Welcome to your CDP Water Security Questionnaire 2023

W0. Introduction

W0.1

(W0.1) Give a general description of 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 9,173MW of power generation capacity (nuclear power generation: 3,617MW; hydro power generation: 5,467MW; renewable energy: 89MW; 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 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.

*: Total of Chuden and operating companies

*“Gross electricity generation” in the response in W-EU0.1b means the total amount of electric power produced at generators; however, since it is information on the capacity factor and confidential information of management of Chuden, it was not disclosed, and the net generation was entered instead.

W-EU0.1a

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

Electricity generation
Transmission
Distribution

W-EU0.1b

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

	Nameplate capacity (MW)	% of total nameplate capacity	Gross electricity generation (GWh)
Coal – hard	0	0	0
Lignite	0	0	0
Oil	0.4	0	0
Gas	0	0	0
Biomass	49	0.54	325
Waste (non-biomass)	0	0	0
Nuclear	3,617	39.43	0
Fossil-fuel plants fitted with carbon capture and storage	0	0	0
Geothermal	0	0	0
Hydropower	5,466.66	59.59	8,337
Wind	22	0.24	33
Solar	18.28	0.2	28
Marine	0	0	0
Other renewable	0	0	0
Other non-renewable	0	0	0
Total	9,173.34	100	8,723

W0.2

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

	Start date	End date
Reporting year	April 1, 2022	March 31, 2023

W0.3

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

Japan

W0.4

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

JPY

W0.5

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

Companies, entities or groups over which financial control is exercised

W0.6

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

No

W0.7

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

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

W1. Current state

W1.1

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

	Direct use importance rating	Indirect use importance rating	Please explain
Sufficient amounts of good	Vital	Important	<Direct operations – Main usage> Chubu Electric Power Company (Chuden) uses fresh water in nuclear power generation, biomass power

quality freshwater available for use			generation, and hydro power generation. Of our fresh water consumption, the amount of fresh water used for hydro power generation amounts to almost 100%. Most of the fresh water used in nuclear power generation is underground water pumped from the Niino River on the western side of the power station. In biomass power generation, fresh water handled by third parties is received through pipelines. Fresh water received for nuclear power generation and biomass power generation is used mainly in power generation processes. Water used in power generation processes forms high temperature and high-pressure steam in reactors and boilers which drives turbines and eventually generates power. Therefore, it is important to ensure the purity of water in order to prevent corrosion and maintain thermal efficiency of the power station. In this regard, Chuden first implements removal of impurities in water through filtration and ion-exchange and uses water purified to pure level water or ultrapure level water in the station. Chuden considers that it is essential to use a sufficient volume of the good quality fresh water it needs for power generation processes, and the importance of the direct use of fresh water is vital to operations, leading to a reduction in maintenance costs of water processing equipment, etc. Hydro power generation is conducted by utilizing fresh water from dams built by Chuden across rivers in five prefectures in the Chubu District, or dams owned by local governments, and stored water is drawn to water mills through conduits, etc. to drive turbines. Chuden has installed equipment on conduit water withdrawals to prevent the ingress of leaves and tree material and other waste present in stored water, which would damage equipment such as conduits and water mills, and also to exclude muddy water from downstream drainage. <Direct operations – Reason for importance assessment> In our nuclear power generation and biomass power generation, fresh water is used in the processes described above, and Chuden considers that it is essential to use a sufficient volume of high-quality fresh water for power generation processes. The

			direct use of fresh water is vital to operations, leading to a reduction in maintenance costs of water treatment facilities equipment, etc. It is also essential in the hydro power generation process for an adequate volume of high-quality fresh water from the sources described to be maintained. Since no substantial changes in our current power generation process and generation facilities are planned to take place for as long as our power generation business continues, Chuden considers that the importance rating for the use of sufficient amount of quality fresh water in direct operation will not change. <Indirect operations – Main usage> In regard to indirect use, fresh water is also used in the power generation processes of the power generation companies that are the suppliers of electric power we sell, as described above. Water used in power generation processes forms high temperature and high-pressure steam in boilers which drives turbines and eventually generates power. Therefore, it is important to ensure the purity of water in order to prevent corrosion and maintain thermal efficiency of the power station. In this regard, suppliers first implement removal of impurities in water through filtration and ion-exchange, etc. and uses water purified to pure level water or ultrapure level water in the station. <Indirect operations – Reason for importance assessment> As described above, it is important to secure the use of fresh water of a quality sufficient for the power generation processes which are provided by the power generation companies that supply the electric power we sell. In regard to the use of a sufficient amount of quality fresh water from our suppliers, Chuden considers its indirect utilization is “important” because diversifying our suppliers can reduce our direct risks. In regard to indirect utilization, Chuden considers that the importance as currently assessed is unlikely to change in the future since there will be no change in our relationship with our suppliers and customers if the current generation process does not change.

Sufficient amounts of recycled, brackish and/or produced water available for use	Important	Important	<Direct operations – Main usage> Chuden does not use brackish water in its business operation. In addition, we do not generate or use any produced water in our business. Recycled water is used in nuclear power generation and biomass power generation in Chuden's power generation business. Of the recycled water used by Chuden, approx. 30% is used for nuclear power generation, and approx. 70% for biomass power generation. In the power generation processes, Chuden first implements removal of impurities in water through filtration and ion-exchange by treating fresh water, and then purifies to pure and ultrapure level water to use it in the station. Power is generated by continuously forming high temperature and pressure steam in reactors and boilers to drive turbines. Steam that drives turbines is cooled by heat exchangers to become liquid water. Since this water does not contain impurities, it contributes to the reduction of fresh water usage through its cyclical use as most of the steam for driving turbines. <Direct operations – Reason for importance assessment> Chuden considers that it is essential to use a sufficient volume of recycled water in the processes described above, and the direct use of recycled water is essential and contributes to a reduction of the costs of obtaining water. Since no substantial changes in our current power generation process and generation facilities are planned to take place for as long as our power generation business continues, Chuden does not plan to make any major changes to the use of sufficient amount of recycled water in direct operations and this is unlikely to change. Brackish water and produced water do not form a part of Chuden's water use, and there is no possibility they will be used in the future. <Indirect operations – Main usage> In regard to indirect utilization, suppliers that supply electric power to Chuden use recycled water in the power generation processes in the stations. In the

			power generation processes, fresh water is used in the station after it is treated to remove impurities in it. Steam that drives the turbines in the boilers is cooled by heat exchangers to become liquid water. Since this water does not contain impurities, it contributes to the reduction of fresh water usage through its cyclical use, most of it as steam for driving turbines. <Indirect operations – Reason for importance assessment> In regard to indirect use, Chuden considers the importance as vital since it is important to be able to use a sufficient amount of recycled water in the power generation processes of the power generation companies that supply the electric power we sell, and there will be no significant change in our relationship with suppliers. In regard to indirect utilization, Chuden considers that the importance as currently assessed is unlikely to change in the future since there will be no change in our relationship with our suppliers and customers if the current generation process does not change.

W1.2

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

	% of sites/facilities/operations	Frequency of measurement	Method of measurement	Please explain
Water withdrawals – total volumes	100%	Continuously	① Seawater Calculated based on pump operating hours of the pumps ② Fresh water (water purchased from third parties: industrial water and tap water) Obtained through bills charged from	In Chuden's business establishments, three main types of water are drawn: ① Seawater ② Fresh water (water purchased from third parties; industrial water / tap water) ③ Fresh water (other than above: river water) ① is utilized to cool steam used to generate power at the nuclear power station and the biomass power station.

			municipalities and others ③ Fresh water (other than the above: river water) At hydro power stations, calculations are made using the water levels of dams and inlet channels, as well as by measuring generator output. At the nuclear power station, the volume of river water withdrawals is measured.	② is utilized for power generation at the biomass power station, and the volume purchased from third parties is managed. In addition, the volume of water withdrawals of industrial water and tap water is obtained quarterly through bills charged by municipalities, etc. ③ is used for power generation at hydro power stations and regularly measured / monitored by calculating the water levels of dams and inlet channels, as well as measuring generator output. River water is also used for power generation at the nuclear power station and the volume of water withdrawals is measured / monitored. Data measured as above at each establishment are collected at the Headquarters once a year for summary and monitoring. Since there are multiple measurement frequencies, the main frequencies are listed here.
Water withdrawals – volumes by source	100%	Continuously	① Seawater Calculated based on pump operating hours of the pumps ② Fresh water (water purchased from third parties: industrial water and tap water) Obtained through bills charged from municipalities and others ③ Fresh water (other than the above: river water)	In Chuden's business establishments, three main types of water are drawn: ① Seawater ② Fresh water (water purchased from third parties; industrial water / tap water) ③ Fresh water (other than above: river water) ① is utilized to cool steam used to generate power at the nuclear power station and the biomass power station. ② is utilized for power generation at the biomass power station, and the volume purchased from third parties is measured and monitored. It is also utilized as drinking water at Chuden's business establishments. The volume of water withdrawals of industrial water and tap water is obtained quarterly

			At hydro power stations, calculations are made using the water levels of dams and inlet channels, as well as by measuring generator output. At the nuclear power station, the volume of water withdrawals is measured.	through bills charged from municipalities and others. ③ is used for power generation at hydro power stations and regularly measured / monitored by calculating the water levels of dams and inlet channels, as well as measuring generator output. River water is also used for power generation at the nuclear power station and the volume of water withdrawals is measured / monitored. Data measured as above at each establishment are collected at the Headquarters once a year for summary and monitoring. Since there are multiple measurement frequencies, the main frequencies are listed here.
Water withdrawals quality	100%	Continuously	· At hydro power stations, Chuden measures the turbidity of water drawn by using turbidimeters. · The biomass power station measures the seawater temperature when drawing seawater. · The nuclear power station measures the difference between the seawater temperature when drawn and when discharged.	At hydro power stations, Chuden measures the turbidity of water drawn, by using turbidimeters as necessary, according to agreements with the local governments. Furthermore, the nuclear power station and the biomass power station located in a coastal area monitors seawater temperature when drawing seawater. At the nuclear power station, the difference between the seawater temperature when drawn and the water when discharged is set by the design value according to the environmental impact assessment, so while generating power, Chuden is constantly monitoring to keep the seawater temperature difference within the limit. Since there are multiple measurement frequencies, the main frequencies are listed here.
Water discharges – total volumes	100%	Daily	· The nuclear power station measures the discharge of fresh water using	At every Chuden power station and business establishment, water discharge is measured and monitored. ・Discharge of fresh water from the nuclear power station is monitored by

			flowmeters and the water levels of the drainage tanks. · The discharge other than the above is assumed to be the same volume as the intake.	flowmeters and the water levels of drainage tanks. Discharge of fresh water from the biomass power station is assumed to be the same volume as the withdrawals measured by flowmeters. Seawater drawn at the nuclear power station and the biomass power station is not consumed, but used in heat exchangers to cool steam utilized in power generation. Therefore, seawater discharged is assumed to be the same volume as seawater withdrawals. · Discharge of fresh water from the nuclear power station is measured by flowmeters and the water levels of drainage tanks. · Discharge of fresh water from the biomass power station is assumed to be the same volume as the withdrawals measured by flowmeters. ・In hydro power stations, all the freshwater drawn from rivers is used for power generation and discharged, and thus the water discharged is assumed to be the same volume as freshwater withdrawals. Data measured as above are collected at the Headquarters once a year to be summarized and monitored. Since there are multiple measurement frequencies, the main frequencies are listed here.
Water discharges – volumes by destination	100%	Daily	· Seawater discharged to the sea is assumed to be the same volume as water withdrawals. · Of the fresh water discharged to the sea, the discharge from the nuclear power	At every Chuden power station and business establishment, water discharge is measured and monitored by destination of discharge. Since seawater drawn is not consumed, but is used in heat exchangers to cool steam utilized in power generation, discharge of seawater is assumed to be at the same volume as the seawater withdrawals.

			station is measured by flowmeters and the water levels of the drainage tanks. Discharge of water from the biomass power station is assumed to be the same volume as the withdrawals measured by flowmeters. · Discharge to rivers is assumed to be the same volume as the volume of the water withdrawals of hydro power stations.	In regard to discharge to rivers, since water taken from rivers is used to rotate water mills for power generation only and is not consumed at hydro power stations, its discharge is assumed to be the same volume as the intake. Data measured as above are collected at the Headquarters once a year to be summarized and monitored. Since there are multiple measurement frequencies, the main frequencies are listed here.
Water discharges – volumes by treatment method	100%	Daily	· Water discharges from the nuclear power station and the biomass power station are measured and monitored by flowmeters and the water levels of the drainage tanks, and are assumed to be the same volume as the intake; they are then totalized by treatment method.	At Chuden's nuclear power station and biomass power station, wastewater associated with facility operation is treated in neutralization installations, filtration installations or concentration and desalination installations; and domestic wastewater generated by employees (gray water) is treated in microorganism treatment installations. Wastewater containing oil is subject to adsorptive treatment. Wastewater other than the above is not treated; however, its discharge is measured and monitored. Data measured as above are collected at the Headquarters once a year to be summarized and monitored. Since there are multiple measurement frequencies, the main frequencies are listed here.

Water discharge quality – by standard effluent parameters	100%	Monthly	· At the nuclear power station, pH, COD, SS, etc. are measured.	Water quality, measurement frequency, and measurement methods of wastewater are provided for in the Water Pollution Prevention Act and agreements with the local governments. All Chuden's power stations perform measurement and monitoring based on these provisions. As regards water quality monitoring, pH, COD, SS, etc. are measured at the nuclear power station.
Water discharge quality – emissions to water (nitrates, phosphates, pesticides, and/or other priority substances)	100%	Yearly	· At the nuclear power station, nitrate concentration is measured.	Nitrites and phosphates are used to improve the water quality of boiler water and air conditioning cooling water at the nuclear power station. For nitrates, the concentration is measured once a year to confirm that there are no problems with water quality.
Water discharge quality – temperature	100%	Continuously	The temperatures of the seawater used at the nuclear power station and the biomass power station are measured using a thermometer.	Seawater is used at the nuclear power station and the biomass power station to cool steam utilized in power generation and the temperature of seawater at discharge to the sea is measured and monitored using a thermometer. At the nuclear power station, the difference between the seawater temperature when drawn and the water when discharged is set by the design value according to the environmental impact assessment, so while generating power, Chuden is constantly monitoring to keep the seawater temperature difference within the limit. Since there are multiple measurement frequencies, the main frequencies are listed here.
Water consumption – total volume	100%	Yearly	· At every Chuden power station and	At every Chuden power station and business establishment, water consumption is measured and

			business establishment, water consumption is calculated by the difference between the total intake and the total discharge.	monitored. Consumption is the water volume consumed at power stations by hosing, etc., and Chuden does not keep the exact value. Therefore, water consumption is calculated by the difference between the total intake and the total discharge according to the definition of CDP. Measurement is conducted on a yearly basis.
Water recycled/reused	100%	Yearly	· The volume of recycled water used at the nuclear power station and the biomass power station is assumed to be the same as that of the withdrawals confirmed by flowmeters and bills.	Fresh water is used in power generation processes at the nuclear power station and the biomass power station, and steam is utilized in power generation; this water is converted to fresh water by using seawater to cool the steam, and it is recycled as reactor water and boiler water for power generation. Fresh water recycled and discharged out of power generation processes is treated before being discharged from the power station.
The provision of fully-functioning, safely managed WASH services to all workers	100%	Daily	· Drinking water used by Chuden's workers is provided after the safety of its residual chloride concentration data and others are checked by the public waterworks bureau.	Chuden monitors on a continuous basis to make sure that all employees at Chuden facilities are supplied with safe drinking water and sanitation. Chuden respects the individuality and personalities of our employees and commits to provide a good working environment for all. Drinking water whose residual chloride concentration data and others have been checked by the public waterworks bureau, which is the water purchase source, is provided.

W-EU1.2a

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

	% of sites/facilities/	Please explain

	operations measured and monitored	
Fulfilment of downstream environmental flows	100%	At hydro power stations, based on the guidelines provided by the government, Chuden discharges a river maintenance flow as necessary to achieve the required environmental flow downstream.
Sediment loading	100%	The discharge implementation ratio of river maintenance flow is 100% and the required amount is continually discharged. Chuden regularly monitors discharge facilities and conditions with monitoring cameras and also confirms the status at patrol inspections.
Other, please specify	Not relevant	There are no interrelated aspects relating to other.

W1.2b

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

	Volume (megaliters/ year)	Comparison with previous reporting year	Primary reason for comparison with previous reporting year	Five-year forecast	Primary reason for forecast	Please explain
Total withdrawals	50,760,257	About the same	Other, please specify The main factor is that the capacity factor of hydro power stations was nearly the same as the previous fiscal year.	About the same	Other, please specify Since the capacity factor varies depending on the water flow rate of the hydro power stations, it cannot be assumed accurately in advance. However, we consider that it will not vary heavily. We believe that it will increase in the future when	The total withdrawal value is the total value of the following: ①Seawater drawn at the nuclear power station and biomass power station. ②Fresh water purchased from third parties at the nuclear power station, biomass power station and

					the nuclear power plant is in operation.	business establishments. ③ Fresh water (river water) drawn at hydro power stations and the nuclear power station.
Total discharges	50,760,166	About the same	Other, please specify The main factor is that the capacity factor of hydro power stations was nearly the same as the previous fiscal year.	About the same	Other, please specify Since the capacity factor varies depending on the water flow rate of the hydro power stations, it cannot be assumed accurately in advance. However, we consider that it will not vary heavily. We believe that it will increase in the future when the nuclear power plant is in operation.	The total discharge value is the total value of the following. ①Seawater discharged to the sea at the nuclear power station and biomass power station. ② Treated fresh water discharged to the sea at the nuclear power station and biomass power station. ③ Fresh water (sewage) discharged from business establishments (other than the nuclear power station and biomass power station). ④ Fresh water (river water) discharged at hydro power stations.
Total consumption	91	About the same	Other, please specify The main factor is that	About the same	Other, please specify In the future, this value is	The total consumption amount is calculated by

			the total withdrawals and the total discharges were nearly the same as the previous fiscal year.		expected to vary when periodic inspections, etc. are conducted at the nuclear power station.	subtracting the discharges from the withdrawals. Consumption is the volume of water used at power stations for hosing, etc. Since Chuden does not keep the exact value, consumption is estimated from the difference between intake and discharge, which are both continually monitored.

W1.2d

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

	Withdrawals are from areas with water stress	Identification tool	Please explain
Row 1	No	WRI Aqueduct	According to the assessment of annual risks using the Water Risk Atlas of Aqueduct from the World Resources Institute (WRI), most of the power stations owned by Chuden are located in regions of medium- to high-risk (20 to 40%), and some are located in low-risk areas (<10%). Chuden considers that there are currently no power stations in high water stress regions, and therefore there is no water withdrawals from high water stress regions. Based on the guidelines provided by the state, hydro power stations owned by Chuden discharge a river maintenance flow as necessary, and therefore Chuden has concluded that high water stress is not produced. Chuden's nuclear power station and biomass power station draw seawater to cool the steam used in power generation. Since the nuclear power station is located in a coastal area,

			Chuden has concluded that high water stress is not produced.

W1.2h

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

	Relevance	Volume (megaliters/ year)	Comparison with previous reporting year	Primary reason for comparison with previous reporting year	Please explain
Fresh surface water, including rainwater, water from wetlands, rivers, and lakes	Relevant	50,253,723	About the same	Other, please specify The main factor is that the capacity factor of hydro power stations was nearly the same as the previous fiscal year.	The nuclear power station and hydro power stations owned by Chuden draw fresh water from rivers for power generation. Most of the fresh water used in nuclear power generation is underground water pumped from the Niino River on the western side of the power station and is used in power generation processes. Therefore, the ability to draw a sufficient volume of river water has a significant connection with the power generation process. Hydro power generation is conducted by utilizing fresh water in dams built by Chuden at rivers in five prefectures in the Chubu District or dams owned by local governments, and drawing stored water to water mills through conduits to drive turbines. Therefore, the ability to draw a sufficient volume of river water has a significant connection with the power generation process.

					This value is the total of the water withdrawals of hydro power stations reported to the Ministry of Land, Infrastructure, Transport and Tourism and the volume of water drawn from rivers at the nuclear power station.
Brackish surface water/Seawater	Relevant	506,097	Lower	Other, please specify For the pump used for seawater intake at the nuclear power station, the operating hours have been reduced by reviewing the operation based on the current situation.	The nuclear power station and the biomass power station owned by Chuden draw seawater to cool steam utilized for power generation. Therefore, the ability to draw a sufficient volume of seawater has a significant connection with the power generation process. This value is calculated from seawater pump capacity and operation time of the nuclear power station and the biomass power station. Seawater is used in heat exchangers to cool steam utilized in power generation, though it is not consumed.
Groundwater – renewable	Not relevant				Chuden does not own any facilities that utilize renewable underground water.
Groundwater – non-renewable	Not relevant				Chuden does not own any facilities that utilize non-renewable underground water.
Produced/Entrained water	Not relevant				Chuden does not own any facilities that utilize produced water or entrained water.
Third party sources	Relevant	437	About the same	Other, please specify This is because the discharge at offices and business	Water purchased from third parties is used as drinking water at our business establishments. Therefore, Chuden considers that the ability to purchase water has

				establishments was nearly the same as that for the previous fiscal year.	a significant connection with securing business performance and occupational safety and health of our employees at every business establishment.

W1.2i

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

	Relevance	Volume (megaliters/year)	Comparison with previous reporting year	Primary reason for comparison with previous reporting year	Please explain
Fresh surface water	Relevant	50,253,610	About the same	Other, please specify The main factor is that the capacity factor of hydro power stations was nearly the same as the previous fiscal year.	In hydro power stations, water drawn from rivers is used for power generation and drained to rivers as it is. The capability to drain into rivers and surface without restriction has a significant connection with hydro power generating operation in an ongoing manner. The discharge is calculated by assuming it to be the same value as the water withdrawals.
Brackish surface water/seawater	Relevant	506,188	Lower	Other, please specify The reduction in seawater withdrawal at the nuclear power station is the primary reason for the decrease in discharge volume.	Discharge to the sea is the total volume of discharge of seawater and fresh water used at the nuclear power station and the biomass power station. Seawater used in the nuclear power station and the biomass power station is used in heat exchangers to cool steam utilized in power generation and is not consumed. Therefore,

					seawater is discharged as it is and the value of discharge of seawater will be the same value as the seawater withdrawals. Fresh water received from rivers at the nuclear power station and fresh water purchased from third parties at the biomass power station form high temperature and high-pressure steam in reactors and boilers, which drives turbines to generate electricity. Fresh water used is appropriately treated as wastewater in order to be discharged to the sea. Discharge of fresh water is measured and monitored by flowmeters and the water levels of drainage tanks, or it is controlled as the same value as the withdrawals measured by flowmeters. Therefore, in order to continue the efficient operation of nuclear power generation and biomass power generation, it is important and relevant that seawater and fresh water can be discharged to the sea.
Groundwater	Not relevant				Chuden does not own any installations that discharge water by penetrating below-ground aquifers.
Third-party destinations	Relevant	368	About the same	Other, please specify This is because the discharge at offices and business	Business establishments owned by Chuden other than the nuclear power and the biomass power station, discharge domestic wastewater to sewerage.

				establishments was nearly the same as that for the previous fiscal year.	Since Chuden does not measure the exact volume, discharge is assumed to be the same volume as supply of water purchased from third parties. The capacity to appropriately discharge sewage and domestic wastewater generated in these business establishments to public sewerage is effective in preventing the spread of infectious disease, and decreases the possibility of simultaneous suspension of operation of workers in business establishments. Since the continuous operation of business establishments other than the nuclear power station and the biomass power station plays a core part in Chuden's business, even if it temporarily suspends operations, it may have a significant effect on income and expenditure. Thus, discharging domestic wastewater to public sewerage has a significant connection to continuous operation. At the nuclear power station and the biomass power station, treated water is discharged to the sea.

W1.2j

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

	Relevance of treatment level to discharge	Volume (megaliters/year)	Comparison of treated volume with previous reporting year	Primary reason for comparison with previous reporting year	% of your sites/facilities/operations this volume applies to	Please explain
Tertiary treatment	Relevant	8	About the same	Other, please specify The water discharged in tertiary treatment is nearly the same as the figure of the previous fiscal year, 7 megaliters. This is because the amount of work that requires tertiary treatment at the nuclear power station was almost the same. A 20% reduction/increase or more in wastewater discharge compared to the previous reporting year is considered a reduction/increase.	Less than 1%	At the nuclear power station, wastewater generated in facility operations is treated in concentration and desalination installations to remove radioactive substances to satisfy the prescribed water quality standard before it is released into the environment. Primary and secondary treatment is not conducted for such wastewater. This is because it is not necessary to remove impurities by primary and secondary treatment, as impurities in water are removed through filtration and ion-exchange to purify to ultrapure level water when water for power generation is drawn from rivers and supplied to the station. On the other hand, wastewater used to wash protective clothing has impurities removed using filtration installations such as fiber filters and activated carbon filters to remove suspended solids and COD components, to satisfy the prescribed water quality

						standard before it is released into the environment. Primary and secondary treatment is not conducted for such wastewater. This is because it is not necessary to remove impurities by primary and secondary treatment, as impurities in water are removed through filtration and ion-exchange. In regard to wastewater quality, pH, COD, SS, etc. are measured and monitored based on the standards specified by the Japanese government and local governments.
Secondary treatment	Relevant	102	About the same	Other, please specify Water discharged in secondary treatment was nearly the same as the figure of the previous fiscal year, 111 megaliters. This is because the wastewater discharged from offices was almost the same as in the previous fiscal year.	Less than 1%	Domestic wastewater generated by employees (gray water) in the nuclear power station is treated by microorganism treatment in septic tanks. At Chuden business establishments located in areas without sufficient sewage systems, septic tanks are installed to conduct wastewater treatment. Since water discharged is not measured, it is assumed to be 10% of the water discharged from the business establishments. Standard values for domestic wastewater quality at these business establishments, etc. are specified by the Purification Tank Act, and wastewater is purified to standard values based on this act before it is discharged.

Primary treatment only	Not relevant					At Chuden power stations and business establishments, there is no wastewater that classifies as “primary treatment only” because all wastewater requiring treatment undergoes “secondary treatment” or further treatments (pH adjustment, etc.).
Discharge to the natural environment without treatment	Relevant	50,759,708	About the same	Other, please specify The amount of water discharged into the natural environment without treatment decreased by approximately 1% from the result of the previous year (51,257,352 megaliters), which is almost the same. This is because the capacity factor of hydro power stations was almost the same as in the previous fiscal year.	100%	Seawater used in the nuclear power station and the biomass power station is used only to cool the steam utilized for power generation, and wastewater is discharged directly into the sea because the water quality has not been changed during the process. The temperature of seawater at discharge to the sea is measured and monitored constantly or daily using a thermometer. At the nuclear power station, the difference between the seawater temperature when drawn and the water when discharged is set by the design value according to the environmental impact assessment, so while generating power, Chuden is constantly monitoring to keep the seawater temperature difference within the limit. River water intake at hydro power stations is used to rotate water turbines and is discharged directly into the river because the water

						quality has not been changed during the process.
Discharge to a third party without treatment	Relevant	335	About the same	Other, please specify The amount of water discharged to a third party without treatment was 316 megaliters in the previous fiscal year, which is considered almost the same. This is because the amount of water discharged from business establishments other than the nuclear power station and the biomass power station was almost the same as in the previous fiscal year.	Less than 1%	Domestic wastewater generated at business establishments other than the nuclear power station and the biomass power station is mainly discharged into the sewage system. Since this water discharged is not specifically measured, it is estimated by subtracting the volume of the secondary treatment described above from the amount of the water supply and sewage system volume purchased from third parties. In regard to sewage water quality, wastewater is discharged after necessary procedures based on the current legal standard of the Sewerage Act. The Yokkaichi Biomass Power Plant, the only Chuden biomass power station, is located on the premises of the Yokkaichi Thermal Power Station of JERA Co., Inc. All wastewater generated in operation of the power station is sent to the wastewater treatment facilities of JERA and discharged out of the premises by the wastewater treatment facilities of JERA. Therefore, all wastewater generated in operation of the biomass power station is treated at JERA. In regard to wastewater quality, measurement and

						monitoring are conducted based on treatment standards specified by national and local governments.
Other	Relevant	13	Lower	Other, please specify The amount of other wastewater discharged decreased slightly from the figure of the previous year, 16 megaliters. This is because the amount of chemicals used at the nuclear power station decreased and the amount of waste liquid treatment also decreased.	Less than 1%	The nuclear power station measures radioactivity intensity in seawater, marine organisms, marine soil, etc. to check that radioactivity has no impact on the surrounding environment from the operation of the nuclear power station. Effluent generated at that time, including chemicals, are pH-controlled before being discharged. In regard to wastewater quality, pH, COD, SS, etc. are measured and monitored based on the standards specified by the Japanese government and local governments.

W1.2k

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

	Emissions to water in the reporting year (metric tonnes)	Category(ies) of substances included	Please explain
Row 1	0.11	Nitrates Phosphates	At Chuden's nuclear power plant, nitrates are contained in wastewater such as cooling water of equipment, and phosphates, in wastewater from boilers. Since the amounts of both are not measured directly, the amounts of discharge are assumed based on the used weight and concentration in wastewater. For nitrates, the concentration is measured once a year to confirm that there are no problems with water quality.

			Nitrates or phosphates are not discharged to water stress areas.

W1.3

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

	Revenue	Total water withdrawal volume (megaliters)	Total water withdrawal efficiency	Anticipated forward trend
Row 1	3,286,145,000,000	50,760,257	64,738.5414143983	The majority of Chuden's total water withdrawals consists of withdrawals for the purpose of hydroelectric power generation. To maximizes the management resource value, Chuden optimizes the operation of hydro power stations and keeps total withdrawals at the same level while increasing the amount of electric energy generated and sold. These efforts contribute to an improvement (decrease) in this intensity indicator. Specifically, Chuden not only keeps the optimal power generation facilities under review to match river flow conditions when updating hydroelectric power generation facilities, and raises the dam operational water level, etc., but also makes efforts to increase electric power generation by using AI technologies, etc., for hydro power stations and optimizing water system operation. We believe that these efforts can improve the water intake efficiency in the hydroelectric power generation, which is our main power source and accounts for the majority of our water withdrawals. In regard to future trends, we expect that the efficiency of total water withdrawals will increase with the increase in energy generated by hydroelectric power stations, due to the

				progress of these efforts, which will lead to an increase in electric energy sold by Chuden, producing an increase in sales. For sales, we use the electric power business operating revenue in our Consolidated Statements of Operations.

W-EU1.3

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

Yes

W-EU1.3a

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

Water intensity value (m3/denominator)	Numerator: water aspect	Denominator	Comparison with previous reporting year	Please explain
7,118	Total water withdrawals	MWh	About the same	<Reason for the water intensity being unaltered compared with the previous reporting year> The intensity indicator relating to water is nearly the same as the previous fiscal year. This is because the total withdrawals and the generated energy are nearly the same as the previous fiscal year. In comparison with the previous reporting year, if the increase/decrease does not exceed 10%, we classify it as almost the same as in the previous fiscal year. <Utilization status of water intensity in Chuden, strategy for reduction> As for the intensity indicator relating to water measured and controlled by Chuden, we have set the value obtained by dividing total withdrawals by generated energy as intensity. Hydroelectric power generation amounted to approx. 96% of our generated energy in FY2021 and is our major power source. Based on water intensity, Chuden is able to understand the volume of water required per

				unit of energy generated, which can assist with considerations of effective water use and cost reduction. To maximize the management resource value, Chuden optimizes the operation of hydro power stations and makes efforts to increase electric power generation per unit of water intake. These efforts contribute to an improvement (decrease) in this intensity indicator. Specifically, when updating hydroelectric power generation equipment, we are reviewing the power generation equipment to optimize it according to the river flow conditions, and raising the dam operating water levels. In addition, in the operation of hydro power stations, Chuden has been making efforts with the aim of increasing the generated energy by optimizing the water system operations from the long term to the short-term using AI technology. Chuden has begun developing a system that uses AI to predict river flow rate and formulate power generation plans for power generation planning work traditionally performed by humans, with the aim of starting operation. In January 2023, we reached a basic agreement with a consortium formed by six global companies to build a user-participatory renewable energy expansion model for the renovation of existing hydro power stations. This model not only allows customers who have a strong interest in “additionality” to actively participate from the planning stage in the renovation of an existing hydro power station where Chubu Electric Power is considering a power increase, but also serves as a system that enables this consortium to proactively contribute to the expansion of renewable energy by paying an additional charge for “additionality” when purchasing the electricity derived from renewable energy, including electricity increase due to renovation, through Chubu Electric Power Miraiz. As the first project using this model, Chuden is planning to apply it to the renovation of old

				equipment at our Oigawa Hydro Power Station Unit 1, and is expecting an increase in annual power generation of approximately 1.9 million kWh from 2025. We believe that these efforts can promote the efficient use of water in hydro power generation, which is our main power source and accounts for the majority of our water intake. In addition, since Chuden is able to contribute to an improvement (decrease) in this intensity indicator, we continue to pursue our preparations for the utilization of the Hamaoka Nuclear Power Plant, as an important power source. Thus, we will steadily implement efforts for a thorough safety enhancement of the Hamaoka Nuclear Power Plant and for a serious response to the reviews conducted by the Nuclear Regulation Authority in order to make the utmost effort to achieve the Authority's confirmation of our compliance with the new regulatory standard. Chuden will also commit to ensuring that communities and people understand the safety improvement measures, etc. we are taking. <Forecast trend in water intensity> We believe the future trend in water intensity will, We expect a decrease due to the progress of these efforts, which will lead to an increase in energy generated at hydro power stations, and decrease significantly once the nuclear power plant is in operation.

W1.4

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

	Products contain hazardous substances	Comment
Row 1	No	None of our products contain substances classified as hazardous by regulatory authorities.

W1.5

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

	Engagement
Suppliers	Yes
Other value chain partners (e.g., customers)	Yes

W1.5a

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

Row 1

Assessment of supplier impact

Yes, we assess the impact of our suppliers

Considered in assessment

Basin status (e.g., water stress or access to WASH services)
Supplier dependence on water
Supplier impacts on water availability
Supplier impacts on water quality

Number of suppliers identified as having a substantive impact

1

% of total suppliers identified as having a substantive impact

Less than 1%

Please explain

In the Chubu Electric Power Group’s electricity sales business, JERA Co., Inc., which procures thermal power sources, is the largest supplier. The transaction amount with JERA accounts for 49% or more of the operating expenses of the overall electric power industry. We have therefore targeted JERA, a procurement source that accounts for the majority of our procurement costs and whose thermal power generation business has an important relationship with water security.

Chuden supervises the formulation and implementation of the company’s business plan by dispatching Directors to JERA, and, as part of this, we confirm the impact of water intake in the thermal power generation business, etc., through regular reports to the Board of Directors. In addition, we conduct dialogue between executives during their visits to shareholders, including management of risks such as the impact of water-related risks such as storm surges and tsunamis, and quarterly monitoring of JERA. The thermal power stations owned by JERA use seawater as cooling water and have established management standards to monitor heated wastewater.

We have confirmed that the amount of power generated by the thermal power sources procured from JERA is related to the supplier’s dependence on water, the degree of

impact on water availability, and the degree of impact on water quality. As an approach to assessing impact, we have conducted an “evaluation of the proportion of transaction value in the operating expenses of the entire electricity business,’’ and have identified suppliers with the largest proportion of transaction value as “Suppliers having a significant impact on water-related issues.”

W1.5b

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

	Suppliers have to meet specific water-related requirements
Row 1	Yes, suppliers have to meet water-related requirements, but they are not included in our supplier contracts

W1.5c

(W1.5c) Provide details of the water-related requirements that suppliers have to meet as part of your organization’s purchasing process, and the compliance measures in place.

Water-related requirement

Reducing total water withdrawal volumes

% of suppliers with a substantive impact required to comply with this water-related requirement

100%

% of suppliers with a substantive impact in compliance with this water-related requirement

100%

Mechanisms for monitoring compliance with this water-related requirement

Supplier self-assessment

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

Retain and engage

Comment

We request compliance with “reducing environmental impact’’ in the “Chuden Group Basic Procurement Policy’’ and “Requests to Our Partners.”
Specifically, we have requested Items (1) to (4) below as our “Requests to Our Partners” to reduce the environmental impact.
(1) Establishment of an internal management system related to the environment and implementation of education

(2) Contribution to decarbonization by promoting green procurement and biodiversity conservation
(3) Proposals for improving the environmental performance of materials, equipment, construction methods, etc. (energy saving, recycling, etc.)
(4) Building a sustainable society through efficient use of resources and water

W1.5d

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

Type of engagement

Information collection

Details of engagement

Collect water management information at least annually from suppliers

% of suppliers by number

1-25

% of suppliers with a substantive impact

100%

Rationale for your engagement

To understand water-related risks in the supply chain and promote CSR/ESG procurement at Chuden and its business partners, Chuden conducts a survey of its major business partners regarding the status of efforts for CSR/ESG. As part of this, Chuden confirms its efforts related to sustainable and efficient use of water, the results of those efforts, and mechanisms for corrective actions.

Impact of the engagement and measures of success

For the results of business partners' responses to the questionnaire items, Chuden quantitatively evaluates the status of their efforts in three stages.
Chuden aims to reduce water-related risks throughout the supply chain by conducting and evaluating questionnaires, providing feedback on the evaluation results to its business partners, and following up with its business partners.

Comment

W1.5e

(W1.5e) Provide details of any water-related engagement activity with customers or other value chain partners.

Type of stakeholder

Other, please specify

Local communities

Type of engagement

Innovation & collaboration

Details of engagement

Encourage stakeholders to work collaboratively with other users in their river basins toward sustainable water management

Rationale for your engagement

Chuden is developing a variety of environmental conservation activities to raise the environmental awareness of water resources among its employees and local residents. The Chuden Group, including employees and their families, implements activities cooperating with an environmental NPO in coastal protection activities, and Chuden Group ECO social contribution activities, including education about the conservation of aquatic organisms such as loggerhead turtles. Chuden also cultivates Chuden Foresters, volunteers who are involved in forest preservation activities such as tree thinning, which are important for watershed protection and landslide prevention, etc. in planted forests of Japanese cedars and hinoki cypresses.
In addition, as part of efforts to promote tree thinning, Chuden works with other companies and organizations to actively support tree thinning in the Chubu region through printed materials as a supporter of the Forest Neighborhood Association.

Impact of the engagement and measures of success

Chuden finds it important to increase the number of human resources, including instructors such as volunteers, who can carry out forest preservation activities such as tree thinning, which are important for maintaining watershed protection and preventing landslides, because these activities will lead to the prevention of landslides and other disasters. For this reason, we believe that understanding and managing the actual results of the number of instructors for Chuden Forester in the relevant year is an indicator for evaluating the success of engagement.
For each activity, Chuden compiles the implementation results to understand the progress of the activity and then evaluate the progress. Regarding “Chuden Forester” activities, in FY2022, 162 Chuden Foresters provided guidance to 128 persons in forest experience activities. Regarding the Forest Neighborhood Association, Chuden as a whole contributed to the tree thinning of about 89.04 ha of forest in Nagano Prefecture (about the same size as 18 Nagoya Domes) between FY2010, when Chuden became a supporting company, and FY2021.

Type of stakeholder

Other, please specify

University (academic institution)

Type of engagement

Innovation & collaboration

Details of engagement

Encourage stakeholders to work collaboratively with other users in their river basins toward sustainable water management

Rationale for your engagement

Chuden owns approximately 11 million m2 of mountain forest located in Uchigatani, Yamato-cho, Gujo City, Gifu Prefecture, and carefully manages it as a watershed protection forest. As an initiative targeting the sustainability of water resources, Chuden focuses on watershed protection in Uchigatani Forest and work on visualization of the watershed protection ability in joint research with Nagoya University. The watershed protection includes (1) the function of storing water resources in forest soil, (2) the flood mitigation function by leveling of the volume of water flowing into rivers during rainfall, and (3) the water purification function by rainwater passing through the soil and underground bedrock.

Chuden also conducts research on water neutrality, a concept in which its business's water consumption volume equates to the volume of water produced by forests. Achieving water neutrality can be seen as "water consumption" ≦ "water production," and the burden on the environment is considered to be net zero. We also believe that returning surplus water production to other business owners and customers can make the society join together and conduct business activities, considering the sustainability of water resources.

Impact of the engagement and measures of success

As a result of this engagement, Chuden aims to establish a method for quantitatively evaluating the watershed protection ability of forests. Visualizing the amount of water resources stored in forests, i.e., quantification of "water production," is carried out by observing local weather and river flow, and analyzing water outflow models. To establish a method for quantitatively evaluating the watershed protection ability of this forest, Chuden is proceeding with the work for collecting data on meteorological and river flow rate observations in Uchigatani Forest, and then confirms the progress.

W2. Business impacts

W2.1

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

No

W2.2

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

	Water-related regulatory violations	Comment

Row 1	No	No fines, legal orders, or other penalties for water-related regulatory violations have been incurred.

W3. Procedures

W3.1

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

	Identification and classification of potential water pollutants	How potential water pollutants are identified and classified
Row 1	Yes, we identify and classify our potential water pollutants	<Details of the policy and process established to identify and classify potential water pollutants that may give adverse impacts on waters and water ecosystems> For construction of thermal and nuclear power stations, the environmental impact assessment system of the government defines warm wastewater as a potential pollutant, and it is set as a predictive assessment target. Efforts have been made to gain understanding from fishermen operating in relevant locations. In the “Interim Report on Warm Wastewater Issues” summarized by the Sub-committee for Warm Wastewater of the Central Council for Environmental Pollution Control in 1975, the effects of warm wastewater on marine organisms is described as follows: “Though there are observed phenomena such as change in biota as well as reduction in number of types of biota within waters in which the temperature is continuously 2 to 3 degrees higher in connection with a drainage canal for warm wastewater and its outflow, outside these waters no significant change of biota was recognized. However, seaweeds, etc., may be affected by a temperature rise of 1 degree.” Fishermen actively operate in the waters surrounding the nuclear power station owned by Chuden, and it is these fishermen that may possibly experience the detrimental effects of warm wastewater. Thus, Chuden pays special attention to discharging warm wastewater from operating the power station. In discharging warm wastewater from operating the power station, Chuden continuously measures seawater temperature before and after heat exchange using condensers and sets the temperature difference between intake and discharge at 7 degrees or less. Thermometers are installed at the intake chamber and the water outlet in the premises of the nuclear power station. In biomass power generation, they are installed at the seawater intake and outlet from condensers.

		The reason for setting the temperature difference between intake and discharge at 7 degrees or less is that because the effects of warm wastewater on marine organisms and fisheries as described above are of concern to Chuden. It has been decided after discussion that the temperature difference between intake and discharge will be set at 7 to 8 degrees bearing in mind economy, power generation efficiency and influence on marine organisms, etc. From the perspective of minimizing the impact on the environment as much as possible, a directive to limit the water temperature rise to around 7 degrees has been issued. Thus far, Chuden has gained understanding about the limit of below 7 degrees from local residents, including fishermen through environmental assessments conducted at the power station, and our temperature difference limit is one of the criteria for Japan. <The most relevant indicators used to identify water pollutant> The nuclear power station and biomass power station owned by Chuden have set the limit of the temperature difference between intake and discharge below 7 degrees. The thermometers used to measure the temperature difference between intake and discharge at the nuclear power station are high-accuracy quartz thermometers. At the biomass power station, resistance thermometer bulbs are used, and these have high measurement accuracy and are responsive and easy to obtain. To ensure the accuracy of the thermometers, quartz thermometers are returned to factories for calibration according to the regular inspection of the plant, etc. <Information on whether the policy and the process change in the entire value chain and how they change> Our policy and identification process regarding the intake water/discharge water temperature difference limit follow the model used in Japan, so we consider that the opinions of our customers and suppliers are in accord.

W3.1a

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

Water pollutant category

Other physical pollutants

Description of water pollutant and potential impacts

At Chuden's nuclear power station and biomass power station, seawater is heat-exchanged in condensers to cool the steam, which is used to drive turbines. After that, the seawater temperature difference between intake and discharge is controlled at below 7 degrees and warm waste water is discharged into frontal waters of the power station. The volume of seawater required for heat exchange is several tons to over 100 tons per second per power station, and an enormous volume of seawater is discharged as warm wastewater. Due to diffusion characteristics of warm wastewater, water temperature near seawater outlets of power stations is equal to or lower than the outlet water temperature of the condensers. However, at greater distance from the water outlets, water temperature reduces by diffusive mixing with seawater. On the effects of water temperature rise on marine organisms, it is reported that there are observed phenomena such as change in biota as well as reduction in number of types of biota within waters in which the temperature is raised continuously by more than 2 to 3 degrees. If the temperature difference between seawater intake and outlet from condensers were to exceed 7 degrees continuously, the impacts on the ocean would be significant and organisms and abundance in relevant waters may change, and fishery activities, etc. may also be seriously affected. Given this situation, power stations have incorporated minimization of effects on marine organisms into the design of their installations. In environmental impact assessments for equipment design conducted before the construction of nuclear power station, a diffusion prediction assessment for warm wastewater is conducted. Measuring at three points, sea surface, one meter below and two meters below sea surface, Chuden developed predictive envelope curves of the temperature difference taking ambient water temperature as lower by 3 degrees, 2 degrees and 1 degree, and refers to them for forecast assessments of impacts on the ocean environment and marine organisms.

Value chain stage

Direct operations

Actions and procedures to minimize adverse impacts

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

Please explain

In order to manage warm wastewater, values to assess environmental impacts, these are set for temperature differences between water intake and outlet, and Chuden has set this value at below 7 degrees. Management of warm wastewater is conducted based on power station operational documents. In these documents, there are checkpoints for plant condition monitoring and measures to take if the limit exceeds 7 degrees, in order to ensure that the temperature difference is correctly maintained.
For emergency preparedness, in nuclear power station, Chuden records and collects values every two hours and assesses those values, and if the temperature difference between water intake and outlet exceeds 7 degrees, restoration measures specified in the operational documents are implemented promptly to bring this back to the normal state. If the difference does not return to within the normal limit after these measures are taken, power station operational documents give instructions on how to implement measures to control power generation output.

After these measures have caused the temperature difference between water intake and outlet to return to 7 degrees or below and the condition is stable, as confirmed by temperature difference data available in the central control room, Chuden judges that the relevant measures are effective since it can be confirmed that the seawater temperature is low enough to have minimal effects on marine organisms based on the results of the preliminary environmental impact assessment. When output control measures are taken, this will be published on our website.

W3.3

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

Yes, water-related risks are assessed

W3.3a

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

Value chain stage

Direct operations

Coverage

Full

Risk assessment procedure

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

Frequency of assessment

Annually

How far into the future are risks considered?

More than 6 years

Type of tools and methods used

Tools on the market
International methodologies and standards
Databases

Tools and methods used

WRI Aqueduct
Environmental Impact Assessment
Regional government databases

Contextual issues considered

Water availability at a basin/catchment level
Water quality at a basin/catchment level

Stakeholder conflicts concerning water resources at a basin/catchment level
Impact on human health
Implications of water on your key commodities/raw materials
Water regulatory frameworks
Status of ecosystems and habitats
Access to fully-functioning, safely managed WASH services for all employees

Stakeholders considered

Customers
Employees
Investors
Local communities
Regulators
Suppliers
Water utilities at a local level

Comment

Value chain stage

Supply chain

Coverage

Partial

Risk assessment procedure

Water risks are assessed as part of other company-wide risk assessment system

Frequency of assessment

Annually

How far into the future are risks considered?

More than 6 years

Type of tools and methods used

Tools on the market
International methodologies and standards
Databases

Tools and methods used

WRI Aqueduct
Environmental Impact Assessment
Regional government databases

Contextual issues considered

Water availability at a basin/catchment level
Water quality at a basin/catchment level

Stakeholder conflicts concerning water resources at a basin/catchment level
Implications of water on your key commodities/raw materials
Water regulatory frameworks
Status of ecosystems and habitats

Stakeholders considered

Customers
Employees
Investors
Local communities
Regulators
Water utilities at a local level

Comment

The Yokkaichi Biomass Power Plant in Yokkaichi city, Mie prefecture is located on the premises of the Yokkaichi Thermal Power Station of JERA Co., Inc., Chuden's supplier, and all wastewater generated in the operation of the power station is treated at JERA. In regard to wastewater quality, treatment is conducted at JERA based on the standard specified by Japanese national or local government. For this reason, the quality of the wastewater discharged from the power station may have an indirect impact on our business, and this is included in the risk evaluation.

W3.3b

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

	Rationale for approach to risk assessment	Explanation of contextual issues considered	Explanation of stakeholders considered	Decision-making process for risk response
Row 1	In Chubu Electric Power Company (Chuden)'s business activities, it is essential to secure sufficient volumes of water such as seawater and fresh water required for operation of the power stations. Water-related risk assessments are therefore targeted at direct operations	<Water availability at a basin/catchment level> Securing the volume of water used in hydroelectric power generation is important; thus, it is constantly assessed. Chuden decides on the development area to build a hydroelectric power station by defining development scale and then by evaluating the risks of the power generation business failing due to insufficient water	<Customers> In regard to nuclear and hydro power generation and biomass power generation, discharging water that does not conform to the law, or environmental conservation agreements, etc. with the local government which are stricter than the law, may lose customers' trust in our	At Chuden and its operating companies, risk owners responsible for each operating company, companies of the Chuden group, offices and departments clarify water related risks within the range of the next 10 years, dividing these risks operationally, evaluate risk

	and a part of the supply chain for power supply. The Yokkaichi Biomass Power Plant in Yokkaichi city, Mie prefecture is located on the premises of the Yokkaichi Thermal Power Station of JERA Co., Inc., Chuden's supplier, and all wastewater generated in the operation of the power station is treated at JERA. For this reason, since the quality of wastewater at the same power plant is likely to have an impact on Chuden's business, Chuden has included it within the scope of its supply chain risk assessment. Water is not included in the scope of evaluation because water is not used during the use of electricity, which is a product of the electricity business. Chuden evaluates water-related risks, taking into consideration the natural and social conditions	resources. For this purpose, it utilizes hydro power survey data and field surveys (local government databases, etc.) conducted by the Ministry of Land, Infrastructure, Transport and Tourism, etc. <Water quality at a basin/catchment level> Though the quality of water is not a direct issue in hydro power generation, quality of water in catchment areas is relevant to risks after discharge and is constantly assessed due to its importance. For example, when designing intake installations, Chuden takes into consideration and assesses with experts the risks of the long-term phenomenon of suspended sediment in water, caused when contamination from organic pollution, eutrophication, or water decomposition associated with watershed development, or suspended sediments washed into reservoirs by floods, are discharged before precipitating to the bottom of the lake, forming muddy water containing contaminants. Assessments are made using fact-finding surveys upstream of dammed rivers, data collection on water quality after construction of dams,	business activities. As this may have an effect on competition with competitors, we always include customers in evaluation. <Employees> It is important for all employees of Chuden to use sanitation that functions properly and is managed safely, to conduct smooth and steady business and maintain a stable supply of electric power, including the operation / maintenance of power generation facilities and servicing consumers, and therefore always be included in evaluation. <Investors> Discharging water that deviates from regulations could lose a significant level of trust of the investors in its business activities and could affect Chuden's stock price. In such circumstances, operation of every power station would be affected, and this could cause suppressed revenue in the future. Thus, investors also have a	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 water are subject to division of duties among multiple risk owners. Of these, information on risks associated with shifting trends in water regulations is collected and clarified by risk owners responsible to the Corporate Communication Division. Risk owners report annually on risks having severe impacts on management, based on criteria indicated by the risk management department (Corporate Planning & Strategy Division). Companywide risk managers, including the President and the Vice Presidents, discuss this at the Risk Management Committee on risk countermeasure policies developed by the risk

	surrounding each of the nuclear, hydro, and biomass power stations. The Water Risk Atlas of Aqueduct from the World Resources Institute (WRI), Environmental Impact Assessment, and regional administrative databases were used as the tools and methods for the assessment. As a result of assessing water risk in watersheds by using Aqueduct, Chuden's power stations were found to be located in "medium-high" risk areas at the maximum for the year, while some were located in "low" risk areas. In regard to the construction of nuclear, biomass and hydro power stations, and the installation of new facilities, when selecting locations and designing basic factors of the facility such as structure and scale, Chuden uses the WRI Aqueduct Water	hydraulic tests, and (environmental impact assessment), etc. <Stakeholder conflicts concerning water resources at a basin/catchment level> Conflicts between stakeholders relating to water resources for hydro power generation are related to water quality risks for users of water downstream after discharge, and Chuden keeps these conflicts under constant assessment due to their importance. Chuden publishes the results of environmental impact assessments during dam construction and in the in-service period and communicates with local residents. In this way, Chuden identifies phenomena that may have an impact on local residents and evaluates the risks of confliction. <Implications of water on your key commodities/raw materials> With water used in hydro power generation, securing a sufficient volume of water has a particularly significant effect. Therefore, Chuden assesses the risks of hydro power generation business failure due to insufficient water resources, utilizing	crucial relevance in water risks assessment, and Chuden constantly includes this in the evaluation. <Local communities> Nuclear power and biomass power stations need to be constructed in coastal areas, so there is an important relationship between the power generation business and the community, including people involved in the fishing industry and local residents. Chuden acknowledges that positive relationships are an important foundation in maintaining the management of power stations and considers that community relationships should be included in the water risk assessment. <Regulators> Strengthening drainage regulations tends to cause increased costs for the reinforcement of waste water treatment facilities and the installation of new facilities. This may lead to an increase in	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. For example, Chubu Electric Power Miraiz Company considers the following risks: carbon tax that may be implemented under climate change related laws

	Risk Atlas as well as data collected from hydro power surveys by local governments for hydro power stations, and manages risk for planning facilities in accordance with the above procedures. In cross-sections of equipment design including environmental conservation planning for environmental impact assessment of nuclear power generation and biomass power generation, risks are managed by the above procedures, etc. to reduce as much as possible the impact on the environment and the ecosystem. At hydro power stations, Chuden discharges a river maintenance flow as necessary based on the guidelines provided by the government. At the nuclear power station and the biomass power station, the water quality, measurement frequency, and	data from surveys as well as field survey results conducted by the Ministry of Land, Infrastructure, Transport and Tourism, etc., and taking into account results of field surveys conducted by Chuden, and decides the development scale and development site of a hydro power station by projecting future electric power demand. Fresh water used in nuclear power generation and biomass power generation forms high-temperature and high-pressure steam in reactors and boilers, which drives turbines and eventually generates power. Therefore, securing high quality water has a particularly significant influence. For biomass power generation, risks in the supply chain are also included in evaluation. <Water-related regulatory frameworks> In the processes of nuclear, biomass, and hydro power generation, water is discharged to public waters. Therefore, it is important to comply with water-related regulations, and risks of deviating from water-related regulations are always included in evaluation. For biomass power generation, risks in	power generation costs, which may eventually have an effect on competition with competing companies, and Chuden constantly includes this in the evaluation. For biomass power generation, risks in the supply chain are also included in evaluation. <Suppliers> The Yokkaichi Biomass Plant is located on the premises of the Yokkaichi Thermal Power Station of JERA Co., Inc., the supplier of Chuden, and all wastewater generated in the operation of the power station is treated at JERA. Therefore, suppliers are relevant to our business as important stake holders, and are always included in risk evaluation. <Water utilities at a local level> Since the operational status of Chuden's power stations is affected by the stability of regional water utilities' supply of domestic water supply for employees	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. In regard to construction of power stations and new facilities, which use water, when selecting locations and designing basic factors of the facility such as structure and scale, Chuden uses the WRI's Aqueduct Water Risk Atlas as well as data collected from hydro power surveys by local governments for hydro power stations, and manages risk for planning facilities in

	measurement methods of wastewater generated by the operation of power plants are specified in the Water Pollution Prevention Act and agreements with local governments, and Chuden measures the temperature difference between the intake and heated wastewater and monitors it based on these provisions to ensure that the temperature difference lies within a certain range to minimize impacts on marine organisms. In addition, Chuden measures and monitors withdrawals of seawater and fresh water. Regarding the severity of risks, risk owners responsible for each operating company, companies of the Chuden Group, offices, and departments follow the risk	the supply chain are also included in evaluation. <Status of ecosystems and habitats> In the processes of nuclear power generation, the effects of discharging warm wastewater to aquatic ecosystems are critical; thus, Chuden conducts environmental impact assessments for construction and constantly assesses to reduce these effects as much as possible. For biomass power generation, risks in the supply chain are also included in evaluation. <Access to fully-functioning, safely managed WASH services for all employees> The availability to all employees of properly functioning and safely managed sanitary facilities is an intrinsic part of the smooth and secure conduct of our business, ensuring a stable supply of electric power, including the operation and maintenance of power generation facilities and the provision of customer services. The volume and quality of water of tap water are continuously evaluated when a business establishment is constructed, or an on-site station is set up.	and industrial water, we consider that it has crucial potential risks. Therefore, regional water supply utilities have always been included in risk evaluation. For biomass power generation, risks in the supply chain are also included in evaluation. <Other water users at a basin/catchment level> Due to discharge from dams and power stations in hydropower generation, Chuden places notice boards to alert people entering the water on the downstream side of dams, etc. to those who go into the rivers. Furthermore, in cooperation with relevant authorities, Chuden seizes opportunities to promote awareness that leads to accident prevention. If Chuden fails to perform these activities, it may lead to disaster, in which case discontinuation of power generation would be unavoidable. The result could be a negative effect on Chuden's business as a whole. Therefore, Chuden considers that	accordance with the above procedures. In cross-sections of equipment design including environmental conservation planning for environmental impact assessment of nuclear power generation and biomass power generation, risks are managed by the above procedures, etc. to reduce as much as possible the impact on the environment and ecosystem. In regard to water risks in the supply chain, the Yokkaichi Biomass Power Plant in Yokkaichi city, Mie prefecture is located on the premises of the Yokkaichi Thermal Power Station of JERA Co., Inc., Chuden's supplier, and all wastewater generated in the operation of the power station is treated at JERA. In cross-sections of equipment design including environmental conservation planning for environmental

	management regulations, work together with business execution within the scope of the division of business, including direct operations, upstream, and downstream, identify risks for about the next 10 years, valuate them based on the frequency of occurrence and degree of impact (in terms of the impact on revenue and expenditure, such as sales and operating costs, and the impact on life and body), and prioritize countermeasures.	<Impact on human health> Since the effects of discharging wastewater from power stations are critical to human health, Chuden complies with laws related to wastewater and observes the agreements with local governments when discharging wastewater from the nuclear and biomass power stations.	other water users at a basin/catchment level have relevance as important stake holders in its risk evaluation and always includes them in evaluation.	impact assessment, risks are managed by the above procedures, etc. In regard to wastewater quality, treatment is conducted at JERA based on the standard specified by Japanese national or local government. For this reason, the quality of the wastewater discharged from the power station may have an indirect impact on our business, and this is included in the risk evaluation.

W4. Risks and opportunities

W4.1

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

Yes, only within our direct operations

W4.1a

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

Chubu Electric Power Company (Chuden) and operating companies consider that risk management itself should be considered an intrinsic part of operations. Therefore, risk management (including reviewing and updating risk metrics) is conducted as part of the business planning cycle established in the management plan and each division of the entire companies, and among these, items that may have a significant impact on the financial and strategic aspects are specified as major risks. Major risks are evaluated based on ten-year

financial impact cost estimates, etc., and those exceeding a certain point on the scale are classified in categories. In water-related risks, “large-scale natural disaster risks,” “risks of non-operation of nuclear power station,” etc. are recognized as having a potential significant impact on the entire business of Chuden, and are considered in planning. These risks apply to both direct operation and the supply chain. As an example of a serious impact, if interruption of supply or damage to facilities should occur due to a large-scale natural disaster or similar, depending on the extent of damage, Chuden’s financial condition, management record, or cash flow could be influenced.

W4.1b

(W4.1b) What is the total number of facilities exposed to water risks with the potential to have a substantive financial or strategic impact on your business, and what proportion of your company-wide facilities does this represent?

	Total number of facilities exposed to water risk	% company-wide facilities this represents	Comment
Row 1	1	Less than 1%	A facility with water-related risks that could have a significant financial or strategic impact on our business is the Hamaoka Nuclear Power Station. All units at the Hamaoka Nuclear Power Station are currently out of operation, and Chuden is steadily implementing measures based on the new regulatory standards, and is undergoing the confirmation examination of conformity of Unit 3/4 to the new regulatory standards by the Nuclear Regulation Authority. Currently, the electricity generated by the Hamaoka Nuclear Power Station is 0 kWh.

W4.1c

(W4.1c) By river basin, what is the number and proportion of facilities exposed to water risks that could have a substantive financial or strategic impact on your business, and what is the potential business impact associated with those facilities?

Country/Area & River basin

Japan

Other, please specify

Niino River

Number of facilities exposed to water risk

1

% company-wide facilities this represents

Less than 1%

% company's annual electricity generation that could be affected by these facilities

Less than 1%

% company's total global revenue that could be affected

Less than 1%

Comment

A facility with water-related risks that could have a significant financial or strategic impact on our business is the Hamaoka Nuclear Power Station. All units at the Hamaoka Nuclear Power Station are currently out of operation, and Chuden is steadily implementing measures based on the new regulatory standards, and is undergoing the confirmation examination of conformity of Unit 3/4 to the new regulatory standards by the Nuclear Regulation Authority. Currently, the electricity generated by the Hamaoka Nuclear Power Station is 0 kWh.

W4.2

(W4.2) Provide details of identified risks in your direct operations with the potential to have a substantive financial or strategic impact on your business, and your response to those risks.

Country/Area & River basin

Japan

Other, please specify

Niino River

Type of risk & Primary risk driver

Acute physical

Other, please specify

Tsunami

Primary potential impact

Increased cost of capital

Company-specific description

Chuden is pushing forward with measures to improve the safety of the Hamaoka Nuclear Power Station, with a firm determination to have "No more accidents like the one at Fukushima Daiichi Nuclear Power Station." The Hamaoka Nuclear Power Station is located in Sakura, Omaezaki City, Shizuoka Prefecture. Most of the fresh water used in it is obtained by directly pumping underground water from the Niino River on the west side of the power station. In order to prevent flooding into the premises of the power station and buildings as well as accidents caused by a lack of fresh water for injection, and to prepare for accidents in the event of a large-scale disaster such as an

unprecedented tsunami, Chuden is working to strengthen multiple and diverse measures for equipment and onsite response capabilities to ensure that the equipment functions effectively.

With all units of the Hamaoka Nuclear Power Station out of operation, the Chuden Group is replacing it with thermal power. Due to the continued suspension of operations at the Hamaoka Nuclear Power Station in response to new regulatory standards, including tsunami response measures, Chuden's financial condition, operating results, and cash flow may be affected by a significant increase in power supply procurement costs.

Timeframe

More than 6 years

Magnitude of potential impact

High

Likelihood

Unlikely

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

1,600

Potential financial impact figure - minimum (currency)

Potential financial impact figure - maximum (currency)

Explanation of financial impact

The monetary unit stated in the potential impact amount is 100 million yen. The potential financial impact is the cost of replacing the Hamaoka Nuclear Power Station with a thermal power source in the event that its operations continue to be suspended in response to new regulatory standards including tsunami response measures. The answer is the reduction in annual fuel costs that will no longer need to be recorded if the Hamaoka Nuclear Power Station restarts and there is no longer a need to procure an alternative thermal power source.

Primary response to risk

Engage with regulators/policymakers

Description of response

For the Hamaoka Nuclear Power Station, Chuden is pushing forward with measures to improve safety with a firm determination to have "No more accidents like the one at Fukushima Daiichi Nuclear Power Station." Units 3 and 4 are undergoing the conformity confirmation examination to the new regulatory standards by the Nuclear Regulation

Authority and are making a steady progress toward the determination of standard seismic motion and a standard tsunami. At the review meeting held in May 2023, the review schedule for standard seismic motion and a standard tsunami was updated, taking into account past review results, etc. With the aim of holding review meetings approximately once a month and discussing standard seismic motion and a standard tsunami at the meetings in July 2023 or later, Chuden explained that it would like to resume plant-related reviews from around the fall of 2023. Once the standard seismic motion and the standard tsunami have been determined, Chuden will respond to plant-related reviews, and will carry out activities based on them to understand the safety of the Hamaoka Nuclear Power Station, including the effectiveness of safety improvement measures.
The Hamaoka Nuclear Power Station has always reflected the latest knowledge and striven to improve safety. Even after the accident at the Fukushima Daiichi Nuclear Power Plant, Chuden has not only responded to new regulatory standards, but also made voluntary and continuous efforts to face risks, work to reduce them, and improve safety. The amount of capital investment in the “Other” segment include costs of strengthening the multiple and diverse equipment measures to prevent accidents and prepare for the occurrence of accidents by, for example, installing breakwater walls to prevent water from entering the premises for improving the safety of the Hamaoka Nuclear Power Station, installing reinforced doors and watertight doors to prevent water from entering buildings, and installing freshwater storage tanks as an alternative means of water injection in the case of emergencies.

Cost of response

1,060

Explanation of cost of response

The monetary unit for response costs is 100 million yen. Of the amount of capital investment for each segment of Chuden, this is the total capital investment amount for the “Other” segment, to which the nuclear power generation business belongs. Chuden has been strengthening multiple and diverse equipment measures to prevent accidents and prepare for the occurrence of accidents, and has been working to strengthen onsite response capabilities to ensure the effective functioning of equipment by, for example, installing breakwater walls to prevent water from entering the premises, installing reinforced doors and watertight doors to prevent water from entering buildings, and installing freshwater storage tanks as an alternative means of water injection in the case of emergencies. Since there are no resources to calculate the specific capital investments related to nuclear power generation facilities to total investments, the scope of the answers covers almost all the response costs that can be disclosed.

W4.2c

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

	Primary reason	Please explain

Row 1	Risks exist, but no substantive impact anticipated	In April 2019 Chuden integrated the existing thermal power generation business, etc. into JERA Co., Inc., and power generation companies including JERA have become important suppliers of the electric power we sell. Water quality, measurement frequency, and measurement methods of wastewater generated by the operation of power plants of these companies are specified in the Water Pollution Prevention Act and in agreements with local governments, and Chuden implements measurement and monitoring based on these provisions, with consideration given to minimizing impacts on the environment. Securing a sufficient volume of high-quality fresh water is essential for power stations. However, the biggest problem that makes it difficult to secure fresh water is water shortage (drought) resulting from interaction of the reduction in volume of stored water resources in summer, with an increase in industrial and consumer water usage. To prepare for industrial water shortages, Chuden's power stations have fresh water tanks with sufficient capacity, and some thermal power stations have installed groundwater pumps or capacity to pump treated water from nearby wastewater purification centers via direct pipelines. Taking this into account, although there are risks of water shortage, we consider that facilities and systems have been organized to reduce these risks. Suppliers of electric power to Chuden use recycled water in the power generation processes in thermal power stations, etc. In these processes, fresh water treated to remove impurities is used as steam to drive the turbines, and cyclical use contributes to a reduction in the use of fresh water. In this way, recycled water is essentially treated fresh water and has the same risks as fresh water as described above. Regarding responses to large-scale water-related disasters such as large-scale typhoons, storm surges, earthquakes, and tsunamis, JERA, which is Chuden's largest supplier, is included in the monitoring target of the BCM Committee mentioned above. Based on the damage estimates caused by a Nankai Trough Earthquake, Chuden is building disaster-resistant facilities, such as the installation of tsunami countermeasures for equipment related to receiving fuel for thermal power generation. As a result of the above, however, since there are water-related risks in the value chain, but Chuden has the necessary equipment and operational systems in place to reduce these risks, it has evaluated the water risk based on the amount of 10-year financial impact, etc., and determined that the scale does not exceed a certain level. Therefore, Chuden is not exposed to water risks that could have a significant financial or strategic impact.

W4.3

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

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

W4.3a

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

Type of opportunity

Products and services

Primary water-related opportunity

Sales of new products/services

Company-specific description & strategy to realize opportunity

Hydro power generation is a renewable energy power source that does not emit CO2 during generation. Therefore, Chuden recognizes that hydro power generation may become one of our products which is capable of meeting the various needs of those of our consumers who are interested in renewable energy as well as reducing the environmental burden. Electricity generated by hydro power is one of our main products, and it needs to be deployed strategically. In order to effectively appeal that the electricity generated by our hydro power generation process is conducted in a way that does not emit CO2, we have developed an electricity rate plan with a new name and pricing (CO2 free electricity plan: an electricity plan that offers CO2-free values (Zero CO2 emissions) energy derived from renewable energy power sources such as hydro power generation stations owned by Chuden), From July 2019, Chuden started to provide this option for electricity rate plans to consumers who have electricity contracts. In the “Calculation, Reporting and Announcement Scheme of Greenhouse Gas Emissions” based on the “Act on Promotion of Global Warming Countermeasures,” this plan is credited with being able to calculate CO2 emissions by setting the CO2 emissions factor as zero, and monetization of this plan is proceeding.

In April 2020 we started to provide Shinshu Green Electricity, a CO2-free electricity plan that utilizes the CO2-free values and the local production values derived from the hydroelectric power stations, etc. in Nagano prefecture, operated by the Nagano Prefecture Enterprise Bureau. Later, 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. Chuden is delivering 100% renewable energy and zero CO2 emissions electricity to customers by effectively utilizing local production of renewable energy generated in each prefecture, and is working on the expansion of renewable energy by promoting development of renewable energy power sources using part of the income from customers.

In January 2023, we reached a basic agreement with a consortium formed by six global companies to build a user-participatory renewable energy expansion model for the renovation of existing hydro power stations. This model not only allows customers who have a strong interest in “additionality” to actively participate from the planning stage in the renovation of an existing hydro power station where Chubu Electric Power is considering a power increase, but also serves as a system that enables this consortium to proactively contribute to the expansion of renewable energy by paying an additional charge for “additionality” when purchasing the electricity derived from renewable energy, including electricity increase due to renovation, through Chubu Electric Power Miraiz. As the first project using this model, Chuden is planning to apply it to the renovation of old equipment at our Oigawa Hydro Power Station Unit 1, and is expecting an increase in annual power generation of approximately 1.9 million kWh from 2025.
For the realization of a carbon-free society, the Chuden Group aims to reduce CO_2 emissions generated from sales to customers in 2030 by at least 50% from the figure for FY2013 in the Zero Emissions Challenge 2050, and to take on the challenge of net zero CO_2 emissions in Chuden’s entire business in 2050. Expanding renewable energy is one of the important strategies to achieve this goal. Chuden is actively working to achieve the “expansion of renewable energy to more than 3.2 million kW by around 2030” by expanding sales in the CO_2-free electricity plan, aiming to expand renewable energy power sources together with its customers.

Estimated timeframe for realization

Current - up to 1 year

Magnitude of potential financial 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

Of the consolidated ordinary income of 250 billion yen targeted for FY2030 announced in “Management Vision 2.0” in November 2021, the amount entered for potential financial impact is an estimate of the ordinary income from the domestic sales and power generation businesses of Chuden and its operating companies, including the sales of CO_2-free electricity plans and power generation using renewable energy.

Type of opportunity

Products and services

Primary water-related opportunity

Sales of new products/services

Company-specific description & strategy to realize opportunity

Based on our extensive consulting experience, Chuden works with customers aiming at decarbonization and a sustainable society. Through technological development, we solve issues such as 3R (Reduce, Reuse, Recycle), energy conservation, CO2 reduction, and equipment maintenance, that our customers cannot completely resolve with their existing technological efforts. Chuden recognizes a new opportunity in this development of solutions that are one step ahead in meeting customer needs, and we are developing service strategically.

Chuden has developed a high-efficiency fine bubble liquid purifier that can efficiently remove impurities and purify cleaning solutions which are used in automobile factories, etc. using fine bubbles (very small bubbles with a diameter of 0.1 - 0.01 mm) and we are proposing this technology mainly to automobile factory customers.

The use of fine bubbles has made it possible to efficiently remove impurities such as oil and sludge which is generated by the continuous use of cleaning solution (cleaning liquids used in cleaning process in automobile factories, etc. and coolant liquids used in machining processes), and the rate of separation of impurities from liquid has been improved by 70% compared with previous performance.

In the past, it was necessary to discard the cleaning solution after cleaning and replace it on a regular basis; however, using this device extends the life of the cleaning solution, reducing re-purchase and replacement, and significantly reducing the amount of waste solution. At an automobile factory that has actually introduced the system, the use of 1.2 tons of steam to concentrate 1 ton of waste liquid has been reduced to zero, leading to a reduction in the amount of water used for tank cleaning, resulting in a reduction of the water impact on customers. In addition to achieving this goal, the factory has also been able to reduce CO2 emissions by 27.5 tons per year.

“Development of high-efficiency fine-bubble liquid purification equipment to help realize a recycling society” implemented by Chuden with Kansai Automation Equipment Co., Ltd. received the 2021 METI Industrial Technology Environmental Agency Director’s Award, Resource Recycling Technology and System Awards (organized by Japan Environmental Management Association for Industry, supported by METI). Resource Recycling Technology and System Award is a system which recognizes excellent business practices and efforts that contribute to reduction of waste, reuse of goods and materials, and effective use of recycling resources and those which have features of advanced technology or progressive system in the age of SDGs. This new equipment was highly rated because it contributes to the realization of a sustainable recycling society.

Estimated timeframe for realization

Current - up to 1 year

Magnitude of potential financial 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

In Management Vision 2.0 announced in November 2021, Chuden group set a goal of consolidated ordinary income of more than 250 billion yen in FY2030, and aims to secure approx. 80 – 90 billion yen of the profit in sales and power generation business, including solutions services.

The amount entered for potential financial impact is the total of sales and power generation business including solutions services incorporating high-efficiency fine bubble liquid cleaning equipment, out of the consolidated ordinary income targeted for FY2030.

Type of opportunity

Products and services

Primary water-related opportunity

Sales of new products/services

Company-specific description & strategy to realize opportunity

In April 2021, the Chuden Group began providing telemetering services to water and gas utilities in the Chubu area to resolve issues in local communities. Currently, the number of utilities is about 20 and the number of units for automatic meter readings exceeds 120,000.

Chuden recognizes this service as a water-related opportunity in a new growth field, leading to solving local community issues by leveraging the infrastructure business know-how and DX knowledge that have been cultivated. Chuden is now developing the service strategically.

This service utilizes the communication function of Chuden's electricity smart meter (completely installed at the end of FY2022).

The telemeter service enables gas and water utilities to remotely acquire various types of gas and water meter data and obtain alerts for water leaks, etc., through two-way communication using this power smart meter communication infrastructure. This service solves problems faced by gas companies and municipalities, and uses the various data obtained through the service to improve customers' awareness of water conservation by visualizing water usage, and to help gas companies and municipalities detect water

leaks early on. This is a service that can support and contribute to the effective use of water resources.
In February 2023, Chuden and Chubu Electric Power Grid established Chuden Telemetering LLC, a telemetering service company specializing in automatic readings of gas and water meters, and transferred these telemetering services to the company. From now on, Chuden aims to expand the market, improve the services, and increase the number of service users to 500,000 by FY2025.
Chuden recognizes this is a water-related opportunity in a new growth area where our technology can help resolve social and community issues, and we plan to strategically expand this service.

Estimated timeframe for realization

Current - up to 1 year

Magnitude of potential financial impact

Medium-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)

20,000,000,000

Potential financial impact figure – maximum (currency)

30,000,000,000

Explanation of financial impact

In Management Vision 2.0 announced in November 2021, Chuden group set a goal of consolidated ordinary income of more than 250 billion yen for FY2030. It aims to secure approx. 20 – 30 billion yen of the profit in new growth areas, including automated smart water meter reading.
The amount entered for potential financial impact is the total of new growth areas including automated smart water meter reading, as part of the consolidated ordinary income targeted for FY2030.

W5. Facility-level water accounting

W5.1

(W5.1) For each facility referenced in W4.1c, provide coordinates, water accounting data, and a comparison with the previous reporting year.

Facility reference number
Facility 1

Facility name (optional)
Hamaoka Nuclear Power Station

Country/Area & River basin
Japan
Other, please specify
Niino River

Latitude
34.6

Longitude
138.1

Located in area with water stress
No

Primary power generation source for your electricity generation at this facility
Nuclear

Total water withdrawals at this facility (megaliters/year)
429,008

Comparison of total withdrawals with previous reporting year
Lower

Withdrawals from fresh surface water, including rainwater, water from wetlands, rivers and lakes
111

Withdrawals from brackish surface water/seawater
428,827

Withdrawals from groundwater - renewable
0

Withdrawals from groundwater - non-renewable
0

Withdrawals from produced/entrained water
0

Withdrawals from third party sources
70

Total water discharges at this facility (megaliters/year)
428,917

Comparison of total discharges with previous reporting year

Lower

Discharges to fresh surface water

90

Discharges to brackish surface water/seawater

428,827

Discharges to groundwater

0

Discharges to third party destinations

0

Total water consumption at this facility (megaliters/year)

91

Comparison of total consumption with previous reporting year

Lower

Please explain

Water withdrawals, water discharges, and consumption decreased compared to the previous year. This is because the operating hours of the pumps used for seawater intake at the nuclear power station have been reduced by reviewing the operation based on the current situation.
Consumption is the water volume consumed at power stations by hosing, etc., and Chuden does not keep the exact value. Therefore, water consumption is assumed based on the difference between the total intake and the total discharge.

W5.1a

(W5.1a) For the facilities referenced in W5.1, what proportion of water accounting data has been third party verified?

Water withdrawals – total volumes

% verified

Not verified

Please explain

Chuden has not received third-party verification of its water withdrawals.

Water withdrawals – volume by source

% verified

Not verified

Please explain

Chuden has not received third-party verification of its water withdrawals by water source.

Water withdrawals – quality by standard water quality parameters

% verified

76-100

Verification standard used

The temperature of seawater at withdrawal is constantly measured using a thermometer and is reported to local government.

Water discharges – total volumes

% verified

Not verified

Please explain

Chuden has not received third-party verification of its water discharges.

Water discharges – volume by destination

% verified

Not verified

Please explain

Chuden has not received third-party verification of its water discharges by destination.

Water discharges – volume by final treatment level

% verified

Not verified

Please explain

Chuden has not received third-party verification of its water discharges by final treatment level.

Water discharges – quality by standard water quality parameters

% verified

76-100

Verification standard used

Chuden measures the pH, COD, and SS of freshwater discharged into the sea using methods stipulated by the Water Pollution Control Act, and reports the results to local governments. The temperature of the seawater drained is also constantly measured using a thermometer and is reported to local governments.

Water consumption – total volume

% verified

Not verified

Please explain

Chuden has not received third-party verification of its water consumption.

W6. Governance

W6.1

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

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

W6.1a

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

	Scope	Content	Please explain
Row 1	Company-wide	Description of business dependency on water Description of business impact on water Commitment to prevent, minimize, and control pollution Commitment to reduce water withdrawal and/or consumption volumes in direct operations Commitment to safely managed Water, Sanitation and Hygiene (WASH) in local communities Commitment to stakeholder education and capacity building on water security Commitment to the conservation of freshwater ecosystems Commitments beyond regulatory compliance	In Chubu Electric Power Company (Chuden)'s business activities, it is essential to secure sufficient volumes of water such as seawater and fresh water required for operation of the nuclear power station, biomass power station, and hydro power stations. In regard to wastewater, an enormous volume of warm wastewater used to cool steam generated in power generation at the nuclear power station and the biomass power station is discharged. Therefore, for operating the power stations, Chuden measures and monitors withdrawals of seawater and fresh water and measures the temperature difference between withdrawals and discharges of warm wastewater, and monitors to keep the temperature difference within the limit, to minimize the effects on marine organisms. In order to clarify the importance of water in such business activities as our policy, Chuden revised the **Chubu Electric Power Group Basic Environmental Policy**, a basic policy concerning environmental conservation based on the Chubu Electric Power Group CSR Declaration in March 2021, and specified that to "protect our rich natural environment, we will take into account ecosystem biodiversity and water resource sustainability as we conduct our business activities." This policy specifies that Chuden should contribute toward

		Reference to company water-related targets Recognition of environmental linkages, for example, due to climate change	realization of a society harmonious with nature by considering the sustainability of water resources and should deepen communication concerning the environment and energy with communities and cultivate human resources that can take environmentally friendly actions voluntarily to improve environmental awareness including water resources. The Chubu Electric Power Group CSR Declaration specifies that the Chuden group should “contribute to the development of a sustainable society by giving top priority to safety and striving both to provide a stable supply of energy and to protect the global environment. We aim to accomplish these goals through business activities that allow the individuality of group companies to be fully expressed while achieving group synergy in enterprises within our core competence in energy.” Therefore, the scope of the Basic Environmental Policy is also specified for the entire group based on this declaration. Based on “consideration of sustainability of water resources” specified by this policy, all of Chuden’s power stations measure and monitor wastewater quality based on the Water Pollution Prevention Act and agreements with local governments, and business establishments aim to commit zero violations of laws or agreements. The target benchmark is to match the previous fiscal year’s figures for water usage per office employee when averaged on a company-wide basis. In order to “enhance environmental awareness” in this policy, including for water resources, Chuden implements activities that include Chuden group employees and their families cooperating with an environmental NPO in coastal protection activities, and Chuden group ECO social contribution activities, including education about the conservation of aquatic organisms such as loggerhead turtles. Chuden also cultivates Chuden Foresters, volunteers who are involved in forest preservation activities such as tree thinning, which are important for watershed protection and landslide prevention, etc. in planted forests of Japanese cedars and hinoki cypress. Chuden actively works on educational activities for communities and employees, educating all our employees on environmental law related

			to our business activities, regular dissemination of information to all employees designed to increase their environmental awareness, and via the in-house website, encouraging water conservation among employees. In addition, as an initiative targeting the sustainability of water resources, Chuden focuses on watershed protection, the ability of forests to nurture water as a water recharge function. We also work on visualization of the watershed protection ability of our company-owned forest, Uchigatani Forest, in joint research with Nagoya University. We also conduct research on water neutrality, a concept in which our business's water consumption volume equates to its water production. Chuden also supports the Ministry of the Environment's Plastic Smart Campaign, an initiative which aims to accelerate the existing movement towards solving the issue of marine plastic waste, which affects the marine environment. The Chuden Group will deliver community support infrastructure by fusing resilient and optimal energy services with data services, making life convenient and enriching. Specifically, in addition to the energy business, Chuden will accelerate the commercialization of new growth fields and further expand the fields into regional infrastructure projects, such as resource circulation, water supply and sewage, and regional transportation, to embody a "new form of community" that improves the quality of life of customers, including through safely managed WASH services, and will then accelerate the provision of such services.

W6.2

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

Yes

W6.2a

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

Position of individual or committee	Responsibilities for water-related issues

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 situations concerning execution of operations are reported. Chuden recognizes addressing climate change and water related issues as a critical issues that requires management decisions in its business activities. Responsibility for solving water-related issues includes responsibility for realizing a carbon-free society that will help alleviate the devastation of flooding, etc., reduction of water withdrawals when constructing power stations that use large volumes of water, securing water quality, and preserving the marine ecosystem, etc. "Chubu Electric Power Group Management Vision 2.0" was approved at the Board of Directors' meeting held in November 2021, which was also attended by the president responsible for water-related issues. In the Chubu Electric Power Group Management Vision 2.0, the Chuden group announced that it would provide a base to support transformation to a decarbonized, safe and secure, and self-distributed and circular society and have formulated and published goals to take on the challenge of "decarbonization" together with customers and society. Working towards 2030, we have decided to promote decarbonization of power systems with the expansion of renewable energy including hydro and biomass power generation and maximum utilization of nuclear power generation, etc., as well as decarbonization on the demand side with promotion of electrification. At the same time, looking ahead to 2050, we will continue to promote initiatives such as hydrogen and ammonia demonstrations. As part of this, we have set a new goal of expansion of renewable energy by around 2030, aiming 3.2 GW (8 billion kWh) or more. In the **Zero Emissions Challenge 2050**, aiming to achieve **decarbonization** and **safety, stability, and efficiency** together by promoting electrification and decarbonization of energy use together with customers, we aim to reduce CO2 emissions generated from sales to customers in 2030 by at least 50% compared to FY2013. These issues relating to water-related issues including renewable energy such as hydro and biomass power generation 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. *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.

W6.2b

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

	Frequency that water-related issues are a scheduled agenda item	Governance mechanisms into which water-related issues are integrated	Please explain
Row 1	Scheduled - some meetings	Monitoring implementation and performance Overseeing major capital expenditures Reviewing and guiding annual budgets Reviewing and guiding business plans Reviewing and guiding corporate responsibility strategy Reviewing and guiding major plans of action Reviewing and guiding risk management policies Reviewing and guiding strategy Setting performance objectives	Chuden holds the Board of Directors meetings once a month in principle. At the Board of Directors meetings, critical issues relating to nuclear power generation, biomass power generation, hydro power generation and water supply business, including issues related to water, (For example, matters related to large-scale capital expenditures, annual budgets, risk management policies, strategies, and performance targets related to water security) are discussed and decided and execution of duties is monitored through reports from Directors. In order to reinforce the supervisory function, Chuden has also introduced External Directors and currently, of the 9 members of the Board of Directors, four members are External Directors. Twice-yearly reports from the Directors are comprehensive reports on the entire plan. They include details of business plan progress regarding development and operation of renewable energy as critical issues, including water-related issues. In FY2022, the Board of Directors' report was given to the directors related to water-related issues. <Agenda for the Board of Directors' report on water-related issues in FY2022> · Management, income, and expenditure status and future outlook of Chuden and its operating companies, etc. in FY2021 · Management, income, and expenditure status and future outlook of Chuden and its operating companies, etc. in the first half of FY2022 · Management, income, and expenditure status and future outlook of Chubu Electric Power Grid in the first half of FY2022

			· Management, income, and expenditure status and future outlook of Chubu Electric Power Miraiz in the first half of FY2022 · Business, income, and expenditure status and future outlook of Chuden Group Renewable Energy Company in the first half of FY2022

W6.2d

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

	Board member(s) have competence on water-related issues	Primary reason for no board-level competence on water-related issues	Explain why your organization does not have at least one board member with competence on water-related issues and any plans to address board-level competence in the future
Row 1	No, but we plan to address this within the next two years	Other, please specify To respond to water-related issues, the President, who is a member of the Board of Directors and the chief executive officer, makes executive decisions based on resolutions of the Board of Directors, and monitors progress of related initiatives. Chuden has a system of supervision by all the members of the Board of Directors. In FY2023 and later, Chuden plans to set up environment-related items in the skill matrix to further clarify the abilities of directors related to environmental issues.	Chuden recognizes that water-related issues are critical issue that require 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 conducts monitoring on risks related to water and the progress of efforts related to evaluation and management of opportunities. Specifically, as a subordinate meeting committee structure of the Board of Directors, Chuden established the Senior Executive Committee comprised of the President, Executive Vice Presidents, Executive Officers, and the President of Chubu Electric Power Miraiz Company. The Committee is held once a week in principle to discuss in advance the agenda of the Board of Directors, such as annual management plans. Other substantive matters concerning the execution of operations that are not subject to the above are decided by

			the President through consultation with the Senior Executive Committee. Responsibilities for solving water-related issues include reduction of water intake when constructing power stations, which use water, securing water quality, and preserving marine ecosystems, etc. In this regard, in response to water-related issues including hydro power generation, biomass power generation, and nuclear power generation, Chuden has frameworks of supervision at Board of Directors level, monitoring of the progress of related efforts, and management of risks that may have a significant impact on the entire business, and reflects them in planning. Chuden recognizes water-related issues linked to climate-related issues as a priority, and also responds to water-related issues as climate-related issues. The Chuden group aims to achieve decarbonization and safety, stability, and efficiency together, through innovation in energy infrastructure. This is an intrinsic factor in our management, and it relates to all the items in directors' and auditors' expertise and experience, so we do not set individual agenda items for decarbonization, environment, and water in the skill matrix. Therefore, Chuden does not at present specify a "board member with competence on water-related issues" for water-related issues and is working on by bringing together all the forces of executives. While pushing forward with this initiative, Chuden believes it is important to identify and disclose executives who have knowledge of technology that contributes to the environment, and will clearly indicate it

			in the skill matrix as a “technology that contributes to power supply and the environment” from FY2023.

W6.3

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

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

President

Water-related responsibilities of this position

Assessing water-related risks and opportunities
Managing water-related risks and opportunities
Conducting water-related scenario analysis

Frequency of reporting to the board on water-related issues

Half-yearly

Please explain

Chuden recognizes that water-related issues are critical issue that require 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 conducts monitoring on the progress of efforts related to evaluation and management of water-related risks and opportunities. Specifically, Chuden has established a Goal Setting and Monitoring Committee, comprised of the Chairman, President, Executive Vice Presidents, Executive Officers, and presidents of operating companies, and chaired by the President. The committee, in principle, is held once a quarter and has discussions not only on management plans, including measures taken to resolve various water-related issues, such as reduction of water withdrawals when constructing power stations that use large volumes of water, securing water quality, and preserving the marine ecosystem, and progress management of business plans established by operating companies, but also with the aim of optimizing management while respecting the autonomous management of each business through monitoring with a focus on integrated risk management. In addition, the content of discussions held by this committee is reported to the Board of Directors once every six months.

W6.4

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

	Provide incentives for management of water-related issues	Comment
Row 1	No, and we do not plan to introduce them in the next two years	

W6.5

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

Yes, trade associations

Yes, funding research organizations

W6.5a

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

Policies associated with water related issues, matters relating to the government and industrial areas, and development that may have influence on the business activities of electric utility companies, are collected and summarized at the Federation of Electric Power Companies (FEPC), and the content is reported and shared with the monthly Senior Executive Committee in order for Chuden to respond in a timely way and for this to be reflected on the company's Management Plan. This also facilitates communication with FEPC, not only at management levels but also at practical levels, to form a structure to respond in a timely manner. When activities intended to influence public policies and company policies do not match, and in particular if situations occur in which policies of FEPC and the company disagree, Chuden will promote its business activities by encouraging discussion of continuing activities in FEPC.

W6.6

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

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

99yuho.pdf

W7. Business strategy

W7.1

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

	Are water-related issues integrated?	Long-term time horizon (years)	Please explain
Long-term business objectives	Yes, water-related issues are integrated	21-30	As an energy supplier, Chuden has long-term business objectives including the construction of power stations by renewable energy that uses water, such as hydro power and biomass power generation to realize a

			carbon-free society. Chuden believes that the decarbonization of electricity to be delivered to customers through the expansion of renewable energy will contribute to the realization of a carbon-free society, and is an initiative that will contribute to the mitigation of the effects of climate change such as the devastation of flooding. Among renewable energies, since wind power generation and other power generation methods do not use water for power generation, Chuden believes that expanding the amount of power generated by these types of energy will help decarbonize the electricity we sell, and will furthermore reduce the amount of water used during power generation, and contribute to the reduction of water consumption. In March 2021, Chuden group announced **Zero Emissions Challenge 2050**, aiming to achieve **decarbonization** and **safety, stability, and efficiency** together, through innovation of the energy infrastructure, in conjunction with society and customers. In this effort, Chuden aims at CO2 net zero emissions by 2050, aiming to contribute to the realization of a carbon-free society, and the entire Group will work together to expand renewable energy. Specifically, Chuden will work to decarbonize the electricity to be delivered by maximizing the use of non-fossil energy through the expansion of renewable energy, including hydroelectric power generation and biomass power generation. Chuden will also work with our customers to provide services that will help them expand customer-owned renewable energies.
Strategy for achieving long-term objectives	Yes, water-related issues are integrated	11-15	As a strategy to achieve our long-term business targets, renewable energy development goals, including hydro and biomass power generation, which use water, have been integrated into our long-term business plans such as Management Vision 2.0, and Medium-Term Management Plan and announced publicly. Chuden aims to achieve its long-term business objectives by actively promoting the development and expansion of its Group's ownership of solar power in the short term, hydropower, biomass, and onshore wind power in the medium term, and offshore wind power and geothermal power in the long term. As a specific development plan, within our service area, Chuden will continue to develop the construction of the Seinaiji Hydroelectric Power Station, Abekawa

			Hydroelectric Power Station, Aichi Gamagori Biomass Power Plant, Omaezaki Port Biomass Power Plant, Godo Biomass Power Plant, and Minokamo Biomass Power Plant. Chuden is also moving forward with the Tahara Biomass Power Plant, which has been authorized for development. In addition, outside Chuden's area, the company is currently making considerations towards the development and commercialization of wood-burning biomass power stations in Kamisu City, Ibaraki Prefecture, Yatsushiro City, Kumamoto Prefecture, and Fukuyama City, Hiroshima Prefecture, and large-scale offshore wind power stations off the coast of Goto City, Nagasaki Prefecture, and Yurihonjo City, Akita Prefecture. In December 2022, Chuden began commercial operation of the Noshiro Port Offshore wind farm, Japan's first commercial large-scale offshore wind power plant, through the special purpose company Akita Offshore Wind Corporation. In January 2023, it also began commercial operation of the Akita Port offshore wind firm. In December 2022, Chuden began commercial operation of the Okuhida-Onsengo Nakao Geothermal Power Station, the group's first geothermal power station. In addition to new development, Chuden is also working on replacing existing power sources and increasing output and power to achieve its goals for expanding renewable energies. With expansion of ESG investment, the number of customers who support efforts such as RE100 is increasing. Chuden recognizes that this growing customer need for electricity from renewable energies represents an important water-related opportunity to strategically develop products to meet the customers' diversifying needs.
Financial planning	Yes, water-related issues are integrated	11-15	Chuden is incorporating the construction of power plants using renewable energies in its business plans to achieve a decarbonization society, and since the construction of power stations requires a large amount of costs, Chuden has incorporated these development costs in its financial plans. Specifically, this refers to costs of implementing the development and deployment of hydroelectric power stations in Abekawa, Seinaiji and Uchigatani, etc.

			To promote such efforts, Chuden will diversify our financing by utilizing products such as green bonds, which are bonds limited to environment improvement projects such as development of renewable energy. In January 2023, we reached a basic agreement with a consortium formed by six global companies to build a user-participatory renewable energy expansion model for the renovation of existing hydro power stations. This model not only allows customers who have a strong interest in “additionality” to actively participate from the planning stage in the renovation of an existing hydro power station where Chubu Electric Power is considering a power increase, but also serves as a system that enables this consortium to proactively contribute to the expansion of renewable energy by paying an additional charge for “additionality” when purchasing the electricity derived from renewable energy, including electricity increase due to renovation, through Chubu Electric Power Miraiz. As the first project using this model, Chuden is planning to apply it to the renovation of old equipment at our Oigawa Hydro Power Station Unit 1, and is expecting an increase in annual power generation of approximately 1.9 million kWh from 2025. The Chuden group Renewable Energy Company has introduced the Toyota Production System (TPS) and is making efforts to improve productivity. Chuden has set a goal to “triple productivity through new ideas outside the box” and is carrying out cumulative total of 211 projects as of March 2023. Chuden has also changed its organizational structure to a system that manages the renewable energy business in an integrated way. When torrential rain occurred in 2019, the Hydro Administration Center demonstrated its mobility in swift restoration activity and minimized financial loss caused by unexpected water risks.

W7.2

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

Row 1

Water-related CAPEX (+/- % change)

14.75

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

14.42

Water-related OPEX (+/- % change)

40.62

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

0.01

Please explain

The monetary unit for capital investments and operating costs related to water is 100 million yen.
For these costs, the company entered its capital investments and operating expenses, and their total volume. There are no resources to calculate the specific percentage of capital investments related to water within the total investment, or the percentage of operating costs related to water within total operating costs, and also the scope of the answers to this questionnaire covers nuclear power and renewable energy (biomass and hydro power), which account for almost all of the company's facilities. The costs above include capital investments and operation costs involved in creating water-related business opportunities such as "provision of CO2-free electricity plans derived from renewable energy sources such as hydro power generation," "User participation-based renewable energy expansion model", "solutions services incorporating high-efficiency fine bubble liquid cleaning equipment" and "automated water meter reading services."
Though there are also no resources to specifically calculate capital investments and operating costs related to water in the next reporting year, our business plan is expected not to change drastically and therefore we consider this valid.
Capital investment costs slightly increased compared to those of the previous fiscal year. This is because Chuden worked on investment in non-fossil power sources such as hydro power generation facilities and nuclear power generation facilities.
Operating costs have increased from the previous year. This is caused by the impact of increased power supply costs, etc. due to the wholesale electricity market and soaring resource prices.

W7.3

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

	Use of scenario analysis	Comment
Row 1	Yes	Chuden announced its support for the purpose of the TCFD final report in May 2019, and has been analyzing the climate change scenario. By referring to data published by the International Energy Agency (IEA) and other organizations,

		Chuden has selected the “2-degree scenario” (refer to IEA: Net Zero by 2050 (NZE scenario), WEO2021 (APS scenario), 6th Basic Energy Plan, etc.)) and the “4-degree scenario” (refer to the IPCC/RCP8.5 scenario). Based on each scenario, Chuden conducted a business impact assessment based on transition risks and opportunities and physical risks with the mid-century in mind, and disclosed the results in the Chuden Group Report 2022 in September 2022. Referring to Japan’s NDC for FY2030 (46% reduction compared to FY2013), the scenario analysis makes it a prerequisite to comply with the requirements of environmental regulations, such as achievement of the non-fossil power source ratio stipulated in the Energy Supply Structure Improvement Act as an electricity retailer (44% in FY2030) . Through the analysis, Chuden has realized that the company needs to make further efforts to increase the proportion of non-fossil energy, including hydro power generation, to realize a carbon-free society. To address these issues, in the “Chubu Electric Power Group Management Vision 2.0,” Chuden has set goals to maximize the use of the Hamaoka Nuclear Power Station and contribute to the expansion of 3.2 million kW or more of renewable energy power sources, including hydroelectric power and biomass power generation, by around 2030, and has incorporated them into its medium-term management plan and its annual business plan.

W7.3a

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

	Type of scenario analysis used	Parameters, assumptions, analytical choices	Description of possible water-related outcomes	Influence on business strategy
Row 1	Water-related Climate-related	Chuden and its operating companies have selected for its scenario analysis the 1.5 Degree Scenario and 4 Degree Scenario (refers to IPCC, RCP8.5 Scenario). Based on these scenarios, Chuden conducted a business impact assessment for transition risks and opportunities, and physical risks, with a focus on the middle of this century, and disclosed the	As a result of the scenario analysis, in response to the “risks and opportunities related to the transition to a carbon-free society,” Chuden has considered the realization of a carbon-free society and the	The Chuden Group recognizes the climate change risks and opportunities obtained through the scenario analysis as important elements of its business strategy. Based on the results of scenario analysis regarding the “risks and opportunities related to the transition to a carbon-free society,” Chuden has recognized the need to expand renewable energy and improve the non-fossil ratio. Chuden has also evaluated as a “major impact” the increasing need for electricity derived from renewable energy sources, including hydro power

		results in the Group Report 2022 in September 2022. When evaluating “risks and opportunities related to the transition to a carbon-free society,” Chuden referred to Net Zero by 2050 (NZE scenario) of the International Energy Agency (IEA), an international organization that conducts energy-related research, WEO2021 (APS scenario), etc., from the viewpoint of compatibility with its business, and selected the “1.5 Degree Scenario.” Referring to Japan’s NDC in FY2030 (46% reduction compared to FY2013) and the 6th Basic Energy Plan, etc., the analysis makes it a prerequisite to comply with environmental regulatory requirements, such as achievement of the non-fossil power source ratio stipulated in the Energy Supply Structure Improvement Act as an electricity retailer (44% in FY2030). To conduct scenario analysis for risks associated physical changes such as extreme weather events, 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	achievement of the non-fossil power generation ratio target of the Energy Supply Structure Improvement Act, the risks due to the introduction of carbon pricing, etc., and has recognized that further efforts are needed to expand renewable energies, including hydro power generation, and increase the non-fossil energy ratio. Furthermore, as a transition-related opportunity, Chuden has recognized the growing need for customers to use carbon-free energy due to the growing awareness of renewable energy and	generation, which is one of its main products. In addition, it has become clear that it is necessary to strategically develop products to meet the diversifying needs of its customers and have a business strategy to prepare for the growing number of significant water-related opportunities. Based on the results of scenario analysis regarding “risks related to physical changes,” the short-term financial impact of increased equipment countermeasure costs and restoration costs has been estimated to be approximately 5 billion yen. As a business strategy to respond to these climate change risks and opportunities with the aim of realizing carbon-free society, in the “Chubu Electric Power Group Management Vision 2.0,” Chuden has set goals to maximize the use of the Hamaoka Nuclear Power Station and expand renewable energy power sources, including hydro power and biomass power generation, by 3.2 million kW or more by around 2030, and has incorporated the contents into its medium-term management plan and its annual business plan. As a specific investment plan, Chuden has incorporated approximately 400 billion yen into its plans over a 10-year period from FY2021 to FY2030 as a strategic investment amount in growth fields based on the acceleration of the policies toward decarbonization with a focus on renewable energy businesses, including hydro power generation. As a business strategy to respond to customers’ expanding needs for the use of carbon-free energy, Chubu Electric Power Miraiz is promoting the diversification of CO2-free plans that

		Intergovernmental Panel on Climate Change (IPCC), in which vast knowledge concerning climate change is accumulated. Regarding the time axis of the “1.5 Degree Scenario” and the “4 Degree Scenario,” Chuden has considered long-term analysis because its Group is primarily engaged in the long-term energy supply business. In addition, short-term and medium-term time frames are also covered in order to analyze the impact of transition risks on single-year demand, sales, and procurement plans, power supply plans, business plans, and medium-term management plans. In the scenario analysis, Chuden evaluates the impact, taking into consideration both quantitative and qualitative aspects.	the environment. In the 4 Degree Scenario, the intensification of storms (increase in the number of violent typhoons, etc., devastation of flooding and landslides) due to temperature rise has been recognized as a physical risk, and it has been identified that strengthening of the resilience of facilities and systems is required.	utilize their own non-fossil power sources, and provides “Miraiz Green Denki’’ that meets customer needs, such as CO2-free plans that include designated local products from five Chubu prefectures. The company sold approximately 8.7 billion kWh in FY2022, and aims to expand profits by meeting the needs of customers interested in reducing the environmental burden. In response to physical risks such as large-scale disasters, including unprecedented large-scale typhoons, floods, earthquakes, and tsunamis, the Group creates a Business Continuity Plan (BCP) with the aim of maintaining and improving abilities to respond to emergency cases through the mechanism of continuously improving Business Continuity Management (BCM). In addition to large-scale earthquake countermeasures and storm surge countermeasures, the BCM Committee appropriately incorporates natural disasters and new knowledge every year, and conducts annual monitoring with the aim of improving its level. Furthermore, Chuden is increasing the resilience of its electric power infrastructure and building disaster-resistant facilities to ensure stable supply. Chuden has estimated the damage caused by a tsunami due to a Nankai Trough Earthquake, and is implementing equipment countermeasures such as installing waterproof walls on substation equipment and raising the height of transformers, circuit breakers, etc.

W7.4

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

Row 1

Does your company use an internal price on water?

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

Please explain

Chuden does not plan to implement water pricing because the company has evaluated water-related risks and opportunities in determining its business strategy and has determined that the obtained results are valid.

W7.5

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

	Products and/or services classified as low water impact	Definition used to classify low water impact	Please explain
Row 1	Yes	Chuden uses the following definitions to categorize the impact on water as low: (1) Introduction of our additional services results in lower customer water consumption compared to consumption without our service, and (2) The water quality is improved compared to without our service. These standards are applied at the time the service is introduced to customers in our value chain, and are applied to customer water consumption, waste water volume,	Chuden has developed a “high-efficiency fine bubble liquid purifier” that can efficiently remove impurities and purify cleaning solutions which are used in automobile factories, etc. using fine bubbles (very small bubbles with a diameter of 0.1 - 0.01 mm) and we are proposing this technology mainly to automobile factory customers. The use of fine bubbles has made it possible to efficiently remove impurities such as oil and sludge which is generated by the continuous use of cleaning solution (cleaning liquids used in cleaning process and coolant liquids used in machining processes in automobile factories, etc.), and the rate of separation of impurities from liquid has been improved by 70% compared with previous performance. In the past, it was necessary to discard the cleaning solution after cleaning and replace it on a regular basis; however, using this device extends the life of the cleaning solution, reducing re-purchase and replacement, and significantly reducing the amount of waste solution. This has an impact on water consumption, reducing water use by our customers. The effect of introduction of the service varies depending on the status of previous water use in the relevant plant; however, significant water consumption reductions are achieved. As an example of the effects that can be

		and quality of water in liquids such as cleaning solutions.	achieved, in one plant, by regenerating and reusing cleaning solutions (which was previously impossible) the waste liquid volume of an entire plant was halved and the 1.2 tons of steam formerly necessary to concentrate 1 ton of waste liquid were reduced to zero. We set out integrated development solutions to make deep inroads into customer on-site diversifying issues to improve energy saving and productivity. As part of this initiative, the "development of high-efficiency fine-bubble liquid purification equipment to help realize a recycling society", implemented by Chuden with Kansai Automation Equipment Co., Ltd., received the 2021 METI Industrial Technology Environmental Agency Director's Award, Resource Recycling Technology and System Awards (organized by Japan Environmental Management Association for Industry, supported by METI). The Resource Recycling Technology and System Award is a system which recognizes excellent business practices and efforts that contribute to reduction of waste, reuse of goods and materials, and effective use of recycling resources and those which have features of advanced technology or progressive systems in the age of SDGs. This new equipment was highly rated because it contributes to the realization of a sustainable recycling society. Based on our extensive consulting results, we work with customers to address issues such as 3R (Reduce, Reuse, Recycle), energy saving, CO2 saving, and facilities maintenance, aiming at decarbonization and a sustainable society. We offer varied solutions services to meet customer needs.

W8. Targets

W8.1

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

Yes

W8.1a

(W8.1a) Indicate whether you have targets relating to water pollution, water withdrawals, WASH, or other water-related categories.

	Target set in this category	Please explain

Water pollution	Yes	
Water withdrawals	Yes	
Water, Sanitation, and Hygiene (WASH) services	No, but we plan to within the next two years	As a company using large amount of water, Chuden considers that it is important for each and every employee to take an interest in water resources. For this purpose, Chuden implements water conservation in offices as an activity in which every employee can participate, and aims to improve the water conservation awareness of every employee. In company offices, water conservation measures are implemented by proactively installing water-saving sanitary equipment (toilet systems, faucets with sensor, etc.) to reduce water usage. We monitor the volume of water used in the office, and aggregate it on a company-wide basis, disclose and visualize the amount of water used per employee, and post results to our website to raise employee awareness of water conservation and reduce consumption. The target benchmark is to match the previous fiscal year's figures for water usage per office employee when accumulated on a company-wide basis.
Other	No, and we do not plan to within the next two years	

W8.1b

(W8.1b) Provide details of your water-related targets and the progress made.

Target reference number

Target 1

Category of target

Water pollution

Target coverage

Site/facility

Quantitative metric

Increase in proportion of wastewater that is safely treated

Year target was set

2022

Base year

2022

Base year figure

0

Target year

2023

Target year figure

100

Reporting year figure

100

% of target achieved relative to base year

100

Target status in reporting year

Achieved

Please explain

The unit of the target indicator is the proportion (%) of wastewater that is safely treated. In FY2022, there were no violations of laws, etc. relating to wastewater at business establishments.

Water quality, measurement frequency, and measurement methods of wastewater from thermal and nuclear power generations are provided for in the Water Pollution Prevention Act and agreements with the local governments. All Chuden's power stations undertake measurement and monitoring of the quality of wastewater based on these provisions. Business establishments aim to ensure that there are no violations of laws or agreements, and Chuden Headquarters aims to ensure that there are no violations of laws or agreements in each business establishment.
Business establishments aim to ensure that there are no violations of laws or agreements, and Chuden Headquarters aims to ensure that there are no violations of laws or agreements in each business establishment.

Target reference number

Target 2

Category of target

Water withdrawals

Target coverage

Site/facility

Quantitative metric

Other, please specify

The hourly average volume of water withdrawals for hydro power generation must be within the maximum water withdrawals under the River Act.

Year target was set
2022

Base year
2022

Base year figure
0

Target year
2023

Target year figure
100

Reporting year figure
100

% of target achieved relative to base year
100

Target status in reporting year
Achieved

Please explain
Water intake at the hydro power station is controlled to ensure that it does not exceed the maximum water withdrawals stipulated in the River Act. At each of Chuden's hydro power stations, the water withdrawals are to be prevented from exceeding the maximum water withdrawals set on an hourly average basis. When constructing a new hydro power plant, Chuden determines and reports the maximum water withdrawals as the optimal amount to maintain the environment and flow rate of each river, and carries out monitoring to ensure that the maximum water withdrawals are not exceeded.

W9. Verification

W9.1

(W9.1) Do you verify any other water information reported in your CDP disclosure (not already covered by W5.1a)?
No, we are waiting for more mature verification standards and/or processes

W10. Plastics

W10.1

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

	Plastics mapping	Value chain stage	Please explain
Row 1	Yes	Direct operations	Chubu Electric Power Grid's power transmission and distribution business includes laying power transmission and distribution lines and installing electricity meters for customers. In this business, the company uses plastic products purchased from other companies for power transmission and distribution line covers, electricity meter covers, etc. This company's power supply area covers the five prefectures of Aichi, Shizuoka, Mie, Gifu, and Nagano. Plastic products are used in electricity meters and other equipment installed in transmission and distribution lines, substations, customers' buildings, etc. Chuden and its operating companies are working to reduce the discharge of the plastic products they use and to recycle them. (Concrete example) [Chuden] · Uniforms are made of chemical fibers and are classified as "waste plastics" when disposed of. However, when recycled, they are turned into RPF fuel and used in biomass power plants. [Chubu Electric Power Grid] · The company investigates the storage status of used plastic products at each branch office and shares the details of its efforts to separate them in order to conduct mutual evaluations and improve the efforts. · The company posts in-house idle products on its intranet and develops a system that allows for freely trading as well as putting them up for sale, so that it effectively utilizes in-house plastic products as resources and curbs new purchases. For recycling, the company is cooperating with the recycling demonstration project for mixed plastics in Mie Prefecture.

W10.2

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

	Impact assessment	Value chain stage	Please explain
Row 1	Yes	Direct operations	Chubu Electric Power Grid is evaluating the impact that the use of plastic has on the environment (we will refrain from answering specific numbers as this information is sensitive). This company strives to reduce the discharge of plastic products that it uses, and to recycle them. For recycling, the company is cooperating with the recycling demonstration project for mixed plastics in Mie Prefecture.

W10.3

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

	Risk exposure	Please explain
Row 1	No, risks assessed, and none considered as substantive	The company has determined that there are no plastic-related risks in its business value chain that could have a significant financial or business strategic impact.

W10.4

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

	Targets in place	Target type	Target metric	Please explain
Row 1	Yes	Plastic goods Waste management	Reduce the total weight of plastics in our goods	Chubu Electric Power Grid, which is engaged in the power transmission and distribution business, uses plastic products purchased from other companies for power transmission and distribution line covers, electricity meter covers, etc. For the disposal of these plastic products due to deterioration over time, etc., it is stipulated as a goal that “We should make efforts to suppress the discharge of industrial waste of products using plastics and recycle them as much as possible,” based on the Act on Promotion of Plastic Resource Recycling, etc., and the results of discharge are disclosed on the website.

W10.5

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

	Activity applies	Comment
Production of plastic polymers	No	This company does not produce plastic polymers.
Production of durable plastic components	No	This company does not produce plastic components.
Production / commercialization of durable plastic goods (including mixed materials)	No	This company does not produce / commercialize durable plastic goods produce plastic polymers.
Production / commercialization of plastic packaging	No	This company does not produce / commercialize plastic packaging.
Production of goods packaged in plastics	No	This company does not produce goods packaged in plastics.
Provision / commercialization of services or goods that use plastic packaging (e.g., retail and food services)	No	This company does not provide / commercialize services or goods that use plastic packaging.

W11. Sign off

W-FI

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

W11.1

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

	Job title	Corresponding job category
Row 1	General Manager, 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 indicate your consent for CDP to share contact details with the Pacific Institute to support content for its Water Action Hub website.

Please confirm below

I have read and accept the applicable Terms