

C0. Introduction

C0.1

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

Chubu Electric Power Company (Chuden) is an electric power company established in 1951 with the aim of providing electricity to the Chubu District. The main businesses of Chuden are its electricity business and its subsidiary businesses, the gas business, distributed energy business, overseas consulting and investment business, real estate management business and IT business. Chuden holds 9,115.4MW of power generation capacity (nuclear power generation: 3,617MW; hydro power generation: 5,459MW; new energy, etc.: 39MW; thermal power generation as emergency power generation facility: 0.4MW), about 12,000km of power transmission lines, and about 135,000km of power distribution lines. The electrical energy sold in FY2019 by the Chuden group was nearly 122.5 billion kWh, making it represent the second biggest electric power company in Japan. Focusing on the energy business, all of the 76 Companies constituting Chubu Electric Power Company Group are developing businesses such as the expansion of facilities relating to the electricity business, construction of facilities for maintenance, manufacturing of equipment and material supply. In Japan, full liberalization of electricity retail began in 2016 and gas retail began in 2017, and thus Chuden has been actively addressing the expansion of business areas and improvement of service contents. In these circumstances, Chuden established three Companies dedicated to Power Generation (legally separated), and also Power Network and Customer Service & Sales (not legally separated) in 2016, in order to create an autonomous business structure to be able to respond promptly and flexibly. In addition, in April 2019, Chuden integrated the existing thermal power generation business, etc. into JERA Co., Inc. and has completed a thorough value chain ranging from procurement of fuel upstream, which has been in place for some time, to power generation and wholesale sales of electric power and gas. JERA Co., Inc. is not a consolidated subsidiary company of Chuden.

C0.2

(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
Reporting year	April 1 2019	March 31 2020	No

C0.3

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

Japan

C0.4

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

JPY

C0.5

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

Financial control

C-EU0.7

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

Row 1

Electric utilities value chain

Electricity generation

Transmission

Distribution

Other divisions

Gas storage, transmission and distribution

Smart grids / demand response

C1. Governance

C1.1

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

Yes

C1.1a

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

Position of individual(s)	Please explain
President	<p>The Board of Directors of Chubu Electric Power Company (Chuden) is composed of 12 directors including Outside Directors, and the President unifies the operation of the company according to resolutions made at the Board of Directors' meetings*. The Board of Directors discusses and decides on substantive matters of management, such as climate change and global warming, and reports on situations concerning the execution of operations by directors. Chuden recognizes addressing global warming as a critical issue that requires management decisions in our business activities. Furthermore, in the Chubu Electric Power Group Management Vision targeting the late 2020s, Chuden has positioned "contribution to the realization of a low carbon society" as one of the pillars of its medium- to long-term effort. In this target, the ideal energy mix will be pursued from a perspective of "S + 3E" (Safety, Environment, Energy security, Economic efficiency). This consists of aiming for the simultaneous achievement of a stable supply of energy, economic efficiency and environmental compliance, while ensuring safety as the major consideration. Specifically, Chuden plans to continue to utilize nuclear power generation by promoting efforts to resume operation, as well as planning to push forward the utilization of renewable energy and striving to achieve a ratio of 44% non-fossil fuel power sources in FY2030. This is the objective specified in the Act on Sophisticated Methods of Energy Supply Structures, and our plans will enhance efforts in every step of our energy business from power generation, transmission and distribution to electric power sales. These issues relating to global warming and the realization of a low carbon society are being discussed at various committee meeting structures such as the Board of Directors meetings, and the President unifies operation of the company based on these discussions.</p> <p>*In accordance with the articles of incorporation, a Chairman may be appointed by the resolution of the Board of Directors and in FY2019, Chuden has appointed a Chairman. Therefore, currently the Chairman is acting as chairman of the Board of Directors and is presiding over the operation of the company. In addition, the President is unifying the execution of the operation of the company.</p>

C1.1b

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

Frequency with which climate-related issue are a scheduled agenda item	Governance mechanisms into which climate-related issues are integrated	Please explain
Scheduled – some meetings	<ul style="list-style-type: none"> Reviewing and guiding strategy Reviewing and guiding major plans of action Reviewing and guiding risk management policies Reviewing and guiding annual budgets 	<p>Chuden holds the Board of Directors meetings once a month in principle. At the Board of Directors meetings, critical issues relating to management such as global warming are discussed and decided and execution of duties are supervised through reports from Directors on situations on execution of duties. In addition, to reinforce the supervisory</p>

	Reviewing and guiding business plans Setting performance objectives Monitoring implementation and performance of objectives Overseeing major capital expenditures, acquisitions and divestitures Monitoring and overseeing progress against goals and targets for addressing climate-related issues	function, we have introduced Outside Directors and currently, of the 12 members of the Board of Directors, two members are Outside Directors. Contents of reports from the Directors include details of global warming measures and efforts to realize a low carbon society such as progress on renewable energy development plan. A comprehensive report on the entire plan is made by the Corporate Planning & Strategy Division twice a year.
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C1.2

(C1.2) Provide the highest management-level 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
President	Both assessing and managing climate-related risks and opportunities	Half-yearly

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 (do not include the names of individuals).

Chuden recognizes that climate change is a critical issue that requires management decisions in our business activities. Therefore, to deal with climate change, the President, who is a member of the Board of Directors and the chief executive officer, executes operations based on resolutions of the Board of Directors and conducts monitoring on the progress of relating efforts. Specifically, as a subordinate meeting committee structure of the Board of Directors, Chuden has established the Senior Executive Committee comprised of the President, Presidents of Chuden group Companies and General Managers, etc. The Committee is held once a week in principle to discuss in advance agenda items referred to the Board of Directors such as management plans, including how to deal with relative regulations such as the Act on Sophisticated Methods of Energy Supply Structures. Other substantive matters concerning the execution of operations that are not subject to the above are decided by the President through consultation with the Senior Executive Committee.

C1.3

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

	Provide incentives for the management of climate-related issues	Comment
Row 1	Yes	<p>In order to clarify the interconnection between the compensation paid to Directors, company performance and the stock value, in FY2019, Chuden introduced a performance based compensation system (medium-to-long term incentive) in addition to the currently implemented performance based bonus (short-term incentive compensation) to raise the awareness of the Board of Directors in contributing to the improvement of Chuden group's performance in increasing corporate value. The relative proportion of monthly compensation, performance-based bonus, and performance-based stock compensation in the total director compensation will be around 60%, 30%, and 10%, respectively, if the business goals are met.</p> <p>Also, Chuden has in place a commendation system for employees who develop excellent technology relating to climate issues.</p>

C1.3a

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

Entitled to incentive	Type of incentive	Activity incentivized	Comment
Director on board	Monetary reward	Emissions reduction project	<p>In order to clarify the interconnection between the compensation paid to Directors, company performance and the stock value, in FY2019 Chuden introduced a performance based compensation system (medium-to-long term incentive) in addition to the currently implemented performance based bonus (short-term incentive compensation). This is intended to raise awareness of the Board of Directors in contributing to the improvement Chuden group's performance in increasing corporate value. Additionally, the relative proportion of monthly compensation, performance-based bonus, and performance-based stock compensation in the total director compensation will be around 60%, 30%, and 10%, respectively, if the business goals are met, including the target relating to climate change.</p>
Executive officer	Monetary reward	Emissions reduction target	<p>In the Customer Service & Sales Company of the Chuden group, Executive officers are responsible for achieving the target ratio (44% in FY 2030 and interim targets) for non-fossil fuel power sources as specified in the Act on Sophisticated Methods of Energy Supply Structures.</p>

Executive officer	Monetary reward	Efficiency target	Executive officers are responsible for achieving 1% annual reduction of energy consumption intensity companywide, as specified in the Act on the Rational Use of Energy.
All employees	Non-monetary reward	Other (please specify) Acquisition of national qualification of Energy Management	Chuden supports the acquisition of the national qualification on Energy Management by contributing the examination fees. The company also awards 10,000 yen for those passing the examination.
All employees	Monetary reward	Other (please specify) Technology development commendation	Chuden commends excellent technology development relating to energy efficiency improvement and CO ₂ emissions reductions, and has in place a commendation system awarding prize-money.
All employees	Non-monetary reward	Other (please specify) Chuden Foresters	Chuden conducts the Chuden Forester program for employees of Group companies in order to train forest thinning volunteers and also forest experience instructors. Each employee who attends lectures supervised by Honorary Professor Hayashi of Gifu University (10 lectures in total from April to December), and meets the standards, such as the number of lectures attended and the qualification test, will be certified as a “Chuden Forester.”

C2. Risks and opportunities

C2.1

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

Yes

C2.1a

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

	From (years)	To (years)	Comment
Short-term	0	1	Each year, Chubu Electric Power Company (Chuden) develops various business plans such as the Basic Management Plan based on long-term supply and demand plans consisting of demand, sales and procurement plans and the power supply plan.
Medium-term	1	5	A medium-term management plan toward realization of the Chuden Management Vision, “Initiatives for Management Issues”, is developed every year. Focused initiatives are: a) further improvement of stability at the Hamaoka Nuclear Power Plant; b) stable supply for a new era (conversion to new generation network, strengthening of resilience); c) reinforcing the business foundation to achieve continuous growth (realization of a low carbon society, creation of synergies toward growth), and d) developing new areas of growth (creation of a community-support

			infrastructure). Management plans are established and implemented according to these four focused initiatives.
Long-term	5		In March 2018, Chuden developed its new Management Vision targeting the late 2020s. In this Vision, Chuden has identified goals related to its energy business and projected new growth areas. As regards its energy business, Chuden has announced a transition to a business model of separating power generation from sales of electric power, along with separation of power generation from power distribution and transmission. Chuden aims to provide a stable supply of good quality energy produced in a safe and affordable way. As regards new areas of growth, Chuden’s former energy infrastructure has evolved into a “community-support infrastructure” and the company has committed to a continuous contribution in resolving social challenges, including the realization of a low carbon society. Chuden develops each year a supply plan for a period of 10 years, in accordance with the Electricity Business Act, and submits it to the Minister of Economy, Trade and Industry through the Organization for Cross-regional Coordination of Transmission Operators (OCCTO). Chuden also coordinates the supply and demand forecast for Chubu District and the distribution of the company’s installation plans.

C2.1b

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

Chuden considers that risk management should be implemented as a unified part of its business, not as a factor implemented separately from business execution. Chuden therefore implements risk management in the development of the companywide management plan, as well as in business plans for offices and departments in charge of business execution, and specifies as substantial risks any financial or strategic risks that may have significant effects. Chuden assesses substantial risks based on the amount of financial impact over a decade and categorizes those risks that exceed a certain level. Regarding climate change, Chuden recognizes the following risks as having a substantial potential effect on the overall business: Environmental Policy Risks, Large Scale Natural Disaster Risks, Risks of System Stability Cost Increases, Risks in Response to Technology Innovation. These points are factored into the development of various plans.

C2.2

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

Value chain stage(s) covered

Direct operations
Upstream
Downstream

Risk management process

Integrated into multi-disciplinary company-wide risk management process

Frequency of assessment

More than once a year

Time horizon(s) covered

Short-term

Medium-term

Long-term

Description of process

At Chuden, risk owners responsible for Companies, offices and departments clarify risks within the range of the next 10 years, dividing these risks operationally, evaluate risk frequency, extent and impact (from the viewpoint of cost, impact on human lives and health) and prioritize countermeasures according to risk management rules. Risks relating to climate change are subject to division of duties among multiple risk owners. Of these, information on risks associated with shifting trends in climate change regulations is collected and clarified by risk owners responsible to the Environmental Affairs & Regional Relations Office. For example, Chuden considers the following as transition risks: carbon tax that may be implemented under climate change related laws and regulations in the future, and the increase in operational cost due to the introduction of carbon pricing such as an emissions trading system. As for physical risks, Chuden accounts for the increase in restoration costs that may occur in the event of a major power outage due to any damage to transmission or distribution facilities, in the occurrence of unprecedented large-scale natural disasters such as typhoons. Risk owners report annually on risks having severe impacts on management, based on criteria indicated by the risk management department (Corporate Planning & Strategy Division).

Risk Management Committee on risk countermeasure policies developed by the risk management department, by grasping and evaluating risks comprehensively based on reports from risk owners; and the President makes decisions. The policies will finally be resolved at the Board of Directors meetings by their reflection onto management plans, etc. Countermeasures are reflected onto management plans after being considered by risk owners based on risk countermeasures.

Implementation status of countermeasures and changes in risks are confirmed at the Monitoring Committee held quarterly by the President and the Vice Presidents and reported to the Board of Directors half-yearly.

Regarding business opportunities, in Chubu Electric Power Group Management Vision, Chuden has reorganized to contribute to the improvement of social issues, including the realization of a low carbon society, by developing its former energy infrastructure into “community-support infrastructure.” With the realization of our Management Vision in mind, we have undertaken specific efforts centering on the next five years in the “Initiatives for Management Issues” detailed in our medium-term management plan, and business is conducted so as to achieve our business objectives, subject to annual assessment and verification.

C2.2a

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

	Relevance & inclusion	Please explain
Current regulation	Relevant, always included	Chuden must observe various national laws and regulations to run its business as an electric power company. For example, the Customer Service & Sales Company of the Chuden group keeps its current compliance status under review and grasps trends in institutional design including the introduction of interim targets, based on the risk assessment process shown in C2.2, concerning the target ratio (44%) of non-fossil fuel power sources as specified in the Act on Sophisticated Methods of Energy Supply Structures; it also examines ways to respond to these risks in the future.
Emerging regulation	Relevant, always included	Chuden must observe various national laws and regulations to run its business as an electric power company. Companies of the Chuden group and offices/departments related to the risk assessment process shown in C2.2 judge the necessity for each response. Among global warming related laws and regulations that have the potential to be imposed in the future, any new carbon tax as well as the potential introduction of carbon pricing such as an emissions trading system, are considered by Chuden as climate change risks. The Environmental Affairs & Regional Relations Office is in charge of grasping the trend of these risks and potential measures against these risks are considered in collaboration with the Corporate Planning & Strategy division.
Technology	Relevant, always included	For Chuden, trends in electric energy related technology development and the introduction of these technologies may have a substantial effect on management, so Companies of the Chuden group and offices/departments related to the risk assessment process shown in C2.2 judge the necessity of their own responses. For instance, technology development trends for risks associated with the introduction of power transmission and distribution measures for expanding introduction of renewable energy, are the responsibility of the Chuden Group Power Network Company, which considers measures against these risks in collaboration with the Renewable Energy Company and the Research & Development Division.
Legal	Relevant, always included	In Japan's long-term strategy based on the Paris Agreement, a "carbon-free society" has been set as the ultimate goal, and has been specified as being realized as soon as possible in the second half of this century. With the aim of promoting energy conversion and decarbonization, Chuden intends to pursue all kinds of options. In terms of power generation, Chuden has provided the direction of measures and policies to promote CO ₂ emissions reductions consistent with the Long-term Goal of the Paris Agreement. Therefore, Chuden regards as a significant business risk any inability to comply with national measures and policies that may be introduced in the future, and thus in the risk assessment process indicated in C2.2, it is mainly the Corporate Planning & Strategy Division which collects information on policy trends and examines the necessity to deal with these risks. An example of a legal risk relating to climate change could be the following: a lawsuit seeking suspension of operation due to thermal power generation being inconsistent with Japan's energy policies in the future, resulting in the stagnation of thermal power procured from companies such as JERA Co., Inc. In this case, we would need to secure supply capacity equal to that conventionally procured from

		thermal power sources, and if we failed to exploit new sources, we could be sued by clients for compensation.
Market	Relevant, always included	Chuden is required to be an electric utility company selected by both individual consumers and corporate consumers. Therefore, Chuden will regard an inability to respond to consumer preferences as a significant business risk. For that reason in the risk assessment process indicated in C2.2, it is mainly the Customer Service & Sales Company of Chuden group which examines information on market trends and deals with these risks. An example of a climate change risk could be: a decrease in contracts caused by an inability to respond to increasing demand for energy conservation and CO2-free electricity plans from environmentally aware consumers such as RE100.
Reputation	Relevant, always included	Amid the expansion of ESG investment, Chuden is required to operate businesses by fully considering environmental aspects including climate change more than ever by stakeholders such as investors and is being rated by rating agencies in regard to the degree of efforts made. Therefore, Chuden will regard an inability to respond to requests from stakeholders as a significant business risk. For that reason in the risk assessment process indicated in C2.2, it is mainly the Corporate Planning & Strategy Division which assesses Chuden's ESG management and considers the measures to mitigate these risks. Examples of climate change risk cases include withdrawal of investment from the market, related to damaged reputation due to inadequate response to climate change.
Acute physical	Relevant, always included	For Chuden, as a company conducting an electricity business, maintenance and control of power transmission and distribution facilities associated with a stable electric power supply is an essential element of management. For that reason, in the risk assessment process indicated in C2.2, the necessity of dealing with these risks is examined by Chuden's related Companies in the group, and offices/departments including the Corporate Planning & Strategy Division. For example, the Power Network Company of the Chuden group is tasked with examining the necessity to respond to restoration requirements as well as impacts on business performance and financial status if large-scale outages occur resulting from damage to power transmission and distribution facilities due to disasters caused by unprecedentedly heavy typhoons, etc.,
Chronic physical	Relevant, always included	As hydro power generation is an important power source for Chuden (9% of power generation source/procurement power supply in FY2019), precipitation status upstream of hydro power stations has a substantial impact on business performance. Therefore, in the risk assessment process indicated in C2.2, it is mainly the Renewable Energy Company of Chuden group which examines changes in precipitation status. Examples of climate change risk cases include restrictions in the operation of hydro power generation stations due to variation in precipitation volume caused by climate change.

C2.3

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

Yes

C2.3a

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

Identifier

Risk 1

Where in the value chain does the risk driver occur?

Direct operations

Risk type & Primary climate-related risk driver

Emerging regulation

Carbon pricing mechanisms

Primary potential financial impact

Increased direct costs

Company-specific description

The Japanese government is examining the introduction of carbon pricing in the future. Chuden's business operates in Japan, and thermal power generation accounts for 78% of the power generated and procured (FY2018 performance adopted at the point of risk assessment) and emits relatively large amounts of greenhouse gases. Therefore, if carbon pricing is introduced, the economic impact will be significant.

Time horizon

Long-term

Likelihood

About as likely as not

Magnitude of impact

High

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

53,000,000,000

Potential financial impact figure – minimum (currency)

<Not Applicable>

Potential financial impact figure – maximum (currency)

<Not Applicable>

Explanation of financial impact figure

Based on FY2018 CO₂ emissions (about 53 million t- CO₂), performance adopted at the point of risk assessment, this amount was estimated by assuming the carbon pricing as 1,000 yen/t- CO₂.

Cost of response to risk

0

Description of response and explanation of cost calculation

The electric utility industry of Japan, including Chuden, established the Electric Power Council for a Low Carbon Society in February 2016 and has set the emission intensity target for 2030 as 0.37kg-CO₂/kWh, with the national energy mix and NDC in mind, and is advancing its efforts to reduce emissions. As a member of the Society, along with promoting the utilization of the Hamaoka Nuclear Power Plant with safety as a major consideration, Chuden will contribute to the achievement of the emissions intensity target through renewable energy power generation expansion. The aim is to

develop over 2 million kW by around 2030, addressing the reduction of emissions and the effects of a future introduction of carbon pricing. In regard to renewable energy power sources, we are implementing efforts by setting the most challenging target, which is, in the next decade, to almost double our installed capacity as of the end of FY2017 by developing over 2 million kW by around 2030.

We are planning to bring forward the development of hydro, biomass and solar power generation in the mid-term, and offshore wind power generation in the long-term. Besides developing new sources, by strategically determining the benefits, we intend to examine potential increased output through the replacement of existing facilities and purchase of power source sites, such as mega-solar power generation stations when their FIT period expires. Renewable energy related projects in Japan which were announced in FY2019 are: Commencement of commercial operation of Miyako Kuzakai Solar Park (June 2019), Development of Omaezaki Port Biomass Power Plant (November 2019), Development of Aichi Gamagori Biomass Power Plant (November 2019), Development of Uchigatani Hydroelectric Power Station (January 2020), and Implementation of Off-shore Wind Farm project at Akita and Noshiro Ports in Akita Prefecture (February 2020).

Chuden develops renewable energy power sources only in Japan. The investment amount for developing 2 million kW is assumed to be several hundred billion yen, therefore in the “Initiatives for Management Issues” stated in our medium-term management plan, we have estimated over 100 billion yen for our investment plan for FY2019 to FY2023. Details of costs are not disclosed due to business confidentiality, therefore their value has been entered as zero.

Identifier

Risk 2

Where in the value chain does the risk driver occur?

Direct operations

Risk type & Primary climate-related risk driver

Acute physical

Increased severity and frequency of extreme weather events such as cyclones and Floods

Primary potential financial impact

Increased indirect (operating) costs

Company-specific description

Chuden owns over 12,000 km of power transmission lines, over 135,000 km of power distribution lines, and over 900 transformer equipment locations in five prefectures in the Chubu District, so if wide-range equipment damage occurs due to rainfall caused by typhoons or due to river flooding, the impact will be extensive.

Time horizon

Short-term

Likelihood

About as likely as not

Magnitude of impact

High

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

3,600,000,000

Potential financial impact figure – minimum (currency)

<Not Applicable>

Potential financial impact figure – maximum (currency)

<Not Applicable>

Explanation of financial impact figure

Actual values of the costs of damage caused by Typhoon Jebi and Trami which struck in 2018 (actual values of maximum damage costs for the last five years, labor costs excluded).

Cost of response to risk

0

Description of response and explanation of cost calculation

Along with building facilities that withstand natural disasters, in anticipation of the occurrence of natural disasters Chuden has established a disaster prevention system to enable swift restoration. If a disaster occurs or is expected to occur, Chuden immediately issues an emergency order and responds to emergency conditions by setting up emergency response headquarters at each business establishment. Additionally, in order for employees to respond quickly and correctly, practical training such as emergency drills and facilities restoration drills are periodically implemented in coordination with related external agencies at each business establishment. In order to draw on issues and reflections regarding restoration of outage due to Typhoon Jebi and Trami which struck in 2018, we developed an action plan and have worked to reinforce our ability to respond to disasters. In October 2019, when Typhoon Hagibis struck our area, we responded by implementing measures indicated in the action plan such as dispatching support personnel from other branches, implementing patrols using drones, promptly sharing information on restoration prospects, rapidly disseminating information utilizing smartphone applications, SNS, FM radio, and checking their effectiveness. On the other hand, information sharing with municipalities, clarification of roles of liaison representatives dispatched to local administrations, and action plans, are arranged from the standpoint of “information sharing with appropriate timing and content.” We are committed to continue to secure the quality of electric power and strengthen resilience. Details of maintenance costs were not disclosed due to business confidentiality, therefore their value has been entered as zero.

Identifier

Risk 3

Where in the value chain does the risk driver occur?

Direct operations

Risk type & Primary climate-related risk driver

Technology

Substitution of existing products and services with lower emissions options

Primary potential financial impact

Increased capital expenditures

Company-specific description

Chuden owns over 12,000 km of power transmission lines, over 130,000 km of power distribution lines, and over 900 locations of transformer equipment in five prefectures in the Chubu District (FY2018 performance adopted at the point of risk assessment), and due to the large volume of renewable energy power to be connected, we are planning to advance system operation utilizing next generation power distribution devices and ICT, etc. for system stabilization. Extensive investment will be needed to create facilities.

Time horizon

Medium-term

Likelihood

About as likely as not

Magnitude of impact

Medium

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

15,600,000,000

Potential financial impact figure – minimum (currency)

<Not Applicable>

Potential financial impact figure – maximum (currency)

<Not Applicable>

Explanation of financial impact figure

Since it is difficult to estimate future investment amounts with high accuracy, Chuden has considered the costs of maintaining power quality through the enhancement of network facilities and the renewal of equipment to be equivalent to the expansion of the introduction of renewable energy as an investment, and for the sake of convenience has entered the amount for the next three years based on previous actual values.

Cost of response to risk

0

Description of response and explanation of cost calculation

Measures are required to stabilize the system due to the large amount of renewable energy power to be connected, and Chuden will pay particular attention to technology development trends on systems operation advancement utilizing next generation power distribution devices and ICT, etc., and maintain power quality by combining the use of these new technologies. Specifically, we are planning to install power distribution equipment such as the latest automatic switches equipped with communication features and automatic voltage regulators, allowing control of the system by accurately analyzing real time data relating to current, and responding to variations in power from renewable energy sources. Discussion is under way in Japan on the direction of investment into a next generation network system and the development of the required consignment system. However, it is important to create a mechanism to recover these investment costs appropriately, thus we are considering providing opinions to the state in cooperation with industry groups (such as the Federation of Electric Power Companies). At this point, maintenance costs are difficult to isolate, therefore their value has been entered as zero.

C2.4

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

Yes

C2.4a

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

Identifier

Opp1

Where in the value chain does the opportunity occur?

Direct operations

Opportunity type

Energy source

Primary climate-related opportunity driver

Use of lower-emission sources of energy

Primary potential financial impact

Returns on investment in low-emission technology

Company-specific description

Chuden serves customers with a huge combined demand of 120 billion kWh, having as its main geographical area the Chubu District, in which manufacturing industry has accumulated. With the expansion of ESG investment as a background, the number of consumers that support projects such as RE100 is increasing. Based on this movement, we are planning to further advance the development of renewable energy, together with our Group companies, and to increase earnings by meeting the needs of consumers interested in reducing environmental burden, by providing CO2-free electricity plans.

Time horizon

Medium-term

Likelihood

Very likely

Magnitude of impact

High

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

<Not Applicable>

Potential financial impact figure – minimum (currency)

20,000,000,000

Potential financial impact figure – maximum (currency)

30,000,000,000

Explanation of financial impact figure

As a strategic investment into growth areas, Chuden is planning major investments for the cumulative five years from FY2019 to FY2023. Over 100 billion yen is allocated for investment in renewable energy, and a further 100 billion yen for developing new growth areas that utilize power/information communication networks providing community-support infrastructure related services. In Chuden's "Management Vision," the company is pursuing the achievement of a profit scale of 20 to 30 billion yen in late 2020 in new growth business areas.

In addition, Chuden is promoting the creation of a "community-support infrastructure" arrangement in its "Chubu Electric Power Group Management Vision." Chuden is aiming to improve its value as an integrated energy service company by delivering energy services along with "values that expand by connecting" based on keywords such as digitalization, originating from customers, and reduced carbon.

Cost to realize opportunity

200,000,000,000

Strategy to realize opportunity and explanation of cost calculation

In regard to renewable energy power sources, Chuden is implementing efforts by setting the most challenging target, which is to almost double our installed capacity as of the end of FY2017 in the next decade by developing over 2 million kW by around 2030. We are planning to bring forward the development of hydro, biomass and solar power generation in the mid-term, and offshore wind power generation in the long-term.

Besides developing new sources, by strategically determining the benefits, we intend to examine potential increased output through the replacement of existing facilities and purchase of power source sites, such as mega-solar power generation stations when their FIT period expires. Based on domestic development, the investment amount for developing 2 million kW is assumed to be several hundred billion yen, therefore we are planning to invest over 100 billion yen for the cumulative five years until FY2023.

In FY2019, Chuden commenced commercial operation of a large-scale solar power generation station called "Miyako Kuzakai Solar Park" located in Miyako city, Iwate prefecture, and decided to develop woody biomass single fuel combustion generation stations in Kamisu city, Ibaraki prefecture, Omaezaki city and Makinohara city, Shizuoka prefecture, as well as Gamagori city, Aichi prefecture. We are also steadily promoting efforts to expand the introduction of renewable energy, such as initiating environmental impact assessments with the aim of developing an offshore wind power generation project located offshore of Awara city, Fukui prefecture, jointly with Hokuriku Electric Power Company and OSG. Capacity of about 40,000kW has commenced commercial operation and it has been decided to develop about 170,000kW (five sites for hydro power, five sites for biomass power, a site for onshore wind power and a site for offshore wind power), totaling about 210,000kW (Chuden's combined equity ownership in electricity output). Nearly 10% of this target has been achieved.

Besides developing renewable energy independently, Chuden is also aiming to expand domestic renewable energy through investment in funds, etc. In 2018, Chuden participated in the "Mirai Renewable Energy Fund." The amount investment in the Fund is assumed to be up to 5 billion yen.

Chuden is also responding to the needs of its consumers interested in reducing environmental burdens by establishing a platform for exchanging in various ways both electric power and values derived from renewable energy. For example, Chuden and Loop Inc. has jointly committed to providing solar power

generation (PPA model) to power two facilities in the Chubu District operated by AEON MALL Co., Ltd. In this service, Chuden and Loop Inc. has installed solar power generation equipment on the roofs of the AEON MALL Matsumoto (Matsumoto city, Nagano prefecture) and AEON MALL Tsu Minami (Tsu city, Mie prefecture), and is operating the equipment. From June 2020, AEON MALL Co., Ltd is planning to use CO2-free power from solar power generation without initial fees in the above two shopping facilities.

Chuden also implements and supports a low carbon model of local production for local consumption that will lead to the dissemination of renewable energy at the local level. For instance, we have established a regional electric power utility, "Okazaki Sakura Electric Power Co., Inc." by contributing jointly with Okazaki city, NTT FACILITIES, INC., Toho Gas Co., Ltd. and The Okazaki Shinkin Bank (capital: 10 million yen, Investment ratio of Chuden: 15%) with the aim of realizing local production for local consumption of energy and low carbonization, in Okazaki city. Okazaki Sakura Electric Power is planning to produce electric power at biomass power generation facilities, etc., in a waste disposal facility called "Central Clean Center" located in Okazaki city, and provide it to public facilities in Okazaki city. This will address the stimulation of the regional economy by realizing a CO2 emission reduction as well as achieving local production for local consumption of energy. Chuden will utilize the business profits from Okazaki Sakura Electric Power to disseminate renewable energy and contribute to building the sustainable society that Okazaki city is aiming for.

Comment

Identifier

Opp2

Where in the value chain does the opportunity occur?

Direct operations

Opportunity type

Energy source

Primary climate-related opportunity driver

Use of lower-emission sources of energy

Primary potential financial impact

Returns on investment in low-emission technology

Company-specific description

In the "Initiatives for Management Issues," which is our medium-term management plan, Chuden has stated its aim to pursue the creation of synergetic growth in Japan, and to proactively accelerate its overseas operation. In Europe, we hope to increase profits with a central focus on businesses that contribute to the realization of low carbonization, and contribute to the achievement of SDGs by conducting a consultation business relating to power infrastructure improvement in emerging countries.

Time horizon

Medium-term

Likelihood

Likely

Magnitude of impact

High

Are you able to provide a potential financial impact figure?

No, we do not have this figure

Potential financial impact figure (currency)

<Not Applicable>

Potential financial impact figure – minimum (currency)

<Not Applicable>

Potential financial impact figure – maximum (currency)

<Not Applicable>

Explanation of financial impact figure

The potential financial impact amount is not disclosed due to business confidentiality, therefore we selected “No, there are no data relating to this subject.”

Cost to realize opportunity

0

Strategy to realize opportunity and explanation of cost calculation

In the European market, in which electric power liberalization is advancing, Chuden is aiming to create synergies in energy business both domestically and internationally by taking a role in companies that demonstrate forward-looking practices, bringing together knowledge from both Chuden and European companies, and co-evolving their business models. As a specific example, Chuden acquired Eneco, an integrated energy company operating in Europe, at about 4.1 billion euros, jointly with Mitsubishi Corporation (investment ratio of Chuden: 20%). Eneco is a forward-looking integrated energy business company that proactively promotes renewable energy development and provides customer-oriented services in the retail business by utilizing digital technologies. We are at a turning point in the state of the electric power industry due to the increase of small scale distributed power sources associated with the dissemination of renewable energy, and the development of storage battery and digital technologies. In the midst of this changing environment, Chuden will aim to contribute to the resolution of social issues such as the transition to a low carbon society, as well as global environment conservation, by supporting basic infrastructure serving the public. This will be achieved through growth of its forward-looking integrated energy business company Eneco, which provides customer-oriented services utilizing renewable energy development and AI/IoT. Other key overseas projects in which Chuden is involved are submarine transmission and distribution projects for offshore wind power stations in England and Germany, and a project to reduce power distribution losses in Mozambique. Costs for realizing these opportunities are not disclosed due to business confidentiality, therefore their value has been entered as zero.

Comment

C3. Business Strategy

C3.1

(C3.1) Have climate-related risks and opportunities influenced your organization’s strategy and/or financial planning?

Yes, and we have developed a low-carbon transition plan

C3.1a

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

Yes, qualitative and quantitative

C3.1b

(C3.1b) Provide details of your organization’s use of climate-related scenario analysis.

Climate-related scenarios and models applied	Details
Nationally determined contributions (NDCs)	<p>Chuden analyzes climate change scenarios in line with Nationally Determined Commitments (NDCs) determined by the Japanese government. Chuden established the Electric Power Council for a Low Carbon Society (ELCS) with other electric business utilities with the aim to achieve the emissions reduction target (0.37kg- CO2/kWh in FY2030) consistent with Japanese government NDCs, and is committed to achieve the target. Related to these voluntary frameworks set by the electric utility industry, the government introduced standards for newly-built coal-fired power stations, etc., and introduced benchmarks related to the power generation efficiency of thermal power generation at operation, and these relate to all the power generation companies subject to the Act on the Rational Use of Energy, and are intended to secure effectiveness and transparency. For retail companies, the target for non-fossil fuel ratio consistent with the energy mix (44% in 2030) has been set in the Act on Sophisticated Methods of Energy Supply Structures (Sophisticated Methods Act). Based on the NDCs, the current Basic Energy Plan and the forecast on long-term energy supply and demand, the Corporate Planning & Strategy Division in particular has analyzed its business environment up to 2030 on the assumption of abiding by the requirements of environmental regulation provided in the Sophisticated Methods Act, etc. The results of analyses are being incorporated into the annual business plan and reflected in the Chubu Electric Power Group Management Vision. Through these analyses, Chuden recognizes the need to take further efforts to improve the non-fossil fuel ratio, and as a response to this need, Chuden plans to resume the operation of the Hamaoka Nuclear Power Plant. On renewable energy power sources, Chuden is additionally furthering efforts by setting a challenging target. Compared with the end of FY2017 Chuden aims to almost double its installed capacity in the next decade by developing over 2 million kW by around 2030.</p> <p>Chuden has also selected the 2 Degree Scenario (refers to IEA sustainable development scenario) and the 4 Degree Scenario (refers to IPCC RCP8.5 Scenario), and based on these Scenarios, Chuden is looking at the business impact assessment attributable to transition risks, opportunities and physical risks, with a focus on the middle of this century.</p>

C3.1d

(C3.1d) Describe where and how climate-related risks and opportunities have influenced your strategy.

	Have climate-related risks and opportunities influenced your strategy in this area?	Description of influence
Products and services	Yes	<p>Chubu has responded to risks associated with the introduction of carbon pricing, with the aim of achieving the target ratio (44% in FY 2030 and interim targets) of non-fossil fuel power sources specified in the Act on Sophisticated Methods of Energy Supply Structures. Additionally, Chubu Electric Power Company (Chuden) has been promoting the utilization of Hamaoka Nuclear Power Plant, regarding safety as a major requirement. In doing so, the company has further advanced low carbonization of power sources (annual CO2 reduction effect when all units resume operation: about 10 million t-CO2), brought forward the development of renewable energy power sources, and contributed to emissions reduction for electricity sold. The “Miyako Kuzakai Solar Park” which commenced commercial operation in June 2019 is a mega-solar power generation station (18MW) in which Chuden invests jointly, and the CO2 emissions reduction derived from the operation of this Park is estimated to be about 13,000 tons a year.</p> <p>At the same time, Chuden established a Business Development Division in April 2019 to enhance efforts to implement new businesses in support of our growth strategy. This Division was established by integrating functions relating to the ICT business development of the Business Strategy Office, the ICT Strategy Office and Chuden CTI Co., Ltd. (a Group company). Through this Division, we are planning to develop new business utilizing advanced technologies such as AI and IoT, organize a system to provide prompt services in line with customer needs and social needs, and aim to realize our growth strategy. Chuden will pursue “a new form of a community” by making use of advanced technologies to deliver “services to improve the quality of people’s lives using a variety of data” and “regional services achieved by connecting and evolving multiple social infrastructures” as specified, in our “Chubu Electric Power Group Management Vision”, and will view these services as new growth areas.</p> <p>In order to realize “a new form of a community,” Chuden considers that it is essential to evolve the energy infrastructure to a “community-support infrastructure” that achieves both the “S+3E” perspective and the “creation of service that leads to the resolution of social issues” based on the keywords “digitalization, originating from customers, reduced carbon”, and will promote this effort.</p> <p>From the efforts to “create a community-support infrastructure,” in the area of energy management, Chuden incorporated in February 2020 its “Fleet EV Initiative LCC. (FEVI)” to collectively deliver a power receiving infrastructure for electric trucks and electric buses for logistics providers and transportation companies that operate</p>

		<p>heavy-duty commercial vehicles jointly with Marubeni Corporation. Currently, from the standpoint of combating climate change and conserving energy, social expectations for hybrid vehicles, electric vehicles and fuel-cell vehicles are rising, and at the same time, there is a need for multidimensional consideration of the selection of electric vehicles, development of charging infrastructures and optimal management methods for them, to properly operate a business concerned with the electrification of commercial vehicles including trucks and buses. In the light of these circumstances, we are planning to provide a series of services related to the introduction of electric vehicles as a one stop service, targeting 2021. FEVI is committed to contributing to CO2 reduction through vehicle electrification for logistics providers and transportation companies and to promoting proposals on disaster measures to mitigate against typhoons using the electricity storage function of electric vehicles and further proposed use of renewable energy, and to contribute to the realization of a sustainable society.</p> <p>In further efforts to realize a low carbon society, we will cooperate with our consumers on developing “CO2-free electricity plans,” and “services for solar power for self-consumption.” For example, as part of “Korekara Denki”, a customer participation-based transaction service, we started in July 2019 providing CO2-free electricity plans for consumers having high-voltage or low-voltage contracts in the Chubu District. In these electricity plans, we are utilizing CO2-free values of renewable energy power sources, such as Chuden-owned hydro power generation, and we are also considering the utilization of CO2-free values of power sources based on the renewable energy FIT scheme when their FIT periods expire on and after November 2019.</p> <p>As a new client business providing suggestions on conservation of energy and CO2 emissions, Chuden is also implementing services for businesses such as the energy solution service to research wasted energy and make proposals on operational improvements in the use of facilities (“Marutto’ Chuden”). Conducting energy consultations for consumers raises customer satisfaction and is leading to positive effects on electricity sales. We aim to contribute to energy conservation and low carbonization by forming and operating facilities in a rational manner through digitalization allowing for optimal use of energy, and responding to social needs by creating community-support infrastructure originating from consumer input.</p>
<p>Supply chain and/or value chain</p>	<p>Yes</p>	<p>For Chuden as a company operating an electricity business a large percentage of direct CO2 emissions are accounted for by the consumption of fossil fuels, associated with the generation of procured electricity accounts. However, we are aggressively addressing the procurement of electricity from highly-efficient facilities with relatively low emissions such as the Nishi-Nagoya Thermal Power Station Unit 7 and other stations.</p> <p>Green procurement is the responsibility of the Material Division, and in addition to selecting goods that generate fewer emissions during production, Chuden implements the following activities at construction sites to improve facilities related to renewable energy in its efforts to reduce emissions during contract work:</p> <ul style="list-style-type: none"> a) Reduction of the number of vehicles through comprehensive ride-sharing during the construction personnel commute, positive utilization of low-emission vehicles, and thorough enforcement of environmentally-friendly driving. b) Reduction of the number of construction machine units in operation by effective equipment arrangement according to construction scale.

		<p>c) Use of low-carbon type construction machines in every possible way, effective enforcement of idling stop practice for construction machines, maintenance of performance through appropriate inspection and vehicle maintenance. Chuden implements energy/CO₂ conservation measures as above, and gives comprehensive notification of these measures to construction personnel at periodical meetings.</p> <p>In C2.3a, we have mentioned as a risk the increase in severity of natural disasters such as typhoons due to the effects of climate change, and as a restoration measure in case a natural disaster occurs, cooperation with road authorities and critical infrastructure operators will become important. Specifically, Chuden has built a cooperative framework and entered into cooperation agreements with various external agencies to secure transportation support, communication support, restoration bases, accommodation, fuel, relief supplies, etc. In regard to information sharing with municipalities, clarification of the roles of liaison representatives dispatched to local administrations as well as the Self-Defense Forces from our company and action plans are all being arranged from the standpoint of “information sharing through proper timing and content.”</p>
<p>Investment in R&D</p>	<p>Yes</p>	<p>From a perspective of “S + 3E”, aiming at the simultaneous achievement of Safety, Energy security, Economic efficiency and Environment compliance while ensuring safety as the major consideration, the ideal energy mix will be pursued at Chuden. In this context, Chuden plans to continue to utilize nuclear power generation, as well as pushing forward the utilization of renewable energy such as solar power and wind power, and striving to achieve a low carbon society through energy businesses ranging from generation and distribution to selling electricity.</p> <p>Additionally, in regard to future power supply and demand, it is projected that decentralization of power sources will further advance and the introduction of renewable energy and storage batteries will expand, and as a result the structure of power supply and demand could change significantly. Under this change in the business environment, Chuden is addressing the building and operation of an electric power network to make highly efficient and stable use of distributed resources, and develop communities that are secure and resilient by providing new services to consumers. For example, we are facilitating the development of products and systems that contribute to energy conservation and CO₂ emission reductions, as well as technologies that take advantage of efficient and stable renewable energy. We will also pursue the construction of an efficient and stable supply system by building an environment of EVs utilizing the latest digital technologies and data, and accelerating the connection between vehicle electrification of logistic providers /transportation companies and storage batteries. Through these new businesses, we will aim to develop a sustainable community and reduce CO₂ emissions.</p> <p>Chuden established its Business Development Division in April 2019 to enhance efforts to develop new businesses aimed at the realization of our growth strategy. This Division was established by integrating functions relating to the ICT business development of the Business Strategy Office, the ICT Strategy Office and Chuden CTI Co., Ltd. (a Group company). Through this Division, we are planning to develop new businesses utilizing advanced technologies such as AI and IoT, organize a system to promptly provide services in line with consumer needs and social needs, and aim to realize our growth strategy.</p>

		Including the above efforts, the total of the research and development costs of the Chuden group as a whole in FY2019 reached 9,357 million yen.
Operations	Yes	Amid the renewable energy expansion, Chuden works to match supply and demand in the Chubu District and maintains the frequency by controlling the output of pumped storage generators, etc., that are connected to power systems. Chuden is also pursuing the installation of next generation distribution equipment (the latest automatic switches and automatic voltage regulators with communication functions, smart meters) and advancing system operation utilizing ICT. etc., in order to grasp and control the complex electricity flow caused by input from distributed power sources, mainly in power systems in high demand regions. Chuden is also striving to secure high quality electricity and to create facilities in a rational manner, and to respond to advanced control of renewable energy power generation facilities, etc.

C3.1e

(C3.1e) Describe where and how climate-related risks and opportunities have influenced your financial planning.

	Financial planning elements that have been influenced	Description of influence
Row 1	Revenues Capital allocation Acquisitions and divestments Access to capital Liabilities	<p>Sales)</p> <p>It is projected that our balance of income and expenditure will deteriorate due to severe sales competition and changes in the market environment. However, Chuden aims to achieve the Management Target (over 170 billion yen in consolidated recurring profit in FY2021) and the Management Vision (250 billion yen in consolidated recurring profit in the late 2020s) by promoting initiatives on strategic investment in renewable energy.</p> <p>Capital distribution, acquisition)</p> <p>Amid the promotion of ESG management, which continuously increases the corporate value of the Chuden group as a whole, Chuden strives to realize a low carbon society by taking various measures to reduce CO2 emissions throughout the value chain from power generation to electricity sales. As a specific example, we are planning to invest over 100 billion yen for the cumulative five years from FY2019 to FY2023 on renewable energy development, as a strategic investment in growth areas, in light of the increase in demand for CO2-free electricity plans. We also aim to contribute to energy conservation and low carbonization by creating and operating facilities in a rational manner utilizing digitalization for optimal energy usage, and responding to social needs by creating community-support infrastructure originating from customers. In relation to these new growth areas, including the “creation of community-support infrastructure”, Chuden is planning to invest over 100 billion yen for the cumulative five years from FY2019 to FY2023.</p> <p>As a specific example, Chuden agreed in September 2018 to enter into a capital and business alliance with Looop Inc. with the aim of utilizing renewable energy and expanding services. In addition, in November 2018, Chuden announced it was making a capital contribution to the “Mirai Renewable Energy Fund” established by the SPARX Group Co., Ltd. and the Toyota Motor Corporation, with the aim of investing in newly-built renewable energy power stations.</p>

	<p>This Fund plans to ultimately expand its scope to 30 billion yen, and Chuden has contributed 5 billion yen.</p> <p>In November 2019, Chuden agreed to invest in “Omaezaki Port Biomass Energy LLC” (investment ratio of Chuden; 34%) incorporated by RENOVA, Inc., jointly with Mitsubishi Electric Credit Corporation and Suzuyo Shoji Co., Ltd., and concluded a loan agreement using project finance. This generation project is to construct and operate woody biomass single fuel combustion generation stations (generation output: 74,950kW) in Omaezaki and Makinohara cities, Shizuoka prefecture. In the same month, Chuden, Marubeni Corporation and SB Energy Corp. agreed to develop the “Aichi Gamagori Biomass Generation Station” (investment ratio of Chuden: 48.5%) in Gamagori city, Aichi prefecture through a special purpose company “Aichi Gamagori Biomass Generation Limited Liability Company” in which the three companies jointly invest. This generation project is intended to construct and operate a woody biomass single fuel combustion generation station (generation output: 50,000kW) in Gamagori city, Aichi prefecture.</p> <p>In March 2020, Chuden incorporated the “Fleet EV Initiative LCC. (FEVI)” (capital stock: 195 million yen, investment ratio of Chuden: 50%) to collectively deliver a power receiving infrastructure for electric trucks and electric buses for logistics providers and transportation companies that operate heavy-duty commercial vehicles jointly with Marubeni Corporation. In the light of these circumstances, we are planning to provide a series of services related to the introduction of electric vehicles as a one stop service, targeting 2021. FEVI is committed to contributing to CO2 emissions reduction through vehicle electrification for logistic providers and transportation companies, and promotes proposals on disaster measures to mitigate against typhoons using the electricity storage function of electric vehicles, and also proposals on the further use of renewable energy.</p> <p>We have also established a regional electric power utility, “Okazaki Sakura Electric Power Co., Inc.”, as a joint contribution with Okazaki city, NTT FACILITIES, INC., Toho Gas Co., Ltd. and THE OKAZAKI SHINKIN BANK (capital: 10 million yen. Investment ratio of Chuden: 15%) with the aim of realizing local production for local consumption of energy and low carbonization in Okazaki city. Okazaki Sakura Electric Power generates power at the biomass generation facility, etc., in the “Central Clean Center” waste disposal facility located in the City, and supplies it to public facilities in Okazaki city, at the same time addressing the stimulation of the regional economy by realizing CO2 emissions reduction as well as local production for local consumption of energy. Chuden will utilize the business profit of Okazaki Sakura Electric Power to disseminate renewable energy and contribute to building the sustainable society that Okazaki city is aiming for.</p> <p>Chuden and Mitsubishi Corporation jointly acquired Eneco, an integrated energy company operating in Europe, at a cost of about 4.1 billion euro (investment ratio of Chuden: 20%). Eneco is a forward-looking integrated energy business company that proactively promotes renewable energy development and provides customer-oriented service in retail business, utilizing digital technology. Chuden is promoting the creation of a “community-support infrastructure” arrangement in its “Chubu Electric Power Group Management Vision.” Chuden is aiming to improve its value as an integrated energy services company while contributing to solving social issues by delivering energy services along with “values that expand by connecting” based on keywords such as digitalization, originating from customers, reduced carbon. In the European market in which electric power liberalization is advancing, Chuden is aiming to create synergies in energy business both domestically and internationally by taking a</p>
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	<p>role in Eneco, with its forward-looking practices, bringing together the knowledge of both Chuden and Eneco, and co-evolving their business models.</p> <p>We are at a turning point in the state of the electric power industry due to the increase of small scale distributed power sources associated with the dissemination of renewable energy, and the development of storage battery and digital technologies, through growth of the forward-looking integrated energy business company Eneco, which provides customer-oriented services utilizing renewable energy development and AI/IoT. Mitsubishi Corporation and Chuden will aim to contribute to the resolution of social issues such as the transition to a low carbon society as well as global environmental conservation by supporting basic infrastructure for the public.</p> <p>Access to capital)</p> <p>Even in Japan, ESG investment is rapidly increasing, and Chuden acknowledges the recent increase in the movement toward engagement that stimulates long-term growth through dialogue between shareholders such as institutional investors and business companies (by contrast with negative screening, including divestment implemented against electric power companies with high rates of coal-fired power generation). Chuden understands that engagement is a creative initiative towards enhancing corporate value and therefore towards facilitating stable funding, Chuden engages in dialogue with progressive investors, and discloses relevant information. In May 2019, Chuden expressed agreement to TCFD and is taking steps to promote information disclosure based on proposals.</p> <p>Assets)</p> <p>Chuden has formulated business plans consistent with Japan's NDC as well as current energy policies and has been formulating equipment along with them. In these circumstances, in regard to renewable energy, Chuden aims for the achievement of a target ratio (44% non-fossil fuel power sources in FY2030 and also the interim target) specified in the Act on Sophisticated Methods of Energy Supply Structures, new development of renewable energy of more than 2 million kW by around 2030, and expansion of its share of non-fossil fuel power sources to respond to increasing demand for low carbon offerings. Renewable energy has been indicated as the main power source moving toward 2050, not only in the current Basic Energy Plan but also in the long-term strategy in the Paris Agreement. We recognize that Chuden's asset building corresponds to these mid- to long-term energy policies. Availability of other options resulting from technological innovation such as hydrogen generation remains unknown. Therefore, among the options arising from existing technologies, it is assumed that the trend for renewable energy expansion will continue into the future and will not have a significant effect on current strategies and plans associated with asset building.</p> <p>Liabilities)</p> <p>Chuden has formulated business plans consistent with Japan's NDC as well as current energy policies and has been formulating equipment along with them. However, in the process of the revision of the National Energy Basic Plan, and achieving Japan's long-term target to cut emissions by 80% by 2050, there may be a possibility for Chuden being forced to change its power source/procurement portfolio quickly. If the risks become apparent, debt ratio may deteriorate along with the response costs borne, and Chuden is therefore constantly monitoring the outlook for energy policies after 2030.</p>
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C3.1f

(C3.1f) Provide any additional information on how climate-related risks and opportunities have influenced your strategy and financial planning (optional).

C4. Targets and performance

C4.1

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

Intensity target

C4.1b

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

Target reference number

Int 1

Year target was set

2015

Target coverage

Other, please specify (Electricity purchased from other companies for sales)

Scope(s) (or Scope 3 category)

Scope 3: Purchased goods & services

Intensity metric

Metric tons CO₂e per megawatt hour (MWh)

Base year

2013

Intensity figure in base year (metric tons CO₂e per unit of activity)

0.57

% of total base year emissions in selected Scope(s) (or Scope 3 category) covered by this

intensity figure

82

Target year

2030

Targeted % reduction from base year

35

Intensity figure in target year (metric tons CO₂e per unit of activity) [auto-calculated]

0.3705

% change anticipated in absolute Scope 1+2 emissions

0

% change anticipated in absolute Scope 3 emissions

17

Intensity figure in reporting year (metric tons CO₂e per unit of activity)

0.424

% of target achieved [auto-calculated]

73.1829573934837

Target status in reporting year

Underway

Is this a science-based target?

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

Please explain (including target coverage)

In response to the Japanese government NDC in FY2030 (26% below 2013 level), Chubu Electric Power Company (Chuden) is aiming to achieve the emissions intensity target of 0.37kg- CO₂/kWh set by membership of the Electric Power Council for a Low Carbon Society (ELCS) in collaboration with Japanese electric utility companies. To realize this emissions intensity target for electric power companies as a whole, Chuden has set a quantitative target for “new development of 2 million kW or more by around 2030.”

The change rate expected in Scope 3 total volume of emissions is calculated by determining the emissions in FY2030 with the target scale of Chuden electrical energy sold (130 billion kWh) and using the emissions intensity target of 0.37kg- CO₂/kWh set by the Electric Power Council for a Low Carbon Society (ELCS) then multiplying the percentage against the total amount of the Scope to the change rate of actual emissions value of FY2013 (61,148,555 t- CO₂).

The value of the emissions intensity indicator of the reporting year is the value that was calculated before reporting to the government, and thus there is a possibility that it will be revised.

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

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

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

Target reference number

Low 1

Year target was set

2018

Target coverage

Company-wide

Target type: absolute or intensity

Absolute

Target type: energy carrier

Electricity

Target type: activity

Production

Target type: energy source

Renewable energy source(s) only

Metric (target numerator if reporting an intensity target)

kWh

Target denominator (intensity targets only)

<Not Applicable>

Base year

2018

Figure or percentage in base year

2,560,000

Target year

2030

Figure or percentage in target year

4,560,000

Figure or percentage in reporting year

2,620,000

% of target achieved [auto-calculated]

3

Target status in reporting year

Underway

Is this target part of an emissions target?

This is a part of target reference number 1 in C4.1b.

Is this target part of an overarching initiative?

No, it's not part of an overarching initiative

Please explain (including target coverage)

In regard to renewable energy power sources, Chuden is implementing efforts by setting the most challenging target, which is to almost double our installed capacity as of the end of FY2017 in the next

decade by developing over 2 million kW by around 2030. We are planning to bring forward the development of hydro, biomass and solar power generation in the mid-term, and offshore wind power generation in the long-term.

Besides developing new sources, by strategically determining the benefits, we intend to examine potential increased output through the replacement of existing facilities and purchase of power source sites, such as mega-solar power generation stations when their FIT period expires. Based on domestic development, the investment amount for developing 2 million kW is assumed to be several hundred billion yen, therefore we are planning to invest over 100 billion yen a year for the cumulative five years to FY2023. Through this expansion of renewable energy, Chuden will strive to realize a low carbon society.

As stated above, the reference year for the targets is set at the end of FY2017. Therefore, the reference year 2018 means the end of March 2018. Furthermore, though the target unit is the installed capacity (kW), we selected “kWh” that sets h=1 as an alternative since “kW” was not listed in the reference choices for measurement. For this reason, the value for the item “the numerical value or ratio of the reference year” equals 2,560,000kW, “the numerical value or ratio of the reporting year” equals 2,620,000kW, and “the numerical value or ratio of the target year” equals 4,560,000kW.

C4.3

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

Yes

C4.3a

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

	Number of initiatives	Total estimated annual CO ₂ e savings in metric tonnes CO ₂ e (only for rows marked *)
Under investigation	0	0
To be implemented*	10	267,510
Implementation commenced*	4	220,900
Implemented*	1	6,500
Not to be implemented	0	0

C4.3b

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

Initiative category & Initiative type

Low-carbon energy generation

Solar PV

Estimated annual CO2e savings (metric tonnes CO2e)

6,500

Scope(s)

Scope 1

Voluntary/Mandatory

Voluntary

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

0

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

0

Payback period

No payback

Estimated lifetime of the initiative

>30 years

Comment

Description of emissions reduction through the operation of Miyako Kuzakai Solar Park. This project will contribute to reduction of the purchase amount of electricity and CO2 emissions. Values concerning annual expense reductions, investment amount, payback period are not disclosed due to business confidentiality, therefore their value has been entered as zero.

C4.3c

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

Method	Comment
Compliance with regulatory requirements/standards	As well as achieving the target (non-fossil fuel ratio of 44% in FY2030) specified in the Act on Sophisticated Methods of Energy Supply Structures, Chuden is promoting securing budget and investment for initiatives toward the expansion of the renewable energy business, utilization of the nuclear power generation station, and increase in power output of the existing hydro power stations.
Dedicated budget for energy efficiency	Chuden is addressing the optimal use of energy that leads to better energy conservation and reduced CO2 emissions for consumers. Chuden places emphasis in its budget on service development by the Customer Service & Sales Company ("Marutto" Chuden) and on business activities. These include providing a visualization service for electricity/gas usage performance, providing information on energy conservation, and suggesting energy solutions to produce improvements in equipment operation through checking for wasteful energy usage.
Dedicated budget for low-carbon product R&D	Chuden dedicates a budget for technology development in emissions reduction, achieved through improvements in energy efficiency. These include: integrated development solutions that secure both product quality and productivity improvement; and energy conservation achieved by building a new production line with customer consultation for the use of consumers' equipment both overseas and in Japan.

Internal price on carbon	Chuden assesses its investment into evaluation of the comparative competitiveness of power sources and renewable energy, using an in-house carbon price corresponding to the IEA's sustainable development scenario.
Partnering with governments on technology development	Chuden contribute funds to Japan CCS Co., Ltd. which conducts large scale demonstration studies led by the Japanese government. Along with Toyota Motor Corporation, Toho Gas Co., Ltd. and the Aichi Prefecture, etc., Chuden is participating in hydrogen utilization projects implemented by municipalities such as the Renewable Energy Utilization Low-carbon Hydrogen Project. Chuden is also, in conjunction with Toyota Motor Corporation, conducting demonstration projects designed to respond to renewable energy expansion, reuse storage batteries of electric vehicles, and establish large capacity electricity storage systems.

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

Company-wide

Description of product/Group of products

Chuden's progressive offer represents not only an initiative to help achieve a low-carbon society, but also a new service available for customer choice in the midst of an environment which is tough and competitive, due to the full liberalization of electricity and gas retail. Chuden proactively promotes the optimal use of energy leading to conservation of both energy and reductions in CO2 emissions for customers. Specifically, the Customer Service & Sales Company is providing the following: a visualization service for electricity/gas usage performance; information on energy conservation; energy solutions to offer improvements in equipment operation through checking for wasteful energy usage; integrated development solutions to suggest building a production line capable of both quality/productivity improvement and energy conservation; and overseas energy conservation support services intended for customers' overseas business establishments.

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

Avoided emissions

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

Other, please specify

Comparisons with BAU emissions of each company

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

0

% of total portfolio value

<Not Applicable>

Asset classes/ product types

<Not Applicable>

Comment

In addition to consulting for clients on efficient energy use, Chuden is conducting research and development of high-efficiency energy utilization equipment with clients and contributes to raising customer satisfaction. Chuden provides these services in order to continue to be chosen by customers selecting electric and gas contracts, and the benefits of energy conservation and low carbonization will eventually be passed on to customers. Profits obtained by prohibiting contract cancellation (avoid losses) are incalculable, therefore the direct profit of Chuden is set at zero.

C-EU4.6

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

Chuden does not implement activities that emit methane as specified in the "Law concerning the Promotion of Measures to Cope with Global Warming" of the Ministry of the Environment and the Ministry of Economy, Trade and Industry. Effectively, Chuden's operations do not emit methane.

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 2019

Base year end

March 31 2020

Base year emissions (metric tons CO₂e)

57,357

Comment

Since Chubu Electric Power Company (Chuden) integrated its thermal power generation business into JERA Co., Inc. in April 2019 and the business is now unconsolidated, Scope 1 has substantially declined. Based on this background, we changed the reference year from FY2014 to FY2019 for this report.

Scope 2 (location-based)

Base year start

April 1 2019

Base year end

March 31 2020

Base year emissions (metric tons CO2e)

193,144

Comment

Since Chuden integrated its thermal power generation business into JERA Co., Inc. in April 2019 and the business is now unconsolidated, we changed the reference year from FY2014 to FY2019 for this report.

Scope 2 (market-based)

Base year start

April 1 2019

Base year end

March 31 2020

Base year emissions (metric tons CO2e)

188,961

Comment

Since Chuden integrated its thermal power generation business into JERA Co., Inc. in April 2019 and the business is now unconsolidated, this time we changed the reference year from FY2014 to FY2019.

C5.2

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

C6. Emissions data

C6.1

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

Reporting year

Gross global Scope 1 emissions (metric tons CO2e)

57,357

Start date

<Not Applicable>

End date

<Not Applicable>

Comment

Chubu Electric Power Company (Chuden) integrated its thermal power generation business into JERA Co., Inc. in April 2019 and the business is now unconsolidated. CO2 emissions originating from electric power purchased from JERA Co., Inc. is accounted for in Scope 3 as “procurement from other companies,” therefore Scope 1 declined and Scope 3 increased compared to the previous fiscal year.

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?

Reporting year

Scope 2, location-based

193,144

Scope 2, market-based (if applicable)

188,961

Start date

<Not Applicable>

End date

<Not Applicable>

Comment

Chuden is reviewing the concept of electricity consumed which is purchased from other companies from the date of this report (includes station-consumed electric energy at power stations such as Hamaoka Nuclear Power Plant, etc.)

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

Purchased goods and services

Evaluation status

Relevant, calculated

Metric tonnes CO2e

23,783

Emissions calculation methodology

Calculated using an emissions factor per amount provided in the calculation guidelines of Japan’s Ministry of the Environment and Ministry of Economy, Trade and Industry (“Emission Intensity for Calculation of Organizational Greenhouse Gas Emissions throughout the Supply Chain”).

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

0

Please explain

Capital goods

Evaluation status

Relevant, calculated

Metric tonnes CO2e

622,129

Emissions calculation methodology

Calculated using an emissions factor per amount provided in the calculation guidelines of Japan’s Ministry of the Environment and Ministry of Economy, Trade and Industry (“Emission Intensity for Calculation of Organizational Greenhouse Gas Emissions throughout the Supply Chain”).

Please explain

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

Evaluation status

Relevant, calculated

Metric tonnes CO₂e

58,093,079

Emissions calculation methodology

Calculated using an emissions factor per quantity provided in the calculation guidelines of Japan's Ministry of the Environment and Ministry of Economy, Trade and Industry ("Emission Intensity for Calculation of Organizational Greenhouse Gas Emissions throughout the Supply Chain") and also in accordance with the notice "On calculation and announcement of basic emission intensity and post-adjustment emission intensity by electric business utilities" issued by Japan's Ministry of the Environment and Ministry of Economy, Trade and Industry.

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

87

Please explain

Calculated by obtaining emissions data at generation relating to electricity for sales that Chuden procured.

Values under calculation are included in the specification, and thus there is a possibility that these will be revised.

Upstream transportation and distribution

Evaluation status

Relevant, calculated

Metric tonnes CO₂e

2,091

Emissions calculation methodology

Calculated by multiplying the fuel consumption amount associated with transportation, the heating value specified in the "Ordinance for Enforcement of the Act on the Rational Use, etc., of Energy," and the emissions factor specified in the "Ordinance related to calculations for carbon dioxide equivalent greenhouse gas emissions in the business activities of specified emitters."

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

0

Please explain

Waste generated in operations

Evaluation status

Relevant, calculated

Metric tonnes CO₂e

8,155

Emissions calculation methodology

Calculated using an emissions factor per quantity provided in the calculation guidelines of Japan's Ministry of the Environment and Ministry of Economy, Trade and Industry ("Emission Intensity for Calculation of Organizational Greenhouse Gas Emissions throughout the Supply Chain").

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

0

Please explain

Business travel

Evaluation status

Relevant, calculated

Metric tonnes CO2e

4347

Emissions calculation methodology

Calculated using an emissions factor per amount provided in the calculation guidelines of Japan's Ministry of the Environment and Ministry of Economy, Trade and Industry ("Emission Intensity for Calculation of Organizational Greenhouse Gas Emissions throughout the Supply Chain").

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

0

Please explain

Employee commuting

Evaluation status

Relevant, calculated

Metric tonnes CO2e

10,234

Emissions calculation methodology

Calculated using an emissions factor per amount provided in the calculation guidelines of Japan's Ministry of the Environment and Ministry of Economy, Trade and Industry ("Emission Intensity for Calculation of Organizational Greenhouse Gas Emissions throughout the Supply Chain").

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

0

Please explain

Upstream leased assets

Evaluation status

Not relevant, explanation provided

Metric tonnes CO2e

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

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

<Not Applicable>

Please explain

Nearly all the activity totals already calculated in Scope 1 and Scope 2 are applicable, therefore no calculation is performed in Scope 3.

Downstream transportation and distribution

Evaluation status

Not relevant, explanation provided

Metric tonnes CO2e

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

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

<Not Applicable>

Please explain

As a result of analyzing the status of in-house Scope 3 emissions in 2015, Chuden has confirmed that business activities covered by this category were not applicable to the electricity business.

Processing of sold products

Evaluation status

Not relevant, explanation provided

Metric tonnes CO2e

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

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

<Not Applicable>

Please explain

As a result of analyzing the status of in-house Scope 3 emissions in 2015, Chuden has confirmed that business activities covered by this category were not applicable to the electricity business.

Use of sold products

Evaluation status

Relevant, calculated

Metric tonnes CO2e

2,567,696

Emissions calculation methodology

Calculated using an emissions factor per quantity provided in the "Calculation, Reporting and Announcement Scheme of Greenhouse Gas Emissions" based on the "Law concerning the Promotion

of Measures to Cope with Global Warming” of the Ministry of the Environment and the Ministry of Economy, Trade and Industry.

Percentage of emissions calculated using data obtained from suppliers or value chain partners
0

Please explain

End of life treatment of sold products

Evaluation status

Not relevant, explanation provided

Metric tonnes CO2e

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

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

<Not Applicable>

Please explain

As a result of analyzing the status of in-house Scope 3 emissions in 2015, Chuden has confirmed that business activities covered by this category were not applicable to the electricity business.

Downstream leased assets

Evaluation status

Not relevant, explanation provided

Metric tonnes CO2e

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

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

<Not Applicable>

Please explain

As a result of analyzing the status of in-house Scope 3 emissions in 2015, Chuden has confirmed that business activities covered by this category were not applicable to the electricity business.

Franchises

Evaluation status

Not relevant, explanation provided

Metric tonnes CO2e

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

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

<Not Applicable>

Please explain

Chuden does not conduct any franchise business.

Investments

Evaluation status

Not relevant, explanation provided

Metric tonnes CO2e

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

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

<Not Applicable>

Please explain

It is confirmed that since FY2018, activities of interest are not conducted.

Other (upstream)

Evaluation status

Metric tonnes CO2e

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

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

<Not Applicable>

Please explain

Other (downstream)

Evaluation status

Metric tonnes CO2e

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

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

<Not Applicable>

Please explain

C6.7

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

No

C6.10

(C6.10) Describe your gross global combined Scope 1 and 2 emissions for the reporting year in metric tons CO₂e per unit currency total revenue and provide any additional intensity metrics that are appropriate to your business operations.

Intensity figure

9.31e-8

Metric numerator (Gross global combined Scope 1 and 2 emissions, metric tons CO₂e)

246,318

Metric denominator

Unit total revenue

Metric denominator: Unit total

2,643,130,000,000

Scope 2 figure used

Market-based

% change from previous year

99.5

Direction of change

Decreased

Reason for change

Chuden integrated its thermal power generation business into JERA Co., Inc. in April 2019 and the business is now unconsolidated. CO₂ emissions originating from electricity power for sales purchased from JERA Co., Inc. are accounted for in Scope 3 as “procurement from other companies,” therefore Scope 1 decreased compared to the previous fiscal year. As a result, SF₆ emission accounts for Scope 1 emissions, therefore Chuden has set a high goal to “curb the emission rate at equipment checking below 3% and the emission rate at equipment disposal below 1%,” and is pursuing emissions curbing.

C7. Emissions breakdowns

C7.1

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

Yes

C7.1a

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

Greenhouse gas	Scope 1 emissions (metric tons of CO ₂ e)	GWP Reference
CO ₂	11,924	IPCC Fourth Assessment Report (AR4 - 100 year)
SF ₆	45,433	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 CO ₂ emissions (metric tons CO ₂)	Gross Scope 1 methane emissions (metric tons CH ₄)	Gross Scope 1 SF ₆ emissions (metric tons SF ₆)	Total gross Scope 1 emissions (metric tons CO ₂ e)	Comment
Fugitives	0	0	2	0	
Combustion (Electric utilities)	0	0	0	0	
Combustion (Gas utilities)	0	0	0	0	
Combustion (Other)	11,924	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 CO ₂ e)
Japan	57357

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)
Power transmission and distribution	45,433
Vehicle operation	11,924

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	Comment
Electric utility activities	57,357	

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) 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	0	No change	0	

consumption				
Other emissions reduction activities	0	No change	0	
Divestment	53,071,108	Decreased	99.89	<p>Chubu Electric Power Company (Chuden) integrated its thermal power generation business into JERA Co., Inc. in April 2019 and the business is now unconsolidated, therefore scope 1 has decreased (CO2 emissions originating from electricity power for sales purchased from JERA Co., Inc. are accounted for in Scope 3 as "procurement from other companies.")</p> <p>Calculated by deriving the difference from the total of Scope 1 from the previous fiscal year.</p> <p>$((57,357[\text{t-CO}_2\text{e}] \text{ (total of Scope 1 from the current fiscal year)} - 53,128,465[\text{t-CO}_2\text{e}] \text{ (total of Scope 1 from the previous fiscal year)}) / 53,128,465[\text{t-CO}_2\text{e}] \text{ (total of Scope 1 from the previous fiscal year)}) \times 100$</p>
Acquisitions	0	No change	0	
Mergers	0	No change	0	
Change in output	0	No change	0	
Change in methodology	125,622	Increased	198.33	<p>In the calculation of Scope 2, an increase occurred due to review of the concept of consumed electricity purchased from other companies (includes station-consumed electric energy such as at Hamaoka Nuclear Power Plant, etc.).</p> <p>Calculated by deriving difference from the total of Scope 2 of the previous fiscal year.</p> <p>$((188,961[\text{t-CO}_2\text{e}] \text{ (total of Scope 2 from the current fiscal year)} - 63,339[\text{t-CO}_2\text{e}] \text{ (total of Scope 2 from the previous fiscal year)}) / 63,339[\text{t-CO}_2\text{e}] \text{ (total of Scope 2 from the previous fiscal year)}) \times 100$</p>
Change in boundary	0	No change	0	
Change in physical operating conditions	0	No change	0	
Unidentified	0	No change	0	
Other				

C7.9b

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

Market-based

C8. Energy

C8.1

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

More than 0% but less than or equal to 5%

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

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

C8.2a

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

	Heating value	MWh from renewable sources	MWh from non-renewable sources	Total (renewable and non-renewable) MWh
Consumption of fuel (excluding feedstock)	HHV (higher heating value)	0	48,720	48,720
Consumption of purchased or acquired electricity	<Not Applicable>	0	418,061	418,061
Consumption of self-generated non-fuel renewable energy	<Not Applicable>	474	<Not Applicable>	474
Total energy consumption	<Not Applicable>	474	466,781	467,255

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	No
Consumption of fuel for the generation of heat	No
Consumption of fuel for the generation of steam	No
Consumption of fuel for the generation of cooling	No
Consumption of fuel for co-generation or tri-generation	No

C8.2c

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

Fuels (excluding feedstocks)

White Spirit

Heating value

HHV (higher heating value)

Total fuel MWh consumed by the organization

25056

MWh fuel consumed for self-generation of electricity

<Not Applicable>

MWh fuel consumed for self-generation of heat

<Not Applicable>

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>

Emission factor

0.00232

Unit

metric tons CO2 per liter

Emissions factor source

Based on an emissions factor per quantity provided in the “Calculation, Reporting and Announcement Scheme of Greenhouse Gas Emissions” based on the “Law concerning the Promotion of Measures to

Cope with Global Warming” of the Ministry of the Environment and the Ministry of Economy, Trade and Industry.

Comment

The main application is fuel consumption of vehicles.

Fuels (excluding feedstocks)

Petroleum Products

Heating value

HHV (higher heating value)

Total fuel MWh consumed by the organization

296

MWh fuel consumed for self-generation of electricity

<Not Applicable>

MWh fuel consumed for self-generation of heat

<Not Applicable>

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>

Emission factor

0.00249

Unit

metric tons CO2 per liter

Emissions factor source

Based on an emissions factor per quantity provided in the “Calculation, Reporting and Announcement Scheme of Greenhouse Gas Emissions” based on the “Law concerning the Promotion of Measures to Cope with Global Warming” of the Ministry of the Environment and the Ministry of Economy, Trade and Industry.

Comment

Fuels (excluding feedstocks)

Gas Oil

Heating value

HHV (higher heating value)

Total fuel MWh consumed by the organization

6667

MWh fuel consumed for self-generation of electricity

<Not Applicable>

MWh fuel consumed for self-generation of heat

<Not Applicable>

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>

Emission factor

0.00258

Unit

metric tons CO2 per liter

Emissions factor source

Based on an emissions factor per quantity provided in the “Calculation, Reporting and Announcement Scheme of Greenhouse Gas Emissions” based on the “Law concerning the Promotion of Measures to Cope with Global Warming” of the Ministry of the Environment and the Ministry of Economy, Trade and Industry.

Comment

The main application is fuel consumption of vehicles.

Fuels (excluding feedstocks)

Crude Oil Heavy

Heating value

HHV (higher heating value)

Total fuel MWh consumed by the organization

16441

MWh fuel consumed for self-generation of electricity

<Not Applicable>

MWh fuel consumed for self-generation of heat

<Not Applicable>

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>

Emission factor

0.00271

Unit

metric tons CO2 per liter

Emissions factor source

Based on an emissions factor per quantity provided in the “Calculation, Reporting and Announcement Scheme of Greenhouse Gas Emissions” based on the “Law concerning the Promotion of Measures to Cope with Global Warming” of the Ministry of the Environment and the Ministry of Economy, Trade and Industry.

Comment

The main application is fuel consumption of steam boilers used to maintain equipment of generation stations.

Fuels (excluding feedstocks)

Liquefied Petroleum Gas (LPG)

Heating value

HHV (higher heating value)

Total fuel MWh consumed by the organization

198

MWh fuel consumed for self-generation of electricity

<Not Applicable>

MWh fuel consumed for self-generation of heat

<Not Applicable>

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>

Emission factor

2.999

Unit

metric tons CO2 per metric ton

Emissions factor source

Based on an emissions factor per quantity provided in the “Calculation, Reporting and Announcement Scheme of Greenhouse Gas Emissions” based on the “Law concerning the Promotion of Measures to Cope with Global Warming” of the Ministry of the Environment and the Ministry of Economy, Trade and Industry.

Comment

Fuels (excluding feedstocks)

Town Gas

Heating value

HHV (higher heating value)

Total fuel MWh consumed by the organization

63

MWh fuel consumed for self-generation of electricity

<Not Applicable>

MWh fuel consumed for self-generation of heat

<Not Applicable>

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>

Emission factor

0.00224

Unit

metric tons CO2 per m3

Emissions factor source

Based on an emissions factor per quantity provided in the “Calculation, Reporting and Announcement Scheme of Greenhouse Gas Emissions” based on the “Law concerning the Promotion of Measures to Cope with Global Warming” of the Ministry of the Environment and the Ministry of Economy, Trade and Industry.

Comment

C-EU8.2d

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

Coal – hard

Nameplate capacity (MW)

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

Since Chubu Electric Power Company (Chuden) transferred its thermal generation facilities to JERA Co., Inc. at the end of March 2019, Chuden does not own any power generation facilities fueled by coal.

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

Chuden does not own any power generation facilities fueled by lignite.

Oil

Nameplate capacity (MW)

0.4

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

Since Chuden transferred its thermal generation facilities to JERA Co., Inc. at the end of March 2019, Chuden only owns one petroleum-fueled thermal power station (400kW) for backup use in case of disruption of supply to remote islands (with only one transmission line). Petroleum-fueled thermal power generation was not conducted in FY2019.

Gas

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

Since Chuden transferred its thermal generation facilities to JERA Co., Inc. at the end of March 2019, Chuden does not own any power generation facilities fueled by gas.

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

Chuden does not own any power generation facilities fueled by biomass.

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

Chuden does not own any power generation facilities fueled by waste (non-biomass).

Nuclear

Nameplate capacity (MW)

3,617

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

Power generation at the nuclear power plant was not conducted in FY2019.

Fossil-fuel plants fitted with CCS

Nameplate capacity (MW)

0

Gross electricity generation (GWh)

0

Net electricity generation (GWh)

0

Absolute scope 1 emissions (metric tons CO₂e)

0

Scope 1 emissions intensity (metric tons CO₂e per GWh)

0

Comment

Chuden does not own any fossil-fueled factories having a carbon dioxide capture and storage (CCS) facility.

Geothermal

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

Chuden does not own any geothermal power generation facilities.

Hydropower

Nameplate capacity (MW)

5,459

Gross electricity generation (GWh)

0

Net electricity generation (GWh)

8,707

Absolute scope 1 emissions (metric tons CO2e)

0

Scope 1 emissions intensity (metric tons CO2e per GWh)

0

Comment

The total power generated will be information related to capacity factor, therefore it was not disclosed due to business confidentiality and its value has been entered as zero.

Wind

Nameplate capacity (MW)

22

Gross electricity generation (GWh)

0

Net electricity generation (GWh)

40

Absolute scope 1 emissions (metric tons CO2e)

0

Scope 1 emissions intensity (metric tons CO2e per GWh)

0

Comment

The total power generated will be information related to capacity factor, therefore it was not disclosed due to business confidentiality and its value has been entered as zero.

Solar

Nameplate capacity (MW)

17

Gross electricity generation (GWh)

0

Net electricity generation (GWh)

24

Absolute scope 1 emissions (metric tons CO2e)

0

Scope 1 emissions intensity (metric tons CO2e per GWh)

0

Comment

The total power generated will be information related to capacity factor, therefore it was not disclosed due to business confidentiality and its value has been entered as zero.

Marine

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

Chuden does not own renewable energy power generation facilities other than hydro power, wind power, solar power.

Other renewable

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

Chuden does not own renewable energy power generation facilities other than hydro power, wind power, solar power.

Other non-renewable

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

Chuden does not own renewable energy power generation facilities other than hydro power, wind power, solar power.

Total

Nameplate capacity (MW)

9115.4

Gross electricity generation (GWh)

0

Net electricity generation (GWh)

8,771

Absolute scope 1 emissions (metric tons CO2e)

0

Scope 1 emissions intensity (metric tons CO2e per GWh)

0

Comment

The total power generated from overall generation facilities / each generation facility will be information related to capacity factor, therefore it was not disclosed due to business confidentiality and its value has been entered as zero.

C-EU8.4

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

Yes

C-EU8.4a

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

Country/Region

Japan

Voltage level

Transmission (high voltage)

Annual load (GWh)

122255

Annual energy losses (% of annual load)

0

Scope where emissions from energy losses are accounted for

Scope 2 (market-based)

Emissions from energy losses (metric tons CO₂e)

0

Length of network (km)

12,069

Number of connections

7

Area covered (km²)

39,000

Comment

The energy loss is 4.14% throughout transmission and distribution, thus in answering this question, we provided the collective value on the distribution side that accounts for the major part of the line length, and regarded the annual energy loss pertaining to transmission as zero.

Country/Region

Japan

Voltage level

Distribution (low voltage)

Annual load (GWh)

122255

Annual energy losses (% of annual load)

4.14

Scope where emissions from energy losses are accounted for

Scope 2 (market-based)

Emissions from energy losses (metric tons CO2e)

2,481,619

Length of network (km)

135,069

Number of connections

0

Area covered (km2)

39,000

Comment

The energy loss is 4.14% throughout transmission and distribution, thus we provided the collective value on the distribution side, which accounts for the major part of the line length.

C9. Additional metrics

C9.1

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

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
Other, please specify (Other renewables)	100,000,000,000	33	2030	Chubu Electric Power Company (Chuden) is planning to develop over 2 million kW of renewable energy by around 2030 and invest over 100 billion yen for the cumulative five years until FY2023.

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
Energy management services	Installation of smart meters	0	0	2022

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

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

	Investment in low-carbon R&D	Comment
Row 1	Yes	<p>From a perspective of “S + 3E”, aiming at the simultaneous achievement of Safety, Energy security, Economic efficiency and Environment compliance while ensuring safety as the major consideration, the ideal energy mix will be pursued at Chuden. In this context, Chuden plans to continue to utilize nuclear power generation, as well as pushing forward the utilization of renewable energy such as solar power and wind power, and striving to achieve a low carbon society through energy businesses ranging from generation and distribution to selling electricity.</p> <p>Additionally, in regard to future power supply and demand, it is projected that decentralization of power sources will further advance and the introduction of renewable energy and storage batteries will expand, and as a result the structure of power supply and demand could change significantly. Under this change in the business environment, Chuden is addressing the building and operation of an electric power network to make highly efficient and stable use of distributed resources, and develop communities that are secure and resilient by providing new services to consumers. For example, we are facilitating the development of products and systems that contribute to energy conservation and CO2 emission reductions, as well as technologies that take advantage of efficient and stable renewable energy. We will also pursue the construction of an efficient and stable supply system by building an environment of EVs utilizing the latest digital technologies and data, and accelerating the connection between vehicle electrification of logistic providers/transportation companies and storage batteries. Through these new businesses, we contribute to developing a sustainable community and reducing CO2 emissions.</p>

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

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

Technology area	Stage of development in the reporting year	Average % of total R&D investment over the last 3 years	R&D investment figure in the reporting year (optional)	Comment
Other, please specify (Development of energy-saving equipment)	Full/commercial-scale demonstration	≤20%		Development of CFRP rapid heating device “HD Thermo II/CP,” development of energy conservation support system for die-cast facilities, development of circulation warming heat pump “Q-ton circulation”
Renewable energy	Applied research and development	≤20%		Development of reliability technology regarding output forecasting of solar power generation (PV), development of new types of lightning strike detection devices, research on RTDS models of electricity storage systems that match with renewable energy, cascade utilization for sorghum biomass
Infrastructure	Pilot demonstration	≤20%		Empirical research on one stop service relating to the introduction of electric trucks and buses

C10. Verification

C10.1

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

	Verification/assurance status
Scope 1	No third-party verification or assurance
Scope 2	(location-based or market-based) No third-party verification or assurance
Scope 3	No third-party verification or assurance

C10.2

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

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

C11. Carbon pricing

C11.1

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

Yes

C11.1a

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

Japan carbon tax

C11.1c

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

Japan carbon tax

Period start date

April 1 2019

Period end date

March 31 2020

% of total Scope 1 emissions covered by tax

20.8

Total cost of tax paid

3,446,036

Comment

Since Chubu Electric Power Company (Chuden) transferred its thermal generation facilities to JERA Co., Inc. in April 2019, Chuden is not in a position to purchase fuel directly. Therefore, Scope 1 CO2 emissions of Chuden come from fuel for vehicles used mainly in the business operation. We calculated this value based on this CO2 emissions (global warming tax: 289 yen/t-CO2).

C11.1d

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

In addition to reducing the burden of global warming tax which increases proportionally with the amount of fossil fuel procured, Chuden will pursue achievement of the target ratio (44% in FY 2030 and interim targets) of non-fossil fuel power sources specified in the Act on Sophisticated Methods of Energy Supply Structures, by developing and using non-fossil fuel sources including renewable energy. Specifically, along with promoting utilization of the Hamaoka Nuclear Power Plant with safety as a major

consideration, we are implementing efforts by setting the most challenging target, which is to almost double our installed capacity as of the end of FY2017 in the next decade by developing over 2 million kW of renewable energy power sources by around 2030, accelerating a series of processes from site selection to construction, and participating in related projects. In our management plan, Chuden is planning to invest over 100 billion yen for the cumulative five years from FY2019 by positioning the development of renewable energy power source as a strategic investment.

C11.2

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

Yes

C11.2a

(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 origination

Project type

Hydro

Project identification

Costa Rica, Cote small-scale hydropower plant

Verified to which standard

CDM (Clean Development Mechanism)

Number of credits (metric tonnes CO₂e)

642

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

642

Credits cancelled

Not relevant

Purpose, e.g. compliance

Compliance

C11.3

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

Yes

C11.3a

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

Objective for implementing an internal carbon price

Stress test investments

GHG Scope

Scope 1

Application

Assessment of costs to correspond to the regulations, including achievement of the target (44% of non-fossil fuel power source ratio) specified in the Act on Sophisticated Methods of Energy Supply Structures. Assessment of power source competitiveness after the potential introduction of carbon pricing.

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

0

Variance of price(s) used

“Actual price used” will not be disclosed due to business confidentiality, therefore zero has been entered. This price was obtained by referring to the IEA sustainable development scenario.

Type of internal carbon price

Shadow price

Impact & implication

Since Chuden’s thermal power generation accounts for 78% of the amount of power generated and procured (FY2018 performance adopted at the point of assessment using in-house carbon price), there is a need to examine the effects of carbon price trends in our power source plans. In the electric power supply and demand plan covering 10 years from FY2019 finalized by the Corporate Planning & Strategy Division, Chuden has assessed effects and responses against the power source plans based on carbon price trends, and examined the evaluation of costs and measures required for the achievement of the non-fossil fuel power source target (44%) specified in the Act on Sophisticated Methods of Energy Supply Structures.

C12. Engagement

C12.1

(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

(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

% of customers by number

0.01

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

0

Portfolio coverage (total or outstanding)

<Not Applicable>

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

Chubu Electric Power Company (Chuden) and Ecology and Combustion Inc. have jointly developed a compact module-type hybrid heat-treating furnace "EC Hybrid I" (hereinafter, "development article") and it was released on November 1, 2019.

In manufacturing plants for automobile parts, etc., heat treatment of heated/cooled metals used in manufacture, including aluminum, is conducted to improve the parts' qualities, such as strength and hardness.

In general, large-scale gas furnaces are used in heat-treatment. However, particularly in low temperature heat treatment, large volumes of intake and exhaust are required to control temperature, resulting in substantial energy loss. Additionally, the development of equipment capable of responding to changes in production items and production volumes was in demand. There is the possibility of production capacity degradation and risk of product failure when problems occur in equipment as a result of high-volume treatment in large-scale furnaces with the emphasis on productivity. There are also the growing needs of diversified small-quantity production to consider.

The development article was equipped with a hybrid heater that can use either a gas burner which heats rapidly and has a high output power, or an electric heater that accurately controls temperature, depending on the situation, and with inverter regulation of the circulation fan, it is now possible to set the optimal heat source and wind speed for each heat treatment process.

For other examples of joint development, there is the "energy conservation project on automatic control of a boiler" which Chuden conducted with TORIDOLL Holdings Corporation and Nichiwa Electric Corporation. In this project, the three companies jointly developed a boiler that will be used at the Udon specialty stores, "Marugame Seimen," operated by TORIDOLL Holdings Corporation. By automatically controlling the heat output and the amount of hot water added to the boilers, a significant reduction was achieved in electricity consumption and hot water added at the actual store (the reduction was about

30% in electricity consumption and about 50% in added hot water, and this also contributed to labor-saving and productivity improvement).

Impact of engagement, including measures of success

Chuden sets its assessment standard of success as the development of technologies and equipment that consume less energy than existing ones through introducing technologies owned by the company.

This time, through the introduction of the compact module-type hybrid heat-treating furnace “EC Hybrid I” (hereinafter, “development article”), we achieved an about 50 % reduction of energy use compared to conventional blast circulation heat treating furnace having an equivalent treatment capacity with the development article. Furthermore, an about 50% of miniaturization was achieved by integrating the gas burner and the electric heater, and optimization of device configuration. In addition, based on the premise of modularizing the heat-treating furnace and connecting multiple heat-treating furnace units, there is a substitute power source available in case of failure, and a flexible response is possible to achieve small lot production of multiple products.

The percentage of clients to whom we offer the jointly developed hybrid heating method is relatively low in comparison to our total number of clients, and we entered 0.01, the minimum value that can be entered on the system.

The “energy conservation project by automatically controlling the boiler,” which Chuden conducted with TORIDOLL Holdings Corporation and Nichiwa Electric Corporation, has received the Minister Prize of Economic, Trade and Industry for a Successful Case of Energy Conservation Division of the Energy Conservation Grand Prize for FY2019 (host: The Energy Conservation Center, Japan).

C12.1d

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

As a part of our differentiation strategy aiming at continuing to be selected by existing consumers amid the intensification of competition among electric utility companies, Chuden is providing various services that contribute to resolving business issues. These include proposing energy conservation for the utilization of consumers’ equipment, both overseas and in Japan, and promoting “integrated development solutions”, when aiming to build a new production line with customers. For example, in April 2018, Chuden gathered and coordinated partner companies such as manufacturers and construction companies, and started a service called “Marutto’ Chuden”, in which Chuden offers everything from design and construction to operation and maintenance of the equipment. In addition, Chuden has started offering one-stop services to fulfil the diverse and advanced needs of customers such as energy conservation, cost saving, productivity improvement, and quality improvement. “Marutto’ Chuden Compressor IoT Optimum Operation Service,” is one of the services of “Marutto’ Chuden” and proposes operational improvements such as the installation of measurement devices with communication functions to compressors, piping and tanks to allow visualization of voltage and pressure data in real time, as well as a revision of the number of operating units. Since Chuden conducts the installation of measurement devices, analysis of operational data, and development of

operational improvement reports, customers are able to cut time, effort and costs and move forward with their energy conservation efforts.

Chuden is also responding to the needs of consumers interested in reducing environmental burdens by establishing a platform to exchange electric power and values derived from renewable energy in a variety of ways. For example, Chuden and Loop Inc. has jointly decided to provide a self-consumption service for solar power generation (PPA model) for two facilities in the Chubu District operated by the AEON MALL Co., Ltd. For this service, Chuden and Loop Inc. have installed solar power generation equipment on the roofs of the AEON MALL Matsumoto (Matsumoto city of Nagano prefecture) and AEON MALL Tsu Minami (Tsu city of Mie prefecture), and is operating the equipment. From June 2020, AEON MALL Co., Ltd is planning to use CO₂-free power from solar power generation without initial fees in the above two shopping facilities.

Chuden also implements and supports a low carbon model of local production for local consumption, which will lead to the dissemination of renewable energy at a local level. Chuden is also participating in projects to trade and balance solar power electricity between consumers, and to utilize electricity from solar power generation which is surplus due to adjustments in regional power supply. For instance, we have established a regional electric power utility, “Okazaki Sakura Electric Power Co., Inc.” by jointly contributing with Okazaki city, NTT FACILITIES, INC., Toho Gas Co., Ltd. and THE OKAZAKI SHINKIN BANK (capital: 10 million yen. investment ratio of Chuden: 15%) with the aim of realizing local production for local consumption of energy and low carbonization in Okazaki city. Okazaki Sakura Electric Power is planning to provide electric power produced at biomass power generation facilities, etc., in a waste disposal facility called “Central Clean Center,” located in Okazaki city, to public facilities in Okazaki city, and to address stimulating the regional economy by achieving a CO₂ emissions reduction as well as achieving local production for local consumption of energy. Chuden will utilize business profits from Okazaki Sakura Electric Power to disseminate renewable energy and contribute to building the sustainable society that Okazaki city is aiming for.

Chuden has also decided to participate in the activities conducted in the project called “Challenge Zero” launched by Keidanren, since we endorsed the “Declaration on Challenge Zero” whose purpose is to aggressively challenge innovations aimed at the realization of a carbon-free society. Specifically, we will address the continuous use of nuclear power generation and promote the use of renewable energy such as solar power and wind power in order to provide our stand in further efforts for the realization of a carbon-free society through our energy businesses ranging through generation, transmission, distribution and sales. Chuden is planning to introduce the latest cases of technology development and business operations on the website of “Challenge Zero” (<https://www.challenge-zero.jp/en/>).

C12.3

(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

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

Focus of legislation	Corporate position	Details of engagement	Proposed legislative solution
Carbon tax	Oppose	Facilitate review by submitting opinions to the government-led "Review committee for the direction of carbon pricing"	Since establishing and disseminating new technologies through research and development are effective in substantially reducing emissions in the future, it is expedient to facilitate the use of company funds for research and dissemination, instead of diminishing funds through the introduction of a carbon tax.

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: The Federation of Electric Power Companies (FEPC) was established in 1952 to promote smooth operation of the electricity business within Japan. Since then, FEPC has played an important role as a base for close communication between the electric power companies and as a forum for exchanging views to create the electric power industry of the future. Moreover, FEPC undertakes various activities to ensure stable operations of the electric power structure, with awareness of its role in the energy industry of Japan.

Is your position on climate change consistent with theirs?

Consistent

Please explain the trade association's position

In 1996, FEPC developed the reduction target for climate change. Since then, FEPC has been encouraging member companies to address reduction efforts. In FY2013, FEPC embedded the Environmental Action Plan by the Japanese Electric Utility Industry into Japan Business Federation's Commitment to a Low Carbon Society, and it is working toward the realization of a low carbon society by addressing both sides, the supply of and demand for electricity.

How have you influenced, or are you attempting to influence their position?

When the government reviews a variety of environmental measures, FEPC is required to respond by submitting opinions and proposals as an industry group, and therefore Chuden reviews the subject

within the company and submits opinions and proposals to FEPC. The President of Chuden is assuming the position of the Chairman of FEPC. (Resigned on March 13, 2020)

Trade association

The Electric Power Council for a Low Carbon Society (ELCS): In order for the electric power industry to implement effective global warming measures amid the liberalization of electricity supply, ELCS was established in 2016 with the aim of promoting and supporting the actions of member utility companies. In 2019, the number of member utility companies reached 47, and the electric energy sold by members accounts for 94.3% of the energy sold in Japan (actual performance of FY2018).

Is your position on climate change consistent with theirs?

Consistent

Please explain the trade association's position

Japan's Electric Power Council for a Low Carbon Society (ELCS) formulated "the Action Plan for a Low-Carbon Society of Electric Power Industry", a voluntary framework for member companies against global warming. The Action Plan is based on the following four pillars of KEIDANREN's Commitment to a Low Carbon Society: (a) the establishment of CO₂ reduction targets for domestic business operations; (b) strengthened co-operation with consumers, customers, and other interested groups; (c) contributions on the international level; and (d) the development of innovative technologies. According to the Action Plan phase 2, reduction targets in domestic business operations for the year 2020 are set as follows;

- Continuing efforts to realize low-carbon society mainly through attaining the optimal energy mix, promoting energy-conservation or CO₂ reduction services on both the supply and demand sides, while seeking to simultaneously achieve Energy security, Economic efficiency and Environmental conservation, under the major premises of Safety (S+3Es).
- Achieving CO₂ emission intensity for electricity consumed of 0.37kg-CO₂/kWh in light of the Government's 2030 energy supply and demand outlook.
- In the construction of new thermal power stations and other facilities, the best available technology (BAT) will be utilized and other measures employed. Based on these measures, ELCS is working toward realization of the maximum potential reduction of 11 million t- CO₂.

How have you influenced, or are you attempting to influence their position?

Chuden assumes the position of an executive in ELCS, and is engaging in support actions to achieve the target of member utility companies, by confirming and assessing the implementation status of the Commitment to a Low Carbon Society.

C12.3f

(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?

In order to reflect trends that may affect climate change policies, items related to the government and industrial areas, and business activities of electric utility companies to response measures and Management Plans of Chuden in a timely manner, the Corporate Planning & Strategy Division reports and shares the contents of FEPC with management at the monthly Senior Executive Committee. In

addition, Chuden facilitates communication with FEPC not only at management levels but also at practical levels to form a structure to respond in a timely manner.

The President of Chuden is assuming the position of the Chairman of FEPC and is widely responsible for the activities conducted by FEPC, such as policies relating to climate change.

(Resigned on March 13, 2020)

(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

96yuho_2.pdf

Page/Section reference

Relevant pages of FY2019 Financial Report: P11~15, 41~46

Content elements

Governance

Risks & opportunities

Comment

Status of corporate governance: P41~46

Issues to be addressed, business and other risks: P11~15

Publication

In voluntary communications

Status

Complete

Attach the document

csr_report_2020_all.pdf

Page/Section reference

Relevant sections of Chubu Electric Power Group Report 2020: "Top Commitment," "Strategy," "Climate Change," "Governance"

Content elements

Governance

Strategy

Risks & opportunities

Emissions figures

Emission targets

Other metrics

Comment

C15. Signoff

C-FI

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

C15.1

(C15.1) Provide details for the person that has signed off (approved) your CDP climate change response.

	Job title	Corresponding job category
Row 1	Executive Officer, General Manger, Corporate Communication Division	Other C-Suite Officer

Submit your response

In which language are you submitting your response?

Japanese

Please confirm how your response should be handled by CDP

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

Please confirm below

I have read and accept the applicable Terms