Welcome to your CDP Climate Change Questionnaire 2022

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 group 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 group holds 9,171MW of power generation capacity (nuclear power generation: 3,617MW; hydro power generation: 5,466MW; renewable energy: 88MW; thermal power generation as emergency power generation facility: 0.4MW), about 12,000km of power transmission lines, and about 136,000km of power distribution lines. The electric energy sold in FY2021 by the Chuden group was about 109 billion kWh*, making it represent the second biggest electric power company in Japan. Focusing on the energy business, all of the 130 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 group has been actively addressing the expansion of business areas and improvement of service contents. In these circumstances, 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, in order to create an autonomous business structure to be able to respond promptly and flexibly. Subsequently, in April 2020, Chuden demerged its power network business as Chubu Electric Power Grid Co., Inc. and its customer service & sales business as Chubu Electric Power Miraiz Co., Inc. respectively. (Hereinafter, these two companies will be collectively referred to as operating companies in this reply). The operating companies are consolidated subsidiary companies of Chuden, however, JERA Co., Inc. is not. Chuden calculates emissions by using the financial management standard and includes electricity procured from JERA in Scope 3 emissions.
*: Total of Chuden and operating companies

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, 2021	March 31, 2022	No

C0.3

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

Japan

C0.4

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

JPY

C0.5

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

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

C0.8

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

Indicate whether you are able to provide a unique identifier for your organization	Provide your unique identifier
Yes, an ISIN code	JP3526600006

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	The Board of Directors of Chubu Electric Power Company (Chuden) is composed of 9 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 reports on situations concerning the execution of operations by directors. Chuden recognizes addressing climate change as a critical issue that requires management decisions in our business activities. In **Chubu Electric Power Group Management Vision 2.0** published in November 2021, the Chuden group announced that it would provide the infrastructure to support transformation to a **decarbonized**, **safe and secure**, and **self-distributed and circular** society to address the challenge of **decarbonization** along with customers and society. Looking towards 2030, we will be promoting low-carbon power systems with further expansion of our renewable energy capacity and maximum utilization of nuclear power generation, etc. We will also promote a low-carbon approach on the demand side, with greater electrification. Looking ahead to 2050, we will steadily develop our efforts to demonstrate applicability of technologies such as hydrogen and ammonia. As part of this we have taken our previous goal one step further and have set a new goal of expanding renewable energy to 3.2 million kW (8 billion kWh) or more by around 2030. Additionally, as our **Zero Emissions Challenge 2050**, we aim to achieve **decarbonization** and **safety, stability, and efficiency** simultaneously by promoting electrification and decarbonization of energy use together with customers. We have set a goal of reducing CO2 emissions derived from sales to customers by 50% or more by 2030. These issues relating to climate change and efforts for the realization of a carbon-free 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 and is responsible for promotion of these efforts and achievement of the goals.

	*In accordance with the articles of incorporation, Chuden has appointed a Chairman through the resolution of the Board of Directors. 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.

C1.1b

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

Frequency with which climate-related issues are a scheduled agenda item	Governance mechanisms into which climate-related issues are integrated	Please explain
Scheduled – some meetings	Reviewing and guiding strategy Reviewing and guiding major plans of action Reviewing and guiding risk management policies Reviewing and guiding annual budgets Reviewing and guiding business plans Setting performance objectives 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	Chuden holds 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, relevant decisions are made, and execution of duties is supervised through relevant reports from Directors. In addition, to reinforce the supervisory function, we have introduced Outside Directors and as of the end of FY2021, three of the nine members of the Board of Directors are Outside Directors. Reports from the Directors are made twice a year as comprehensive reports on the entire plan. They include details of global warming measures and efforts to realize a carbon-free society, such as progress on the renewable energy development plan. From FY2021, the Zero Emissions Committee will be established with the President as the chairperson responsible for monitoring and overseeing progress against goals and targets for addressing climate-related issues, in order to discuss the goals, action plans, and efforts to strive for net zero of CO2 emissions in 2050 for the entire business of the Chuden group.

C1.1d

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

	Board member(s) have competence on climate-related issues	Criteria used to assess competence of board member(s) on climate-related issues
Row 1	Yes	The Chuden group aims to achieve **decarbonization** and **safety, stability, and efficiency** simultaneously, through innovation in energy infrastructure. This approach permeates all of our management, incorporating all the related skills, so we have not set out items related to decarbonization and environment individually in the skills matrix.

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, 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 monitors the progress of efforts related to assessment and management of climate-related risks and opportunities. Specifically, as a subordinate meeting committee structure of the Board of Directors, Chuden has established the Senior Executive Committee comprised of the President, Vice Presidents, Executive Officers, and the President of Chubu Electric Power Miraiz Company. The Committee is held once a week in principle to hold preliminary discussions on agenda items referred to the Board of Directors. These may typically include management plans, including our response to related national policies such as the Basic Energy Plan. Other substantive matters concerning the execution of operations that are not subject to the above are decided by the President through consultation with the 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	Chuden has in place a commendation system for employees who develop excellent technology relating to climate issues, and a system to provide financial support for employees to achieve the national qualification in energy management.

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
Executive officer	Monetary reward	Emissions reduction target	Chubu Electric Power Miraiz Company, 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.
All employees	Non-monetary reward	Other (please specify) Acquisition of national qualification of Energy Management	Chuden supports the acquisition of the national qualification of Qualified Person for Energy Management by contributing the examination fees. The company also awards 50,000 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 CO2 emissions reductions, and has in place a commendation system awarding prize-money.
All employees	Non-monetary reward	Other (please specify) Chuden Foresters	Chuden has since 2005 conducted 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 to learn knowledge and techniques concerning forest conservation (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, Chuden group formulates a Basic Management Plan, a medium-term management plan for the next five years. This is based on long-term supply and demand plans consisting of demand, sales and procurement plans and the power supply plan, and we develop our various business plans based on it. From the basis of this Basic Management Plan and the business plans, Chuden prepares the budget and business execution plan for the first year.
Medium-term	1	5	Chuden group establishes the Basic Management Plan as a medium-term management plan for the next of five years, and establishes various business plans based on it. We also establish the Medium-term Management Plan, targeting FY 2025.
Long-term	5		In November 2021, Chuden group saw new business opportunities in the rapidly occurring changes in the business environment, including the acceleration of decarbonization policies. We have updated the management vision and compiled **Management Vision 2.0**, which embodies what we aim to achieve by 2030, taking on the challenge of a vision of society in 2050. In this vision, Chuden group announces that it will provide the infrastructure to support transformation to a **decarbonized**, **safe and secure**, and **self-distributed and circular** society and continue to grow together with customers and society. Additionally, Chuden group developed in March 2021 the **Zero Emissions Challenge 2050**, which determines quantitative goals in 2030 and 2050 and includes an ultra-long-term road map for a carbon-free society, and identifies specific initiatives. Chuden also develops each year a supply plan for the next 10 years, in accordance with the Electricity Business Act, and submits it to the Minister of Economy, Trade and Industry.

C2.1b

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

Chuden and its operating companies implement risk management as a unified part of its business within the development of the company-wide management plans, as well as in business plans for each operating company and operating divisions, and specifies as substantial risks any financial or strategic risks that may have significant effects. Chuden group assesses substantial risks based on the amount of financial impact over a decade and categorizes those risks that exceeds a certain level. Regarding climate change, Chuden group recognizes the following risks as having a substantial potential effect on the overall business and takes them into consideration in planning: Environmental Risks, Policy and System Risks, Large Scale Natural Disaster Risks, Energy System Efficiency Risks, Risks in Response to Technology Innovation.

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 and its operating companies, risk owners responsible for each operating company, companies of the Chuden group, 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 Corporate Planning & Strategy Division. For example, Chubu Electric Power Miraiz

Company considers the following risks: carbon tax that may be implemented under climate change and global warming 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, and Chubu Electric Power Grid Co., Inc. 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 **Management Vision 2.0**, Chuden group has reorganized to provide the infrastructure to support transformation to a **decarbonized**, **safe and secure**, and **self-distributed and circular** society and continue to grow together with customers and society. With the realization of our Management Vison in mind, we have undertaken specific efforts centering on the next five years in the Initiatives Pursuing Our Management Vision 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	The Chuden group must observe various national laws and regulations to run its business as an electric power company. Operating companies, divisions, companies of the Chuden group and offices/departments related to the risk assessment process shown in C2.2 judge the necessity for each response. For example, Chubu Electric Power Miraiz Company keeps its current compliance status under review and grasps trends in institutional design including the setting 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 group must observe various national laws and regulations to run its business as an electric power company. Operating companies, Divisions, 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 group as climate change risks. The Corporate Planning & Strategy Division is in charge of grasping the trend of these risks and potential measures against these risks are considered in collaboration with Chubu Electric Power Miraiz Company.
Technology	Relevant, always included	For Chuden group, trends in electric energy related technology development and the introduction of these technologies may have a substantial effect on management, so operating companies, Divisions 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 Chubu Electric Power Grid Company, which considers measures against these risks in collaboration with the Renewable Energy Company and the Research & Development Division.
Legal	Relevant, always included	Considering the goal of 1.5 degrees of the Paris Agreement, the Japanese government decided to aim at carbon neutrality in 2050. With the aim of promoting energy conversion and decarbonization, Japan intends to pursue all kinds of options. In terms of power generation, the direction of measures and policies to promote CO2 emissions reductions consistent with the Long-term Goal of the Paris Agreement has provided. Therefore, Chuden group 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 group requires to be an electric utility company selected by both individual consumers and corporate consumers. Therefore, Chuden group 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 Chubu Electric Power Miraiz Company 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 saving and CO2-free electricity plans from environmentally aware consumers such as RE100.
Reputation	Relevant, always included	Amid the expansion of ESG investment, Chuden group 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 group 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 group'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 group, 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 operating companies, Divisions, and offices/departments including the Corporate Planning & Strategy Division. For example, Chubu Electric Power Grid Company 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 group (9% of power generation source/procurement power supply in FY2021), 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 group's business operates in Japan, and thermal power generation accounts for 73% of the power generated and procured (FY2019 performance) and emits relatively large amounts of greenhouse gases. Therefore, if carbon pricing is introduced, the economic impact will be significant, which is recognized as a critical risk.

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)

350,000,000,000

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

Based on FY2019 CO2 emissions (about 50.56 million t- CO2), performance adopted at the point of risk assessment, the total of carbon pricing was estimated based on the carbon price (industrial countries) of $63/t- CO2 in 2025 in the sustainable scenario of IEA WEO2020, assuming 1$=110 yen.

Cost of response to risk

400,000,000,000

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 group will contribute to the achievement of the emissions intensity target through renewable energy power generation expansion. In regard to renewable energy power sources, we are implementing efforts by setting a target to expand by over 3.2 million kW by around 2030. 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.
In FY2021, we commenced commercial operation of Kurokawadaira Hydroelectric Power Station and are steadily promoting efforts to expand the introduction of renewable energy, such as starting construction work on the Omaezaki Port Biomass Power Plant, the Godo Biomass Power Plant, the Atsumi Wind Power Station, and the Minokamo Biomass Power Plant.

For businesses such as the renewable energy business, Chuden plans to make an investment of approx. 400 billion yen in and after FY2021. In the category of costs for risks, we have entered the amount of this investment plan in and after FY2021.

Comment

Identifier

Risk 2

Where in the value chain does the risk driver occur?

Direct operations

Risk type & Primary climate-related risk driver

Acute physical

Cyclone, hurricane, typhoon

Primary potential financial impact

Increased indirect (operating) costs

Company-specific description

Chubu Electric Power Grid Company owns over 12,000 km of power transmission lines, over 136,000 km of power distribution lines, and over 1,000 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)

Potential financial impact figure – maximum (currency)

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). In 2019 and since then, Chuden has had no disasters with damage greater than was sustained in these events.

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 group has established a disaster prevention system to enable swift restoration. If a disaster occurs or is expected to occur,

Chuden group 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.
Chubu Electric Power Grid Co., Inc. published in December 2021 Draft Targets Set for Introduction of the New Wheeling Charge System. This identified goals such as **prompt and reliable interconnection of new renewable energy** and **improvement of power generation prediction accuracy** in expanding the introduction of renewable energy. We will work proactively and systematically on these goals. In relation to the goal of GHG reduction, efforts will include the introduction of EVs and SF6 gas alternative equipment.
In addition to these, we are specifying the **ideal state** and **concrete efforts** required for cooperation in the event of a disaster, based on the issues and reflection points relating to power outage restoration in the face of massive damage due to Typhoons Jebi and Trami in 2018 and Typhoon Faxai in 2019. Specifically, we are working on the planned introduction of power supply vehicles with standardized specifications, securing in advance the fuel necessary for the power supply vehicles, and fuel transport vehicles. With communities, we discuss and implement planned tree felling to avoid future outages due to fallen trees and delays in restoration work due to impassable roads. In addition, we also implement training in cooperation with general electric transmission and distribution utilities and related organizations. 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.

Comment

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

Chubu Electric Power Grid Company owns over 12,000 km of power transmission lines, over 136,000 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)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

Since it is difficult to estimate future investment amounts with high accuracy, Chuden group 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 Chubu Electric Power Grid Company 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 power 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 Transmission & Distribution Gird Council). At this point, maintenance costs are difficult to isolate, therefore their value has been entered as zero.

Comment

C2.4

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

Yes

C2.4a

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

Identifier

Opp1

Where in the value chain does the opportunity occur?

Direct operations

Opportunity type

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 group serves customers with a huge combined demand of 110 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 that also utilize our non-fossil fuel power sources with annual power generation of about 8.7 billion kWh (result of FY2021).

Time horizon

Medium-term

Likelihood

Very likely

Magnitude of impact

High

Are you able to provide a potential financial impact figure?

Yes, an estimated range

Potential financial impact figure (currency)

Potential financial impact figure – minimum (currency)

80,000,000,000

Potential financial impact figure – maximum (currency)

90,000,000,000

Explanation of financial impact figure

In **Management Vision 2.0** announced in November 2021, Chuden group will continue to target more than 250 billion yen in the consolidated recurring profit in FY2030, and aims to secure 80 - 90 billion yen in sales and power generation business including CO2-free electricity plans.
The amount entered for potential financial impact is the total of sales and power generation business including CO2-free electricity plans in the consolidated recurring profit targeted for FY2030.

Cost to realize opportunity

400,000,000,000

Strategy to realize opportunity and explanation of cost calculation

In relation to renewable energy power sources, Chuden group took the previous goal one step further in **Management Vision 2.0** in November 2021, and set a new goal to expand by over 3.2 million kW by around 2030. We will implement efforts to maximize the environmental benefit to our customers obtained from renewable energy use through possession, construction, and maintenance of renewable energy power generation facilities. For businesses such as the renewable energy business, Chuden plans to make an investment of approx. 400 billion yen in and after FY2021 and recognizes it as a cost of realizing business opportunities.

In FY2021, we commenced commercial operation of Kurokawadaira Hydroelectric Power Station and are steadily promoting efforts to expand the introduction of renewable energy, such as starting construction work on the Omaezaki Port Biomass Power Plant, the Godo Biomass Power Plant, the Atsumi Wind Power Station, and the Minokamo Biomass Power Plant.
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 that will be

invested in the Fund is assumed to be up to 5 billion yen.

Chuden group is also responding to the needs of its consumers interested in reducing environmental burdens by establishing a platform for various ways of trading both electricity and value derived from renewable energy. From April 2020 we started to provide Shinshu Green Electricity, a CO2-free electricity plan that utilizes the CO2-free value and the local production value derived from the hydroelectric power stations etc. in Nagano prefecture, operated by the Nagano Prefecture Enterprise Bureau. After that, in FY2021, we started to provide Mie Umashikuni Green Electricity, Shizuoka Green Electricity, Gifu Clear Stream Green Electricity, and Aichi Green Electricity, and expanded them in five prefectures in the Chubu District.
Additionally, since March 2021 our EV/PHV Plan has provided a service for the installation of EV charging equipment and the one-stop supply of 100% renewable electricity to household customers in the Chubu District who will make an EV/PHV purchase.

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

Chuden group forms an optimal portfolio by combining 4 segments (Green Field, Blue Field, Retail/T&D/New Services and new Technology Field) in global businesses in Management Vision 2.0 for 2050 announced in November 2021 to accelerate efforts for decarbonized energy, mainly in Europe and Asia-Pacific. With efforts for decarbonization and community service, we will increase synergy with domestic businesses.
In FY2020, Chuden and Mitsubishi Corporation jointly acquired Eneco, an integrated energy company operating in Europe (Chuden’s investment ratio: 20%). Eneco is a green energy company that represents Europe, and our knowledge cultivated in our domestic electric power business will be synergistically combined with that of Eneco.

In November 2021, we acquired stocks of Bitexco Power Corporation, which works on hydro power generation, etc. in Vietnam, and are also developing the renewable energy business in Asia. Other key overseas projects in which Chuden is involved are submarine power transmission business for offshore wind power stations in England and Germany, and a project to reduce power distribution losses in Mozambique, projects which help us contribute towards achieving a carbon-free society.

Time horizon

Medium-term

Likelihood

Likely

Magnitude of impact

High

Are you able to provide a potential financial impact figure?

Yes, an estimated range

Potential financial impact figure (currency)

Potential financial impact figure – minimum (currency)

70,000,000,000

Potential financial impact figure – maximum (currency)

80,000,000,000

Explanation of financial impact figure

The amount entered for potential financial impact is the total of overseas energy businesses as part of the consolidated recurring profit targeted for FY2030.

Cost to realize opportunity

100,000,000,000

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, in FY2019 Chuden acquired Eneco, an integrated energy company operating in Europe, at about 4.1 billion euros, through Diamond Chubu Europe B.V. in which it invests jointly with Mitsubishi Corporation (Chuden’s investment ratio: 20%) (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 group 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. Chuden recognizes that the costs required from Diamond Chubu Europe B.V. to acquire Eneco (about 4.1 billion euros) lead to realization of Chuden's opportunities. Therefore, the value of costs for realizing these opportunities has been entered in Japanese yen as the total amount required for acquisition of Eneco (about 4.1 billion euros) multiplied by Chuden's investment ratio (20%).

Comment

Identifier

Opp3

Where in the value chain does the opportunity occur?

Direct operations

Opportunity type

Products and services

Primary climate-related opportunity driver

Development of new products or services through R&D and innovation

Primary potential financial impact

Increased revenues resulting from increased demand for products and services

Company-specific description

Within the service it offers, Chuden group considers decarbonization and low carbonization as a set of three elements, identified as **energy saving**, **energy creation** and **energy activation**, to contribute to the realization of a carbon-free society with its customers.

・Energy saving is an initiative intended to improve the efficiency of customer energy use through operational improvement, solutions integrated with development, and conversion of energy sources, such as electrification.

・Energy creation is an initiative aimed at creation of new non-fossil fuel energy by increasing non-fossil fuel power sources and utilizing unused energy, such as industrial waste heat from customers' plants.

・Energy activation is an initiative focused on expanding the range of energy utilization with local energy production for local consumption, demand response, and introduction of storage batteries and EV.

When these initiatives are carried out together as a set of three elements, our customers can reduce CO2 emissions while solving issues relating to enriched lives and business, and we can reduce CO2 emissions derived from the electricity sold to our customers. This contributes to realizing **Zero Emissions Challenge 2050**, and creates advantages on both sides. Additionally, it is expected that expansion of the demand for our service that provides these advantages will lead to expansion of our profits.

As a specific example of energy saving, Chuden group implemented efforts for energy saving with new electric heaters for the aluminum casting process, an L-shaped high-output heater, co-developed with Yamato. These were installed at the head office factory of Yutaka Industry.
(Yamato Co., Ltd., CEO: Ryuta Tsujii, Head Office: Hirano-ku, Osaka city.)
(Yutaka Industry Co., Ltd., President: Takahiro Ishikawa, Head Office: Nishi-ku, Kobe city.)

Yutaka Industry used both a burner and a heater as heat sources for the melting and holding furnace to maintain the temperature of molten metal in the heating process for aluminum casting. The problem was that energy saving could not be improved because the output of the heater could not be increased.
To use a high-output heater, it was necessary to prevent breakage of the heating wire caused by dry heating, as the device's heater was exposed to the molten metal surface when this was low. Even in such challenge conditions, the newly developed heater was successfully introduced resulting in a 21% energy saving in the holding section of the melting furnace.

Time horizon

Medium-term

Likelihood

Likely

Magnitude of impact

Medium

Are you able to provide a potential financial impact figure?

Yes, an estimated range

Potential financial impact figure (currency)

Potential financial impact figure – minimum (currency)

80,000,000,000

Potential financial impact figure – maximum (currency)

90,000,000,000

Explanation of financial impact figure

The amount entered for potential financial impact is the total of sales and power generation, including new products and service through R&D and technological innovation, as part of the consolidated recurring profit targeted for FY2030.

Cost to realize opportunity

400,000,000,000

Strategy to realize opportunity and explanation of cost calculation

Within the service it offers, Chuden group considers decarbonization and low carbonization as a set of three elements, identified as **energy saving**, **energy creation** and **energy activation**, to work with its customers.
By accumulating technological development and knowledge through these elements, we will further develop the planning and technical strength of **energy saving**, **energy creation**, and **energy activation** in solving customer issues, as well as contributing to the realization of a carbon-free society.
We believe that development of renewable energy will contribute greatly to realize these opportunities. The amount of the investment plan in and after FY2021 that is mainly for expansion of this renewable energy of 3.2 million kW has been entered as the cost of realizing these opportunities.

Comment

C3. Business Strategy

C3.1

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

Row 1

Transition plan

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

Publicly available transition plan

Yes

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

We have a different feedback mechanism in place

Description of feedback mechanism

Chuden group holds an annual management plan briefing meeting as an opportunity to communicate with our stockholders on matters related to the management plan. We use these briefing meetings for obtaining valuable opinions about management goals, for the road map toward Zero Emissions Challenge 2050, and for information disclosure based on the TCFD recommendations.

In addition to the management plan briefing meeting, we hold regular opportunities (generally quarterly) with our stockholders to talk about general business activities, including our response to climate change. We report opinions and indications obtained there to the Senior Executive Committee, and share them with the management layer to reflect them in our management such as the management plan for the next fiscal year.

Frequency of feedback collection

More frequently than annually

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

Chubu Electric Power Group Report 2021（Climate Change）

chudenGR2021_04.pdf

C3.2

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

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

C3.2a

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

Climate-related scenario	Scenario analysis coverage	Temperature alignment of scenario	Parameters, assumptions, analytical choices
Transition scenarios IEA NZE 2050	Company-wide		In May 2019, Chuden expressed agreement with the gist of the TCFD Final Report and implemented the climate change scenario analysis in the TCFD Final Report. As a scenario, Chuden selected the 1.5˚C Scenario (refers to IEA Net Zero by 2050), and based on this Scenario, Chuden conducted the business impact assessment attributable to transition risks and opportunities, with a focus on the middle of this century, and disclosed results in the Group Report 2021 in August 2021. In conducting scenario analysis, Chuden and the operating companies considered that it was appropriate to visualize the transition risks based on the data available from the International Energy Agency (IEA), an international organization conducting research on energy. Having compatibility

			with our business in mind, we decided to refer to the Net Zero by 2050 Scenario which is consistent with limiting the global temperature rise to 1.5 degrees, from IEA. Since our major business is long-term energy supply, we have considered the long-term analysis of transition risk scenarios. We also covered short- and medium-term time axes to analyze impact of transition risks on demand, sales, procurement plans, power source plans, business plans, and medium-term management plans for a single fiscal year. As a result, we identified that for transition risks, measures including decarbonization and low-carbonization of power sources are required. Specific examples are described in C3.3. Chuden invests in JERA Co., Inc., which runs a power generation business including thermal power generation facilities. Since this company has announced that it will strive for zero CO2 emissions in 2050, and will abolish coal-fired power generation and shift the fuel source to ammonia and hydrogen, we consider that the investment in this company is not exposed to the risk of becoming a stranded asset.
Physical climate scenarios RCP 8.5	Company-wide		In May 2019, Chuden expressed agreement with the gist of the TCFD Final Report and implemented the climate change scenario analysis in the TCFD Final Report. As a scenario, Chuden selected the 4 ˚C Scenario (refers to IPCC RCP8.5 scenario), and conducted the business impact assessment attributable to physical risks, with a focus on the middle of this century, and disclosed in Group Report 2021 in August 2021. To conduct scenario analysis for physical risks, Chuden and the operating companies decided to refer to RCP8.5, the 4 ˚C Scenario of IPCC 2014, the Fifth Assessment Report issued by the Intergovernmental Panel on Climate Change (IPCC), in which vast knowledge concerning climate change is accumulated. Since our major business is long-term energy supply, we have considered the long-term analysis of the physical risks scenarios.

			As a result, we identified that for physical risks, enhancement of resilience in the equipment and system is needed. Specific examples are described in C3.3.

C3.2b

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

Row 1

Focal questions

As an electric power supplier, Chuden group recognizes that as part of addressing climate change related trends, management focus will need to be on low carbon and decarbonization of power sources and risks of physical damage on the supply side, and the ability to respond to increasing needs for supply of low-carbon electricity and how to deal with the financial impact of carbon pricing on the demand side.

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

In terms of supply, Chuden and the operating companies are not exposed to risks related to power sources in transition scenarios because we do not have thermal power generation assets using fossil fuel for which low carbon and decarbonization are required amid trends related to climate change.

On the other hand, on the demand side, such as increasing needs for supply of low-carbon electricity and the possibility of achieving the target ratio (44% in FY 2030) of non-fossil fuel power sources specified in the Act on Sophisticated Methods of Energy Supply Structures, we have reached an analysis result that we have a challenge in our anticipated future ability to respond to the increase in low-carbon electricity, there are risks that this will be a factor in decreasing revenue. As a strategy to deal with this issue, we have formulated a plan to expand renewable energy by 3.2 million kW for FY2030, including in-house development. According to our analysis, we can mitigate the impact of the decrease in the revenue by implementing these measures.

C3.3

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

	Have climate-related risks and opportunities influenced your strategy in this area?	Description of influence

Products and services	Yes	Chuden group 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, Chuden group has been promoting the utilization of Hamaoka Nuclear Power Plant, with safety regarded 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 CO2 emissions reductions derived from the operation of the Kurokawadaira Hydroelectric Power Station (170kW), which commenced commercial operation in July 2021, is estimated to be about 500 tons a year. At the same time, Chuden is working, with the Business Development Division established in April 2019 playing a major role, to enhance efforts to implement new businesses in support of our growth strategy. 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 group 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. In order to realize a new form of a community, Chuden group 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, decarbonization, and will promote this effort. In its efforts to create a community-support infrastructure, in the area of energy management, in February 2020 Chuden, jointly with Marubeni Corporation, incorporated

		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 heavy-duty commercial vehicles. In April 2020, Chuden started verification of optimal operation of EV trucks with Meitetsu Transportation Co., Ltd. and S-line Kakamigahara Co., Ltd. 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. In further efforts to realize a carbon-free society, we cooperate with our consumers on developing CO2-free electricity plans, and services for solar power for self-consumption. As a specific example, from April 2020 we started to provide Shinshu Green Electricity, a CO2-free electricity plan that utilizes the CO2-free value and the local production value derived from the hydroelectric power station, etc. in Nagano prefecture, operated by the Nagano Prefecture Enterprise Bureau. After that, In FY2021, we started to provide Mie Umashikuni Green Electricity, Shizuoka Green Electricity, Gifu Clear Stream Green Electricity, and Aichi Green Electricity respectively and expanded them in five prefectures in the Chubu District. We also work on EV/PHV promotion support for the realization of a carbon-free society. As a specific example, Fleet EV Initiative LCC, established jointly with Marubeni Corporation, started a demonstration service of EV buses that has achieved virtually zero CO2 from April 2021, in Iida city, Nagano prefecture. In this demonstration, CO2 zero emission buses, virtually emissions-free, are run on electricity with a non-fossil fuel certificate, which is derived from a photovoltaic power station in Iida city and provided by Chubu Electric Power Miraiz Company as a CO2-free electricity plan. For household customers in the Chubu District who purchase an EV/PHV, we have since March 2021 offered the EV/PHV Plan, a one-stop service to install EV charging equipment and supply 100% renewable electricity.

		Within the service it offers, Chubu Electric Power Miraiz Company considers decarbonization and low-carbon as a set of three elements, identified as energy saving, energy creation and energy activation, to contribute to the realization of a carbon-free society with its customers. ・Energy saving is an initiative intended to improve the efficiency of customer energy use through operational improvement, integrated development solutions, and conversion of energy sources, such as electrification. ・Energy creation is an initiative aimed at creation of new non-fossil fuel energy by increasing non-fossil fuel power sources and utilizing unused energy, such as industrial waste heat from customers' plants. ・Energy activation is an initiative focused on expanding the range of energy utilization with local energy production for local consumption, demand response, and introduction of storage batteries and EVs. When these initiatives are carried out together as a triad of elements, our customers will be able to live affluent lives and solve business issues while reducing CO2 emissions, and we will be able to reduce CO2 emissions from the electricity sold to our customers. This contributes to realizing the Zero Emissions Challenge 2050, and creates benefits for both sides. Additionally, it is expected that expansion of the demand for our services that provide these advantages will lead to expansion of our profits.
Supply chain and/or value chain	Yes	We recognize that for the Chuden group, as an electric power business, procuring the greatest possible decarbonization of electricity is necessary to contribute to realization of a carbon-free society as a response to climate change in our business, and to continue our business. Therefore, to procure power sources, we are actively addressing the procurement of electricity from highly-efficient facilities with relatively low CO2 emissions such as the Nishi-Nagoya Thermal Power Station Unit 7 owned by JERA Co., Inc. and other stations. In C2.3a, we have mentioned as a short-term 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 group 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.
Investment in R&D	Yes	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 group. In this context, Chuden group 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. 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 group 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 saving 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.

		Chuden established its Business Development Division in April 2019 to enhance efforts to develop new businesses aimed at the realization of our growth strategy. 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. Including the above efforts, the total of the research and development costs of the Chuden group as a whole in FY2021 reached 8,979 million yen.
Operations	Yes	Amid the renewable energy expansion, Chuden group works to match supply and demand in the Chubu District and maintains frequency by controlling the output of pumped storage generators, etc., that are connected to power systems. Chuden group 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. On the other hand, to enhance wide-area cooperation, March 2021 saw the beginning of operation of the Hida converter station (0.9 million kW) connecting the 50Hz area (eastern Japan) and the 60Hz area (western Japan). This expanded the power interchange between the 50Hz and 60Hz areas to 2.1 million kW. Chuden group is also striving to secure high power quality and to create facilities rationally, and to respond to advanced output control of renewable energy power generation facilities.

C3.4

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

	Financial planning elements that have been influenced	Description of influence
Row 1	Revenues Capital allocation	Sales） It is projected that our balance of income and expenditure will

	Acquisitions and divestments Access to capital Liabilities	deteriorate due to severe sales competition and changes in the market environment. However, Chuden group aims to achieve the Management Target (over 170 billion yen in consolidated ordinary income in FY2021) and the Management Vision 2.0 (over 250 billion yen in consolidated ordinary income in FY2030) by promoting initiatives on strategic investment in renewable energy. Capital distribution, acquisition) Amid the promotion of ESG management, which continuously increases the corporate value of the Chuden group as a whole, Chuden group strives to realize carbon-free 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 around 400 billion yen in and after FY2021 mainly on renewable energy businesses, 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 group is planning to invest around 100 billion yen for the cumulative five years from FY2019 to FY2023. As a specific example, Chuden and Toho Gas Co., Ltd. (head office: Atsuta ward, Nagoya city, Representative Director & Chairman: Yoshiro Tominari, hereinafter referred to as Toho Gas) agreed to invest in Kumamoto Forest Power Generation LLC (hereinafter referred to as this business company) established by Ene Vision Co., ltd. (headquarters: Chikusa ward, Nagoya city, President & Director: Yasufumi Sudo, hereinafter referred to as “Ene Vision”) and concluded a financing agreement with project finance. This business company is a company created to construct and operate the Yatsushiro Biomass Power Plant with woody biomass single fuel combustion with power output of 75,000kW in Yatsushiro city, Kumamoto prefecture, and aims at becoming operational in June 2024. 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 April 2020, this company started verification concerning optimal operation of EV trucks with Meitetsu Transportation Co, Ltd. and S-line Kakamigahara Co., Ltd. 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 contributing to the realization of a sustainable society. Additionally, in FY2019 Chuden acquired Eneco, an integrated energy company operating in Europe, at about 4.1 billion euros, through Diamond Chubu Europe B.V. in which it jointly investigates with Mitsubishi Corporation (Chuden's investment ratio: 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 group is promoting the creation of a community-support infrastructure arrangement in its Chubu Electric Power Group Management Vision. Chuden group 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 role in Eneco, with its forward-looking practices, bringing together the knowledge of both Chuden and Eneco, and co-evolving their business models. 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. Access to capital) 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 operating 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. Chuden endorsed the TCFD recommendations in May 2019 and in August 2021, disclosed information based on the TCFD recommendations in the Group Report 2021. Assets） Chuden has formulated business plans consistent with Japan's NDC or current energy policies and has been formulating equipment along with them. In these circumstances, in regard to renewable energy, Chuden group 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, expansion of renewable energy by more than 3.2 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 group'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. Liabilities) Chuden group has established a business plan conforming to the 6th energy basic plan in Japan established in October 2021 and is proceeding with capital investment. However, there may be a possibility that the renewable energy power generation facility construction in which investment was made will not progress in the future as planned. If the risks become apparent, debt ratio may deteriorate along with the response costs borne, and Chuden group is therefore constantly monitoring the progress of the investment matter.

C3.5

(C3.5) In your organization's financial accounting, do you identify spending/revenue that is aligned with your organization's transition to a 1.5°C world?

Yes

C3.5a

(C3.5a) Quantify the percentage share of your spending/revenue that is aligned with your organization's transition to a 1.5°C world.

Financial Metric

Revenue

Percentage share of selected financial metric aligned with a 1.5°C world in the reporting year (%)

1

Percentage share of selected financial metric planned to align with a 1.5°C world in 2025 (%)

1

Percentage share of selected financial metric planned to align with a 1.5°C world in 2030 (%)

44

Describe the methodology used to identify spending/revenue that is aligned with a 1.5°C world

The Chuden group product that conforms with a 1.5℃ world consists of sales of electricity with a CO2 emission intensity of zero. Electricity with this specification is available as a contract plan so that customers ranging from extra-high voltage power service consumers to low-voltage power service consumers have this option. As an index, we use the percentage of the electric energy sold with this specification as a percentage of our entire electric energy sales.

Since the selected financial evaluation criteria do not specify the managerial target value of the percentage (%) consistent with a 1.5℃ world in 2025, we reflected the same value as the actual value in the reporting year.

C4. Targets and performance

C4.1

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

Absolute target

Intensity target

C4.1a

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

Target reference number

Abs 1

Year target was set

2021

Target coverage

Other, please specify

Fuel consumed in Chuden’s power generation facilities and fuel consumed to generate electric power for sales purchased from other companies

Scope(s)

Scope 1
Scope 3

Scope 2 accounting method

Scope 3 category(ies)

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

Base year

2013

Base year Scope 1 emissions covered by target (metric tons CO2e)

64,690,000

Base year Scope 2 emissions covered by target (metric tons CO2e)

Base year Scope 3 emissions covered by target (metric tons CO2e)

0

Total base year emissions covered by target in all selected Scopes (metric tons CO2e)

64,690,000

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

94

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

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

100

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

94

Target year

2030

Targeted reduction from base year (%)

50

Total emissions in target year covered by target in all selected Scopes (metric tons CO2e) [auto-calculated]

32,345,000

Scope 1 emissions in reporting year covered by target (metric tons CO2e)

0

Scope 2 emissions in reporting year covered by target (metric tons CO2e)

Scope 3 emissions in reporting year covered by target (metric tons CO2e)

41,582,799

Total emissions in reporting year covered by target in all selected scopes (metric tons CO2e)

41,582,799

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

71.4397928582

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

Target ambition

Please explain target coverage and identify any exclusions

In March 2021, the Chuden group established a goal to reduce CO2 emissions derived from electricity sold to its customers by 50% or more by FY2030 compared with FY2013.

This goal is set based on the SHK system, the calculation method stipulated in Japan's system for accounting, reporting, and disclosing greenhouse gas emissions. When these results are converted to the GHG protocol, they correspond to the volume associated with power generation in Scope 1 and the volume associated with power generation in electricity purchased from other companies in Scope 3: fuel and energy-related activities (not included in Scope 1 or 2).

For the base year, emissions converted to the GHG protocol are not calculated, so the total of target emissions for the base year is described as Scope 1.
On the other hand, for the reporting year, emissions corresponding to Scope 1 and Scope 3 are described. Subtraction of CO2 emissions due to the non-fossil fuel certificate adopted in the SHK system is consequently applied to the value to be reported as Scope 3.
Chuden group will utilize non-fossil energy to the maximum and work on the practical use of hydrogen technology, carbon recycling, etc. to promote decarbonization of electricity to be delivered.

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

Chuden group is working on measures such as utilization of the nuclear power generation and renewable power source development, as set out in Zero Emissions Challenge 2050, to achieve its own CO2 emission reduction goal for FY2030.
In FY2021, Chuden group commenced commercial operation of Kurokawadaira Hydroelectric Power Station and proceeded with the repair of facilities of one photovoltaic power station and existing hydroelectric power stations to expand renewable energy power sources by 38,180 kW. As a result, 19% progress was achieved towards our FY2030 target.

List the emissions reduction initiatives which contributed most to achieving this 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 for sales

Scope(s)

Scope 1
Scope 3

Scope 2 accounting method

Scope 3 category(ies)

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

Intensity metric

Metric tons CO2e per megawatt hour (MWh)

Base year

2013

Intensity figure in base year for Scope 1 (metric tons CO2e per unit of activity)

0.57

Intensity figure in base year for Scope 2 (metric tons CO2e per unit of activity)

Intensity figure in base year for Scope 3 (metric tons CO2e per unit of activity)

0

Intensity figure in base year for all selected Scopes (metric tons CO2e per unit of activity)

0.57

% of total base year emissions in Scope 1 covered by this Scope 1 intensity figure

94

% of total base year emissions in Scope 2 covered by this Scope 2 intensity figure

% of total base year emissions in Scope 3 (in all Scope 3 categories) covered by this Scope 3 intensity figure

100

% of total base year emissions in all selected Scopes covered by this intensity figure

94

Target year

2030

Targeted reduction from base year (%)

35

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

0.3705

% change anticipated in absolute Scope 1+2 emissions

-100

% change anticipated in absolute Scope 3 emissions

0

Intensity figure in reporting year for Scope 1 (metric tons CO2e per unit of activity)

0

Intensity figure in reporting year for Scope 2 (metric tons CO2e per unit of activity)

Intensity figure in reporting year for Scope 3 (metric tons CO2e per unit of activity)

0.382

Intensity figure in reporting year for all selected Scopes (metric tons CO2e per unit of activity)

0.382

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

94.2355889724

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

Target ambition

Please explain target coverage and identify any exclusions

In response to the Japanese government NDC in FY2030 (a 26% reduction from the 2013 level), Chuden group is aiming to achieve the emissions intensity target of 0.37 kg- 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 group has set a quantitative target for expansion of renewable energy to 3.2 million kW or more by around 2030.

This goal is set based on the SHK system, the calculation method stipulated in Japan’s system for accounting, reporting, and disclosing greenhouse gas emissions. When these results are converted to the GHG protocol, they correspond to the volume associated with power generation in Scope 1 and in Scope 3, the volume associated with electric power generation, fuel and energy-related activities (not included in Scope 1 or 2) purchased from other companies.

For the base year, the emissions intensity converted to the GHG protocol is not calculated, so the total of emissions intensity for the base year is described as Scope 1.
On the other hand, for the reporting year, the emissions coefficient corresponding to Scope 1 and Scope 3 is described. Subtraction of CO2 emissions due to the non-fossil fuel certificate adopted in the SHK system is consequently applied to the value to be reported as Scope 3.
The Chuden group will utilize non-fossil energy to the maximum and work on the practical use of hydrogen technology, carbon recycling, etc. to promote decarbonization of electricity to be delivered.

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

Chuden group works on measures such as utilization of the nuclear power generation and renewable power source development set in the Zero Emissions Challenge 2050 to achieve the emissions intensity goal in FY2030 set by the Electric Power Council for a Low Carbon Society (ELCS), in which Chuden group itself participates.
In FY2021, Chuden group commenced commercial operation of the Kurokawadaira Hydroelectric Power Station and proceeded with repair of facilities of one photovoltaic power station and existing hydro power stations to expand renewable energy power sources by 38,180 kW. It also proceeded with procurement of renewable energy power sources other than those of Chuden. As a result, 94% progress was achieved towards our FY2030 emissions intensity target.

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

C4.2

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

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

C4.2a

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

Target reference number

Low 1

Year target was set

2021

Target coverage

Company-wide

Target type: energy carrier

Electricity

Target type: activity

Production

Target type: energy source

Renewable energy source(s) only

Base year

2018

Consumption or production of selected energy carrier in base year (MWh)

2,560

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

7.4

Target year

2030

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

61

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

47

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

73.8805970149

Target status in reporting year

Underway

Is this target part of an emissions target?

This is a part of target reference number Abs1 in C4.1a.

Is this target part of an overarching initiative?

Other, please specify

This is a part of **Zero Emissions Challenge 2050** established March 2021, in which goals for 2030 and 2050 are specified.

Please explain target coverage and identify any exclusions

In regard to renewable energy power sources, Chuden group is implementing efforts by setting a target to expand power by 3.2 million kW or more by around 2030. In addition to in-house development, we support the reach and expansion of renewable energy by concluding electric power sales contracts with power sources owned by other companies, design, procurement, construction, operation, and maintenance, etc. The investment amount is anticipated to be around 400 billion yen in and after

2021. Through this expansion of renewable energy, Chuden group will strive to realize a low-carbon society.

Though the target unit is the installed capacity (kW), we entered “MW” as an alternative unit since the input items of the base year and target year are fixed in “MWh.” Therefore, “Consumption or production of selected energy carrier in base year” means 2,560MW. In addition, as “percentage share of low-carbon or renewable energy in the target year” and “percentage share of low-carbon or renewable energy in the reporting year,” the renewable energy installed capacities mean 5,760MW and 3,168MW respectively.

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

The renewable energy sources in FY2021 increased by 38.2MW because of the new establishment of one photovoltaic power station and hydro power stations, and repair of the facilities of existing hydro power stations. As a result, 19% progress was achieved towards our FY2030 emissions target, when combined with progress towards the FY2020 target.

List the actions which contributed most to achieving this target

C4.2c

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

Target reference number

NZ1

Target coverage

Company-wide

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

Abs1

Target year for achieving net zero

2050

Is this a science-based target?

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

Please explain target coverage and identify any exclusions

On March 23, 2021, the Chuden group announced the **Zero Emissions Challenge 2050** to achieve **decarbonization** and **safety, stability, and efficiency** together with society and customers, through innovation in energy infrastructure.
In this initiative, we challenge ourselves to meet the target of net zero CO2 emissions in 2050, throughout the entire business of the Chuden group, and aim to contribute to realizing a carbon-free society.

Specifically, we will utilize non-fossil energy such as hydro power, wind power, solar power, and nuclear power, and deliver CO2 zero-emission electricity through practical use of next-generation technology utilizing hydrogen and ammonia and decarbonization of fossil fuel to work with electrification and efficiency improvement of energy consumption with customers.

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

Yes

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

The Chuden group Zero Emissions Challenge 2050 envisages the use of the nuclear power plant, the expansion of renewable energy, the utilization of ammonia and hydrogen fuel at thermal power stations, and CCS thermal power generation, as the mix of power sources targeted for 2050.

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

C4.3

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

Yes

C4.3a

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

	Number of initiatives	Total estimated annual CO2e savings in metric tonnes CO2e (only for rows marked *)
Under investigation	0	0
To be implemented*	3	217,800
Implementation commenced*	25	553,251
Implemented*	5	19,810
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)

18,575

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

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

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

Chuden group has constructed a photovoltaic power plant with an output of 34,980kW, as a renewable energy power plant, which started operation in FY2021. Values concerning annual expense reductions and required investment amounts are not disclosed due to business confidentiality, therefore their values have been entered as zero.

Initiative category & Initiative type

Low-carbon energy generation
Small hydropower (<25 MW)

Estimated annual CO2e savings (metric tonnes CO2e)

1,235

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

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

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

Chuden constructed the Kurokawadaira Hydroelectric Power Station with an output of 170kW, which uses the unused head of an existing hydroelectric power station, to be a renewable energy power plant which started operation in July 2021. We also renovated three existing hydroelectric power stations. As a result, in FY 2021 the output at the hydroelectric power stations was increased by 3,200kW in total, with new construction and repair of existing stations.

Values concerning annual expense reductions and required investment amounts are not disclosed due to business confidentiality, therefore their values have 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 group 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 group is addressing the optimal use of energy that leads to better energy saving and CO2 emissions reductions for consumers. Chuden group places emphasis in its budget on provision of a visualization service for electricity/gas usage performance, information on energy saving, and integrated development solutions to make a deep impact on the diversifying on-site issues with our customers to improve energy saving and productivity.
Dedicated budget for low-carbon product R&D	Chuden group is working on development of commercial equipment to support decarbonization, energy saving, and cost saving for consumers' facilities, both overseas and in Japan. For example, we have developed two types of high output immersion heaters that electrify the heating process for aluminum casting and contribute to decarbonization. We are allocating a budget for technology development with a theme of reducing CO2 emissions by improving energy efficiency, including integrated development solutions to

	realize improvement in both product quality and productivity, while saving energy.
Internal price on carbon	Chuden assesses its investment into evaluation of the comparative competitiveness of power sources and renewable energy by setting an in-house carbon price according to published carbon prices in developed countries taken from the latest Sustainable Development Scenario of IEA World Energy Outlook issued by the IEA, as well as the contract prices and ceiling prices in the non-fossil fuel energy value trading market.
Partnering with governments on technology development	Chuden group 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?

Yes

C4.5a

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

Level of aggregation

Group of products or services

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

The EU Taxonomy for environmentally sustainable economic activities

Type of product(s) or service(s)

Power

Hydropower

Description of product(s) or service(s)

As part of our efforts for the realization of a carbon-free society, Chuden group provides electricity derived from hydro power, photovoltaic, and wind power generation, together with a certificate showing power generation facility information, for customers who request a CO2-free power supply with a certificate of origin.

These are commercialized as Aichi Green Electricity, Gifu Clear Stream Green Electricity, Shizuoka Green Electricity, Mie Umashikuni Green Electricity, and Shinshu Green Electricity depending on the prefectures where the power generation facilities are sited.

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

Yes

Methodology used to calculate avoided emissions

Other, please specify

All of these low-carbon products have a zero CO2 emission intensity at the time of power generation. From this, the reduction contribution from low-carbon products is evaluated as the CO2 emission intensity of electricity derived from thermal power generation with low-carbon products excluded.

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

Other, please specify

From manufacturing of a product to use-phase

Functional unit used

Comparison of CO2 emissions of thermal power generation and hydro power generation from generation of electric power of 1kWh to consumption

Reference product/service or baseline scenario used

CO2 emissions from 1kWh of electric power generated by an average thermal power, from generation to consumption

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

Other, please specify

From manufacturing of a product to use-phase

Estimated avoided emissions (metric tons CO2e per functional unit) compared to reference product/service or baseline scenario

0.375

Explain your calculation of avoided emissions, including any assumptions

For estimated savings, we used the average emission intensity for LNG thermal power generation (combined cycle) from the materials of the Agency for Natural Resources and Energy Advisory Committee for Natural Resources and Energy (November, 2015).

We calculated by multiplying our estimate of avoided emissions by the annual sales of low-carbon products. The unit of estimated savings is t-CO2/MWh.

In “Revenue generated from low-carbon product(s) or service(s) as a percentage of total revenue in the reporting year,” the rate of CO2-free electricity, which is a low-carbon product, against the amount of electricity sales in the electricity business is expressed as an integer value.

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

1

C-EU4.6

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

Since methane emissions from our biomass power generation are less than 5% (0.01%) of our entire greenhouse effect gas emissions, we consider that its importance is low.

C5. Emissions methodology

C5.1

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

No

C5.1a

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

Row 1

Has there been a structural change?

No

C5.1b

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

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

C5.2

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

Scope 1

Base year start

April 1, 2019

Base year end

March 31, 2020

Base year emissions (metric tons CO2e)

56,961

Comment

Scope 2 (location-based)

Base year start

April 1, 2019

Base year end

March 31, 2020

Base year emissions (metric tons CO2e)

2,586,938

Comment

Scope 2 (market-based)

Base year start

April 1, 2019

Base year end

March 31, 2020

Base year emissions (metric tons CO2e)

2,582,755

Comment

Scope 3 category 1: Purchased goods and services

Base year start

April 1, 2019

Base year end

March 31, 2020

Base year emissions (metric tons CO2e)

652,953

Comment

Scope 3 category 2: Capital goods

Base year start

April 1, 2019

Base year end

March 31, 2020

Base year emissions (metric tons CO2e)

513,097

Comment

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

Base year start

April 1, 2019

Base year end

March 31, 2020

Base year emissions (metric tons CO2e)

55,487,065

Comment

Scope 3 category 4: Upstream transportation and distribution

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

As a result of analyzing the status of in-house Scope 3 emissions in 2015, Chuden group judged it insignificant, since the percentage in the entire business is very little (less than 0.01%), and did not include it in the target calculation.

Scope 3 category 5: Waste generated in operations

Base year start

April 1, 2019

Base year end

March 31, 2020

Base year emissions (metric tons CO2e)

8,027

Comment

Scope 3 category 6: Business travel

Base year start

April 1, 2019

Base year end

March 31, 2020

Base year emissions (metric tons CO2e)

5,636

Comment

Scope 3 category 7: Employee commuting

Base year start

April 1, 2019

Base year end

March 31, 2020

Base year emissions (metric tons CO2e)

10,234

Comment

Scope 3 category 8: Upstream leased assets

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

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

Scope 3 category 9: Downstream transportation and distribution

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

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

Scope 3 category 10: Processing of sold products

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

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

Scope 3 category 11: Use of sold products

Base year start

April 1, 2019

Base year end

March 31, 2020

Base year emissions (metric tons CO2e)

2,567,696

Comment

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

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

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

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

Scope 3 category 13: Downstream leased assets

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

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

Scope 3 category 14: Franchises

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Chuden group does not conduct any franchise business.

Scope 3 category 15: Investments

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

It is confirmed that since FY2018, we have not conducted any of the relevant activities.

Scope 3: Other (upstream)

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

The value is not calculated, as it is an optional category.

Scope 3: Other (downstream)

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

The value is not calculated, as it is an optional category. The value is not calculated, as it is an optional category.

C5.3

(C5.3) 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, Superceded 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)

102,258

Comment

C6.2

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

Row 1

Scope 2, location-based

We are reporting a Scope 2, location-based figure

Scope 2, market-based

We are reporting a Scope 2, market-based figure

Comment

C6.3

(C6.3) What were your organization's gross global Scope 2 emissions in metric tons CO2e?

Reporting year

Scope 2, location-based

2,904,562

Scope 2, market-based (if applicable)

2,882,849

Comment

C6.4

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

No

C6.5

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

Purchased goods and services

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO2e)

709,105

Emissions calculation methodology

Other, please specify

Calculated using an emissions intensity 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

Emissions in reporting year (metric tons CO2e)

476,692

Emissions calculation methodology

Other, please specify

Calculated using an emissions intensity 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

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

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO2e)

53,404,733

Emissions calculation methodology

Other, please specify

Calculated using an emissions intensity 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

100

Please explain

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

Not relevant, explanation provided

Please explain

As a result of analyzing the status of in-house Scope 3 emissions in 2015, Chuden group judged it insignificant, since the percentage in the entire business is very little (less than 0.01%) and did not include it in the target of calculation.

Waste generated in operations

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO2e)

7,690

Emissions calculation methodology

Other, please specify

Calculated using an emissions intensity 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

Emissions in reporting year (metric tons CO2e)

1,812

Emissions calculation methodology

Other, please specify

Calculated using an emissions intensity 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

Emissions in reporting year (metric tons CO2e)

13,023

Emissions calculation methodology

Other, please specify

Calculated using an emissions intensity 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

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

Please explain

As a result of analyzing the status of in-house Scope 3 emissions in 2015, Chuden group 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

Please explain

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

Use of sold products

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO2e)

2,837,961

Emissions calculation methodology

Other, please specify

Calculated using an emissions intensity 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

Please explain

As a result of analyzing the status of in-house Scope 3 emissions in 2015, Chuden group 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

Please explain

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

Franchises

Evaluation status

Not relevant, explanation provided

Please explain

Chuden group does not conduct any franchise business.

Investments

Evaluation status

Not relevant, explanation provided

Please explain

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

Other (upstream)

Evaluation status

Not evaluated

Please explain

The value is not calculated as it is an optional category.

Other (downstream)

Evaluation status

Not evaluated

Please explain

The value is not calculated as it is an optional category.

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

0.0000013668

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

2,980,879

Metric denominator

unit total revenue

Metric denominator: Unit total

2,180,931,000,000

Scope 2 figure used

Market-based

% change from previous year

23.8

Direction of change

Increased

Reason for change

Intensity figure increased as economic conditions worsened due to the impact of COVID-19, the sales profit of the electricity business declined. For SF6 emission that amounts to about 40% of Scope 1 emissions, Chuden continuously sets a high goal to curb the emissions rate at equipment checking to below 3% and the emission rate at equipment disposal to 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 CO2e)	GWP Reference
CO2	10,565	IPCC Fourth Assessment Report (AR4 - 100 year)
CH4	4,978	IPCC Fourth Assessment Report (AR4 - 100 year)
N2O	43,144	IPCC Fourth Assessment Report (AR4 - 100 year)

HFCs	1,428	IPCC Fourth Assessment Report (AR4 - 100 year)
SF6	42,143	IPCC Fourth Assessment Report (AR4 - 100 year)

C-EU7.1b

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

	Gross Scope 1 CO2 emissions (metric tons CO2)	Gross Scope 1 methane emissions (metric tons CH4)	Gross Scope 1 SF6 emissions (metric tons SF6)	Total gross Scope 1 emissions (metric tons CO2e)	Comment
Fugitives	0	0	1.85	43,571	
Combustion (Electric utilities)	251	199	0	48,373	
Combustion (Gas utilities)	0	0	0	0	
Combustion (Other)	10,314	0	0	10,314	
Emissions not elsewhere classified	0	0	0	0	

C7.2

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

Country/Region	Scope 1 emissions (metric tons CO2e)
Japan	102,258

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 generation	52,634
Power transmission and distribution	42,143
Vehicle operation, etc.	7,481

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	102,258	

C7.9

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

Increased

C7.9a

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

	Change in emissions (metric tons CO2e)	Direction of change	Emissions value (percentage)	Please explain calculation
Change in renewable energy consumption	0	No change	0	
Other emissions reduction activities	282,082	Increased	8.41	Due to increase in transmission and distribution loss. Calculated by comparing the value calculated by subtracting the emissions due to "change in output" from the total of Scope 1+2 for the current fiscal year with the similar value for the previous fiscal year. [{(102,258+2,882,849)[t-CO2e](total of Scope 1+2 for the current fiscal year) - 48,373[t-CO2e](volume caused by operations of the Yokkaichi Biomass Power Plant in Scope 1 for the current fiscal year) - (112,180+2,646,338)[t-

				CO2e](total of Scope 1+2 for the previous fiscal year)-53,866[t-CO2e](volume caused by operations of the Yokkaichi Biomass Power Plant in Scope 1 for the previous fiscal year)}／(112,180+2,646,338)[t-CO2e](total of Scope 1+2 for the previous fiscal year)]×100
Divestment	0	No change	0	
Acquisitions	0	No change	0	
Mergers	0	No change	0	
Change in output	5,493	Decreased	0.2	Due to decrease in biomass power generation. Calculated from the difference of emissions from operation of the Yokkaichi Biomass Power Plant in Scope 1 between the current fiscal year and the previous fiscal year. (48,373[t-CO2e](volume caused by operation of the Yokkaichi Biomass Power Plant in Scope 1 for the current fiscal year) - 53,866[t-CO2e](volume caused by operations of the Yokkaichi Biomass Power Plant in Scope 1 for the previous fiscal year)／(112,180+2,646,338)[t-CO2e](total of Scope 1+2 for the previous fiscal year))×100
Change in methodology	0	No change	0	
Change in boundary	0	No change	0	
Change in physical operating conditions	0	No change	0	
Unidentified	0	No change	0	
Other	0	No change	0	

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

(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)	744,672	43,513	788,185
Consumption of purchased or acquired electricity		0	402,127	402,127
Consumption of self-generated non-fuel renewable energy		474		474
Total energy consumption		745,146	445,640	1,190,786

C8.2b

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

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

C8.2c

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

Sustainable biomass

Heating value

HHV

Total fuel MWh consumed by the organization

744,672

MWh fuel consumed for self-generation of electricity

744,672

MWh fuel consumed for self-generation of heat

0

Comment

In Chuden's biomass power plants, wood pellets and Palm Kernel Shell (PKS) are used for fuel. For wood pellets, which are used in larger amounts, an FSC certificate is obtained for the total amount used. For PKS, we are in the grace period before application of the certification standard.
Therefore, our biomass power plants fall into the category of sustainable biomass power plants.

Other biomass

Heating value

HHV

Total fuel MWh consumed by the organization

0

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

0

Comment

Chuden does not own any biomass power plants that are not sustainable.

Other renewable fuels (e.g. renewable hydrogen)

Heating value

HHV

Total fuel MWh consumed by the organization

0

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

0

Comment

Chuden does not own any facilities using renewable fuel other than sustainable biomass power plants.

Coal

Heating value

HHV

Total fuel MWh consumed by the organization

0

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

0

Comment

Chuden and the operating companies do not own any facilities fueled by coal.

Oil

Heating value

HHV

Total fuel MWh consumed by the organization

42,078

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

0

Comment

Gas

Heating value

HHV

Total fuel MWh consumed by the organization

1,411

MWh fuel consumed for self-generation of electricity

1,411

MWh fuel consumed for self-generation of heat

0

Comment

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

Heating value

HHV

Total fuel MWh consumed by the organization

25

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

0

Comment

Total fuel

Heating value

HHV

Total fuel MWh consumed by the organization

788,186

MWh fuel consumed for self-generation of electricity

746,083

MWh fuel consumed for self-generation of heat

0

Comment

C-EU8.2d

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

Coal – hard

Nameplate capacity (MW)

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 and operating companies do 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 and operating companies do 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

The operating company of Chuden own 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 conducted in FY2021, however, both electricity generation (GWh) and absolute scope 1 emissions (metric tons CO2e) are less than 1, therefore their value has been entered as zero.

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

Chuden and operating companies do not own any power generation facility using gas as fuel.

Sustainable biomass

Nameplate capacity (MW)

49

Gross electricity generation (GWh)

0

Net electricity generation (GWh)

315

Absolute scope 1 emissions (metric tons CO2e)

0

Scope 1 emissions intensity (metric tons CO2e per GWh)

0

Comment

In Chuden's biomass power plants, wood pellets and Palm Kernel Shell (PKS) are used for fuel. For wood pellets, which are used in larger amounts, an FSC certificate is obtained for the total amount used. For PKS, we are in the grace period before application of the certification standard.
Therefore, our biomass power plants fall into the category of sustainable biomass power plants.
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.

Other 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 and the operating companies do not own any biomass power generation facilities that are not sustainable.

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 and operating companies do 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 FY2021.

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 and operating companies do not own any fossil-fueled plants 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 and operating companies do not own any geothermal power generation facilities.

Hydropower

Nameplate capacity (MW)

5,466

Gross electricity generation (GWh)

0

Net electricity generation (GWh)

8,303

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)

38

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)

16.5

Gross electricity generation (GWh)

0

Net electricity generation (GWh)

25

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 and the operating companies do not own any renewable energy power generation facilities other than hydro power, wind power, photovoltaic, or sustainable biomass facilities.

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 and the operating companies do not own any renewable energy power generation facilities other than hydro power, wind power, photovoltaic, or sustainable biomass facilities.

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 and the operating companies do not own any renewable energy power generation facilities other than hydro power, wind power, photovoltaic, or sustainable biomass facilities.

Total

Nameplate capacity (MW)

9,170.9

Gross electricity generation (GWh)

0

Net electricity generation (GWh)

8,681

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 of Chuden and operating companies will be information related to capacity factor, therefore it was not disclosed due to business confidentiality and its value has been entered as zero.

C8.2g

(C8.2g) Provide a breakdown of your non-fuel energy consumption by country.

Country/area

Japan

Consumption of electricity (MWh)

402,127

Consumption of heat, steam, and cooling (MWh)

0

Total non-fuel energy consumption (MWh) [Auto-calculated]

402,127

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)

127,468

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)

11,983

Number of connections

6

Area covered (km2)

39,000

Comment

The energy loss is 4.95% 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)

127,468

Annual energy losses (% of annual load)

4.95

Scope where emissions from energy losses are accounted for

Scope 2 (market-based)

Emissions from energy losses (metric tons CO2e)

2,730,441

Length of network (km)

135,702

Number of connections

0

Area covered (km2)

39,000

Comment

The energy loss is 4.95% throughout transmission and distribution, thus we provided the collective value on the distribution side, which accounts for the major part of the line length.
The emissions from energy losses (metric tons CO2e) were calculated by using the national average emission intensity in FY2020 (0.433kg-CO2/kWh) instead of that for 2021, which is not disclosed.

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 organization's CAPEX in the reporting year and CAPEX planned over the next 5 years.

Coal – hard

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

0

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

0

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

0

Explain your CAPEX calculations, including any assumptions

Chuden and the operating companies do not own any power generation facilities fueled by coal. No investment is planned to acquire such facilities in the next five years.

Lignite

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

0

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

0

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

0

Explain your CAPEX calculations, including any assumptions

Chuden and the operating companies do not own any power generation facilities fueled by lignite. No investment is planned to acquire such facilities in the next five years.

Oil

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

0

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

0

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

0

Explain your CAPEX calculations, including any assumptions

The operating companies of Chuden own one petroleum-fueled thermal power station (400kW) for backup use in case of disruption of supply to remote islands (with only one transmission line). For the next five years, no systematic CAPEX is planned.

Gas

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

0

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

0

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

0

Explain your CAPEX calculations, including any assumptions

Chuden and the operating companies do not own any power generation facilities fueled by natural gas. No investment is planned to acquire such facilities in the next five years.

Sustainable biomass

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

0

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

0

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

0

Explain your CAPEX calculations, including any assumptions

Chuden and the operating companies plan to invest 100 billion yen in renewable energy from FY2019 to FY2023 and 400 billion yen mainly in the renewable energy business in and after FY2021. In these investments, the investment amount for each type of renewable energy is not specified, therefore, for CAPEX concerning renewable energy power sources in the next five years, the amount in and after FY2021 is collectively listed as hydroelectric power generation.
The actual amount of capital investment for each power source type for power generation in the reporting year is not disclosed due to business confidentiality. Instead, we calculated using the amount of capital investment excluding the electric power network for transmission, transformation, distribution and retail of electric power, and this was collectively listed as hydroelectric power generation.

Other biomass

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

0

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

0

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

0

Explain your CAPEX calculations, including any assumptions

Chuden and the operating companies do not own any power generation facilities fueled by biomass that is not sustainable. No investment is planned to acquire such facilities in the next five years.

Waste (non-biomass)

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

0

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

0

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

0

Explain your CAPEX calculations, including any assumptions

Chuden and the operating companies do not own any power generation facilities fueled by waste.

Chuden and the operating companies plan to invest 100 billion yen in renewable energy from FY2019 to FY2023 and 400 billion yen mainly in the renewable energy business in and after FY2021. In these investments, the investment amount for each type of renewable energy is not specified, therefore, for CAPEX concerning renewable energy power sources in the next five years, the amount in and after FY2021 is collectively listed as hydroelectric power generation.

The actual amount of capital investment for each power source type for power generation in the reporting year is not disclosed due to business confidentiality. Instead, we calculated using the amount of capital investment excluding the electric power network for transmission, transformation, distribution and retail of electric power, and this was collectively listed as hydroelectric power generation.

Nuclear

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

0

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

0

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

0

Explain your CAPEX calculations, including any assumptions

Chuden owns one nuclear power plant comprising three reactors.
Two of the reactors are undergoing review by the Nuclear Regulation Authority, which is necessary prior to restart, and the scale and contents of necessary facility repair will be clarified according to the screening results. Therefore, the amount and ratio of CAPEX for the nuclear power generation facilities in the next five years were entered as zero since they cannot be clearly stated at this time.

Geothermal

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

0

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

0

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

0

Explain your CAPEX calculations, including any assumptions

Chuden and the operating companies do not own geothermal power generation facilities.
Chuden and the operating companies plan to invest 100 billion yen in renewable energy from FY2019 to FY2023 and 400 billion yen mainly in the renewable energy business in and after FY2021. In these investments, the investment amount for each type of renewable energy is not specified, therefore, for CAPEX concerning renewable energy power sources in the next five years, the amount in and after FY2021 is collectively listed as hydroelectric power generation.
The actual amount of capital investment for each power source type for power generation in the reporting year is not disclosed due to business confidentiality. Instead, we calculated using the amount of capital investment excluding the electric power network for transmission, transformation, distribution and retail of electric power, and this was collectively listed as hydroelectric power generation.

Hydropower

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

95,200,000,000

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

23.8

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

100

Explain your CAPEX calculations, including any assumptions

Chuden and the operating companies plan to invest 100 billion yen in renewable energy from FY2019 to FY2023 and 400 billion yen mainly in the renewable energy business in and after FY2021. In these investments, the investment amount for each type of renewable energy is not specified, therefore, for CAPEX concerning renewable energy power sources in the next five years, the amount in and after FY2021 is collectively listed as hydroelectric power generation.
The actual amount of capital investment for each power source type for power generation in the reporting year is not disclosed due to business confidentiality. Instead, we calculated using the amount of capital investment excluding the electric power network for transmission, transformation, distribution and retail of electric power, and this was collectively listed as hydroelectric power generation.

Wind

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

0

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

0

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

0

Explain your CAPEX calculations, including any assumptions

Chuden and the operating companies plan to invest 100 billion yen in renewable energy from FY2019 to FY2023 and 400 billion yen mainly in the renewable energy business in and after FY2021. In these investments, the investment amount for each type of renewable energy is not specified, therefore, for CAPEX concerning renewable energy power sources in the next five years, the amount in and after FY2021 is collectively listed as hydroelectric power generation.
The actual amount of capital investment for each power source type for power generation in the reporting year is not disclosed due to business confidentiality. Instead, we calculated using the amount of capital investment excluding the electric power network for transmission, transformation, distribution and retail of electric power, and this was collectively listed as hydroelectric power generation.

Solar

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

0

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

0

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

0

Explain your CAPEX calculations, including any assumptions

Chuden and the operating companies plan to invest 100 billion yen in renewable energy from FY2019 to FY2023 and 400 billion yen mainly in the renewable energy business in and after FY2021. In these investments, the investment amount for each type of renewable energy is not specified, therefore, for CAPEX concerning renewable energy power sources in the next five years, the amount in and after FY2021 is collectively listed as hydroelectric power generation.
The actual amount of capital investment for each power source type for power generation in the reporting year is not disclosed due to business confidentiality. Instead, we calculated using the amount of capital investment excluding the electric power network for transmission, transformation, distribution and retail of electric power, and this was collectively listed as hydroelectric power generation.

Marine

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

0

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

0

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

0

Explain your CAPEX calculations, including any assumptions

Chuden and the operating companies do not own marine power generation facilities.
Chuden and the operating companies plan to invest 100 billion yen in renewable energy from FY2019 to FY2023 and 400 billion yen mainly in the renewable energy business in and after FY2021. In these investments, the investment amount for each type of renewable energy is not specified, therefore, for CAPEX concerning renewable energy power sources in the next five years, the amount in and after FY2021 is collectively listed as hydroelectric power generation.
The actual amount of capital investment for each power source type for power generation in the reporting year is not disclosed due to business confidentiality.

Instead, we calculated using the amount of capital investment excluding the electric power network for transmission, transformation, distribution and retail of electric power, and this was collectively listed as hydroelectric power generation.

Fossil-fuel plants fitted with CCS

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

0

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

0

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

0

Explain your CAPEX calculations, including any assumptions

Chuden and the operating companies do not own any fossil fuel plants equipped with CCS. No investment is planned to acquire such facilities in the next five years.

Other renewable (e.g. renewable hydrogen)

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

0

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

0

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

0

Explain your CAPEX calculations, including any assumptions

Chuden and the operating companies do not own any other renewable fuel power generation facilities.

Chuden and the operating companies plan to invest 100 billion yen in renewable energy from FY2019 to FY2023 and 400 billion yen mainly in the renewable energy business in and after FY2021. In these investments, the investment amount for each type of renewable energy is not specified, therefore, for CAPEX concerning renewable energy power sources in the next five years, the amount in and after FY2021 is collectively listed as hydroelectric power generation.

The actual amount of capital investment for each power source type for power generation in the reporting year is not disclosed due to business confidentiality. Instead, we calculated using the amount of capital investment excluding the electric

power network for transmission, transformation, distribution and retail of electric power, and this was collectively listed as hydroelectric power generation.

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

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

0

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

0

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

0

Explain your CAPEX calculations, including any assumptions

Chuden and the operating companies do not own any non-renewable fuel power generation facilities other than the above. No investment is planned to acquire such facilities in the next five years.

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	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 group. In this context, Chuden group 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 decarbonized society through energy businesses ranging from generation, transmission and distribution to selling electricity. 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 group 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 saving 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 realization of a carbon-free society.

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 saving support system for die-cast facilities, development of circulation warming heat pump **Q-ton circulation** Development of the technology for the energy-saving efforts by

				innovative regeneration system of cleaning liquid, development of the technology for the energy saving with realization of a low pressure casting process for CO2-free power
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	Full/commercial-scale 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	Third-party verification or assurance process in place
Scope 2 (location-based or market-based)	Third-party verification or assurance process in place
Scope 3	Third-party verification or assurance process in place

C10.1a

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

Verification or assurance cycle in place

Annual process

Status in the current reporting year

Underway but not complete for current reporting year – first year it has taken place

Type of verification or assurance

Limited assurance

Attach the statement

Page/ section reference

Relevant standard

ISAE3000

Proportion of reported emissions verified (%)

100

C10.1b

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

Scope 2 approach

Scope 2 market-based

Verification or assurance cycle in place

Annual process

Status in the current reporting year

Underway but not complete for current reporting year – first year it has taken place

Type of verification or assurance

Limited assurance

Attach the statement

Page/ section reference

Relevant standard

ISAE3000

Proportion of reported emissions verified (%)

100

C10.1c

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

Scope 3 category

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

Verification or assurance cycle in place

Annual process

Status in the current reporting year

Underway but not complete for current reporting year – first year it has taken place

Type of verification or assurance

Limited assurance

Attach the statement

Page/section reference

Relevant standard

ISAE3000

Proportion of reported emissions verified (%)

100

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, we do not verify any other climate-related information reported in our CDP disclosure

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, 2021

Period end date

March 31, 2022

% of total Scope 1 emissions covered by tax

5.9

Total cost of tax paid

1,749,462

Comment

The target of the global warming tax in Scope 1 CO2 emissions of Chuden and the operating companies is fuel for vehicles used mainly in the business operation.
We calculated the total amount based on this fuel consumption (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 group 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 a target to expand by over 3.2 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 group is planning to invest around 400 billion yen in total mainly in renewable energy power source development in and after FY2021 by positioning the development of renewable energy power source as a strategic investment.
We have also set up a goal to electrify 100% of the vehicles owned by our company and the operating companies by 2030, except for vehicles not suitable for electrification.

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

No

C11.3

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

Yes

C11.3a

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

Objective for implementing an internal carbon price

Stress test investments

GHG Scope

Scope 1
Scope 3

Application

Assessment of investment for power sources such as renewable energy.
Assessment of costs of complying with regulations, including achievement of the target specified in the Act on Sophisticated Methods of Energy Supply Structures (non-fossil fuel power source ratio of 44%) and costs to achieve in-house goals.
Assessments of power source competitiveness after the potential introduction of carbon pricing. Establishment of a power source development plan which takes into account the impact of CO2 price rises.

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

7,700

Variance of price(s) used

The internal price of carbon required for power source investment is not disclosed due to business confidentiality.
On the other hand, the internal carbon price other than power source investment is set in the range from 4400 to 11000 yen/t-CO2 in FY2030 according to the coverage. In the previous clause, we entered the median in this range as an answer.
These internal carbon prices are set by referring to the published policy scenario of WEO issued by IEA and the Sustainable Development Scenario.

Type of internal carbon price

Shadow price

Impact & implication

Since Chuden group's thermal power generation accounts for 70% of the amount of power generated and procured (FY2020 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 FY2022 compiled by the Corporate Planning & Strategy Division, Chuden group 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 Method of Energy Supply Structures and the goal of CO2 emission reduction in the retail electricity business in FY2030. By utilizing the results of these evaluations and examinations, in Management Vision 2.0 announced in November 2021, we increased the goal of renewable energy power source development for FY2030 from the previous 2 million kW to 3.2 million kW.

C12. Engagement

C12.1

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

Yes, our suppliers
Yes, our customers/clients
Yes, other partners in the value chain

C12.1a

(C12.1a) Provide details of your climate-related supplier engagement strategy.

Type of engagement

Information collection (understanding supplier behavior)

Details of engagement

Collect climate change and carbon information at least annually from suppliers

% of suppliers by number

1

% total procurement spend (direct and indirect)

38

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

0

Rationale for the coverage of your engagement

More than 90% of CO2 emissions stemming from the business activities of the Chuden group is attributed to procurement of thermal power sources, which account for more than 70% of the electric energy sold. The transaction value with JERA Co., Inc., one of the suppliers of thermal power sources, accounts for more than 38% of the operating cost of the entire electricity business. Therefore, we set JERA Co., Inc., the majority supplier of thermal power sources, as a target of engagement.
The ratio of the number of suppliers was not disclosed due to business confidentiality, and we entered 1 for JERA Co., Inc.
The rate of Scope 3 supplier-related emissions reported in C6.5 is almost equivalent to the ratio of thermal power source suppliers. This figure was not disclosed due to business confidentiality, and we entered zero.

Impact of engagement, including measures of success

Chuden has dispatched a director to JERA Co., Inc., to monitor the establishment and implementation of the management plan, including promotion of decarbonization, which includes such approaches as development of ammonia co-firing at coal fired power generation and single-fuel ammonia combustion technology in the power generation business. Under this management system, the index of success

evaluation will be the realization of milestones toward decarbonization, including the demonstration of 20% ammonia co-firing at a coal-fired power plant in FY2030, set by JERA.

Comment

As a thermal power source supplier of the Chuden group in FY2021, JERA Co., Inc. is the biggest business partner. The percentage of thermal power source procurement was not disclosed due to business confidentiality. As an alternative, we entered the percentage of the transaction value with JERA Co., Inc. as part of the operating cost of the entire electricity business as the “percentage of total procurement spend.”

C12.1b

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

Type of engagement & Details of engagement

Collaboration & innovation
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

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

As a specific example of energy saving, Chuden group implemented efforts for energy saving with new electric heaters for the aluminum casting process, an L-shaped high-output heater, co-developed with Yamato. These were installed at the head office factory of Yutaka Industry Co., Ltd.
(Yamato Co., Ltd., CEO: Ryuta Tsujii, Head Office: Hirano-ku, Osaka city.)
(Yutaka Industry Co., Ltd, President: Takahiro Ishikawa, Head Office: Nishi-ku, Kobe city)
We selected Yamato as our partner for this joint development because we recognized its high technological development capabilities from its track record of developing several types of high output electric heaters in cooperation with Chuden over the last eight years.

Impact of engagement, including measures of success

The Chuden group 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.

We set out **integrated development solutions** to make deep inroads into customer

on-site diversifying issues to improve energy saving and productivity, which also includes the project presented this time.
We will continue to meet customer expectations for energy saving and CO2 reduction, by providing various solution services which capture the needs of customers.

Yutaka Industry used both a burner and a heater as heat sources for the melting and holding furnace to maintain the temperature of molten metal in the heating process for aluminum casting. The problem was that energy saving could not be improved because the output of the heater could not be increased.
To use a high output heater, it was necessary to prevent breakage of the heating wire caused by dry heating, as the device's heater was exposed to the molten metal surface when this was low. Even in such challenging conditions, the newly developed heater was successfully introduced, resulting in a 21% energy saving in the holding section of the melting furnace.

In addition, Chuden group started to offer the deliverables of this joint development commercially as two types of development product, according to the needs of customers: AL HYPER L for low molten metal surface and AL HYPER MAX for ultra high output.

The jointly developed technologies, AL HYPER L and AL HYPER MAX for ultra-high output, are deployed as a percentage of the number of our customers. This value was very small at the end of 2021, and we entered 0.01, the minimum value that can be entered in the system.

This initiative of Yutaka Industry, Yamato, and Chuden group received the Chairman Prize of ECCJ in the energy saving case study division of the Energy Conservation Grand Prize 2021 (a system which awards excellent energy saving efforts in divisions of industries, operations, and transportation in Japan, and advanced highly efficient energy saving products, etc.). This was awarded by 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 saving 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 group offers everything from design and construction to operation and maintenance of the equipment. In addition, Chuden group has started offering one-stop services to fulfil the diverse and advanced

needs of customers such as energy saving, 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 group 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 saving efforts.

In addition, on November 17, 2021, Chuden group concluded an agreement to implement offsite PPA (*) service with Tokai Rika.
(Tokai Rika Co., Ltd., President: Hiroyoshi Ninoyu, Head Office: Oguchi-cho, Niwa-gun, Aichi prefecture.)
(*) PPA: Power Purchase Agreement. Offsite PPA is the purchase of electric power from power generation facilities installed in a remote location rather than on-site.

In this service, a group company of Chubu Electric Power Miraiz Company installs and operates a photovoltaic power plant (panel output 1,232kW, expected annual power generation 1,300,000kWh) dedicated to Tokai Rika in Nagano prefecture, and Chubu Electric Power Miraiz Company supplies generated electric power to Tokai Rika. Commencement of the project is planned for December 2022. Tokai Rika will realize CO2-free generation of the relevant electric power by using it at the head office and the head office plant.
Tokai Rika will also contribute to renewable energy development activities in Nagano prefecture by procuring Shinshu Green Electricity, utilizing the hydroelectric power stations in Nagano prefecture. This effort will reduce the head office and head office plant annual CO2 emissions by approx. 600 tons.
Tokai Rika and Chuden are planning the joint construction of a system which will promote decarbonization using renewable electricity and will accelerate the effort towards carbon-neutral activities, to contribute to CO2 reduction.

C12.2

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

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

C12.2a

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

Climate-related requirement

Other, please specify

In Chubu Electric Power Group Basic Procurement Policy and What We Ask of Our Partners, we request cooperation with the Reduction of the Environmental Burden

Description of this climate related requirement

To reduce the environmental burden, the following (1) - (3) are what we request in What We Ask of Our Partners.
(1) Build an internal management system concerning the environment and provide appropriate training to personnel
(2) Promote green procurement to contribute to low carbon and preserve biodiversity
(3) Suggest ways to make materials, equipment, construction methods, etc. more eco-friendly (energy conservation, recycling, and so on)

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

100

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

100

Mechanisms for monitoring compliance with this climate-related requirement

Second-party verification

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

Other, please specify

We request feedback on verification results and request for improvement.

C12.3

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

Row 1

Direct or indirect engagement that could influence policy, law, or regulation that may impact the climate

Yes, we engage indirectly through trade associations

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

Yes

Attach commitment or position statement(s)

Chubu Electric Power Group Report 2021: P17-24

Describe the process(es) your organization has in place to ensure that your engagement activities are consistent with your overall climate change strategy

The Corporate Planning & Strategy Division reports monthly and shares the contents of the Japan Business Federation and the Federation of Electric Power Companies of Japan, and Chubu Electric Power Grid Co., Inc. reports as necessary and shares the contents of Transmission and Distribution Grid Council with management at the Senior Executive Committee. This practice enables us to reflect in a timely manner any trends that may affect climate change policies, items related to the government and industrial areas, general business activities of electric utility companies, specific activity areas to response measures and the Management Plans of Chuden group. In addition, Chuden facilitates communication with these organizations not only at management levels but also at practical levels to form a structure capable of responding in a timely manner.

C12.3b

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

Trade association

Japan Business Federation (Keidanren)

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

Consistent

Has your organization influenced, or is your organization attempting to influence their position?

We publicly promote their current position

State the trade association's position on climate change, explain where your organization's position differs, and how you are attempting to influence their position (if applicable)

The Japan Business Federation announced its Carbon Neutrality Action Plan in FY2021 to promote efforts for the realization of carbon neutrality in 2050 in the business world.

Chuden aims at the realization of carbon neutrality in 2050 in the Zero Emissions Challenge 2050 by expanding the introduction of renewable energy and utilizing nuclear power. Our position on efforts is consistent with that of the Japan Business Federation.

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

Describe the aim of your organization's funding

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

Yes, we have evaluated, and it is aligned

Trade association

Other, please specify

The Federation of Electric Power Companies

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

Consistent

Has your organization influenced, or is your organization attempting to influence their position?

We publicly promote their current position

State the trade association's position on climate change, explain where your organization's position differs, and how you are attempting to influence their position (if applicable)

The Federation of Electric Power Companies of Japan has announced that it will work aggressively on the challenge of the realization of carbon neutrality in 2050 by working on the decarbonization of power sources on the supply side and the maximum promotion of electrification on the demand side and concentrating the technologies and wisdom they have available, based on the assumption that S+3E is realized at the same time. Chuden aims at the realization of carbon neutrality in 2050 in the Zero Emissions Challenge 2050 through the decarbonization of power sources with the expansion of the introduction of renewable energy and utilization of nuclear power and efforts with a triad of elements, identified as energy saving, energy creation and energy activation, on both the supply and the demand sides, and our position on efforts is consistent with that of the Federation of Electric Power Companies of Japan.

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

Describe the aim of your organization's funding

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

Yes, we have evaluated, and it is aligned

Trade association

Other, please specify

Transmission & Distribution Gird Council

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

Consistent

Has your organization influenced, or is your organization attempting to influence their position?

We publicly promote their current position

State the trade association's position on climate change, explain where your organization's position differs, and how you are attempting to influence their position (if applicable)

The Transmission and Distribution Grid Council is working on building a next-generation electric power network to work towards realization of carbon neutrality in 2050 through preparation of a system to make renewable energy a major power source, advancement of demand and supply adjustment and system stabilization technology, etc.

Chuden aims at realization of carbon neutrality in 2050 in the Zero Emissions Challenge 2050 through strengthening wide-area interconnection of unevenly distributed renewable energy and sophisticating and widening the area of supply and demand operations, and our position on this response is consistent with that of the Transmission and Distribution Grid Council.

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

Describe the aim of your organization's funding

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

Yes, we have evaluated, and it is aligned

C12.4

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

Publication

In mainstream reports (legal disclosure documents)

Status

Complete

Attach the document

FY2021_Financial_Report.pdf

Page/Section reference

Relevant pages of FY2021 Financial Report: P12～18、41～58

Content elements

Governance
Risks & opportunities
Emission targets

Comment

Financial Report (FY2021)
Status of corporate governance: P41-58
Management policies, business environment and issues to be addressed: P12-14
Business and other risks: P15-18
Emission targets: P14

Publication

In voluntary communications

Status

Underway – previous year attached

Attach the document

chudenGR2021_09.pdf
chudenGR2021_02.pdf
chudenGR2021_07.pdf
chudenGR2021_05.pdf
chudenGR2021_04.pdf

Page/Section reference

Relevant sections of Chubu Electric Power Group Report 2021: “Top commitment” P9-14, “Climate Change” P19-24, “Strategy” P25-40, “Governance” P51-68, “Financial/Corporate Data” P75-94

Content elements

Governance
Strategy
Risks & opportunities
Emissions figures
Emission targets
Other metrics

Comment

Since the full version of FY2021 exceeds the attachment size limit, we have attached the relevant sections, “Top Commitment,” “Strategy,” “Climate Change,” “Governance,” and “Financial/Corporate Data. The entire report is available from the following URL.
https://www.chuden.co.jp/english/resource/corporate/ecsr_report_2022_all.pdf

C15. Biodiversity

C15.1

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

	Board-level oversight and/or executive management-level responsibility for biodiversity-related issues	Description of oversight and objectives relating to biodiversity
Row 1	Yes, board-level oversight	As basic policies related to environmental conservation in the Chuden group, Chubu Electric Power Group Basic Environmental Policy is specified, including the statement **To protect our rich natural environment, we will take into account ecosystem biodiversity and water resources sustainability as we conduct our business activities** concerning coexistence with nature. To decide investment for development and construction of large-scale facilities, policies of biodiversity and water resource protection are discussed in the Senior Executive Committee and the Board of Directors. Before the start of development and construction of large-scale facilities, implementation of environmental impact assessment is required by the Environmental Impact Assessment Act, and we implement assessment of impact on animals, plants, and the ecosystem. In addition, Chuden group also implements voluntary assessment for small-scale development. As a result of assessment, implementation of the necessary measures is directed at the level of executive officers. The efficacy of these measures is monitored by the Senior Executive Committee and the Board of Directors.

C15.2

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

	Indicate whether your organization made a public commitment or endorsed any initiatives related to biodiversity	Biodiversity-related public commitments	Initiatives endorsed
Row 1	Yes, we have made public commitments and publicly endorsed initiatives related to biodiversity	Other, please specify Our response, not limited to specific species, areas, methods, etc., specifies as follows: To protect our rich natural environment, we will take into account ecosystem biodiversity and water resources sustainability as we conduct our business activities.	Other, please specify We support Keidanren Initiative for Biodiversity Conservation of Keidanren Committee on Nature Conservation.

C15.3

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

	Does your organization assess the impact of its value chain on biodiversity?
Row 1	Yes, we assess impacts on biodiversity in both our upstream and downstream value chain

C15.4

(C15.4) What actions has your organization taken in the reporting year to progress your biodiversity-related commitments?

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

C15.5

(C15.5) Does your organization use biodiversity indicators to monitor performance across its activities?

	Does your organization use indicators to monitor biodiversity performance?	Indicators used to monitor biodiversity performance
Row 1	Yes, we use indicators	Pressure indicators Response indicators

C15.6

(C15.6) Have you published information about your organization's response to biodiversity-related issues for this reporting year in places other than in your CDP response? If so, please attach the publication(s).

Report type	Content elements	Attach the document and indicate where in the document the relevant biodiversity information is located
In voluntary sustainability report or other voluntary communications	Other, please specify Policies related to biodiversity and examples of concrete measures. However, since examples of the achievements in FY2021 are still in preparation, last year's are attached.	Chuden Group Environmental Initiatives Policies: P3, Example of measures: P16 1

1env_report2021_full.pdf

C16. Signoff

C-FI

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

C16.1

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

	Job title	Corresponding job category
Row 1	General Manger, Corporate Planning & Strategy 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 understand that my response will be shared with all requesting stakeholders	Response permission

Please select your submission options	Yes	Public

Please confirm below

I have read and accept the applicable Terms