

# The Tokyo Electric Power Company Holdings, Inc (TEPCO) - Climate Change 2018



## C0. Introduction

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### C0.1

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

Tokyo Electric Power Company, Incorporated (TEPCO) was established in 1951 to supply electric power to the Tokyo metropolitan area, and for more than half a century it has continued to support society and public life with high-quality electric power. The Tohoku-Chihou-Taiheiyou-Okai Earthquake, which struck on March 11, 2011, precipitated a serious accident at Fukushima Daiichi Nuclear Power Station. TEPCO has seen considerable weakening in its financial standing and income structure due to factors associated with the aforementioned event, such as the recording of substantial expenses and losses and an increase in fuel costs accompanying the suspension of nuclear power generation. In short, TEPCO has been confronted with an unprecedented major crisis. Addressing the situation, TEPCO, along with the Nuclear Damage Compensation and Decommissioning Facilitation Corporation (NDF), formulated the Comprehensive Special Business Plan, putting together a program of drastic streamlining, management reforms, and other steps. Simultaneously, TEPCO strengthened its financial position through the issuance of preferred stocks totaling ¥1 trillion, with the NDF as allottee. As a result of the above, including such initiatives as exhaustive cost reductions, in the year ended March 31, 2016, TEPCO achieved profitability for a third consecutive year. In April 2016, Tokyo Electric Power Company (TEPCO) transitioned to a holding company system by reorganizing into three independent businesses: fuel & thermal power generation, general power transmission and distribution, and retail electricity. With a responsibility to the community of Fukushima and to better serve our customers, TEPCO will implement major changes. Please note the provided information is public and is available in our website <http://www.tepco.co.jp/en/index-e.htm>

### C0.2

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#### (C0.2) State the start and end date of the year for which you are reporting data.

	Start date	End date	Indicate if you are providing emissions data for past reporting years	Select the number of past reporting years you will be providing emissions data for
Row 1	April 1 2016	March 31 2017	No	<Not Applicable>
Row 2	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Row 3	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Row 4	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>

### C0.3

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#### (C0.3) Select the countries/regions for which you will be supplying data.

Japan

### C0.4

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

JPY

C0.5

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**(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 consolidation approach to your Scope 1 and Scope 2 greenhouse gas inventory.**

Financial control

C-EU0.7

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**(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**

- Gas storage, transmission and distribution

C1. Governance

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C1.1

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

Yes

C1.1a

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**(C1.1a) Identify the position(s) of the individual(s) on the board with responsibility for climate-related issues.**

Position of individual(s)	Please explain
Board/Executive board	Since the Board of Directors is the highest decision-making body concerning the management of the TEPCO Group and has overall responsibility, it is also responsible for overseeing climate change measures such as emission reduction targets. If it is an important measure for the TEPCO group, such as emission reduction targets and its measures, it will be reported to the board of directors and receive supervision. The Environmental Strategy Committee, which is the lower committee of the Board of Directors, develops the TEPCO Group's overall strategy on climate change, promotes operation, and monitors the implementation status. Among the climate change measures examined by the Environmental Strategy Committee, important measures that greatly affect power planning and procurement plan are discussed to the Board of Directors.

C1.1b

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**(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	Reviewing and guiding strategy Reviewing and guiding major plans of action Reviewing and guiding risk management policies Reviewing and guiding annual budgets Reviewing and guiding business plans Setting performance objectives	We have formulated action plans for business execution (business plan) including climate change issues and select responsible officers (executive officers). In addition, we report to the Board of Directors on the status of business execution quarterly, and are supervised strategies, action plans (actions) and performance targets, including revisions as necessary. Likewise, risks and budgets including climate change issues are supervised by the Board of Directors.

**C1.2**

**(C1.2) Below board-level, provide the highest-level management position(s) or committee(s) with responsibility for climate-related issues.**

Name of the position(s) and/or committee(s)	Responsibility	Frequency of reporting to the board on climate-related issues
Other C-Suite Officer, please specify (Executive vice president)	Both assessing and managing climate-related risks and opportunities	Quarterly
Sustainability committee	Both assessing and managing climate-related risks and opportunities	As important matters arise

**C1.2a**

**(C1.2a) Describe where in the organizational structure this/these position(s) and/or committees lie, what their associated responsibilities are, and how climate-related issues are monitored.**

The Council of Environment Strategies, chaired by the executive vice president who is in charge of environmental section and renewable energy business, is composed of each president of a subsidiary company, each charge executive of a management plan and a management technical strategy research center and the head of a planning section, a technological integration section and a construction section of engineering are commissioners. The head of an environment section conducts the council and the environment section manages this council as a secretariat. More than once a year basis, but the council is held at any time based on chairperson's summons according to the need. When an important management judgment is necessary for emission reduction target and other issues, the consideration results by the council are submitted to the board of directors as described at C1.1b. To maintain a reporting line and promote a climate change countermeasure, "the Global Warming Issues Working Group" composed by the manager level and "Global Warming Issue Committee" composed by the director and the head of each section level is installed as a subcommittee of the council.

**C1.3**

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

Yes

**C1.3a**

**(C1.3a) Provide further details on the incentives provided for the management of climate-related issues.**

**Who is entitled to benefit from these incentives?**

Other, please specify (Executive vice president)

**Types of incentives**

Monetary reward

**Activity incentivized**

Emissions reduction project

**Comment**

The executive vice president is responsible for all relevant corporate environmental issues, including compliance of relevant environmental law and regulations, climate impact mitigation, conservation activities and GHG emission reduction target. The resultant of these operations is reflected in its personal performance and its monetary reward.

**Who is entitled to benefit from these incentives?**

All employees

**Types of incentives**

Monetary reward

**Activity incentivized**

Emissions reduction target

**Comment**

For the purpose of promoting the company's environmental activities, employees who have acquired national qualifications (such as "Qualified Person for Energy Management") related to environmental activities, such as energy conservation and CO2 emissions reduction, and inventor and design creator who registered the patent, get the awards and monetary reward. For instance, those who have qualified the license of "Qualified Person for Energy Management" are also chosen to be "Energy Manager for Type 2 Designated Energy Management Factory" and "Energy Manager for Type 1 Designated Energy Management Factory". They play a pivotal role in promoting energy conservation and in realizing energy conservation (CO2 reduction) by instructing employees and suggestion to customers with the knowledge of maintaining and controlling facilities. By making our facilities and customer's facilities more efficient, it will contribute to the CO2 emission reduction directly or indirectly, we give an award and the monetary reward (50,000 yen) to the person who have qualified the license of "Qualified Person for Energy Management."

**C2. Risks and opportunities**

**C2.1**

**(C2.1) Describe what your organization considers to be short-, medium- and long-term horizons.**

	From (years)	To (years)	Comment
Short-term	0	3	The corporate business plan compiles the priority management items and respective action plans for 1 year term. The annual financial plan covers revenues and expenditure of business plan for 3 year period.
Medium-term	3	12	The Revised Comprehensive Business Plan compiles each business items for realizing discontinuous management reform and corporate value improvement, respective revenues and expenditure for 10 year period Our risk assessment and management process considers 10 year period, and electricity supply plan also forecasts based on 10 year period. National emission reduction target, which affects our business strategy is set for 2030.
Long-term	12	40	The long and medium term road map for decommission of Fukushima-1 NP covers coming 30 to 40 year safety decommission activities. We also take into consideration that electricity generation assets lifetime seems as 30 to 40 years or even much longer.

## C2.2

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**(C2.2) Select the option that best describes how your organization's processes for identifying, assessing, and managing climate-related issues are integrated into your overall risk management.**

Integrated into multi-disciplinary company-wide risk identification, assessment, and management processes

### C2.2a

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**(C2.2a) Select the options that best describe your organization's frequency and time horizon for identifying and assessing climate-related risks.**

	Frequency of monitoring	How far into the future are risks considered?	Comment
Row 1	Six-monthly or more frequently	>6 years	We have been looking ahead to more than 10 years in risk (including climate change risk) assessment and update every 6 months (more frequently). The result of risk assessment and opportunities are appropriately reflected in the management plan updated every fiscal year.

### C2.2b

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**(C2.2b) Provide further details on your organization's process(es) for identifying and assessing climate-related risks.**

Regarding climate-related risk that might have a significant impact on business, the Risk Management Committee, chaired by the Representative Executive Officer and President of TEPCO Holdings, will endeavor to prevent the realization of risks. And in the event of actualization, we minimize the influence on management by responding swiftly and appropriately. Risk is assessed every six months, deliberation results and business opportunities are reflected in the annual management plan.

At the facility / department level, the administrative department manages relevant risk based on the execution of duties as a basis and appropriately manages it. The Risk Management Conference which might covers climate-related risk is functioned for each facility / department, and their risks are grasped and evaluated at a frequency of 6 months or more. Each division reports the evaluated risk to the upper Risk Management Committee every six months and appropriately reflects the deliberation results in each business plan of each year.

Climate-related risk is assessed in this process taking account of economic and climatic conditions, industry deregulation, equipment and operation, and fluctuations in interest rates. Climate-related risks, same as other risks surrounding our business, are evaluated using criteria from the viewpoint of "probability of occurrence" and "degree of influence", and the substantial financial and strategic impacts are classified and evaluated as levels. For example, we are reducing fuel costs by adopting MACC II which is the world's highest level on the No2-3 of the Kawasaki thermal power plant, but if we do not do this, the fuel cost will increase by 10 billion yen per year. Such as "medium-high" financial impact is recognized.

### C2.2c

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**(C2.2c) Which of the following risk types are considered in your organization's climate-related risk assessments?**

	Relevance & inclusion	Please explain
Current regulation	Relevant, always included	If Japanese government tightens existing regulations in order to achieve the goal of CO2 emission reduction by FY 2030, it will cause increase in cost of thermal power generation. Therefore, there would be a risk that electricity price will be raised and negative impact on our business performance and financial position will likely be brought about. The risk is monitored by the Risk Management Committee on current regulatory trends and evaluating financial and strategic impacts from the viewpoint of "probability of occurrence" and "degree of influence" while establishing some scenarios (6 months or more with frequency).
Emerging regulation	Relevant, always included	If Japanese government introduces additional regulations in order to achieve the goal of CO2 emission reduction by FY 2030, it will cause increase in cost of thermal power generation. Therefore, there would be a risk that electricity price will be raised and negative impact on our business performance and financial position will likely be brought about. The risk is monitored by the Risk Management Committee on current regulatory trends. Also, while assessing additional regulations introduction scenarios, and we evaluates financial and strategic impacts from the viewpoint of "probability of occurrence" and "degree of influence" (6 months or more with frequency).
Technology	Relevant, always included	Due to technological innovation, the power generation cost of renewable energy significantly decreases and the introduction increases sharply, resulting in less-stabilization of electricity supply, which may affect smooth business operation. The risk is monitored by the Risk Management Committee on technology trends and evaluating financial and strategic impacts from the viewpoint of "probability of occurrence" and "degree of influence" while establishing some scenarios (6 months or more with frequency).
Legal	Relevant, always included	In the report based on the Act on Promotion of Global Warming Countermeasures and the Tokyo Metropolitan Environmental Protection Ordinance, lack of content or omission occurred, litigations risk due to necessary delay in climate change measures and not being adequately and sufficiently disclosed is there. The risks are evaluated financial and strategic impacts from the viewpoint of "possibility of occurrence" and "degree of influence" at the risk management meeting while collaborating through appropriate information cooperation with related sections (6 months More frequently).
Market	Relevant, always included	Changes in customer preferences due to regulations related to climate change and social situations will cause changes in the market and there is a risk that the competitive advantage of the TEPCO group will be lost. This risk is evaluated at the risk management meeting on financial and strategic impacts (at a frequency of 6 months or more) from the viewpoint of "possibility of occurrence" and "degree of influence"
Reputation	Relevant, always included	As TEPCO group's CO2 emission accounts for 30% of total CO2 emission in electric power industry in Japan, when the high efficient thermal power generation is not introduced and no efficient measures on climate changes such as renewable energy has implemented, therefore we are unable to achieve the goal to reduce GHG emission, it will bring about a huge impact on a society. Moreover, when we do not meet the expectations of stakeholders such as customers, our corporate value may be decreased. Based on the survey of consumer needs through customer questionnaires and follow-up trends of NGOs, etc., the risks are evaluated for their financial and strategic impacts from the viewpoint of "possibility of occurrence" and "degree of influence" at the risk management meeting (At a frequency of 6 months or more).
Acute physical	Relevant, always included	When large typhoon strikes Kanto District, for instance, hard storm, high tide along Pacific Ocean and the river flood in the inlands will cause large-scaled and long-term power blackout and difficulty in acquiring stability of electricity supply. Extra cost of restoring and network facilities (transmission steel towers etc.) may occur. As a result, the Group's performance and financial condition may be affected. Through sharing examples of past damage and countermeasures, the risk assesses the financial and strategic impacts from the viewpoint of "possibility of occurrence" and "degree of influence" at the risk management meeting (at a frequency of 6 months or more)
Chronic physical	Relevant, always included	Chronic storms in the Kanto area will cause a large-scale and long-term power outage, making it impossible to secure a stable supply of electricity and burdening additional costs to recover electricity network equipment (transmission poles etc.) there is a possibility. As a result, the Group's performance and financial condition may be affected. This risk is evaluated at the Risk Management Committee from financial viewpoints of "possibility of occurrence" and "degree of influence" (at a frequency of 6 months or more).
Upstream	Relevant, always included	With the trend towards decarbonization after the Paris Agreement, demand for low-carbon LNG among fossil fuels will increase and fuel price may rise. There is a risk that the Group's performance and financial condition will be affected. This risk is evaluated at the risk management meeting on financial and strategic impacts (at a frequency of 6 months or more) from the viewpoint of "possibility of occurrence" and "degree of influence".
Downstream	Relevant, always included	If the government takes additional measures such as regulation, taxation and subsidy to achieve the greenhouse gas reduction goal of 2030, promoting low-carbon products and services will change customer behavior and preferences . If the Group is unable to provide low carbon products and services, there is a risk that the Group's performance and financial condition will be affected. In cooperation with other departments, the risks are evaluated on financial and strategic impacts from the viewpoint of "probability of occurrence" and "degree of influence" at the risk management meeting (at a frequency of 6 months or more).

**C2.2d**

## **(C2.2d) Describe your process(es) for managing climate-related risks and opportunities.**

i) Risk management process: Regarding climate-related risk that might have a significant impact on business, the Risk Management Committee, chaired by the Representative Executive Officer and President of TEPCO Holdings, will endeavor to prevent the realization of risks. And in the event of actualization, we minimize the influence on management by responding swiftly and appropriately. Risk is assessed every six months, deliberation results and business opportunities are reflected in the annual management plan. Physical risks such as large-scale blackouts caused by typhoons are evaluated using criteria from the viewpoint of "probability of occurrence" and "degree of influence". We classify substantial financial and strategic impacts into levels and evaluate countermeasures and preventive measures. If it is judged that it will have a serious impact on management, the risk management committee will consider necessary countermeasures. Transition risks such as the introduction of additional regulations to the electric power industry are also evaluated using criteria from the viewpoint of "probability of occurrence" and "degree of influence", and substantial financial and strategic We classify the impact as level and evaluate countermeasures and preventive measures. If it is judged that it will have a serious impact on management, the risk management committee will consider necessary countermeasures.

ii) Opportunity management process: Directors and executive officers periodically analyze and evaluate climate-related opportunities associated with climate-related risks evaluated by the Risk Management Committee and the Group's strengths against business competitors. Regarding the added value of electricity through rapid restoration from blackouts due to natural disasters, and physical opportunities such as value improvement of TEPCO group in terms of low-carbon services, each relevant business department evaluates necessary investment, personnel, training, etc. Based on the strategic impact, the necessary countermeasures will be considered at the Board of Directors and executive officers if they have a serious effect on management. Regarding opportunities for transition such as improvement of corporate value through low carbon service, we evaluate at the business department in consideration of the national target of global warming countermeasures and regulations, as well as the customer's needs. Based on the financial and strategic impact, the necessary countermeasures will be considered by the Board of Directors and executive officers if they have a serious effect on management.

## **C2.3**

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### **(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**

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### **(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?**

Direct operations

#### **Risk type**

Transition risk

#### **Primary climate-related risk driver**

Policy and legal: Other

#### **Type of financial impact driver**

Policy and legal: Increased operating costs (e.g., higher compliance costs, increased insurance premiums)

#### **Company- specific description**

If Japanese government introduces additional regulations and/or tightens existing regulations in order to achieve the goal of CO<sub>2</sub> emission reduction by FY 2030, it will cause increase in cost of thermal power generation. Therefore, electricity price will be raised and negative impact on our business performance and financial position will likely be brought about.

#### **Time horizon**

Medium-term

#### **Likelihood**

More likely than not

**Magnitude of impact**

Medium-high

**Potential financial impact**

14400000000

**Explanation of financial impact**

We have adopted MACC II, which is the world's highest power generation efficiency, and replaced gas turbines, improve power generation efficiency, reduce fuel cost and reduce CO<sub>2</sub>. (Rated output: 710,000 kW, power generation efficiency: about 61%, fuel: LNG) Indicated potential financial impact is the fuel cost which increased when not carrying out such efforts. The impact was calculated using the following example: Replacement completed at Yokohama Thermal Power Plant No.7-1, No.7-4, and No.8-4 gas turbine and Futsu Thermal Power Plant No.2-1, No.2-5 gas turbine.

**Management method**

We are to build well-balanced portfolio between coal-fired thermal power and LNG-fired thermal power, and promote environmentally friendly portfolio of thermal power generation in adopting next generation technology (More Advanced Combined Cycle II technology or MACC, Integrated Gasification Combined Cycle technology or IGCC). We installed MACC, the world's highest level generation efficiency, in Kawasaki Thermal Power Station and started commercial operations on January 29th, 2016. (rated output: 710MW, generation efficiency: approx. 61%, fuel: LNG). Compared with conventional LNG thermal power plants, the generation efficiency improves about 40% and the amounts of fuel costs and CO<sub>2</sub> emissions are reduced about 30%. Direct or indirect communication with policy makers are made to reflect our opinions to climate change policies.

**Cost of management**

67055000000

**Comment**

The total investment in thermal power generation is about 67 billion yen, including investment in high-efficiency thermal power generation facilities.

**Identifier**

Risk 2

**Where in the value chain does the risk driver occur?**

Direct operations

**Risk type**

Physical risk

**Primary climate-related risk driver**

Acute: Increased severity of extreme weather events such as cyclones and floods

**Type of financial impact driver**

Increased capital costs (e.g., damage to facilities)

**Company- specific description**

When large typhoon strikes Kanto District, for instance, hard storm, high tide along Pacific Ocean and the river flood in the inlands will cause large-scaled and long-term power blackout and difficulty in acquiring stability of electricity supply. Extra cost of restoring and network facilities (transmission steel towers etc.) may occur. As a result, the Group's performance and financial condition may be affected.

**Time horizon**

Medium-term

**Likelihood**

Unlikely

**Magnitude of impact**

Medium-low

**Potential financial impact**

216562000000

**Explanation of financial impact**

Capital investment of the whole transmission and distribution network in FY 2016.

**Management method**

Following countermeasures against natural disasters such as high tide caused by typhoon, river flood caused by heavy rain are prepared: i) watertight building of electric facilities such as watertight door and tide gate ii) levelling of installation of electric facilities to avoid being inundated iii) making facilities waterproof iv) precautions (restoration of facilities) in order to supply electricity with

power facility when water reached Regular company-wide disaster prevention training and training for smooth internal communication are prepared, to rapidly collect information on damages of power facilities(transmission steel towers etc.), blackout, requests from related organizations, to consider emergent response to recover damaged power facilities, to consider effective allocation of equipment and personnel. Moreover, we regularly participate in disaster training held by national and local government and training for flexibly offering equipment for recovery between utilities.

**Cost of management**

1985000000

**Comment**

Property insurance premium in 2016 FY as natural disaster countermeasures, to secure a stable supply of electricity due to climate change risk.

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**Identifier**

Risk 3

**Where in the value chain does the risk driver occur?**

Direct operations

**Risk type**

Transition risk

**Primary climate-related risk driver**

Reputation: Shifts in consumer preferences

**Type of financial impact driver**

Market: Reduced demand for goods and/or services due to shift in consumer preferences

**Company- specific description**

As TEPCO group's CO2 emission accounts for 30% of total CO2 emission in electric power industry in Japan, when the high efficient thermal power generation is not introduced and no efficient measures on climate changes such as renewable energy has implemented, therefore we are unable to achieve the goal to reduce GHG emission, it will bring about a huge impact on a society. Moreover, if we do not meet the expectations of stakeholders such as customers, our corporate value may be decreased.

**Time horizon**

Medium-term

**Likelihood**

Unlikely

**Magnitude of impact**

Medium-low

**Potential financial impact**

44300000000

**Explanation of financial impact**

As a group that accounts for less than 30% of the total amount of emissions in the electric power sector, social impacts are significant and corporate value can decline if global warming countermeasures such as high efficiency of thermal power supply and introduction of renewable energy do not proceed. If the amount of electricity sold to customers is reduced by 1%, the decrease in sales electricity fee revenue is estimated to be 44.3 billion yen.

**Management method**

Following energy mix and GHG reduction target in FY2030 set out by Japanese government, power industry has established the Electric Power Council for a Low Carbon Society ("ELCS"). It aims to meet the new targets in the Action Plan for the Electricity Business for Achieving a Low-Carbon Society, which includes emission intensity target of 0.37 kg-CO2e/kWh (use-end) in FY2030. We have been appointed as a council member of ELCS and actively engaged in a discussion related to its target, actions and regulations in ELCS.

**Cost of management**

30000000

**Comment**

A group that implements climate change strategy is regularly in charge of communicating those information of our climate change strategy. For example, the cost related to organization (personnel expenses) above is approximately 30 million yen per a year.

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## C2.4

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### (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

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### (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

Energy source

#### Primary climate-related opportunity driver

Use of lower-emission sources of energy

#### Type of financial impact driver

Reduced operational costs (e.g., through use of lowest cost abatement)

#### Company- specific description

According to Japan's long-term energy supply and demand forecast of 2030, the national power supply configuration is set to 22 to 20% for nuclear power, 22 to 24% for renewable energy, 27% for LNG and 26% coal (power supply composition 2015: nuclear power 1% Energy 15%, LNG 43%, coal 31%). Regulatory trends to the electric power sector and others affect the company's power supply composition. Due to regulations, power sources with lower emissions factors are aimed at, demand for carbon-free power generation (nuclear power, renewable energy) and gas-fired power sources with relatively smaller emission factors may increase. And therefore there would be possible opportunities to favorably affect the Group's financial performance.

#### Time horizon

Medium-term

#### Likelihood

Likely

#### Magnitude of impact

Medium-high

#### Potential financial impact

14400000000

#### Explanation of financial impact

We put an importance in building well-balanced portfolio from a viewpoint of "Energy Security", "Economy", "Environmental Conservation." Thus we promote thermal power generation in adopting next generation technology ( More Advanced Combined Cycle II technology or MACCII, Integrated Gasification Combined Cycle technology or IGCC) and renewable power generation in order to achieve low-carbon power generation. We reduced CO2 by about 910,000 tons due to efficiency improvement and reduced fuel costs by about 14.4 billion yen in the following cases: We adopted MACC II, the world's highest power generation efficiency on the 2-3 axes of the Kawasaki thermal power plant, and started commercial operation. (Rated output: 710,000 kW, power generation efficiency: about 61%, fuel: LNG) Replacement completed at Yokohama Thermal Power Plant No.7-1, No.7-4, and No.8-4 gas turbine and Futtsu Thermal Power Plant No.2-1, No.2-5 gas turbine.

#### Strategy to realize opportunity

We are to build well-balanced portfolio between coal-fired thermal power and LNG-fired thermal power, and promote environmentally friendly portfolio of thermal power generation in adopting next generation technology (More Advanced Combined Cycle II technology or MACC, Integrated Gasification Combined Cycle technology or IGCC). We installed MACC, the world's highest level generation efficiency, in Kawasaki Thermal Power Station and started commercial operations on January 29th, 2016. (rated output: 710MW, generation efficiency: approx. 61%, fuel: LNG). Compared with conventional LNG thermal power plants, the generation efficiency improves about 40% and the amounts of fuel costs and CO2 emissions are reduced about 30%.

#### Cost to realize opportunity

**Comment**

The total investment in thermal power generation is about 67 billion yen, including investment in high-efficiency thermal power generation facilities.

**Identifier**

Opp2

**Where in the value chain does the opportunity occur?**

Direct operations

**Opportunity type**

Resilience

**Primary climate-related opportunity driver**

Other

**Type of financial impact driver**

Increased reliability of supply chain and ability to operate under various conditions

**Company- specific description**

Since we take efficient precautions for minimizing power blackouts when natural disaster such as typhoons strike, we succeed in minimizing extra costs that may occur during the power blackouts (restoration cost of facilities etc.). Moreover, by minimizing the power blackouts, we can supply energy security and maximize our corporate value. For instance, our grid connection system installed multiplexing of power facilities and interconnection between transmission line and distribution line (automatical recovery from power blackout etc.). Therefore, when power facilities are struck by natural disasters, we can avoid power blackouts and restore in a short time. Thus, power blackouts per a household occurred in FY2015 were 0.06 times, Recovered in six minutes.

**Time horizon**

Medium-term

**Likelihood**

Unlikely

**Magnitude of impact**

Medium-low

**Potential financial impact**

986232000

**Explanation of financial impact**

When damage to power plants and network facilities is caused by natural disasters, we can contribute to disaster recovery project by avoiding long-term blackout and quickly restoring electricity supply in the area affected. As a result, our corporate value as well as value of electricity as energy source will be increased. For example, when one more customers concludes the quantitative contract by normal voltage of 100V transmission service, income of network price price indicated at potential financial impact will be increased.(Basic price: 210.6 yen/1kW, (tax included) Electricity volume price: 7.31 yen/1kWh(tax included))

**Strategy to realize opportunity**

Following countermeasures against power blackout caused by large natural disaster(typhoons etc.) are prepared: i) watertight building of major electric power substations such as watertight door and tide gate ii) levelling of installation of electric facilities to avoid being inundated iii) regular company-wide disaster training a) to rapidly collect information on damages of power plants and network facilities, blackout, requests from national and local governments and so on, b) to consider emergency response to recover damaged plants and facilities and c) to consider effective allocation of equipment and personnel iv) participation in disaster training held by national and local government and training for flexibly offering equipment for recovery between utilities.

**Cost to realize opportunity**

9999999999

**Comment**

The figure is the investment amount of the entire T&D network in FY 2016, including the cost of pre-disaster measures to secure a stable supply of electricity due to the risk of climate change. Please be noted that we failed to answer estimated cost for relevant opportunity above due to the range limitation. 216,562,000,000 is the correct answer.

**Identifier**

Opp3

**Where in the value chain does the opportunity occur?**

Direct operations

**Opportunity type**

Products and services

**Primary climate-related opportunity driver**

Shift in consumer preferences

**Type of financial impact driver**

Better competitive position to reflect shifting consumer preferences, resulting in increased revenues

**Company- specific description**

In GHG reduction target in FY2030 set out by Japanese government, "residential sector" and "commercial and other sector (office buildings, etc.)" have to reduce as much as 40% of GHG emission. In order to achieve above sectorial target, government will take measures such as regulation, taxation and subsidies as well as campaign for promoting low carbon products and services. As a result, customers' behavior and preference may change. With introduction of stricter regulation and rise of awareness on climate change, more electricity user may be interested in purchase of low carbon electricity and consulting service for energy saving. It will result in increased demand in low-carbon power generation and will bring about business opportunities to TEPCO group and positive impact on our financial position.

**Time horizon**

Short-term

**Likelihood**

Likely

**Magnitude of impact**

Medium-low

**Potential financial impact**

433000000

**Explanation of financial impact**

We put an importance on building a well-balanced power generation portfolio from the viewpoint of a stable, economic, and environmentally friendly way. Therefore, we try to introduce next generation technology (More Advanced Combined Cycle II technology or MACC II, Integrated Gasification Combined Cycle technology or IGCC) to thermal power plants and more numbers of renewable power plants in order to reduce CO2 emission when generating power For example: We have started repowering project of Nippashigawa hydro power station.(10,600kW, Fukushima Pref.). If sales power to customers increases by 0.01%, sales electricity fee income will increase by 433 million yen.

**Strategy to realize opportunity**

We introduce environmentally friendly high efficient generation facility in order to build well-balanced power generation portfolio. For example, we have started repowering project of Nippashigawa hydro power station.(10,600kW, Fukushima Pref.). By providing electricity oriented toward carbon free, we will respond to customer's needs.

**Cost to realize opportunity**

9705000000

**Comment**

The total investment amount of hydro-electric power, other renewables is estimated about 9.7 billion yen.

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C2.5

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**(C2.5) Describe where and how the identified risks and opportunities have impacted your business.**

	Impact	Description
Products and services	Impacted	We developed and have started sales of first domestic pricing plan called "Aqua Energy 100" for households that supplied only by hydroelectric power generation (except for pumped-storage power generation and FIT electricity, all generated by TEPCO's general hydropower station) that does not emit CO2 during power generation. We expect further expansion of the products as awareness of customer in climate change issues arises.
Supply chain and/or value chain	Impacted for some suppliers, facilities, or product lines	Based on the compatibility with the basic energy plan and the energy saving law, the results of evaluating the power portfolio with a view to the future market, domestic less-efficient thermal power generation facilities were eliminated, scrap & build, etc. were carried out. In addition, TEPCO Fuel & Power and Chubu Electric Power have decided to aim to fully integrate the fuel and thermal power business in the first half of FY2019 in order to supply internationally competitive energy and improve corporate value of both shareholders. In the future, TEPCO aims to establish a mechanism to evaluate the optimal and flexible portfolio style in each business area of the supply chain.
Adaptation and mitigation activities	Impacted for some suppliers, facilities, or product lines	Following energy mix and GHG reduction target in FY2030 set out by Japanese government, Electricity power industry has established the Electric Power Council for a Low Carbon Society ("ELCS") . It aims to meet the new targets in the Action Plan for the Electricity Business for Achieving a Low-Carbon Society, which includes emission intensity target of 0.37 kg-CO2e/kWh (use-end) in FY2030. TEPCO group decided to join ELCS and make a contribute to make plans, goals and rules to realize the ELCS's effective function. For example, our first wind farm has started its business operation in Higasi Izu town and Kawazu town Kamo county Shizuoka prefecture in August, 2015. It enables us to supply electricity volume of approximately 10,000 households per a year and reduce 16,000 ton-CO2 emissions per a year.
Investment in R&D	Impacted for some suppliers, facilities, or product lines	Yamanashi Prefecture, Toray Industries, Ltd., TOKO Takakadake Co., Ltd., TEPCO Holdings concluded an agreement on technology development and empirical research on P2G (Power to Gas) system toward realization of CO2 free hydrogen energy society. The P2G system, which manufactures, stores and uses hydrogen by the power of renewable energy, takes advantage of the characteristics of hydrogen that can be stored and transported for a long time, stabilizes the amount of renewable energy generated by the weather change It is expected as one of the technologies that will contribute.
Operations	Impacted for some suppliers, facilities, or product lines	our first wind farm has started its business operation in Higasi Izu town and Kawazu town Kamo county Shizuoka prefecture in August, 2015. It enables us to supply electricity volume of approximately 10,000 households per a year and reduce 16,000 ton-CO2 emissions per a year.
Other, please specify	Please select	

**C2.6**

**(C2.6) Describe where and how the identified risks and opportunities have factored into your financial planning process.**

	Relevance	Description
Revenues	Not yet impacted	While we are offering low-carbon oriented electricity, we started offering a carbon-free fee menu, but since it is just after the start of sales, the impact on finance (profitability) is limited. As the further expansion of renewable energy towards the next 2030 and demand rises, sales of the TEPCO group's carbon-free electricity menu may increase, so it is included in the financial planning process.
Operating costs	Impacted for some suppliers, facilities, or product lines	We adopted MACC II, the world's highest power generation efficiency on the No.2-3 of the Kawasaki thermal power plant, and started commercial operation. (Rated output: 710,000 kW, power generation efficiency: about 61%, fuel: LNG) Due to efficiency improvement, we have reduced fuel cost by about 10 billion yen. Since it is highly likely that future fuel cost reduction will be necessary due to expansion of introduction of high-efficiency thermal power generation, it is included in the financial planning process.
Capital expenditures / capital allocation	Impacted for some suppliers, facilities, or product lines	TEPCO Fuel & Power and Chubu Electric Power have decided to aim to fully integrate the fuel and thermal power business in the first half of FY2019 in order to supply internationally competitive energy and improve corporate value of both shareholders. In the future, TEPCO aims to establish a mechanism to evaluate the optimal and flexible portfolio style in each business area of the supply chain. As a result, consolidated net income for fiscal 2025 is expected to be about 200 billion yen. Since the same efforts may be expanded over the medium to long term as defined by the Company, it is included in the financial planning process.
Acquisitions and divestments	Not yet impacted	We are carrying out risk countermeasure / precaution measures appropriately, and there are no circumstances where the identified risk becomes obvious and the stock price declines. Toward a reduction of greenhouse gas emissions by 80% in 2050, if a rapid change in the power portfolio is requested after 2030, there is a possibility that the additional measures cost will increase and the balance will deteriorate. It is included in the financial planning process because stock prices may decline. There are no circumstances where acquisitions are necessary as the identified opportunities become significantly noticeable.
Access to capital	Not yet impacted	There are no circumstances in which the identified risks and opportunities become obvious and affect access to capital. Since we have already achieved about the Energy Conservation Law Regulation (Comprehensive Thermal Efficiency 44.3% at 2030FY), there is a possibility that the stock price will rise in 2030 as support from investors is obtained. It is therefore included in the financial planning process.
Assets	Impacted for some suppliers, facilities, or product lines	We put an importance in building well-balanced portfolio from a viewpoint of "Energy Security", "Economy", "Environmental Conservation." We adopted MACC II, the world's highest power generation efficiency on the No.2-3 of the Kawasaki thermal power plant, and started commercial operation. (Rated output: 710,000 kW, power generation efficiency: about 61%, fuel: LNG). As a result, it is assumed that the fuel cost etc. will be reduced by about 10 billion yen / year, and CO2 emissions will be reduced by about 700,000 tons / year.
Liabilities	Not yet impacted	Toward a reduction of greenhouse gas emissions by 80% in 2050, if a rapid change in the power portfolio is requested after 2030, there is a possibility that the additional measures cost will increase and the balance will deteriorate. It is included in the financial planning process because the D / E ratio may deteriorate.
Other	Please select	

**C3. Business Strategy**

**C3.1**

**(C3.1) Are climate-related issues integrated into your business strategy?**

Yes

**C3.1a**

**(C3.1a) Does your organization use climate-related scenario analysis to inform your business strategy?**

Yes, quantitative

C-AC3.1b/C-CE3.1b/C-CH3.1b/C-CO3.1b/C-EU3.1b/C-FB3.1b/C-MM3.1b/C-OG3.1b/C-PF3.1b/C-ST3.1b/C-TO3.1b/C-TS3.1b)

**(C-AC3.1b/C-CE3.1b/C-CH3.1b/C-CO3.1b/C-EU3.1b/C-FB3.1b/C-MM3.1b/C-OG3.1b/C-PF3.1b/C-ST3.1b/C-TO3.1b/C-TS3.1b)**  
**Indicate whether your organization has developed a low-carbon transition plan to support the long-term business strategy.**

Yes

### C3.1c

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**(C3.1c) Explain how climate-related issues are integrated into your business objectives and strategy.**

i) Description of how the business strategy has been influenced / Forward-looking scenario analyses: Keeping an eye on GHG reduction target of 2030 set out by the government and policy measures to achieve it,

TEPCO group first makes an scenario analysis of impact on our business opportunities and risks, especially plan of new power generation and procurement plan of electricity, and we have been promoting appropriate countermeasures to deal with relevant climate change. Based on the contents of the report from the Risk Management Committee (such as risk assessment with more than 10 years' ahead), we have decided medium- and long-term strategies at the Environmental Strategy Committee. Specifically, we have been making efforts to improve Scope 1 emission intensity, such as the strategy for promotion of high efficiency of thermal power generation (introduction of MACC II, IGCC). It is important for us to build a balanced and appropriate power portfolio from the viewpoint of "energy security" "economic stability" "environmental conservation" based on energy plan set out by Japanese government. Thus, we use forward-looking scenario analyses to inform our organization's businesses, strategy, and/or financial planning.

ii) Description of how the business strategy has been linked to emission reduction targets or energy reduction targets:

Following energy mix and GHG reduction target in FY2030 set out by Japanese government, power industry established "the Action Plan for a Low Carbon Society of Electric Power Industry" in July 2015. Then, the Electric Power Council for a Low Carbon Society ("ELCS") was established in February 2016, which aims to meet the new targets in "the Action Plan for a Low Carbon Society of Electric Power Industry". The Plan has the following targets. • emission intensity target of 0.37 kg-CO<sub>2</sub>e/kWh (use-end) in FY2030 • 11 million t-CO<sub>2</sub> as a maximum potential in 2030 could be achieved by adopting Best Available Technology(BAT) with regard to the construction of thermal power plants. TEPCO group joined ELCS in February 2016 for achieving the targets in the Plan set out in July 2015 and made a decision to promote our own countermeasures on climate change such as introduction of BAT in thermal power plant.

iii) Description of the most important business decisions influenced by climate change made during the reporting year/Identify at least one specific case and clarify which climate change problem it is associated with:

We published a commitment to tackle with global warming as a policy of management reform of our company in "management policy under a drastic change environment". Specifically, we announced as a policy "numerical targets of the emission factor as of 2030 and formulation of sustainable strategies aimed at collateral" on the premise of "restarting the Kashiwazaki-Kariwa Nuclear Power Plant, etc.". In addition, we developed and started sales of first domestic pricing plan called "Aqua Energy 100" for households that supplied only by hydroelectric power generation (except for pumped-storage power generation and FIT electricity, all generated by TEPCO's general hydropower station) that does not emit CO<sub>2</sub> during power generation.

iv) What aspects of climate change have influenced the strategy / How the Paris Agreement has influenced the business strategy: Paris agreement was adopted in COP21 and further actions are requested to every nation to address extreme weather and rise in global average temperature caused by climate change:

Strengthening regulation on emission reduction in energy sector, especially improvement of thermal efficiency for thermal power plant and increase of ratio of procuring electricity generated from non-fossil fuel power generation for electricity retailing, has impacted on our business activities. Following actions have been taken and considered: 1.Adoption of More Advanced Combined Cycle II technology in Kawasaki LNG fired power plant, which has commenced commercial operation in January 2016 2.Development and start sales of first domestic pricing plan called "Aqua Energy 100" for households that supplied only by hydroelectric power generation (except for pumped-storage power generation and FIT electricity, all generated by TEPCO's general hydropower station)that does not emit CO<sub>2</sub> during power generation.

v)How the short term strategy has been influenced by climate change:

In September 2017, as a creation of new value that responds to the diverse needs of society, we created "TEPCO Green plus Gas" gas price plan for corporate customers (Japan's first lower CO2 emissions city-gas plan using green thermal certificate) started selling.

vi) How the long term strategy has been influenced by climate change:

Taking into account of energy mix and GHG reduction target in 2030 set out by Japanese government in July 2015, i)decrease of electricity demand by deepening energy saving, ii)expansion of non-fossil fuel power generation and iii)ratio of thermal power generation in energy mix are important components in our long-term strategy. We have built well-balanced portfolio of thermal power generation between Coal fired and LNG fired and have promoted adoption of beyond Best Available Technology (BAT) to reduce CO2 emission from thermal power plants to contribute to energy mix and the GHG reduction target in 2030 set out by Japanese government.

vii) How this is gaining a strategic advantage over your competitors:

1. Introduction of advanced technology in thermal power plant More Advanced Combined Cycle II technology (1600 degrees Celsius class / achieving the world's highest thermal efficiency of about 61%) has been introduced in Kawasaki LNG fired power plant. Integrated Gasification Combined Cycle technology (540 MW is maximum in Japan) is planned to be introduced in two coal fired power plants in Fukushima prefecture.

2.Development of renewable energy We have constructed and operated three mega solar power stations with total installed capacity of 30 MW and one wind power station with total installed capacity of 18.37 MW.

### C3.1d

#### (C3.1d) Provide details of your organization's use of climate-related scenario analysis.

Climate-related scenarios	Details
Nationally determined contributions (NDCs)	Since there are the Act on the Rational Use of Energy and so-called "Act on the Promotion of Use of Non-fossil Energy Sources and Effective Use of Fossil Energy Materials by Energy Suppliers" as regulations related to climate change issues in our electric power business in Japan, we need to conduct business activities with the targets stipulated by that laws in mind. Since these targets of laws are consistent with NDC, we analyze the scenario based on NDC. Since the targets of these laws are the total thermal efficiency of thermal power generation of 44.3% and the non-fossil power supply procurement ratio of 44% in FY 2030 respectively, in the scenario analysis on the Scope 1 emissions of the TEPCO group that operates power generation business and retail business, this target time axis is adopted. For the scenario analysis, we prepared several restart scenarios including nuclear power generation, which greatly contributes to the reduction of CO2 emissions, and analyzed the impact on our business in FY 2030. As for the results and results of each scenario analysis, in the case of the TEPCO group, the CO2 emission intensity is already the top class in the country, and it became clear that the state of restarting the Kashiwazaki-Kariwa Nuclear Power Plant has a great influence on CO2 emission reduction, It indicated that further promotion higher efficiency of thermal power generation, expansion of renewable energy, and restart the Kashiwazaki-Kariwa Nuclear Power Station, which is based on safety as a prerequisite, is essential. It became clear that comprehensive thermal power efficiency target is expected to be achieved. Depending on nuclear power operation and the spread of renewable energy, it may be necessary to utilize renewable energy and non - fossil value trading market. In order to achieve emission reduction target (0.37 kg CO <sub>2</sub> / kWh in FY 2030) under the Electric Power Council for Low carbon Society (ELCS), it is found that the re-starting situation of nuclear power plants including other companies, which is based on safety as a prerequisite for the contribution to the achievement, has a big influence. With the Revised Comprehensive Special Business Plan in May 2017, the TEPCO Group aims to develop a global sustainable and competitive renewable energy business. In February 2018, TEPCO HD President and Representative Director Representative Executive Officer and CEO, at a press conference, shows an idea to strongly promote domestic and overseas renewable projects as a pillar comparable to the "fuel and thermal power generation project".

C-AC3.1e/C-CE3.1e/C-CH3.1e/C-CO3.1e/C-EU3.1e/C-FB3.1e/C-MM3.1e/C-OG3.1e/C-PF3.1e/C-ST3.1e/C-TO3.1e/C-TS3.1e

**(C-AC3.1e/C-CE3.1e/C-CH3.1e/C-CO3.1e/C-EU3.1e/C-FB3.1e/C-MM3.1e/C-OG3.1e/C-PF3.1e/C-ST3.1e/C-TO3.1e/C-TS3.1e)**  
**Disclose details of your organization's low-carbon transition plan.**

Based on the "Revised Comprehensive Special Business Plan", we are aiming to develop a global sustainable and competitive renewable energy business through the following initiatives. 1. Short-term initiatives: Take advantage of the consistent business model's strengths from planning, development, operation and maintenance of existing renewable energy power sources such as hydroelectric power generation and wind power generation, taking into account the diversified needs that are conscious of the low-carbon society, Promote revenue expansion by developing business according to the needs of each region and country. 2. Medium- to Long-Term Initiatives: In order to create corporate value through the creation of new environmental values such as Green & Innovation and the introduction of innovative business models in the electric power business such as combining decentralized renewable energy generation with storage batteries / Work on overseas advanced projects and alliances.

## C4. Targets and performance

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### C4.1

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

Intensity target

### C4.1b

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**(C4.1b) Provide details of your emissions intensity target(s) and progress made against those target(s).**

**Target reference number**

Int 1

**Scope**

Scope 1

**% emissions in Scope**

100

**% reduction from baseline year**

35

**Metric**

Metric tons CO2e per megawatt hour (MWh)\*

**Base year**

2013

**Start year**

2013

**Normalized baseline year emissions covered by target (metric tons CO2e)**

0.57

**Target year**

2030

**Is this a science-based target?**

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

**% achieved (emissions)**

27

**Target status**

Underway

**Please explain**

The intensity target was set out as industry-wide target in ELCS (not the target that each member of ELCS shall meet), based on energy mix and GHG reduction target in FY2030 set out by Japanese government.

**% change anticipated in absolute Scope 1+2 emissions**

35

**% change anticipated in absolute Scope 3 emissions**

0

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**C4.2**

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**(C4.2) Provide details of other key climate-related targets not already reported in question C4.1/a/b.**

**C4.3**

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**(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**

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**(C4.3a) Identify the total number of projects at each stage of development, and for those in the implementation stages, the estimated CO2e savings.**

	Number of projects	Total estimated annual CO2e savings in metric tonnes CO2e (only for rows marked *)
Under investigation	0	0
To be implemented*	14	1513000
Implementation commenced*	6	910000
Implemented*	4	776000
Not to be implemented	0	0

C4.3b

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

**Activity type**

Low-carbon energy installation

**Description of activity**

Other, please specify (Wind farm)

**Estimated annual CO2e savings (metric tonnes CO2e)**

16000

**Scope**

Scope 1

**Voluntary/Mandatory**

Voluntary

**Annual monetary savings (unit currency – as specified in CC0.4)**

360000000

**Investment required (unit currency – as specified in CC0.4)**

6300000000

**Payback period**

11-15 years

**Estimated lifetime of the initiative**

16-20 years

**Comment**

The above figures are estimated based on information regarding Higashi-Izu Wind Power Plant, typical wind utilization rate and figures showed by Japanese governments' Special committee for Determination of Tariffs and Duration.

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**Activity type**

Energy efficiency: Building fabric

**Description of activity**

Maintenance program

**Estimated annual CO2e savings (metric tonnes CO2e)**

76000

**Scope**

Scope 1

**Voluntary/Mandatory**

Voluntary

**Annual monetary savings (unit currency – as specified in CC0.4)**

11600000000

**Investment required (unit currency – as specified in CC0.4)**

67055000000

**Payback period**

11-15 years

**Estimated lifetime of the initiative**

>30 years

**Comment**

"Investment required" includes investment to thermal power generation efficiency improvement in 2016 FY. "Payback period" is assumed in accordance with useful life in tax law.

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**C4.3c**

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

Method	Comment
Dedicated budget for other emissions reduction activities	Based on the concept of the business portfolio of the entire group through analysis of the market environment and competitive advantage, we decided to identify the priority business field. Thus, in the domestic electric power business we will replace thermal power stations that will contribute to strengthening competitiveness and will fund hydropower generation and renewable energy etc. with a view towards a low carbon society. As an investment portfolio, we have included strategic investment of 350 billion yen (2017FY to 2026FY) for efficiency reduction of thermal power plants, domestic renewable energy, green & innovation etc..

**C4.5**

**(C4.5) Do you classify any of your existing goods and/or services as low-carbon products or do they enable a third party to avoid GHG emissions?**

Yes

**C4.5a**

**(C4.5a) Provide details of your products and/or services that you classify as low-carbon products or that enable a third party to avoid GHG emissions.**

**Level of aggregation**

Product

**Description of product/Group of products**

We developed and started sales of first domestic pricing plan called "Aqua Energy 100" for households that supplied only by hydroelectric power generation (except for pumped-storage power generation and FIT electricity, all generated by TEPCO's general hydropower station) that does not emit CO2 during power generation.

**Are these low-carbon product(s) or do they enable avoided emissions?**

Low-carbon product

**Taxonomy, project or methodology used to classify product(s) as low-carbon or to calculate avoided emissions**

Other, please specify (Categorized referring to the law)

**% revenue from low carbon product(s) in the reporting year**

0

**Comment**

Revenue from new product is limited and conservatively recognized almost zero during the reporting year because it is just introduced in the market. The product exclusively consists of electricity generated by hydropower which is recognized as carbon-free by the domestic law.

**C-EU4.6**

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

Methane is generated as a result of incomplete combustion of fuel, but it is managed so that it can be burned completely at a thermal power plant and methane is not discharged. Although there is an obligation to report the emission of methane as long as it possesses target facilities in the relevant law, from the above, it is assumed that there is no targeted equipment under the law concerning the law and that there are no emission results.

**C5. Emissions methodology**

## C5.1

---

**(C5.1) Provide your base year and base year emissions (Scopes 1 and 2).**

### Scope 1

**Base year start**

April 1 2015

**Base year end**

March 31 2016

**Base year emissions (metric tons CO2e)**

91421000

**Comment**

### Scope 2 (location-based)

**Base year start**

**Base year end**

**Base year emissions (metric tons CO2e)**

**Comment**

### Scope 2 (market-based)

**Base year start**

April 1 2015

**Base year end**

March 31 2016

**Base year emissions (metric tons CO2e)**

3800000

**Comment**

## C5.2

---

**(C5.2) Select the name of the standard, protocol, or methodology you have used to collect activity data and calculate Scope 1 and Scope 2 emissions.**

Japan Ministry of the Environment, Law Concerning the Promotion of the Measures to Cope with Global Warming, Superseded by Revision of the Act on Promotion of Global Warming Countermeasures (2005 Amendment)

The Tokyo Cap-and Trade Program

## C6. Emissions data

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### C6.1

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**(C6.1) What were your organization's gross global Scope 1 emissions in metric tons CO2e?**

**Row 1**

**Gross global Scope 1 emissions (metric tons CO2e)**

89046000

**End-year of reporting period**

<Not Applicable>

**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 CO2e?**

**Row 1**

**Scope 2, location-based**

3800000

**Scope 2, market-based (if applicable)**

3700000

**End-year of reporting period**

<Not Applicable>

**Comment**

C6.4

---

**(C6.4) Are there any sources (e.g. facilities, specific GHGs, activities, geographies, etc.) of Scope 1 and Scope 2 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 Scope 3 emissions, disclosing and explaining any exclusions.**

## Purchased goods and services

### Evaluation status

Relevant, calculated

### Metric tonnes CO<sub>2</sub>e

1700

### Emissions calculation methodology

Amount of purchased goods(10<sup>6</sup>JPY) x emission factor( 11.12 t-CO<sub>2</sub>/10<sup>6</sup>JPY)

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

100

### Explanation

The emissions are calculated based on the emission factor provided by the database of the Ministry of Environment.

## Capital goods

### Evaluation status

Relevant, calculated

### Metric tonnes CO<sub>2</sub>e

1876000

### Emissions calculation methodology

Capital investment(JPY)×Emission Factor about capital goods[tCO<sub>2</sub>e/JPY]

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

100

### Explanation

The emissions are calculated based on the emission factor provided by the database of the Ministry of Environment.

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

### Evaluation status

Relevant, calculated

### Metric tonnes CO<sub>2</sub>e

1455000

### Emissions calculation methodology

(Electricity sales [MWh] –TEPCO's transmission of electricity) ×0.0354 [tCO<sub>2</sub>e/MWh]

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

100

### Explanation

The emissions are calculated based on the electricity sales minus TEPCO's transmission of electricity multiply by 0.0354. 0.0354 is provide by the database of the Ministry of Environment.

## Upstream transportation and distribution

### Evaluation status

Relevant, calculated

### Metric tonnes CO<sub>2</sub>e

2619000

### Emissions calculation methodology

Amount of fuel consumption x emission factor by source.

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

100

### Explanation

The emissions are calculated based on the emission factor provided by Central Research Institute of Electric Power Industry (Japan). Just refer to "Comprehensive Assessment of Life Cycle CO<sub>2</sub> Emissions from Power Generation Technologies in Japan" <https://criepi.denken.or.jp/jp/kenkikaku/report/download/5PcTn5h5mZcxFLXdQzFzEJGDJdXqmCY9/Y06.pdf>

## Waste generated in operations

### Evaluation status

Relevant, calculated

### Metric tonnes CO2e

31000

### Emissions calculation methodology

Using emission unit intensity by waste type treatment method for the amount of major industrial waste (coal ash, gypsum recovered through desulfurization, scrapped concrete utility poles, metal scraps, pcb, wastewater treatment sludge, heavy/crude oil ash, shells, etc.) Calculated

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

100

### Explanation

The emissions from waste disposal caused by generations are included the emissions from Fuel-and-energy-related activities.

## Business travel

### Evaluation status

Not relevant, explanation provided

### Metric tonnes CO2e

### Emissions calculation methodology

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

### Explanation

Assessment has shown that emissions from this source are not quantitatively relevant compared to TEPCO's overall emissions. Therefore, the impact on our business risk is quite small and the priority to evaluate is low to each stakeholder.

## Employee commuting

### Evaluation status

Not relevant, explanation provided

### Metric tonnes CO2e

### Emissions calculation methodology

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

### Explanation

Assessment has shown that emissions from this source are not quantitatively relevant compared to TEPCO's overall emissions. Therefore, the impact on our business risk is quite small and the priority to evaluate is low to each stakeholder.

## Upstream leased assets

### Evaluation status

Not relevant, explanation provided

### Metric tonnes CO2e

### Emissions calculation methodology

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

### Explanation

Not applicable to our business.

## Downstream transportation and distribution

### Evaluation status

Not relevant, explanation provided

### Metric tonnes CO<sub>2</sub>e

### Emissions calculation methodology

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

### Explanation

Not applicable to our business.

## Processing of sold products

### Evaluation status

Not relevant, explanation provided

### Metric tonnes CO<sub>2</sub>e

### Emissions calculation methodology

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

### Explanation

This is considered not applicable to our central products electricity.

## Use of sold products

### Evaluation status

Not relevant, explanation provided

### Metric tonnes CO<sub>2</sub>e

### Emissions calculation methodology

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

### Explanation

The emissions from use of sold electricity are not quantitatively relevant compared to TEPCO's overall emissions.

## End of life treatment of sold products

### Evaluation status

Not relevant, explanation provided

### Metric tonnes CO<sub>2</sub>e

### Emissions calculation methodology

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

### Explanation

Not applicable to our business.

## Downstream leased assets

### Evaluation status

Not relevant, explanation provided

### Metric tonnes CO<sub>2</sub>e

### Emissions calculation methodology

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

### Explanation

We have no downstream leased assets.

## Franchises

### Evaluation status

Not relevant, explanation provided

### Metric tonnes CO2e

### Emissions calculation methodology

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

### Explanation

We have no franchises.

## Investments

### Evaluation status

Not relevant, explanation provided

### Metric tonnes CO2e

### Emissions calculation methodology

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

### Explanation

Assessment has shown that emissions from this source are not quantitatively relevant compared to TEPCO's overall emissions. Therefore, the impact on our business risk is quite small and the priority to evaluate is low to each stakeholder.

## Other (upstream)

### Evaluation status

### Metric tonnes CO2e

### Emissions calculation methodology

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

### Explanation

## Other (downstream)

### Evaluation status

### Metric tonnes CO2e

### Emissions calculation methodology

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

### Explanation

## C6.7

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(C6.7) Are carbon dioxide emissions from biologically sequestered 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 CO2e per unit currency total revenue and provide any additional intensity metrics that are appropriate to your business operations.**

**Intensity figure**

0.00002095

**Metric numerator (Gross global combined Scope 1 and 2 emissions)**

92723000

**Metric denominator**

unit total revenue

**Metric denominator: Unit total**

4426200000000

**Scope 2 figure used**

Market-based

**% change from previous year**

15.5

**Direction of change**

Increased

**Reason for change**

Total amount of emissions were reduced by 2.6% (FY2016: 92,746,000 tCO2e FY2015: 95,221,000 tCO2e) due to increase of low carbon power supply, but the electricity sales revenue has been decreased by 15.5% compared to the previous fiscal year (FY2016: 4426.2.00 billion yen, FY2015: 5237.0 billion yen). As a result, the intensity increased.

---

**Intensity figure**

0.384

**Metric numerator (Gross global combined Scope 1 and 2 emissions)**

92723000

**Metric denominator**

megawatt hour generated (MWh)

**Metric denominator: Unit total**

241500000

**Scope 2 figure used**

Market-based

**% change from previous year**

0.3

**Direction of change**

Decreased

**Reason for change**

We were able to reduce emissions intensity by increasing emissions of renewable energy and reducing emission fossil fuels such as oil fired thermal power generation ratio. FY2016: 92,746,000 [t-CO2e] / 241500000 [MWh] = 0.384 FY2015: 95,221,000 [t-CO2e] / 247100000 [MWh] = 0.394 Emission of this reply is GHG emissions from its own power plant and excludes electricity purchased from other companies for sale for sales purposes but emissions reported to the government are sent from other companies Includes purchased electricity.

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## C7. Emissions breakdowns

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### C7.1

---

**(C7.1) Does your organization have greenhouse gas emissions other than carbon dioxide?**

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 greenhouse warming potential (GWP).**

Greenhouse gas	Scope 1 emissions (metric tons of CO2e)	GWP Reference
CO2	88923000	IPCC Fourth Assessment Report (AR4 - 100 year)
N2O	58000	IPCC Fourth Assessment Report (AR4 - 100 year)
HFCs	4000	IPCC Fourth Assessment Report (AR4 - 100 year)
SF6	61000	IPCC Fourth Assessment Report (AR4 - 100 year)

### C-EU7.1b

**(C-EU7.1b) Break down your total gross global Scope 1 emissions from electric utilities value chain activities by greenhouse gas type.**

	Gross Scope 1 CO2 emissions (metric tons CO2)	Gross Scope 1 methane emissions (metric tons CH4)	Gross Scope 1 SF6 emissions (metric tons SF6)	Gross Scope 1 emissions (metric tons CO2e)	Comment
Fugitives					
Combustion (Electric utilities)	88923000	0	61000	89046000	N2O 58,000 HFC 4,000
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/region.**

Country/Region	Scope 1 emissions (metric tons CO2e)
Japan	89046000

### 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 CO2e)
Electric utilities	88860000
Power Transmission and Distribution	172000
Cooperative Activities	14000

**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 CO2e.**

	Gross Scope 1 emissions, metric tons CO2e	Net Scope 1 emissions , metric tons CO2e	Comment
Cement production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Chemicals production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Coal production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Electric utility generation activities	89046000	<Not Applicable>	
Metals and mining production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Oil and gas production activities (upstream)	<Not Applicable>	<Not Applicable>	<Not Applicable>
Oil and gas production activities (downstream)	<Not Applicable>	<Not Applicable>	<Not Applicable>
Steel production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Transport OEM activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Transport services activities	<Not Applicable>	<Not Applicable>	<Not Applicable>

**C7.5**

**(C7.5) Break down your total gross global Scope 2 emissions by country/region.**

Country/Region	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)	Purchased and consumed electricity, heat, steam or cooling (MWh)	Purchased and consumed low-carbon electricity, heat, steam or cooling accounted in market-based approach (MWh)
Japan	3800000	3700000	156086	430

**C7.6**

**(C7.6) Indicate which gross global Scope 2 emissions breakdowns you are able to provide.**

By facility

**C7.6b**

**(C7.6b) Break down your total gross global Scope 2 emissions by business facility.**

Facility	Scope 2 location-based emissions (metric tons CO2e)	Scope 2, market-based emissions (metric tons CO2e)
Head office buildings		160000
Office buildings and others		3540000

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?**

Decreased

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.**

	Change in emissions (metric tons CO2e)	Direction of change	Emissions value (percentage)	Please explain calculation
Change in renewable energy consumption		<Not Applicable>		
Other emissions reduction activities	2475000	Decreased	2.6	Decreasing of Scope1 emission by decreasing oil consumption (A)Scope1 emission decrease: 91,421,000-89,046,000=2,375,000 Decreasing of Scope2 emission by energy conservation under energy saving promotions in our entire buildings and facilities (B)Scope 2 emission decrease: 3,800,000-3,700,000=100,000 (C)Change in emission: (A)+(B)= 2,475,000t-CO2e (D)Emission value =(1- (F)/(E))*100 =2.60% (E)=FY2015 scope1+2: 95,221,000 (F)=FY2016 scope1+2: 92,746,000
Divestment		<Not Applicable>		
Acquisitions		<Not Applicable>		
Mergers		<Not Applicable>		
Change in output		<Not Applicable>		
Change in methodology		<Not Applicable>		
Change in boundary		<Not Applicable>		
Change in physical operating conditions		<Not Applicable>		
Unidentified		<Not Applicable>		
Other		<Not Applicable>		

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 undertakes this energy-related activity
Consumption of fuel (excluding feedstocks)	Yes
Consumption of purchased or acquired electricity	Yes
Consumption of purchased or acquired heat	Yes
Consumption of purchased or acquired steam	Yes
Consumption of purchased or acquired cooling	Yes
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 MWh
Consumption of fuel (excluding feedstock)	LHV (lower heating value)	0	442450842	442450842
Consumption of purchased or acquired electricity	<Not Applicable>	430	155656	156086
Consumption of purchased or acquired heat	<Not Applicable>	0	0	0
Consumption of purchased or acquired steam	<Not Applicable>	0	0	0
Consumption of purchased or acquired cooling	<Not Applicable>	0	6642	6642
Consumption of self-generated non-fuel renewable energy	<Not Applicable>	0	<Not Applicable>	0
Total energy consumption	<Not Applicable>	430	442613140	442613570

## 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 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.

#### Fuels (excluding feedstocks)

Crude Oil

**Heating value**

LHV (lower heating value)

**Total fuel MWh consumed by the organization**

4184047

**MWh fuel consumed for the self-generation of electricity**

0

**MWh fuel consumed for self-generation of heat**

0

**MWh fuel consumed for self-generation of steam**

<Not Applicable>

**MWh fuel consumed for self-generation of cooling**

<Not Applicable>

**MWh fuel consumed for self- cogeneration or self-trigeneration**

<Not Applicable>

---

**Fuels (excluding feedstocks)**

Diesel

**Heating value**

LHV (lower heating value)

**Total fuel MWh consumed by the organization**

242617

**MWh fuel consumed for the self-generation of electricity**

0

**MWh fuel consumed for self-generation of heat**

0

**MWh fuel consumed for self-generation of steam**

<Not Applicable>

**MWh fuel consumed for self-generation of cooling**

<Not Applicable>

**MWh fuel consumed for self- cogeneration or self-trigeneration**

<Not Applicable>

---

**Fuels (excluding feedstocks)**

Liquefied Natural Gas (LNG)

**Heating value**

LHV (lower heating value)

**Total fuel MWh consumed by the organization**

322231994

**MWh fuel consumed for the self-generation of electricity**

0

**MWh fuel consumed for self-generation of heat**

0

**MWh fuel consumed for self-generation of steam**

<Not Applicable>

**MWh fuel consumed for self-generation of cooling**

<Not Applicable>

**MWh fuel consumed for self- cogeneration or self-trigeneration**

<Not Applicable>

---

**Fuels (excluding feedstocks)**

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Town Gas

**Heating value**

LHV (lower heating value)

**Total fuel MWh consumed by the organization**

31997715

**MWh fuel consumed for the self-generation of electricity**

0

**MWh fuel consumed for self-generation of heat**

0

**MWh fuel consumed for self-generation of steam**

<Not Applicable>

**MWh fuel consumed for self-generation of cooling**

<Not Applicable>

**MWh fuel consumed for self- cogeneration or self-trigeneration**

<Not Applicable>

---

**Fuels (excluding feedstocks)**

Burning Oil

**Heating value**

LHV (lower heating value)

**Total fuel MWh consumed by the organization**

20215450

**MWh fuel consumed for the self-generation of electricity**

0

**MWh fuel consumed for self-generation of heat**

0

**MWh fuel consumed for self-generation of steam**

<Not Applicable>

**MWh fuel consumed for self-generation of cooling**

<Not Applicable>

**MWh fuel consumed for self- cogeneration or self-trigeneration**

<Not Applicable>

---

**Fuels (excluding feedstocks)**

Liquefied Petroleum Gas (LPG)

**Heating value**

LHV (lower heating value)

**Total fuel MWh consumed by the organization**

5024116

**MWh fuel consumed for the self-generation of electricity**

0

**MWh fuel consumed for self-generation of heat**

0

**MWh fuel consumed for self-generation of steam**

<Not Applicable>

**MWh fuel consumed for self-generation of cooling**

<Not Applicable>

**MWh fuel consumed for self- cogeneration or self-trigeneration**

<Not Applicable>

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**Fuels (excluding feedstocks)**

Coal

**Heating value**

LHV (lower heating value)

**Total fuel MWh consumed by the organization**

58554903

**MWh fuel consumed for the self-generation of electricity**

0

**MWh fuel consumed for self-generation of heat**

0

**MWh fuel consumed for self-generation of steam**

<Not Applicable>

**MWh fuel consumed for self-generation of cooling**

<Not Applicable>

**MWh fuel consumed for self- cogeneration or self-trigeneration**

<Not Applicable>

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**C8.2d**

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**(C8.2d) List the average emission factors of the fuels reported in C8.2c.****Burning Oil****Emission factor**

0.003

**Unit**

metric tons CO2 per liter

**Emission factor source**

Ministerial ordinance by Ministry of the Environment

**Comment****Coal****Emission factor**

2.33

**Unit**

metric tons CO2 per metric ton

**Emission factor source**

Ministerial ordinance by Ministry of the Environment

**Comment****Crude Oil****Emission factor**

0.00262

**Unit**

metric tons CO2 per liter

**Emission factor source**

Ministerial ordinance by Ministry of the Environment

**Comment**

---

## Diesel

### Emission factor

0.00258

### Unit

metric tons CO2 per liter

### Emission factor source

Ministerial ordinance by Ministry of the Environment

### Comment

## Liquefied Natural Gas (LNG)

### Emission factor

2.7

### Unit

metric tons CO2 per metric ton

### Emission factor source

Ministerial ordinance by Ministry of the Environment

### Comment

## Liquefied Petroleum Gas (LPG)

### Emission factor

3

### Unit

metric tons CO2 per metric ton

### Emission factor source

### Comment

## Town Gas

### Emission factor

0.00223

### Unit

metric tons CO2 per m3

### Emission factor source

Ministerial ordinance by Ministry of the Environment

### Comment

## C8.2e

(C8.2e) Provide details on the electricity, heat, steam, and cooling your organization has generated and consumed in the reporting year.

	Total Gross generation (MWh)	Generation that is consumed by the organization (MWh)	Gross generation from renewable sources (MWh)	Generation from renewable sources that is consumed by the organization (MWh)
Electricity	200378348	155656	7889189	430
Heat	0	0	0	0
Steam	0	0	0	0
Cooling	0	0	0	0

## C-EU8.2e

---

(C-EU8.2e) 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)**

3200

**Gross electricity generation (GWh)**

25839

**Net electricity generation (GWh)**

23255

**Absolute scope 1 emissions (metric tons CO2e)**

18959

**Scope 1 emissions intensity (metric tons CO2e per GWh)**

0.81

**Comment**

Assumed that the internal rate is 10%

**Lignite**

**Nameplate capacity (MW)**

0

**Gross electricity generation (GWh)**

0

**Net electricity generation (GWh)**

0

**Absolute scope 1 emissions (metric tons CO2e)**

0

**Scope 1 emissions intensity (metric tons CO2e per GWh)**

0

**Comment**

**Oil**

**Nameplate capacity (MW)**

8650

**Gross electricity generation (GWh)**

9526

**Net electricity generation (GWh)**

8573

**Absolute scope 1 emissions (metric tons CO2e)**

6402

**Scope 1 emissions intensity (metric tons CO2e per GWh)**

0.76

**Comment**

Assumed that the internal rate is 10%

## Gas

### Nameplate capacity (MW)

29936

### Gross electricity generation (GWh)

176053

### Net electricity generation (GWh)

158448

### Absolute scope 1 emissions (metric tons CO2e)

63626

### Scope 1 emissions intensity (metric tons CO2e per GWh)

0.4

### Comment

Assumed that the internal rate is 10%

## Biomass

### Nameplate capacity (MW)

0

### Gross electricity generation (GWh)

0

### Net electricity generation (GWh)

0

### Absolute scope 1 emissions (metric tons CO2e)

0

### Scope 1 emissions intensity (metric tons CO2e per GWh)

0

### Comment

## Waste (non-biomass)

### Nameplate capacity (MW)

0

### Gross electricity generation (GWh)

0

### Net electricity generation (GWh)

0

### Absolute scope 1 emissions (metric tons CO2e)

0

### Scope 1 emissions intensity (metric tons CO2e per GWh)

0

### Comment

## Nuclear

### Nameplate capacity (MW)

12612

### Gross electricity generation (GWh)

0

### Net electricity generation (GWh)

0

### Absolute scope 1 emissions (metric tons CO2e)

0

### Scope 1 emissions intensity (metric tons CO2e per GWh)

0

### Comment

## Geothermal

### Nameplate capacity (MW)

3.3

### Gross electricity generation (GWh)

11

### Net electricity generation (GWh)

10

### Absolute scope 1 emissions (metric tons CO2e)

0

### Scope 1 emissions intensity (metric tons CO2e per GWh)

0

### Comment

Assumed that the internal rate is 10%

## Hydroelectric

### Nameplate capacity (MW)

9870

### Gross electricity generation (GWh)

11149

### Net electricity generation (GWh)

10034

### Absolute scope 1 emissions (metric tons CO2e)

0

### Scope 1 emissions intensity (metric tons CO2e per GWh)

0

### Comment

Assumed that the internal rate is 10%

## Wind

### Nameplate capacity (MW)

18

### Gross electricity generation (GWh)

27

### Net electricity generation (GWh)

24

### Absolute scope 1 emissions (metric tons CO2e)

0

### Scope 1 emissions intensity (metric tons CO2e per GWh)

0

### Comment

Assumed that the internal rate is 10%

## Solar

### Nameplate capacity (MW)

30

### Gross electricity generation (GWh)

37

### Net electricity generation (GWh)

33

### Absolute scope 1 emissions (metric tons CO2e)

0

### Scope 1 emissions intensity (metric tons CO2e per GWh)

0

### Comment

Assumed that the internal rate is 10%

## Other renewable

### Nameplate capacity (MW)

### Gross electricity generation (GWh)

### Net electricity generation (GWh)

### Absolute scope 1 emissions (metric tons CO2e)

### Scope 1 emissions intensity (metric tons CO2e per GWh)

### Comment

## Other non-renewable

### Nameplate capacity (MW)

### Gross electricity generation (GWh)

### Net electricity generation (GWh)

### Absolute scope 1 emissions (metric tons CO2e)

### Scope 1 emissions intensity (metric tons CO2e per GWh)

### Comment

**Total**

**Nameplate capacity (MW)**

64319.3

**Gross electricity generation (GWh)**

222641

**Net electricity generation (GWh)**

200377

**Absolute scope 1 emissions (metric tons CO2e)**

88987

**Scope 1 emissions intensity (metric tons CO2e per GWh)**

1.97

**Comment**

**C8.2f**

---

**(C8.2f) Provide details on the electricity, heat, steam and/or cooling amounts that were accounted for at a low-carbon emission factor in the market-based Scope 2 figure reported in C6.3.**

**Basis for applying a low-carbon emission factor**

Off-grid energy consumption from an on-site installation or through a direct line to an off-site generator owned by another company

**Low-carbon technology type**

Solar PV

Concentrated solar power (CSP)

Wind

Hydropower

**MWh consumed associated with low-carbon electricity, heat, steam or cooling**

430

**Emission factor (in units of metric tons CO2e per MWh)**

0

**Comment**

---

**C-EU8.4**

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

No

**C9. Additional metrics**

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**C9.1**

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

**Description**

Energy use

**Metric value**

**Metric numerator**

**Metric denominator (intensity metric only)**

**% change from previous year**

**Direction of change**

<Not Applicable>

**Please explain**

**C-EU9.5a**

**(C-EU9.5a) Break down, by source, your total planned CAPEX in your current CAPEX plan for power generation.**

Primary power generation source	CAPEX planned for power generation from this source	Percentage of total CAPEX planned for power generation	End year of CAPEX plan	Comment
Nuclear	260000000000	3.96	2026	Safety measures expenses etc. at the Kashiwazaki-Kariwa Nuclear Power Station.
Gas	350000000000	5.34	2026	Efficiency improvement cost etc. of thermal power supply.

**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 products and services	End of year CAPEX plan
Smart grid	For the installation of smart meters, by 2020, we plan to install about 29 million units in all TEPCO PG supply areas. By making it possible to automate the monthly meter reading operation and to eliminate interworking work by remote control and to make it possible to visualize the usage of electricity by Home Energy Management System (HEMS) and other devices diversification of electricity price menu, we will contribute to energy conservation of society as a whole. The investment amount is the total cost related to the installation of the smart meter. The ratio is the value divided by the total investment in the new characteristic.	356500000000	5.43	2020

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

**(C-CO9.6/C-EU9.6/C-OG9.6) Disclose your investments in low-carbon research and development (R&D), equipment, products, and services.**

**Investment start date**

April 1 2017

**Investment end date**

March 31 2018

**Investment area**

R&D

**Technology area**

Other, please specify (Climate-related R&D)

**Investment maturity**

Applied research and development

**Investment figure**

1984800000

**Low-carbon investment percentage**

40

**Please explain**

Investment figure includes all R&D components. 21-40% of the figure accounts for climate-related.

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**C10. Verification**

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**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	No third-party verification or assurance

**C10.1a**

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

**Scope**

Scope 1

**Verification or assurance cycle in place**

Annual process

**Status in the current reporting year**

Complete

**Type of verification or assurance**

Reasonable assurance

**Attach the statement**

C10\_1attachment.pdf

**Page/ section reference**

page 1-6(mostly P1,2,5) \*Document to be attached, if technical in uploading problem is solved.

**Relevant standard**

Tokyo cap-and-trade guideline for verification

**Proportion of reported emissions verified (%)**

0

---

**Scope**

Scope 2 market-based

**Verification or assurance cycle in place**

Annual process

**Status in the current reporting year**

Complete

**Type of verification or assurance**

Reasonable assurance

**Attach the statement**

C10\_1attachment.pdf

**Page/ section reference**

page 1-6(mostly P1,2,5) \*Document to be attached, if technical in uploading problem is solved.

**Relevant standard**

Tokyo cap-and-trade guideline for verification

**Proportion of reported emissions verified (%)**

1

---

## C10.2

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**(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

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### C11.1

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**(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

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

Tokyo CaT

### C11.1b

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**(C11.1b) Complete the following table for each of the emissions trading systems in which you participate.**

**Tokyo CaT**

**% of Scope 1 emissions covered by the ETS**

0

**Period start date**

April 1 2015

**Period end date**

March 31 2019

**Allowances allocated**

28915

**Allowances purchased**

0

**Verified emissions in metric tons CO<sub>2</sub>e**

9357

**Details of ownership**

Facilities we own and operate

**Comment**

For TEPCO, no scope-1 emission source exists under the CaT, but only scope-2 sources.

### C11.1d

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**(C11.1d) What is your strategy for complying with the systems in which you participate or anticipate participating?**

Tokyo Cap-and-Trade only covers scope2 of TEPCO's emissions in Tokyo metropolitan area, which amount of emission from power plant is not included. The regulated offices fulfill the obligations by taking both facility and operation measures. The measures includes installation of high-efficient heating devices for hot-water supply, appropriate temperature setting for air-conditioner during summer and winter seasons, and efficient operation of elevator. TEPCO is making continuous efforts to reduce emissions regardless of locations and emission methods. Offices in Tokyo area as well as offices in other areas steadily works on an energy saving measures and reduction of GHG emissions, and best practices are developed in other offices. Also power plants have taken heat efficient measures and others to reduce scope1 emissions.

### C11.2

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**(C11.2) Has your organization originated or purchased any project-based carbon credits within the reporting period?**

Yes

## C11.2a

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**(C11.2a) Provide details of the project-based carbon credits originated or purchased by your organization in the reporting period.**

**Credit origination or credit purchase**

Credit purchase

**Project type**

Biomass energy

**Project identification**

Use of charcoal from renewable biomass plantation as reducing agent in Brazilian pig iron factory.

**Verified to which standard**

CDM (Clean Development Mechanism)

**Number of credits (metric tonnes CO2e)**

13682

**Number of credits (metric tonnes CO2e): Risk adjusted volume**

13682

**Credits cancelled**

No

**Purpose, e.g. compliance**

Voluntary Offsetting

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## C11.3

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

Yes

## C11.3a

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

**Objective for implementing an internal carbon price**

Navigate GHG regulations

**GHG Scope**

Scope 1

**Application**

In the case of procuring electricity generated from a thermal power plant by bidding, we evaluated the bid price including the cost of carbon credits to offset CO2 emissions based on government bidding guidelines

**Actual price(s) used (Currency /metric ton)**

1992

**Variance of price(s) used**

The price does not differ depending on the area and related departments. In addition, the price is adopted as a fixed (unchanged) price reflecting future price change forecasts.

**Type of internal carbon price**

Internal fee

**Impact & implication**

Carbon price has already impacted to the electricity bidding price. + Set the conditions for bidding for the CO2 emission intensity to be 0.550kg-CO2 / kWh or less + In the case of exceeding 0.550 kg – CO2 / kWh, evaluate the price including the carbon credit assumed cost for adjusting to 0.550kg-CO2 / kWh or less + The price of carbon credits is estimated based on the 2020 estimated value of "World Energy Outlook 2013 edition" (1,992yen / t-CO2), assuming up to 2035 price.

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**C12. Engagement**

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**C12.1**

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

Yes, our customers

Yes, other partners in the value chain

**C12.1b**

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

**Type of engagement**

Collaboration & innovation

**Details of engagement**

Run a campaign to encourage innovation to reduce climate change impacts

**Size of engagement**

100

**% Scope 3 emissions as reported in C6.5**

100

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

TEPCO Group, aiming to contribute climate mitigation as an energy utility, provides various opportunities to raise awareness of energy efficiency and GHG reductions with all our customers. Our service and products to the customers are all relevant to energy consumption. TEPCO therefore recognizes all customers should include our engagement activities. Under this engagement activities, in the reporting year, TEPCO commenced "e-charge point service" which provides financial incentives with EV/PHEV users and owners. And also TEPCO started 100% hydropower electricity supply service called "Aqua premium" for our corporate customers.

**Impact of engagement, including measures of success**

Accumulated numbers of contracts of our services such as "Aqua Premium" which contributes GHG emission reductions, could be a measure of success of our customer engagement. In the reporting year, a couple of corporate customers, such as Sony corporation and Mitsubishi Estate Corporation, appointed "Aqua premium" service, which enable their Scope-2 GHG emission reduction.

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**C12.1c**

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

TEPCO, together with other electric power companies including Kansai Electric, Chubu Electric and J-power, contributes to establish The Electric Power Council for Low Carbon Society (ELCS) in February 2016. In order to enhance GHG reduction within the value chain of electric power supply business, ELCS periodically reviews individual companies' activities and actions. Participant entities of ELCS cover over 90% of electricity sales amount in Japan, The annual and mutual review, including individual entities performances to their emission reduction and efficiency improvement target conducted under ELCS is expected to ensure effectiveness and transparency of corrective "Action Plan for a Low Carbon Society of Electric Power Industry". TEPCO therefore recognizes this value-chain engagement as an important strategic component. In the reporting year, TEPCO, in collaboration with other entities, implemented reviews ELCS's plans, goals and rules, aiming to ensure their effectiveness.

**C12.3**

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**(C12.3) Do you engage in activities that could either directly or indirectly influence public policy on climate-related issues through any of the following?**

Direct engagement with policy makers  
Trade associations

**C12.3a**

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**(C12.3a) On what issues have you been engaging directly with policy makers?**

Focus of legislation	Corporate position	Details of engagement	Proposed legislative solution
Mandatory carbon reporting	Support with minor exceptions	Direct communication with policy makers is made in a timely manner. For instance, we have exchanged our opinions and made suggestions from various points of view in discussing Japan's national emission reduction target, so called INDC, and the Japan's Plan for Global Warming Countermeasures, through various channels.	For instance, we have made requests as follows: i) revision of calculation method based on liberalization of electricity retail from April 2016 and ii) early introduction of plan-by-plan calculation of emission intensity.
Clean energy generation	Support with minor exceptions	Direct communication with policy makers is made in a timely manner. For instance, in order to promote installation of renewable energy facilities, we exchanged views and made suggestions on the 再エネの利用拡大にむけた課題の解決に向け、Act on Special Measures Concerning Procurement of Electricity from Renewable Energy Sources by Electricity Utilities from the viewpoint of expertise (enforceable in Japan).	We have provided information about the expected influence of rapid renewable energy resources installation into the existing power grid. We also recommended a possible framework which enable affordable grid-connections fee.
Other, please specify (National GHG emission target)	Neutral	We have exchanged our opinions and made suggestions from various points of view in discussing Japan's national emission reduction target, so called INDC, and the Japan's Plan for Global Warming Countermeasures, through various channels.	We have advocated significant role of electrification and pursued its deployment in realizing a long-term GHG emission.

**C12.3b**

**(C12.3b) Are you on the board of any trade associations or do you provide funding beyond membership?**

Yes

**C12.3c**

**(C12.3c) Enter the details of those trade associations that are likely to take a position on climate change legislation.**

**Trade association**

The Federation of Electric Power Companies of Japan (FEPC)

**Is your position on climate change consistent with theirs?**

Consistent

**Please explain the trade association's position**

FEPC and other volunteers in power industry established the "Electric Utility Low Carbon Society Council (ELCS)" in February 2016, which is a new voluntary framework for the realization of a low-carbon society. ELCS works on restraining GHG emissions, based on "the Action Plan for a Low Carbon Society of Electric Power Industry". As a member, we are promoting high efficiency of thermal power generation and expansion of renewable energy in order to contribute to the following targets of ELCS. • emission intensity target of 0.37 kg-CO<sub>2</sub>e/kWh (use-end) in FY2030 • 11 million t-CO<sub>2</sub> as a maximum potential is reduced by adopting Best Available Technology(BAT) with regard to the construction of thermal power plants.

**How have you, or are you attempting to, influence the position?**

We have been appointed as a council member of ELCS and actively engaged in a discussion relating its target, actions and regulations in ELCS.

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**Trade association**

KEIDANREN(Japan Business Federation)

**Is your position on climate change consistent with theirs?**

Consistent

**Please explain the trade association's position**

Keidanren (Japan Business Federation) made recommendations for Japan's climate change policy from the viewpoint of balance between the environment and the economy, and stable supply of energy. Thus, Keidanren encourages Keidanren has encouraged each industry to develop action plan for achieving low-carbon society to promote voluntary mitigation actions under each industry's commitment and has formulated the "KEIDANREN's Commitment to a Low Carbon Society". This commitment is compiled in each industry "low carbon society implementation plan". "the Action Plan for a Low Carbon Society of Electric Power Industry" of ELCS is also an important component. We joined ELCS and are promoting high efficiency of thermal power generation and expansion of renewable energy in order to contribute to ELCS's targets based on "the Action Plan for a Low Carbon Society of Electric Power Industry" , and report the effort and the results of the previous year to ELCS every year. Then, ELCS reports the results of "the Action Plan for a Low Carbon Society of Electric Power Industry" to Keidanren and receives reviews.

**How have you, or are you attempting to, influence the position?**

We participate in Keidanren and contribute to the formation of industry's opinion about national policy of GHG reduction as a member of the meeting on climate change.

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**C12.3f**

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**(C12.3f) What processes do you have in place to ensure that all of your direct and indirect activities that influence policy are consistent with your overall climate change strategy?**

Policies on climate change, related issues in government and industry group and its impact on our business activities have been reported to the management by monthly report or in the management meeting, so as to ensure that all of our direct and indirect activities that influence policy are consistent with our overall climate change strategy.

**C12.4**

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**(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**

201706-j.pdf

C12.4\_tir2017\_02-e.pdf

**Content elements**

Strategy

Risks & opportunities

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**Publication**

In voluntary sustainability report

**Status**

Complete

**Attach the document**

hd05-02-03-002-tir2017\_01-e.pdf

**Content elements**

Governance

Strategy

Emissions figures

Other metrics

Other, please specify (See <https://www7.tepco.co.jp/about/esg/>)

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## C14. Signoff

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### 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.**

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### C14.1

**(C14.1) Provide details for the person that has signed off (approved) your CDP climate change response.**

	Job title	Corresponding job category
Row 1	President	Board/Executive board

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## Submit your response

**In which language are you submitting your response?**

English

**Please confirm how your response should be handled by CDP**

	Public or Non-Public Submission	I am submitting to
I am submitting my response	Public	Investors

**Please confirm below**

I have read and accept the applicable Terms