announced our support for TCFD in April 2019. While using climate scenarios such as the IEA2050 Net Zero Scenario as transition risk scenarios and RCP8.5 and other representative climate scenarios (e.g., 2°C, 4°C, and 1.5°C scenarios) as physical risk scenarios in accordance with the scenario analysis methods presented in TCFD's recommendations, we	Under the 1.5°C and 2°C scenarios, which anticipate significant transition risks, we expect significant progress toward the decarbonization of power sources and electrification in various ways, including reducing the role of thermal power generation in policy, market, and other aspects as measures are taken to establish a carbon-zero society.	Identifies renewable energy as a power source that will play a part in our future power supply portfolio, and to be a responsible operator of renewable energy businesses in the six Tohoku and Niigata prefectures, we will work on new power development and entry to new business fields with the goal of generating 2 million kW from renewable energy through mainly wind, but also hydroelectric, solar,

		currently are identifying companywide risks and opportunities related to climate change and analyzing their impacts over the medium-to long-term time horizon of 2050 and beyond, concerning the power supply business, our core business, and businesses to realize a smart society.	Anticipated countermeasures and opportunities include improving the efficiency of thermal power and expanding development of renewable energy including hydroelectric power generation. Under the 4°C scenario, which anticipates considerable physical risk, we expect increased damage to our facilities and obstacles to power supply as a result of increasingly frequent and severe climate-related disasters, as acute risks resulting from manifestation of the effects of climate change, and increasing importance of electricity supply resilience in light of anticipated impacts on hydroelectric power generation due to changes in precipitation and snowfall patterns, as chronic risks. For example, if change in annual rain and snowfall patterns results in decreased snow melt and summer drought, there is a risk that hydroelectric power generation could decrease due to reduced water flows available for hydroelectric power stations. Since as a company that operates 205 hydroelectric plants, which is the largest	geothermal, and biomass power generation, while utilizing the expertise that the Group has cultivated to date. It calls for us to prioritize the investment of management resources to the development focused on the six Tohoku and Niigata prefectures with abundant renewable resources. In addition, under this vision we are exploring development of new businesses such as operation and maintenance (O&M) throughout the renewable energy life cycle and the power-source replacement business, while also evolving our business foundations with an emphasis on ESG, as another focus of the vision. We have decided to take steps such as mitigating and adapting to climate change and addressing water issues caused by climate change, as well as enhancing disclosure of environmental information, by promoting environmental management under the Tohoku Electric Power Group Environmental Policy. Based on the results of analysis of the 1.5°C, 2°C, and 4°C scenarios above, the courses of action under the Tohoku Electric Power Group's Medium-to Long-Term Vision "Working alongside next" are thought to be effective as responses to climate change and water-related strategies as

			number of this type of plants run by any company in Japan (on an individual company basis), we would prefer to continue utilizing hydroelectric power generation to the maximum extent as a renewable energy source.	well, and we are using these results of scenario analysis in checking the course of action of our business strategies. For example, in hydroelectric power generation using water resources, our efforts include promoting comprehensive renovations of aging facilities and groupwide efforts to promote development activities, including the development of the Naruse Power Station in Kami, Kami-gun, Miyagi Prefecture (slated to come online FY2034; output: 2,300 kW), and the Shinkamimatsuzawa Power Station in Aomori, Aomori Prefecture (slated to come online November 2031; output: 9,400 kW).

W7.4

(W7.4) Does your company use an internal price on water?

Row 1

Does your company use an internal price on water?

No, and we do not anticipate doing so within the next two years.

Please explain.

We have no plans to use an internal price on water within the next two years.

W7.5

(W7.5) Do you classify any of your current products and/or services as low water impact?

	Products and/or services classified as low water impact	Definition used to classify low water impact	Please explain
Row 1	Yes	We use the definition “improves power generating efficiency without changing water use by making effective use of water resources through new construction and renovations of hydroelectric power stations” to classify low water impact.	In September 2017, we completed large-scale renovations at the aging Kanose Power Station. Reducing the number of water turbines from six to two and adoption of high-efficiency vertical shaft water turbines made it possible to increase maximum output by about 10%, from 49,500 kW to 54,200 kW, without changing water use. Through stable operation of the power station while prioritizing safety, we continue striving to put hydroelectricity to more effective use as a renewable domestic energy source. We strive through these efforts to mitigate and control water intake per unit of power generated and impacts on river environments.

W8. Targets

W8.1

(W8.1) Do you have any water-related targets?

No, and we do not plan to within the next two years.

W8.1c

(W8.1c) Why do you not have water-related target(s) and what are your plans to develop these in the future?

	Primary reason	Please explain
Row 1	Judged to be unimportant, explanation provide	Because the bulk of our water use is taken in and released in the same volumes instead of being consumed. Examples include use of freshwater in hydroelectric power generation and sea water as cooling water.

W9. Verification

W9.1

(W9.1) Do you verify any other water information reported in your CDP disclosure (not already covered by W5.1a)?

No, we do not currently verify any other water information reported in our CDP disclosure.

W10. Plastics

W10.1

(W10.1) Have you mapped where in your value chain plastics are used and/or produced?

	Plastics mapping	Value chain stage	Please explain
Row 1	Yes	Product use phase	We use plastics mainly as vessels and similar utensils. To the extent possible, we reuse these. We dispose of them appropriately as industrial waste to enable recycling or thermal recovery as much as possible.

W10.2

(W10.2) Across your value chain, have you assessed the potential environmental and human health impacts of your use and/or production of plastics?

	Impact assessment	Please explain
Row 1	Not assessed - and we do not plan to within the next two years.	We use and dispose of some 1,000 t of plastics per year. Since we dispose of them appropriately as industrial waste, we consider their impact to be minor.

W10.3

(W10.3) Across your value chain, are you exposed to plastics-related risks with the potential to have a substantive financial or strategic impact on your business? If so, provide details.

	Risk exposure	Please explain
Row 1	Not assessed - and we do not plan to within the next two years.	We use and dispose of some 1,000 t of plastics per year. Since we dispose of them appropriately as industrial waste, we consider their impact to be minor.

W10.4

(W10.4) Do you have plastics-related targets, and if so what type?

	Targets in place	Please explain
Row 1	No – and we do not plan to within the next two years.	We use and dispose of some 1,000 t of plastics per year. Since we dispose of them appropriately as industrial waste, we consider their impact to be minor. We have set the following qualitative targets: ◆ Selecting products using less volumes of plastics or alternative products to the extent possible ◆ Maintaining and increasing the recycling rate to encourage recycling of plastic waste

W10.5

(W10.5) Indicate whether your organization engages in the following activities.

	Activity applies	Comment
Production of plastic polymers	No	
Production of durable plastic components	No	
Production / commercialization of durable plastic goods (including mixed materials)	No	
Production / commercialization of plastic packaging	No	
Production of goods packaged in plastics	No	
Provision / commercialization of services or goods that use plastic packaging (e.g., retail and food services)	No	

W11. Signoff

W-FI

(W-FI) Use this field to provide any additional information or context that you feel is relevant to your organization's response. Please note that this field is optional and is not scored.

W11.1

(W11.1) Provide details for the person that has signed off (approved) your CDP water response.

	Job title	Corresponding job category

Row 1	Managing Executive Officer/General Manager, Corporate Strategy Division	Environment/Sustainability manager

Submit your response

In which language are you submitting your response?

Japanese

Please confirm how your response should be handled by CDP.

	I understand that my response will be shared with all requesting stakeholders	Public or Non-Public Submission
Please select your submission options	Yes	Non-public

Please indicate that your organization will allow CDP to share your information with the Pacific Institute to support the Water Action Hub website.

No

Confirm the following:

We have read and consent to the applicable conditions.