

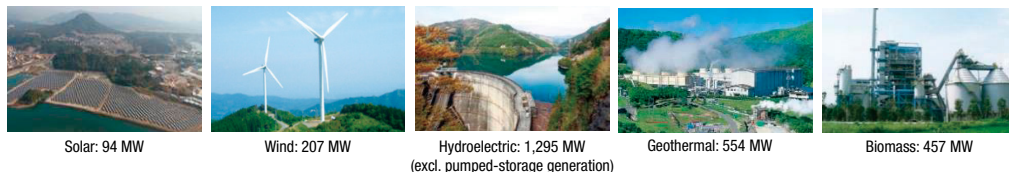
[Leading the Way toward a Decarbonized Society]

Lowering the Carbon Intensity of and Decarbonizing Energy Sources

Positioning Renewable Energy as a Primary Power Source

[Target for renewable energy developed in Japan and overseas: 4,000 MW by 2025, 5,000 MW by 2030]
 The Kyuden Group has developed approximately 2,610 MW of renewable energy to date. We will develop geothermal and hydroelectric power projects, which are where the Group's strengths lie, as well as expand offshore wind power, biomass, and other projects that have great potential for adoption, to position renewable energy as a primary power source.

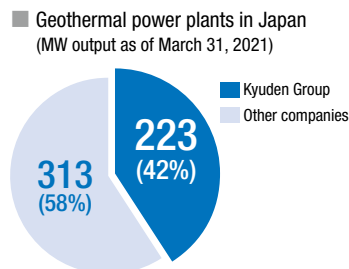
■ Renewable energy developed [As of the end of FY2022, including overseas]



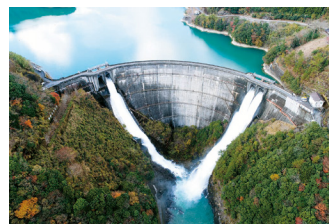
Geothermal Power

Geothermal power has been developed over many years. Domestic facilities owned by the Kyuden Group, have a capacity of approximately 220 MW, which makes up about 42% of the capacity of facilities nationwide. This includes one of the country's largest geothermal power plant Hatchoubaru. We are leveraging accumulated technologies to further new development not only in Kyushu, but also in Japan and overseas. Moreover, we are participating in the Sarulla Geothermal IPP* project (approx. 330 MW) in Indonesia, which is of the largest geothermal projects in the world.

* Independent Power Producer. Operators that solely generate electricity for wholesale to electric utilities



Source: Compiled based on "The Current State and Trends of Geothermal Power Generation" published by the Thermal and Nuclear Power Engineering Society



Kamishiiba Power Plant

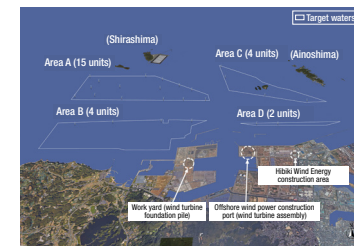
Hydroelectric Power

We also have a long track record of developing hydroelectric power projects, including the Koyamada Power Plant (Kagoshima Prefecture), the oldest power plant in Kyushu, which was built in 1898, and Kamishiiba Power Plant (Miyazaki Prefecture), the first power plant in Japan to feature a full-scale arch dam, which was built in 1955. We are currently working to improve output and power generation capacity by developing new projects that make effective use of untapped energies, along with replacing (updating) existing facilities.

Wind Power

The Kyuden Group is proactively working to leverage its technologies and expertise accumulated to date in order to expand the adoption of not only onshore, but also offshore wind power generation.

Kyuden Mirai Energy has formed a consortium with Electric Power Development Co., Ltd. (J-POWER), Hokutaku Co., Ltd., Saibu Gas Co., Ltd., and Kyudenko Corporation. As a member of this consortium, we are making progress with Japan's first large-scale offshore wind power generation project, at Hibikinada, Kitakyushu City, Fukuoka Prefecture, aiming to begin commercial operation in FY2025 (construction commenced in March 2023).



Implementation area of Kitakyushu Hibikinada Offshore Wind Farm Project

Biomass

After confirming that with biomass power generation, which generates fuel from unused wood and similar, fuel is produced in a sustainable manner, we have been working on developing biomass with Kyuden Mirai Energy at the center.

In March 2023, we began commercial operation of the Ishikari Bay New Port Biomass Power Plant, funded by Kyuden Mirai Energy and others. The power plant makes fuel from wood pellets and palm kernel shells (PKS), generating approx. 52 MW of electric power.

Tidal

Kyuden Mirai Energy is working on a pilot project to demonstrate Japan's first 1MW-class large-scale tidal power generation facility off the coast of Goto, Nagasaki Prefecture.

The project utilizes the results of the 0.5MW-class pilot that Kyuden Mirai Energy conducted in the same area in FY2021, aiming to establish a business model that will lead to the technology's practical and commercial application by enhancing the efficiency of tidal stream turbines. Through this project, we are aiming for the early commercialization of tidal power generation in Japan.

In addition, Kyuden Mirai Energy and Kyuden International are participating in a pilot project to demonstrate small-scale tidal power generation facilities (7,000W × 4 bases) off the coast of Singapore. By switching the energy provided to Raffles Lighthouse from diesel to tidal power, we will not only contribute to decarbonization in the maritime and harbor sectors, but will also make use of the knowledge obtained through this pilot to expand the future distributed power business overseas.



Created based on Google Maps

Development site

Maximizing Use of Nuclear Power Generation

As a comprehensively advantageous power source in curbing CO₂ emissions and energy security, we continue to make maximum use of nuclear power based on the fundamental prerequisite that safety is ensured.

Nuclear power plants (as of March 31, 2023)

Station Name	Output	Start of Operation	Type
Genkai	Units 3 & 4, 1,180 MW each	Unit 3: Mar. 1994 Unit 4: Jul. 1997	Pressurized water reactor (PWR)
Sendai	Units 1 & 2 890 MW each	Unit 1: Jul. 1984 Unit 2: Nov. 1985	

Note: Operations at Genkai Units 1 & 2 ended in April 2015 and April 2019, respectively



Genkai Nuclear Power Plant (Saga Prefecture)

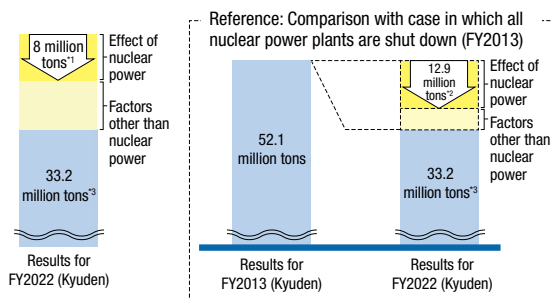


Sendai Nuclear Power Plant (Kagoshima Prefecture)

Maintaining safe, stable, and highly utilized nuclear power operations

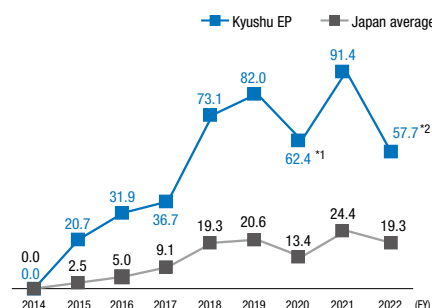
In light of ensuring the stable supply of energy over the long term and responding to issues facing the global environment, Kyushu EP makes the most of nuclear power, an energy source that does not emit CO₂ during power generation, with ensuring safety a major prerequisite. We will work on initiatives that improve the utilization rate that are assuredly safe.

Effect of nuclear power generation on reducing CO₂ emissions



*1: FY2021 CO₂ emissions coefficient (adjusted) used: 0.382kg-CO₂/kWh
 *2: FY2013 CO₂ emissions coefficient (adjusted) used: 0.617kg-CO₂/kWh
 *3: FY2022 results are provisional; the government is set to announce definitive figures in December

Nuclear power plant utilization rate (%)



The drops in utilization rate are due to equipment shutdowns for regular inspections following works to install SSF
 *1: at Sendai Units 1 & 2
 *2: at Genkai Units 3 & 4

Nuclear power's contribution to earnings

Nuclear power is a power source that can generate electricity at any time of day, regardless of weather. This not only helps secure stable revenue, but can also generate income from the non-fossil value trading market because as with renewable energy, it does not emit CO₂ during operation.

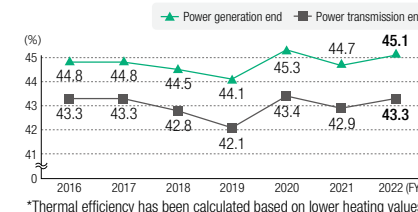
Even with safety measures and other costs taken into account, nuclear power is competitive from a medium to long-term perspective, and our investment decisions are made comprehensively based on such considerations.

Lowering the Carbon Intensity of Thermal Power

Thermal power plays an important role in making up for fluctuations in output that come with the increased adoption of renewable energy. We are therefore continually working to maintain and improve the overall efficiency of thermal power generation as a means of curbing our fuel consumption and CO₂ emissions.

Going forward, we will continue to take steps to reduce our environmental impact, decommissioning or scheduling shutdowns of our aging thermal power plants, aiming to fade out inefficient coal-fired thermal power plants by 2030, and studying the use of hydrogen and ammonia as fuels for power generation given they do not produce CO₂ during combustion.

Thermal efficiency trends



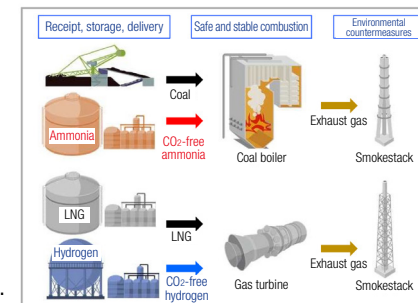
*Thermal efficiency has been calculated based on lower heating values

Studying and establishing hydrogen/ammonia co-firing technologies

We are making the following efforts to establish co-firing technologies that use 1% hydrogen and 20% ammonia by FY2030.

- Investigating the receiving, storage, and delivery facilities needed for the fuels based on their properties
 - Conducting tests for safe and stable combustion
 - Reviewing environmental measures to accompany fuel changes
- In April 2023, we began testing co-firing of ammonia at Reihoku Power Plant, which was a first for Kyushu EP. We will continue to proactively work toward establishing co-firing technologies in future.

Hydrogen and ammonia co-firing processes



Developing hydrogen and ammonia fuel supply chains

In preparation for the full-scale adoption of hydrogen and ammonia as CO₂-free fuels, we are building collaborative relationships and conducting joint studies together with companies across an array of fields both in Japan and overseas in an aim to develop a stable and economical supply chain, upstream to downstream, as soon as possible.

VOICE Steadily advancing toward establishing ammonia co-firing technologies through continuous efforts

The ammonia co-firing testing at Reihoku Power Plant was a first for the Group. Since actual examples of such testing within Japan are limited, we have been examining each issue raised through repeated discussions with plant personnel. While it was very difficult to anticipate the potential impacts that co-firing could have on the environment and our facilities, I felt a sense of accomplishment and satisfaction when we began actually carrying out the co-firing and were able to confirm the condition of the flames and temperature changes using a thermal imaging camera.

Initiatives aimed at achieving carbon neutrality targets have only just begun, and there are many difficult issues in the way, however we will continue to take on the challenge of these initiatives so that we can help achieve carbon neutrality.



Mario Ishibashi
Thermal Power Division
Reihoku Power Plant
Operation Group
Kyushu Electric Power

Upgrading the Transmission and Distribution Network

In order to fully tap Kyushu's renewable energy potential while at the same time balance the large-scale adoption of renewable energy with maintaining electricity quality, we are working to expand interconnections for renewable energy sources and improve our network utilization rate.

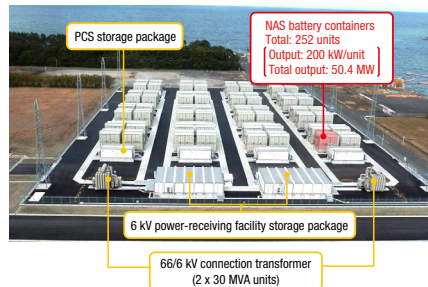
Maximizing the introduction of renewable energy

Renewable energy power generation facilities, solar power in particular, are being introduced in Kyushu at a rapid pace. Against this backdrop, Kyushu T&D is working to maintain stable supply and maximize the amount of renewable energy it receives on its network through flexible thermal power operations, the use of pumped-storage hydroelectric power plants and large-capacity battery storage, and more effective use of the existing grid.

As one such initiative, Kyushu T&D was commissioned for a government pilot project to install the Buzen Battery Storage and Transformer Station, which includes a large-capacity energy storage system.

We are working to improve the balance between supply and demand by leveraging the knowledge and technology acquired through this pilot project to effectively operate this large-capacity energy storage system in accordance with fluctuating solar and wind power generation.

■ Panoramic view of the Buzen Battery Storage and Transformer Station, equipped with a large capacity energy storage system



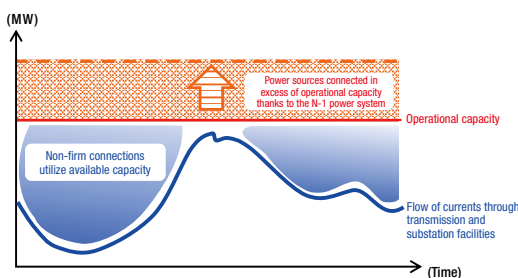
Adopting the Connect and Manage scheme

Kyushu T&D has introduced the Connect and Manage scheme to make the most of the capacity of existing transmission and substation facilities, thereby enabling us to maximize the adoption of renewable energy.

Specifically, it employs an "N-1 power system" that instantly curbs power generation in the event of single equipment failure (N-1 failure) upon having secured enough capacity to ensure stable transmission even in such an event. By doing so, power sources can be connected to the network in excess of its operational capacity.

On top of this, in January 2021, we began introducing "non-firm connections" on the bulk power system that generate electricity during the hours when transmission and substation facilities are available and curtail electricity generation when they are not sufficiently available. We have been expanding these to local power grids from April 2023.

■ Utilizing available capacity through the Connect and Manage scheme (illustrative image)

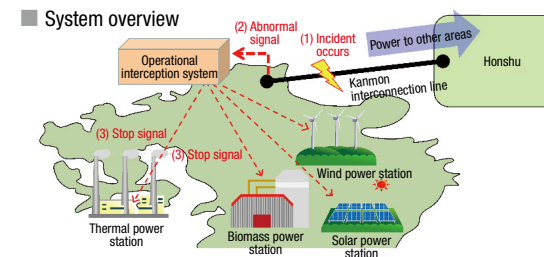


Technological development business for reducing output control of renewable energy

Kyushu T&D has been commissioned as part of the government's Technological Development Project to Reduce Renewable Energy Output Control to construct a transfer interception system to immediately shut down multiple power stations should an incident occur on the Kanmon link line to maintain balance between supply and demand in the Kyushu area.

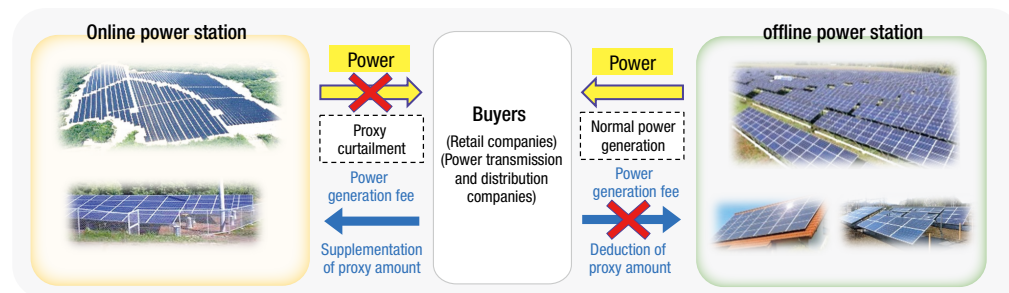
This system will make it possible to expand the transmission capacity of renewable energy along the Kanmon link line from Kyushu to other areas by up to approx. 300 MW, and it has been confirmed to be effective in reducing output control.

We will leverage the knowledge and technology acquired through this pilot project in working toward maximizing the adoption of renewable energy in future.



Introduction of online proxy curtailment (economically efficient output curtailment)

In December 2022, Kyushu T&D revised its output control method for solar power stations in mainland Kyushu to the online proxy curtailment method. This new method uses online power stations that can make actual, fine output adjustments to further reduce output.



Improving the accuracy of renewable energy output forecasts

Kyushu T&D is working to enhance the accuracy of its renewable energy output forecasts in order to maximize the use of renewables.

Solar radiation estimates are needed for such forecasts, and we are working to improve our precision by subdividing our forecasting sites across Kyushu for more detailed estimates and using integrated forecasts that incorporate multiple weather prediction models.

Promoting Green and Transition Finance

Kyushu EP has been promoting green and transition finance in an aim to diversify our capital procurement sources and better familiarize a wide range of stakeholders with the Kyuden Group's efforts to lower carbon intensity, decarbonize energy sources, and promote electrification to achieve carbon neutrality by 2050.

In FY2022, we became the first former general electric utility to issue a transition bond and implement a transition loan, which is the government's first interest subsidy program.

Moving forward, we will also take steps to achieve carbon neutrality from financial angles as well.

Kyushu EP transition bonds

Issue order	Issue date	Issue amount	Term	Interest rate	Use of funds
First	May 24, 2022	¥30 billion	5 years	0.350%	New investments and refinancing of existing investments in the development of the Hibiki Power Plant (a state-of-the-art, high-efficiency LNG-fired power plant in Fukuoka Prefecture) and the shutdown and decommissioning of existing thermal power plants
Second		¥25 billion	10 years	0.644%	

Transition loans (use of funds unspecified)

Month and year of loan	Amount of loan	Period of loan	Characteristics
November 2022	¥50 billion	10 years	<ul style="list-style-type: none"> Uses the result-linked interest subsidy program based on the Act on Strengthening Industrial Competitiveness (first in Japan) Lowers the interest rate by up to 0.2% through government interest subsidies when achieving set environmental targets

Fund allocation and improvements to the environment (as of March 31, 2023)

Transition bonds fund allocation

Issue amount	Amount allocated	(Portion allocated to refinancing)	Unallocated funds
¥55 billion	¥11.9 billion	¥7.4 billion	¥43 billion

* Amounts are shown rounded down to the nearest 100 million

Main environmental improvements including projects targeted for green and transition finance

Type of renewable energy	Geothermal	Hydroelectric	Wind	Biomass	Solar	Total
Renewable energy developed (Kyuden Group)	Approx. 554 MW	Approx. 1,295 MW	Approx. 207 MW	Approx. 457 MW	Approx. 94 MW	Approx. 2,610 MW
CO ₂ emissions reduced in FY2022*	Approx. 460,000 tons	Approx. 1,130,000 tons	Approx. 50,000 tons	Approx. 280,000 tons	Approx. 30,000 tons	Approx. 1.95 million tons

* FY2021 CO₂ emissions coefficient (adjusted) used: 0.382 kg-CO₂/kWh

Active Development of the Overseas Business - Helping Build Sustainable Societies -

The Kyuden Group is working on renewable energy, thermal power generation, and transmission and distribution projects that will help lower the carbon intensity of electricity in countries and regions around the world according to their needs by utilizing the technologies and know-how in the electric power industry that the Kyuden Group has accumulated in Japan and overseas.

Refer to **P05** for overseas development areas [Overseas equity output target: 5,000 MW by 2030]

IPPs and other investment projects

We are expanding into the United States of America and the Middle East while focusing on Asia, a market with high growth potential, and are working to identify business opportunities in Europe and Africa.

In FY2022, we expanded new initiatives such as participating in the Group's first power supply projects in off-grid areas in Africa and renewable energy development projects in Southeast Asia.



We invested in PetroGreen Energy Corporation, renewable energy development company, which owns the Nabas Wind Power Plant in the Philippines

Overseas consulting business

In cooperation with our own Group companies and other highly specialized partners, we conduct surveys on the introduction of renewables and support the formulation of electricity master plans.

In FY2022, we continued with several projects that had carried over from the previous year: a project in Cuba to create an electricity master plan aimed at improving electricity supply using storage batteries and EMS and introducing renewable energy, in addition to a project in Kenya to reinforce the technological capabilities of power transmission grids.

Entering new business domains

We have been expanding our business domains in recent years, taking on microgrid projects in an island nation and a transmission and distribution project in the Middle East.

TOPICS

The Subsea Transmission Project in the United Arab Emirates, implemented, among others, by the Kyuden Group, wins the PFI Award 2022

The Subsea Transmission Project, which will be constructed and operated in the emirate of Abu Dhabi, United Arab Emirates, and which includes Kyuden International and Kyushu T&D as participants, won the PFI Award 2022.

This award is given by the PFI magazine^{*1} for the most notable project finance^{*2} projects of the previous year in the global electricity sector. This project was selected as a target project for the Middle East region in 2022. The project was recognized for successfully structuring financing through large-scale project financing for a subsea transmission project, where there had been no previous project financing for such projects.

*1: Project Finance International magazine. Dedicated to the product finance industry and is published by Thomson Reuters

*2: Method of financing by which future cash flow generated by projects is used as a resource for repayment

Promotion of Electrification

Combining environmentally friendly energy with the resources of the Kyuden Group, we will take on the challenge of maximizing electrification, especially in the Kyushu area where the potential for electrification is great, helping reduce greenhouse gas (GHG) emissions throughout society.

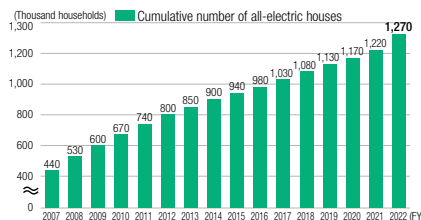
Household and Commercial Sectors

In the household sector, we are promoting the transition to all-electric homes through more events and mass marketing that convey the advantages of going fully electric, and engaging in sales activities that seize upon various opportunities.

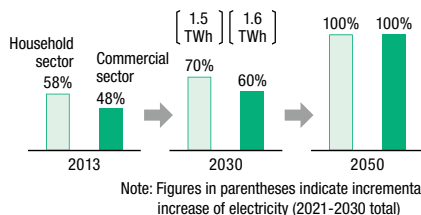
In terms of climate-control and hot water supply systems for the commercial sector, we offer high-efficiency heat pump systems optimized for use in our customers' facilities. We are also promoting the adoption of electric facilities in kitchens by extensively publicizing the advantages of electric kitchen systems in terms of ease of use, hygiene, and economy.

Through these initiatives, we aim for a 100% electrification rate in Kyushu by 2050, and we will contribute to reaching 70% in the household sector and 60% in the commercial sector by 2030. In achieving this goal, we are aiming for total incremental increases in power consumption of 1.5 TWh in the household sector and 1.6 TWh in the commercial sector between 2021 and 2030.

Cumulative number of all-electric homes in Kyushu



Contributing to the electrification rate of Kyushu



Incremental Increase Performance	Sector	FY2022	Cumulative (from FY2021)
	Household	0.12 TWh	0.25 TWh
	Commercial	0.1 TWh	0.21 TWh

Offering Kyuden Smart Lease, a service for leasing and selling electric water heaters, storage batteries, and more

In order to contribute to realizing an everyday for our customers that is safe, secure, comfortable, economic, and kind to the global environment, we have been offering Kyuden Smart Lease, a service where customers can use electric water heaters, IH cooking heaters, storage batteries, and other equipment safely over the long term with (1) no initial fees, (2) free repair and regular maintenance (within the contract period), and (3) high quality installation.

Kyuden Smart Lease

KYUDEN SMART LEASE

- No initial fees!** Pay a fixed monthly amount!
- Guarantees and inspections** with peace of mind!
- Quality set-up** that will leave you satisfied!

Industrial and Transportation Sectors

In the industrial sector, we are carrying out technical research into heat source conversion equipment such as heat pumps, while also taking on the challenge of electrification in response to heat demand across a wide range of temperature bands (hot water, steam, application of heat, etc.) in production processes. We also conduct on-site evaluations and reviews with our customers and provide energy conservation proposals to improve energy use efficiency.

In the transportation sector, we aim to replace 100% of our company vehicles with EVs by 2030. We also operate an array of businesses and services to promote the spread of EVs, including EV car sharing, charging infrastructure expansions, and energy management through EVs. [No. of company EVs deployed (FY2022): 95 (cumulative:16%)]

Expanding EV charging services

From January 2023, we began offering condominium residents in the Tokyo metropolitan area and Fukuoka City a dedicated EV charging device in each parking space. This service, called PRIEV, aims to provide customers with a more comfortable, convenient EV charging environment.

In June 2023, we concluded a business alliance agreement with Yanase & Co., Ltd., and we have been working in cooperation to introduce EVs at residences where the PRIEV service has already been introduced or will be in the near future.



TOPICS

Joint development of large-capacity charge-discharge equipment for EVs with the largest output in Japan

The three companies of Kyushu EP, Kyuden Technosystems, and KYUHEN jointly developed large-capacity charge-discharge equipment aimed at worksites, such as businesses and local governments, that are engaged in introducing and operating electric buses and other industrial and commercial EVs. Charge-discharge equipment for EVs currently popular within Japan is mostly equipment used to supply power to general households combined with passenger use EVs with an output of 10 kW or less. However, the charge-discharge equipment developed on this occasion has many advantages, including (1) a discharge output of 45 kW, one of the largest in Japan, (2) capable of supplying a three-phase power load used in plants and similar facilities, (3) capable of connecting to two EVs at the same time to mutually charge and discharge the two vehicles, and more. We will leverage these advantages to realize multipurpose uses for EVs, thereby contributing to expanding their adoption.



Large-capacity charge-discharge equipment

Promoting Carbon Neutrality in the Region

The Kyuden Group will contribute to solving local and social issues and co-create a zero-carbon society by providing solutions in response to the collaborative needs of local governments in promoting carbon neutrality in the region and strengthening its resilience.

Creating a regional energy system

Regional energy systems have the potential to greatly change the business model for our electricity businesses. These energy systems are based in an area where the Kyuden Group can leverage its strengths, therefore we see this as a new opportunity and are coordinating with local governments and other bodies to gather information and select a proof-of-concept field site.

Specifically, we are considering field sites and planning to conduct proof-of-concept testing to acquire the technical expertise needed to create a regional energy system and build a business model.

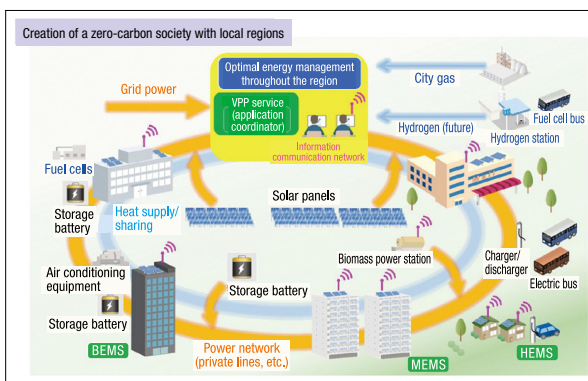
Project to create and utilize J-Credits through the utilization of forest resources

The Kyuden Group is engaged in a project through which it supports the creation of J-Credits* using woodland owned by local governments and other organizations, while it also creates J-Credits from company-owned woodland.

We plan to use these J-Credits to offset CO₂ emissions from the Group's community relations activities and the production activities of local companies.

* A scheme whereby the government certifies the amount of CO₂ absorbed by woodland and the amount of CO₂ emissions reduced through use of renewable energy or energy-saving measures as credit, and through which this credit is traded

■ Illustrative image of a regional energy system



Promotion of Energy Conservation

The Kyuden Group offers a wide variety of services to support the prosperous and comfortable lives of its customers, and we are working to help reduce not only our own greenhouse gas (GHG) emissions, but those of society as a whole.

Kirei Life Plus, a Members' Site Offering Useful Information

Kyushu EP offers a number of useful services on its "Kirei Life Plus" members' site. Not only can members receive email notifications on their monthly electricity costs and usage amounts, as well as check these from their PC or smartphone, but they can also access energy conservation rankings that compare a member's energy use with other households and receive overuse emails that send a notification when their usage has gone over a preset amount.

■ Member services offered on Kirei Life Plus

- Check your electric bill and usage on the web!
- Check your past use with tables and graphs! (up to 24 months)
- Visualize your usage by day and by hour!
- Get useful information via email!
- Prevent overuse with email notifications!
- Get notified of your optimal rate plan

* For customers with smart meters

Demand Response (DR)* Service for Households

Kyushu EP has been working on a DR service via its Kyuden eco/Kirei Life Plus smartphone application. The aim of the app is to create a system that helps customers to conserve energy and reduce their electricity bill, cuts Kyushu EP's supply costs, and enables renewable energy to be used more effectively by optimizing the supply-demand balance through DR.

* A mechanism for balancing supply and demand of electricity by adjusting electric power demand, whereby customers (the demand side) who are signed up for one of Kyushu EP's household plans (and have a smart meter installed) either conserve electricity or create demand in accordance with guidance from the Company

Features of the Kyuden eco app

- Feature 1: Earn points for successfully completing challenges
- Feature 2: Get push notifications when it is time to participate in a challenge
- Feature 3: Gamify saving electricity and shifting electricity use times

Energy Policy Recommendations and Involvement

Endorsement of the GX League Basic Concept

Through its participation in the GX League, Kyushu EP will demonstrate the League's concept of "leadership" as it works toward achieving carbon neutrality, and work together with stakeholders, including participating companies, to contribute as much as possible to the formation of market rules and the creation of business opportunities aimed at reducing greenhouse gas emissions in Japan.

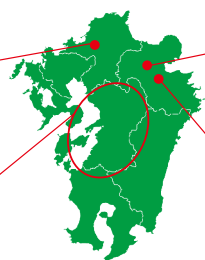


Hisayama Town, Fukuoka Prefecture	
Creation period (scheduled)	8 years (FY2021-2028)
Expected amount (total)	Approx. 1,500 t-CO ₂
Of which already created	200 t-CO ₂

Kusu Town, Oita Prefecture	
Creation period (scheduled)	16 years (FY2021-2036)
Expected amount (total)	Approx. 240,000 t-CO ₂
Of which already created	Approx. 10,000 t-CO ₂

Kyuden-owned woodland (Yufu City, Oita Prefecture, etc.)	
Creation period (scheduled)	16 years (FY2021-2036)
Expected amount (total)	Approx. 240,000 t-CO ₂
Of which already created	Approx. 10,000 t-CO ₂

6 entities in Kumamoto Prefecture (4 local governments, 2 private entities) (outsourced to a company in Kumamoto Prefecture)	
Creation period (scheduled)	8 years (FY2022/2023 onwards)
Expected amount (total)	Approx. 75,000 t-CO ₂



Reduction of Environmental Impact

The Kyuden Group recognizes that as a corporate group whose operations impact the environment, we have a responsibility to be diligent in our efforts to conserve the environment.

For this reason, we are promoting environmental management that balances business activities with the environment across all such business activities, preserving biodiversity and establishing a circular society in order to contribute to achieving a sustainable society.

Activities to Establish a Sustainable Society through Maintaining and Managing Company-Owned Forests

Kyushu EP maintains and manages 4,447 hectares of company-owned forests in cooperation with Group company Kyushu Rinsan.

Our efforts have been highly praised, and in 2005, we became the first electric power company to obtain FSC® (Forest Stewardship Council®) certification (FSC-C018956), which certifies that woodland is being managed in an environmentally friendly manner. Furthermore, by maintaining and managing these company-owned forests, we absorbed approximately 41,000 tons of CO₂ in one year in FY2022, with about 10,000 tons of that amount going toward creating J-Credits.

In future, we will continue striving to maintain and improve the public benefits of woodland, such as their functions as watersheds (woodlands conserve water and stabilize river water levels), as well as absorbers of CO₂, through maintaining and managing company-owned forests.



A company-owned forest (by Lake Yamashita in Yufu City, Oita Prefecture)

Contribution to the 30by30 Target through Certified Conserved Areas

Kyushu EP is participating in the Ministry of the Environment's 30by30 Alliance in order to contribute to achieving the 30by30 target^{*1}, a global biodiversity target.

In FY2022, our company-owned forests received an assessment of "equivalent to certification" as "Certified Conserved Areas"^{**2} as part of a trial scheme. In FY2023, we will continue to promote initiatives aimed at attaining certification.



*1: The 30by30 target is one of the main targets of the Kunming-Montreal Global Biodiversity Framework, which was established at the Conference of the Parties to the UN Convention on Biological Diversity held in December 2022. It is a worldwide initiative that aims to designate 30% of both land and ocean as protected areas by 2030.

**2: A system whereby the Ministry of Environment certifies areas where private-sector companies are engaged in biodiversity protection initiatives. Trials and studies of the system began in FY2022, with official certification of the system beginning in FY2023.

Engaging in Environmental Activities with Local Communities

The Kyuden Mirai Foundation, established by Kyushu EP, aims to continue protecting the abundance of nature and providing a bright future for children.

The foundation is engaged in environmental conservation activities to help protect ecosystems and landscapes, including controlled burning across the whole Bogatsuru Marshlands area (Taketa City, Oita Prefecture), registered as an important wetland site under the Ramsar Convention, in addition to offering hands-on environmental education programs to raise awareness of environmental conservation among children at Kyushu EP's company-owned Kuju Kyuden Forest (Yufu City, Oita Prefecture), as well as digital environmental education programs that utilize VR technology.

Moreover, with the aim of creating forests as bases for environmental education programs and interactions among residents, the foundation has decided to expand the Kyuden Future Forest Project across the Kyushu region. This project involves working toward carbon neutrality together with children and local residents. As the first stage of the project, the foundation began holding afforestation activities and environmental education programs at Isahaya Kyuden Future Forest (Isahaya City, Nagasaki Prefecture).



Controlled burning of the Kuju Bogatsuru Marshlands



Activities to protect rare plants at the Kuju Bogatsuru Marshlands



Environmental education programs

TOPICS

Making the Circular Park Kyushu resource recycling center a reality

—An effort to socially implement resource recycling at the former site of the Sendai Power Plant—

The Kyuden Group is making progress with initiatives to position the site of the Sendai Power Plant (Kagoshima Prefecture) as the base for the resource recycling center, Circular Park Kyushu, with the aim of building a sustainable society through the promotion of a circular economy and decarbonization.

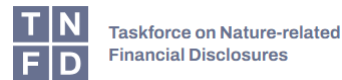
On July 26, 2023, we established Circular Park Kyushu Co., Ltd. jointly with Nakadai Holdings Co., Ltd. Ahead of the launch of the business in April 2024, we will work on recycling commercial and residential waste into resources through our resourcing business and carry out joint research and proof-of-concept testing with the help of our network of industry partners, academic institutions, and government bodies through our solutions business.



Scene from location agreement signing ceremony*

* On July 31, 2023, we concluded a location agreement pertaining to the present project between Satsumasendai City, the location of the Sendai Power Plant, and Circular Park Kyushu Co., Ltd. in the presence of representatives from Kagoshima Prefecture.

Disclosure Based on the TNFD Recommendations (Beta Version)



Kyuden Electric Power published the "Kyuden Group TNFD Report 2023" in September 2023. This report illustrates the Company's approach to natural capital and biodiversity in line with the TNFD beta v.0.4 information disclosure framework.

*TNFD: Taskforce on Nature-related Financial Disclosures. An international initiative to build a framework for appropriately assessing and disclosing risks and opportunities related to natural capital and biodiversity.

In recent years, efforts concerning natural capital have been attracting global attention. These include the Kunming-Montreal Global Biodiversity Framework, which is a set of new global targets related to biodiversity adopted in Canada in December 2022.

The Kyuden Group has positioned "leading the way toward a decarbonized society" as an important management issue (materiality), and along with continuing scenario analysis and information disclosure based on TCFD recommendations from 2020 as a response to climate change, we are also promoting initiatives aimed at "reducing environmental impact," which include conserving biodiversity and recycling resources.

This year, we carried out a trial analysis of risks and opportunities related to natural capital in our business activities while referencing the Taskforce on Nature-related Financial Disclosures (TNFD) beta v.0.4 information disclosure framework and guidance aimed at electricity utilities. In September 2023, we were the first electric power company in Japan to carry out information disclosure based on TNFD beta v.0.4 (for details, please refer to the "Kyuden Group TNFD Report 2023 (detailed version)").

We will continue to evaluate impacts, dependencies, and risks related to natural capital and engage in business activities that contribute to the transition toward a "nature-positive economy." Additionally, we will continuously strive to enhance trust from our stakeholders.

The "Kyuden Group TNFD Report 2023 (detailed version)" is available on the Kyushu Electric Power website.

Homepage > IR information > Environment, society, and governance (ESG information) https://www.kyuden.co.jp/english_company_esg_environmental.html

Overview of evaluation results

In each business domain of power generation and transmission & distribution, we are managing projects strictly in compliance with laws and regulations, agreements with local bodies, and other rules, and while the impact on natural capital is mostly kept to a low level, the impact and dependency of fuel procurement sources related to natural capital were evaluated as relatively large. In respect of earthquakes, tsunamis, or other natural disasters, as a result of assuming an event that has a high likelihood of occurring, risk pertaining to nuclear and thermal power plants, which are few in number in Japan, was evaluated as being low as countermeasures are thoroughly implemented. On the other hand, hydroelectric power plants and power transmission facilities were evaluated as having a relatively large risk.

Financial impact arising from such risk was evaluated as large in the event that power transmission facilities, particularly in the Oita and Miyazaki areas, were damaged by a Nankai megathrust earthquake, or that regulations on coal-fired thermal power generation were tightened. Furthermore, we evaluated that there would be a certain level of financial impact in the event that risks associated with fuel procurement sources were to materialize, or that thermal power, hydroelectric power, or power transmission and distribution facilities were damaged.

Scope and target of the present analysis

We evaluated risks and opportunities related to natural capital in reference to the TNFD beta v.0.4 information disclosure framework and guidance aimed at electricity utilities.

Included in the scope of evaluation from among those making up the Group's Domestic Electricity Business were thermal power (coal, LNG), nuclear power generation, hydroelectric power generation, geothermal power generation (Kyuden Electric Power), and the transmission and distribution business (Kyushu T&D).

In future, we plan to make further progress in enhancing information disclosure in line with the TNFD framework. This will involve revising contents based on the TNFD v.1.0 framework and evaluating items outside the scope of the current evaluation, including overseas electricity businesses and non-electricity businesses such as urban development and city planning.

Message from the Director of the District Symbiosis Division

Kyushu's regional economy and the lifestyles of its residents are supported by the area's bountiful natural capital. Without developing this aspect of Kyushu, the Kyuden Group cannot evolve. Based on the Kyuden Group Environmental Charter, the Kyuden Group has established Environmental Action Policies as basic medium to long-term policies that steadily promote environmental management to balance business activities with the environment. Through these policies, we have been striving to reduce environmental burden and risks linked to our business activities while at the same time working to conserve biodiversity, in order to ensure that this abundant natural environment survives into the future.

We have come to possess company-owned forests (4,447 ha primarily in Oita Prefecture) as watershed forests that function to nurture ecosystems and hold water. We use these forests as a place to grow FSC® (Forest Stewardship Council®; headquartered in Germany)-certified timber and hold environmental education programs. In addition, we have been reviving the practice of controlled burning across the entire Kuju Bogatsuru Marshlands along with local people, with the aim of maintaining rare ecosystems still remaining at the marshlands. Along with this, we have been carrying out activities to remove non-native plant life threatening rare plant ecosystems, as well as activities to protect the Kyushu azalea (the Kuju Bogatsuru Marshlands have been registered as "Kuju Bogatsuru and Tadewara-shitsugen" under the Ramsar Convention).

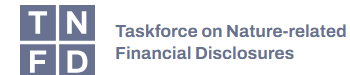
Moreover, in order to accelerate resource recycling initiatives, we established Circular Park Kyushu Co., Ltd., based on the site of the Sendai Power Station, in July of this year. In future, we will work to build a sustainable society by promoting a circular economy and decarbonization. We will achieve this through liaising with local governments and companies to recycle commercial and residential waste (resourcing

business) and carry out joint research and proof-of-concept testing with the help of our network of industry partners, academic institutions, and government bodies (solutions business).

By carrying out analysis from the viewpoint of the TNFD, such activities and other initiatives rooted in local communities have once again been recognized as being valuable. For this disclosure, we will continue to work toward creating a nature-positive economic society by developing better business activities through trial and error, while at the same time, listening to all of our stakeholders' opinions.



Yoshirou Uchimura
Director of the District
Symbiosis Division



Natural Capital Governance (Including Risk Impact Management)

Response system related to various environmental issues (Assessing risks and opportunities, management process)

In July 2021, we established the Sustainability Promotion Committee, chaired by the President and supervised by the Board of Directors, to actively promote ESG initiatives.

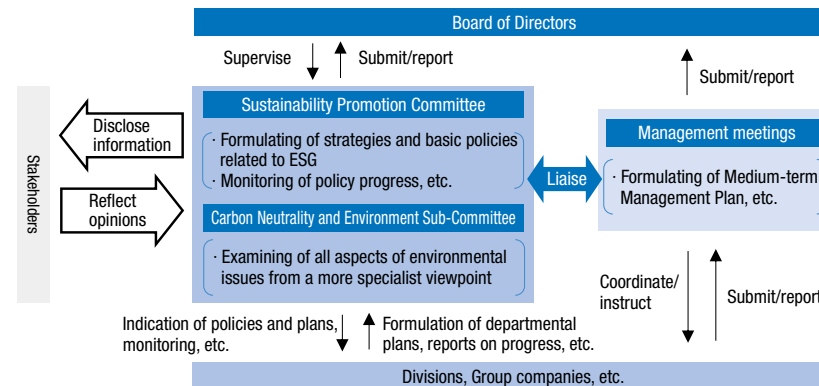
In addition to establishing strategies and policies concerning all aspects of ESG (specifying materiality), as well as deliberating on specific measures and managing the progress of their implementation, the Committee deliberates on and supervises strategies and risks related to climate change. The Carbon Neutrality and Environment Sub-Committee, chaired by the Chief ESG officer, was additionally established under the Sustainability Promotion Committee, and its members deliberate on all aspects of environmental issues from a more specialist viewpoint.

The Committee meets at least twice yearly, and the results of their discussions are reported without delay to the Board of Directors, which supervises all ESG-related activities.

Natural capital-related targets

	Subject	Target
Climate change (Carbon Neutral Vision 2050 p. 1, ESG Data Book 2023 p. 8)	Carbon neutral	· Achieving carbon neutrality by 2050
	Supply chain greenhouse gas emissions (Scopes 1, 2, and 3)	· 60% reduction in greenhouse gas emissions by 2030 compared to FY2013, and 65% reduction in domestic businesses
Promotion of environmental management (ESG Data Book 2023 p. 5)	Promoting environmental management	· Violations of law and regulations: Zero
Establishment of a circular society (ESG Data Book 2023 p. 5)	Appropriate management and disposal of industrial waste	· Recycling rate (excl. coal ash): 98% or higher (plastic waste: 90%) (FY2023)
	Promoting green procurement	· Green procurement rate of office supplies :97% (FY2023)
Strengthening supply chain management (ESG Data Book 2023 p. 7)	Raising awareness of ESG in the supply chain	· Response rate to questionnaire survey on sustainability improvement initiatives for major business partners: 90% or higher (FY2023)
Enhancing stakeholder engagement (ESG Data Book 2023 p. 7)	Raising the level of stakeholder satisfaction (enhancing environmental education programs)	· Percentage of people who answered in the questionnaire that they had an increased awareness of environmental conservation: 90% or higher (FY2023)

Kyuden Group Environmental Management and Promotion Framework

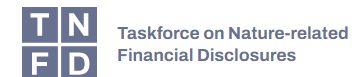


Sustainability Promotion Committee

[Structure] Chairperson: Member of the Board of Directors, President & Chief Executive Officer
 Vice-chairperson: Chief ESG officer (Member of the Board of Directors, Vice-Presidential Executive Officer)
 Committee members: External directors, executive directors of relevant divisions, etc.
 Frequency: Twice yearly in principle, and additionally as necessary

Carbon Neutrality and Environment Sub-Committee

[Structure] Chairperson: Chief ESG Officer (Member of the Board of Directors, Vice-Presidential Executive Officer)
 Vice-chairperson: Executive Director of the Corporate Strategy Division and Director of the District Symbiosis Division
 Committee members: Directors of relevant divisions, etc.
 Frequency: Twice yearly in principle, and additionally as necessary



Natural Capital-related Impacts and Dependencies

An important step on the way to creating a positive outcome for biodiversity and other natural capital is understanding the impacts that a company's business activities (including fuel procurement) have on natural capital and the ecosystem services on which these activities depend. We evaluated the impacts and dependencies on natural capital in our business activities using a five-level scale (Very High, High, Middle, Low, and Very Low). This evaluation took into consideration factors such as power plant locations, facilities essential to our operations, and agreements with local governments, while referring to the guidelines provided by TNFD beta version 0.4 LEAP approach and utilizing ENCORE (an evaluation tool based on global data) as a reference.

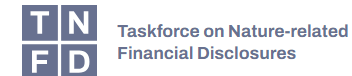
List of evaluations on natural capital-related impacts and dependencies in our businesses (Heatmap of natural capital-related factors)

		Natural capital-related																				Other factors	
		Impact											Dependence										
Power generation types	Process	Land modification			Direct collection		Climate change	Pollution				Other	Supply service		Adjustment service					Foundation service		Earthquakes/ Tsunamis	
		Land areas	Fresh water areas	Marine areas	Water	Other than water	Greenhouse gas	Air	Water areas	Soil	Waste	Noise/ Light pollution	Surface water supply	Ground water supply	Making contaminants less harmful	Climate adjustment	Filtering contaminants	Flood prevention	Corrosion prevention	Maintaining water flow	Maintaining water quality		
Thermal Power (coal)	Fuel procurement	Very High	High	-	Very High	-	High	High	High	High	High	High	High	High	High	-	Very Low	-	-	Middle	High	-	Very Low
	Power generation	-	Low	Low	Low	-	Very High	Low	Low	Low	Low	Low	Low	Low	-	Very Low	Very Low	Low	Low	Low	Low	Low	High
Thermal Power (LNG)	Fuel procurement	High	High	Very High	Very High	-	High	High	High	High	High	High	High	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Low	Very Low	-	High
	Power generation	-	Low	Low	Low	-	Middle	Low	Low	Low	Low	Low	Low	Low	-	Very Low	Very Low	Low	Low	Low	Low	Low	High
Nuclear Power	Fuel procurement	Very High	High	-	Very High	-	High	High	High	High	High	High	High	High	High	-	Very Low	-	-	Middle	High	-	Very Low
	Power generation	-	Low	Low	Low	-	Very Low	Low	Low	Low	Low	Low	Low	Low	-	Very Low	Very Low	Low	Very Low	Low	Low	Low	Very Low
Conventional Hydropower	Power generation	Middle	Low	-	Low	-	Very Low	-	Low	Low	-	-	High	-	Very Low	Very Low	Very Low	High	High	High	Low	High	
Pumped Storage Hydropower	Power generation	Low	Low	-	Low	-	Very Low	-	Low	Low	-	-	Low	-	Very Low	Very Low	Very Low	High	High	Low	Low	High	
Geothermal Power	Power generation	-	-	-	Low	-	Very Low	-	Low	Low	-	Low	Low	-	Very Low	Very Low	Very Low	Low	Low	Low	Low	Low	
Transmission & Distribution		Low	-	-	-	-	Very Low	-	Low	-	-	-	-	-	-	High	-	Low	Low	-	-	High	

Legend

	Very High
	High
	Middle
	Low
	Very Low

*In the production of heatmaps, for natural disasters, we assumed an event that had occurred in the past 30 years or so, or a case where an event having a high chance of occurring in the next 30 years occurred.



Reasons for evaluating natural capital-related heatmaps

[Natural capital-related]

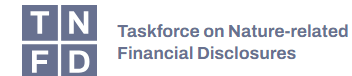
Power Generation Category	Process	Reasons for Evaluation
Thermal Power	Coal	Fuel procurement Since land modification in land and fresh water areas, direct collection of water, greenhouse gas emissions, and pollution are highly likely to impact natural capital, this was evaluated as "High / Very High." Further, the level of dependency on ecosystem services related to supplying groundwater and surface water and supplying water for maintaining water flow was evaluated as "High."
		Power generation While seawater and fresh water are used as cooling water, seawater makes up a large proportion; very little fresh water is used. Furthermore, since fresh water is taken from Kyushu, an area with little water-related risk (ESG Data Book 2023 p. 23), the impact on regional natural capital was evaluated as "Low." In addition, since we ensure thorough management of power plants based on agreements such as those concluded with local governments of sites where plants are located and can no longer operate plants at a stage prior to them not clearing standards, the impact on regional natural capital due to air pollution, waste, and noise/light pollution was evaluated as "Low." However, impact from greenhouse gas emissions was evaluated as "Very High."
	LNG	Fuel procurement The impact of land modification in land, fresh water, and marine areas, direct collection of water, greenhouse gas emissions, and pollution on natural capital was evaluated as "High / Very High." On the other hand, when compared to coal, LNG is mined using a different method, therefore its dependency on ecosystem services had a result of "Low / Very Low."
		Power generation While seawater and fresh water are used as cooling water, seawater makes up a large proportion; very little fresh water is used. Furthermore, since fresh water is taken from Kyushu, an area with little water-related risk (ESG Data Book 2023 p. 23), the impact on regional natural capital was evaluated as "Low." In addition, since we ensure thorough management of power plants based on agreements such as those concluded with local governments of sites where plants are located and can no longer operate plants at a stage prior to them not clearing standards, the impact on regional natural capital due to air pollution, waste, and noise/light pollution was evaluated as "Low."
Nuclear Power	Fuel procurement Since land modification in land and fresh water areas, direct collection of water, greenhouse gas emissions, and pollution are highly likely to impact natural capital, this was evaluated as "High / Very High." Further, the level of dependency on ecosystem services related to supplying groundwater and surface water and supplying water for maintaining water flow was evaluated as "High."	
	Power generation While seawater and fresh water are used as cooling water, seawater makes up a large proportion; very little fresh water is used. Furthermore, since fresh water is taken from Kyushu, an area with little water-related risk (ESG Data Book 2023 p. 23), the impact on regional natural capital was evaluated as "Low." In addition, since we ensure thorough management of power plants based on agreements such as those concluded with local governments of sites where plants are located and operate plants on a scale that does not impact regional natural capital, the impact on natural capital due to air pollution, waste, and noise/light pollution was evaluated as "Low."	
Hydroelectric Power	Power generation Since some conventional hydroelectric power plants are built in key biodiversity areas (KBAs), impact of land modification in land areas was evaluated as "Middle." However, in light of the fact that power plants and other facilities that greatly impact ecosystems are no longer being newly built in recent years, that we are operating plants appropriately and in strict compliance with all related laws and regulations, including the River Act, and that we are carrying out various ecosystem-friendly initiatives in harmony with regions where power plants are located, other impacts on natural capital were evaluated as "Low" to "Very Low." In addition, some of our hydroelectric power generation facilities are located in mountainous areas and along rivers, and since these are environments likely to be impacted by flooding, earthquakes, and similar, the level of dependency on flooding and corrosion prevention functions and earthquakes were evaluated as "High." Since a certain level of water is required for operating conventional hydroelectric power plant facilities, the level of dependency on surface water supply and water flow maintenance functions was evaluated as "High." On the other hand, since with pumped storage, the water is basically cycled between an upper and lower reservoir, the level of dependency on surface water supply and water flow maintenance functions was evaluated as "Low."	
Geothermal Power	Power generation Condensed water from water vapor taken from under the ground is mainly used as cooling water; very little river water is used. Furthermore, river water is taken from Kyushu, an area with little water-related risk (ESG Data Book 2023 p. 23). In addition, since we ensure thorough management of power plants based on agreements such as those concluded with local governments of sites where plants are located and operate plants on a scale that does not impact regional natural capital, the impact on natural capital due to water and soil contamination, and noise/light pollution was evaluated as "Low." *Procurement was not included in the scope of this evaluation.	
Transmission & Distribution	Since falling trees and similar caused by strong winds during a typhoon can damage or bring down utility poles and snap power lines, potentially leading to power outages, the dependency of transmission facilities on climate adjustment functions was evaluated as "High." When selecting locations to install steel towers, unstable locations where landslides, flooding, and similar are expected are not chosen, therefore dependency on flooding and corrosion prevention functions was evaluated as "Low."	

[Other causes]

	Reasons for Evaluation
Earthquakes/tsunamis	Kyushu is home to the Fukuchiyama, Kego, and Hinagu fault zones, and the Unzen fault group. These faults lie directly under the Kyushu region and are predicted to have a 3% or higher chance of generating an earthquake within the next thirty years. Along the coast, there is also a risk of earthquakes and subsequent tsunamis in places including Hyuga Nada (approx. 80% chance of a magnitude 7.0-7.5 earthquake), the Nankai Trough (approx. 70-80% chance of a magnitude 8-9 earthquake), and the Akinada Sea-Iyonada Sea-Bungosuido Strait (approx. 40% chance of a magnitude 6.7-7.4 earthquake). There is also a risk of earthquakes and subsequent tsunamis occurring overseas. While the risk to LNG fuel procurement, thermal power generation, conventional hydropower and transmission has been evaluated as "High," works have been carried out at nuclear power plants as countermeasures against such risk, so this risk has been evaluated as "Very Low."

Impact and dependency indicators (TNFD beta v.0.4 core indicators)

Category	Indicator	References, etc.
Climate change	Amount of Scope 1, 2, and 3 greenhouse gas (GHG) emissions	Supply Chain GHG Emissions (Scopes 1, 2, and 3) (ESG Data Book 2023 p. 71)
Changes in land/fresh water/sea usage	Degree of change in land/fresh water/sea usage by ecosystem and business activity	Land: land area of power generation and switching facilities (Annual Securities Report FY2022 pp. 43-47)
		Fresh water: Usage amounts of tap water and water for power generation (ESG Data Book 2023 p. 77) Sea: Used as cooling water at power plants; no data available on usage amounts
Pollution/removing pollution	Total amount of contaminants released into the soil by type	Essentially, no contaminants are released into the soil from our facilities
	Wastewater amount and concentration of major contaminants in wastewater by type	Wastewater amount (ESG Data Book 2023 p. 77) Appropriate disposal of wastewater carried out at wastewater disposal facilities located at each power plant
	Total amount of toxic waste generated by type	PCB disposal amount (ESG Data Book 2023 p. 75)
	Total amount of toxic substances excluding carbon dioxide by type	(ESG Data Book 2023 p. 72, 73)
Using/complementing resources	Total collection and consumption amounts of water from water-stressed regions	Usage amount of water for power generation (ESG Data Book 2023 p. 77) * Kyushu has been recognized as a region with a relatively low level of water risks by using the Aqueduct tool
	Trends in number of high-risk natural products procured from the land/sea/fresh water by category	Procurement sources and procured amounts of fuel (coal, LNG, uranium) (ESG Data Book 2023 p. 26)
	Amount of natural products procured from priority ecosystems by category and ratio thereof	(Future examination)



Natural Capital-related Risks and Opportunities

The natural capital-related risks and opportunities in our businesses were organized (it is recommended to create a TNFD framework core global matrix with indicators set for financial capital, assets, and operating revenues, along with risk and opportunity, however in light of the availability of comprehensive data, this was excluded this time).

Natural capital-related risks

Items for which the natural capital-related impacts or dependencies in our businesses were evaluated as being at a large degree (“High,” “Very High”) were evaluated in respect of their financial impact after being classified into risk categories. Fuel procurement was evaluated as being at risk of rising costs due to an increase in fuel prices. When operating power plants, we are in compliance with laws and regulations, agreements with local bodies, and other rules and are capable of reducing risks that damage natural capital. At the same time, however, Kyushu is geographically likely to be heavily impacted by natural disasters caused by climate change*, and is at risk of flood damage due to typhoons or linear rainbands. In the event that regulations on coal-fired thermal power generation are tightened, there is a risk that fuel costs will rise or similar. Furthermore, Kyushu and its surrounding areas lie on troughs and faults predicted to have a 3% or higher chance of generating an earthquake within the next thirty years, therefore the risk of damage from an earthquake and tsunami is expected.

* The island of Kyushu sits directly in the path of westerlies from the East China Sea that can generate linear rainbands and cause damage through heavy rain and flooding. Also, the frequency of typhoons landing on shore is rising in Kyushu compared to other parts of Japan.

Risks based on categories indicated in TNFD Beta v.0.4

		Risk Category	Risk Type	Risk Overview	Impacts on Finances	Financial Impact	
Thermal Power	Coal	Physical risk	Acute risk	Landfalls, land subsidence, and fires occur due to the modification of land areas caused by mining operations.	Worsening finances due to rising global costs of coal.	Level II	
			Chronic risk	Degradation and division of terrestrial ecosystems, invasions by non-native species, and adverse effects on local plant life and plant environments due to the modification of land areas caused by mining operations. Exhaustion of aquifers due to excessive water use during mining. Hindering mining operations due to increased severity and frequency of droughts. Greenhouse gas emissions due to mining operations, toxic emissions in the atmosphere, adverse impacts on plant life and soil, and changing ecosystems due to species migration.			
		Transition risk	Legal and regulatory risk	Burden arising from countermeasure costs for each chronic risk associated with mining.			
				Burden arising from carbon costs with respect to indirect greenhouse gas emissions, including the process of coal mining.			
	Power generation	Physical risk	Acute risk	Damage to thermal power plant facilities and shutting down of power plants due to an earthquake or tsunami.	Restoration costs and costs related to securing alternative power sources.	Level II	
			Chronic risk	Greenhouse gas emissions due to operation.	Rising unit costs for coal-fired thermal power generation in the case that surcharges and taxes are introduced, and increased fuel costs due to switching using LNG thermal power.	Level III	
	Transition risk	Legal and regulatory risk	Cost burden in respect of greenhouse gases emitted during operation in the case that surcharges and taxes are introduced in order to regulate the operation of coal-fired thermal power plants. The operation of coal-fired thermal power plants is regulated.				
	LNG	Fuel procurement	Physical risk	Acute risk	Operation of gas fields is stopped due to exhausting water. Negative environmental impact due to accidental spillage of toxic substances. Negative impact on rare organisms in surrounding areas due to accidental contamination. Earthquake or tsunami damage to LNG shipping facilities, thereby making shipping not possible.	Worsening finances due to rising global costs of LNG.	Level II
				Chronic risk	Adverse impacts on land, fresh water, and marine ecosystems. Plant life living at the bottom of bodies of water and fresh water plants die due to contamination. Negative impact on rare organisms in surrounding areas due to accidental contamination. Polluting the surrounding environment without appropriately disposing of waste.	Note that we have been procuring LNG through long-term contracts from multiple projects to suppress any impact to a certain degree.	
		Power generation	Physical risk	Acute risk	Damage to thermal power plant facilities and shutting down of power plants due to an earthquake or tsunami.	Restoration costs.	Level II
Chronic risk				Greenhouse gas emissions due to operation.			
Nuclear Power	Fuel procurement	Physical risk	Acute risk	Landfalls, land subsidence, and fires occur due to the modification of land areas caused by uranium mining.	Worsening finances due to rising global costs of uranium.	Level II <small>(Since the price of uranium in proportion to the cost of nuclear power generation is low, and the likelihood of there being an impact large enough to have a financial impact is also low, the financial risk of uranium was judged to be a legal and regulatory risk.)</small>	
			Chronic risk	Degradation and division of terrestrial ecosystems, invasions by non-native species, and adverse effects on local plant life and plant environments due to the modification of land areas caused by mining operations. Exhaustion of aquifers due to excessive water use during mining. Hindering mining operations due to increased severity and frequency of droughts. Greenhouse gas emissions due to mining operations, toxic emissions in the atmosphere, adverse impacts on plant life and soil, and changing ecosystems due to species migration.			
		Transition risk	Legal and regulatory risk	Burden arising from carbon costs with respect to indirect greenhouse gas emissions, including the process of uranium mining.			
Hydroelectric Power	Physical risk	Acute risk	Damage to hydroelectric power plant facilities and shutting down of power plants due to flooding or earthquakes.	Restoration costs and costs related to securing alternative power sources.	Level II		
Transmission & Distribution	Physical risk	Acute risk	Falling trees and similar caused by strong winds during a typhoon damaging or bringing down utility poles and snapping power lines, leading to power outages.	Restoration costs.	Level II		
			Damage to facilities, particularly in the Oita and Miyazaki areas, due to a Nankai megathrust earthquake, causing wide-scale power outages.	Restoration costs.	Level III		

[Financial impact evaluation criteria] Level I: Less than ¥1 billion; Level II: ¥1 billion to ¥10 billion; Level III: ¥10 billion or more

Natural capital-related opportunities

The Kyuden Group is aware of the following business opportunities. We are committed to working towards each of the 2030 global targets of the Kunming-Montreal Biodiversity Framework, a new set of worldwide goals for biodiversity.

Biodiversity Framework Targets	Kyuden Group Initiatives
Target 3 Conservation	Joining the 30by30 alliance / Application for Natural symbiosis site accredited by the Ministry of the Environment (ESG Data Book 2023 p. 20)
Target 4 Extinction risk	Implementation of environmental assessment (ESG Data Book 2023 pp. 17, 18)
Target 7 Waste	Appropriate waste disposal (ESG Data Book 2023 p. 22) Commercialization of Circular Park Kyushu (ESG Data Book 2023 p. 22)
Target 8 Climate change	Promotion of renewable energy (ESG Data Book 2023 pp. 9-11) Maximum use of nuclear power based on the fundamental prerequisite that safety is ensured Maximise the use of highly efficient thermal power plants (ESG Data Book 2023 p. 13)
Target 9 Managing wild species	Implementation of environmental assessment (ESG Data Book 2023 pp. 17, 18) Implementation of the Kyuden Future Forest Project (ESG Data Book 2023 p. 19)

Biodiversity Framework Targets	Kyuden Group Initiatives
Target 10 Building a production system	Creating J-Credits through Use of Woodland Resources (ESG Data Book 2023 p. 16) Growing FSC® (Forest Stewardship Council®; headquartered in Germany)-certified timber (ESG Data Book 2023 p. 20) Salmon farming business (ESG Data Book 2023 p. 49)
Target 11 Recovering, maintaining, and strengthening contributions from nature (NCP*)	Environmental conservation activities across the entire Kuju Bogatsuru Marshlands (ESG Data Book 2023 p. 19)
Target 15 Evaluation and disclosure of dependency and impact	Information disclosure conforming to the TNFD Framework
Target 21 Provision of data and information	Publication of Kyuden Group ESG Data Book
Target 22 Participation in decision making	Implementing human rights due diligence (ESG Data Book 2023 pp. 60-62)
Target 23 Gender equality	

*NCP: Nature Contributions to People

Initiatives Based on the TCFD Recommendations



Kyushu Electric Power expressed its support for the TCFD* recommendations in July 2019.
* Task Force on Climate-related Financial Disclosures (TCFD) is a task force established by the Financial Stability Board (FSB) in response to a request from the G20 Finance Ministers and Central Bank Governors Meeting. In June 2017, we published recommendations for promoting information disclosure on financial impacts brought about by climate-related risks and opportunities.

The Kyuden Group has positioned its response to climate change as an important management issue (materiality), and from 2020, we have been continually carrying out scenario analysis and information disclosure based on the TCFD recommendations.

In addition, the Group was the first energy provider in Japan to receive recognition from the international Science Based Targets (SBT) initiative for its targets to reduce greenhouse gas (GHG) emissions, which have been certified as science-based targets.

In future, we will realize our goal of “leading the way toward a decarbonized society” and fulfill our responsibility to provide our stakeholders with information through formulating strategies using the TCFD recommendations and enhancing our information disclosure based on these recommendations.

Governance & Risk Management

Response system for climate change (risk and opportunity assessment and management process)

In July 2021, we established the Sustainability Promotion Committee, chaired by the President and under the supervision of the Board of Directors, to actively promote carbon neutrality and other ESG initiatives.

In addition to establishing strategies and policies concerning all aspects of ESG (specifying materiality), as well as deliberating on specific measures and managing the progress of their implementation, the Committee deliberates on and supervises strategies and risks related to climate change. The Carbon Neutrality and Environment Sub-Committee, chaired by the Chief ESG officer, was additionally established under the Sustainability Promotion Committee, and its members deliberate on all aspects of environmental issues, including carbon neutrality, from a more specialist viewpoint.

The Committee meets at least twice yearly, and the results of their discussions are reported without delay to the Board of Directors, which supervises all ESG-related activities.

Our Action Plan to Achieve Carbon Neutrality announced in November 2021, which includes our goals for 2050 and the upward revision to our management (environmental) targets for 2030, was approved by the Board of Directors following deliberation by the Carbon Neutrality and Environment Sub-Committee and the Sustainability Promotion Committee.

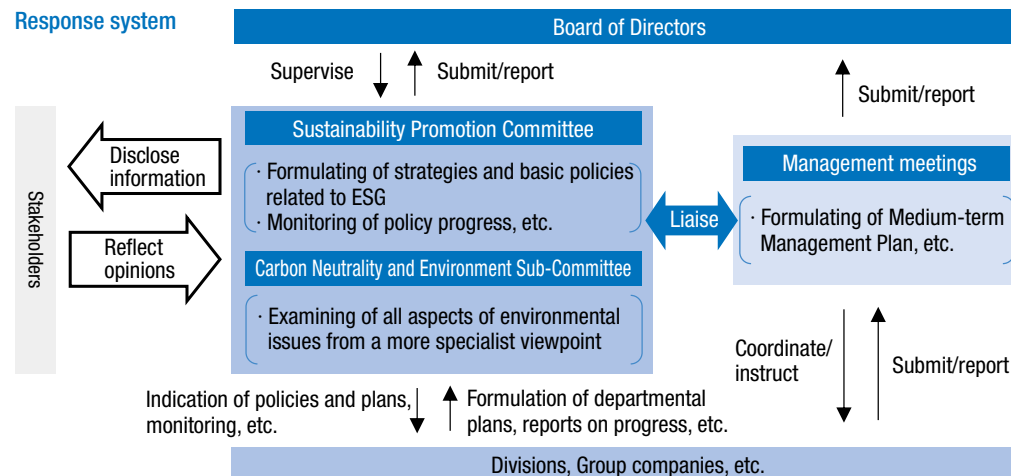
We will continue to further enhance and strengthen the process of evaluating and managing climate change risks and opportunities to enhance the corporate value of the Kyuden Group.

Refer to **P86** for details on the risk management system

Refer to **P78** for the Director Skill Matrix

Main climate change-related agenda items discussed by the Board of Directors, Sustainability Promotion Committee, etc. (from July 2022)

Supervise	Board of Directors	<ul style="list-style-type: none"> · Reviewing materiality (including examining necessity) · Direction for formulating the Medium-term ESG Promotion Plan and progress on its implementation · Policies aimed at reducing GHG emissions · Policy for issuing the Integrated Report and disclosure contents (including contents of TNFD/TCFD disclosure)
Execute	Sustainability Promotion Committee	<ul style="list-style-type: none"> · Details of dialogues with the capital market (including initiatives toward enhancing external ESG assessments) · Acquiring SBT certification · GX League-related



Sustainability Promotion Committee

[Structure] Chairperson: Member of the Board of Directors, President & Chief Executive Officer
Vice-chairperson: Chief ESG officer (Member of the Board of Directors, Vice-Presidential Executive Officer)
Committee members: External directors, executive directors of relevant divisions, etc.
Frequency: Twice yearly in principle, and additionally as necessary

Carbon Neutrality and Environment Sub-Committee

[Structure] Chairperson: Chief ESG officer (Member of the Board of Directors, Vice-Presidential Executive Officer)
Vice-chairperson: Executive Director of the Corporate Strategy Division and Director of the District Symbiosis Division
Committee members: Directors of relevant divisions, etc.
Frequency: Twice yearly in principle, and additionally as necessary

Linking climate change response to executive compensation

Kyushu EP offers its directors (excluding directors who are Audit & Supervisory Committee members and external directors) and other executives performance-based compensation, and has adopted GHG reductions aimed at carbon neutrality as one of its performance indicators (refer to **P79** for details on executive compensation).



Strategies (Risks, Opportunities, and Measures) - Climate Change Countermeasures based on Scenario Analysis - [Detailed contents of response strategies are listed on **P42-49**]

We have analyzed a number of scenarios based on the Intergovernmental Panel of Climate Change (IPCC)'s 6th Assessment Report, an IEA report, and Japan's 6th Strategic Energy Plan among others to assess the impact of climate change on the Kyuden Group.

The results of this analysis have been properly reflected in our Action Plan to Achieve Carbon Neutrality, the Kyuden Group's low carbon transition plan, and we have formulated our Medium-term ESG Promotion Plan to steadily implement it. The Sustainability Promotion Committee and the Carbon Neutrality and Environment Sub-Committee are to review and discuss our progress on the Action Plan, and revise it as appropriate based on social trends and movements in terms of technical innovation.

Furthermore, from last year, in addition to conducting scenario analyses on the risks, opportunities, and financial impacts related to our electricity businesses (Domestic, Overseas, and Renewable Energy businesses), we have also been doing the same for the ICT Service and Urban Development businesses, which are two of our growth businesses.

Scenario analysis (1.5°C case)

Scenario	Scenario Drivers			Risk or Opportunity	Timeframe	Likelihood	Financial Impact (P&L basis)	Response Strategy	
	Major Theme	Topic	Driver						
<p>1.5°C Case</p> <p>Across the globe, carbon pricing schemes and other regulations have been strengthened and efforts to address climate change have been underway. As a result, GHG reductions have steadily progressed.</p> <p>With the rise in temperature kept under control, there are no significant increases in abnormal weather or events, including changes in the flow rate of water also in Kyushu, the Kyuden Group's main area of business.</p> <p>In Japan, the adoption of zero-emission power sources has progressed, maximizing the use of renewable energy and nuclear power.</p> <p>Customers are highly environmentally conscious, and with progress made toward ambitious energy conservation measures, electrification has made headway in all sectors, including the widespread use of EVs.</p>	Electricity businesses (including Renewable Energy and Overseas)	Policy and Regulation	Costs and investments accompanying tighter GHG emission regulations	Carbon pricing (taxes, emission rights, etc.)	Transition risk (policy and regulation)	Medium to long-term	Medium	Costs would increase by ¥10 billion to ¥15 billion if GHG emissions were not reduced (assuming a carbon price of ¥2,000-¥3,000/t-CO ₂)	<ul style="list-style-type: none"> Reduce GHG emissions Make recommendations on and get involved in energy policies
			Phase-out of inefficient coal-fired power and improvements to thermal efficiency	Short, medium, long-term		High	Several tens of billions of yen (amount of increased fuel costs in a case where Kyuden LNG thermal power is co-fired with 1% hydrogen and coal-fired thermal power is co-fired with 20% ammonia)	<ul style="list-style-type: none"> Establish co-firing technologies at our existing thermal power plants Develop ammonia and hydrogen supply chains Produce carbon-free fuel using renewable energy and nuclear power Switch from coal-fired to LNG combined cycle thermal power 	
		Technology	Making renewable energy a primary source of power	Expanded earnings by promoting the development of renewable energy (including overseas)	Opportunity (source of energy)	Short, medium, long-term	High	¥13 billion in ordinary income from the renewable energy business (FY2025)	<ul style="list-style-type: none"> Develop geothermal and hydroelectric power projects, which our where our strengths lie Develop offshore wind power and biomass projects that have great potential for adoption Utilize battery and pumped storage
				Decreased grid stability	Transition risk (technology)	Medium to long-term	Low	Small to medium	Upgrade supply and demand operation and grid stabilization technologies through the use of digital technology
			Maximizing the use of nuclear power	Improving nuclear power plant utilization rate	Opportunity (source of energy)	Medium to long-term	Medium	A 1% increase in the utilization rate would reduce fuel costs by about ¥5 billion	Shorten inspection periods, operate on long-term cycles, improve electricity output
				Unplanned outages of nuclear power	Transition risk (policy and regulation, technology)	Short, medium, long-term	Low	Approx. ¥10 billion per reactor for a one-month outage	Allocate appropriate budgets for repairs and improvement costs in line with the state of facilities
		Market	Electric power demand	Increased electricity sales as a result of progress in electrification	Opportunity (products and services)	Short, medium, long-term	High	Sales will increase by approx. ¥60 billion if electrification target is reached (increase in sales if 2030 target KPI is achieved)	<ul style="list-style-type: none"> Contribute to the electrification of Kyushu <ul style="list-style-type: none"> Household: Strengthen liaisons with housing-related businesses Commercial: Suggest highly efficient heat pump systems, etc.
				Decreased electricity sales due to the spread of distributed energy systems, increased competition, etc.	Transition risk (market)	Medium to long-term	High	A 1% decrease in retail electricity sales would reduce sales by approx. ¥15 billion	Establish distributed energy resource (DER) control technologies and develop an aggregation business using battery storage
			Fuel prices	Higher fuel prices	Short, medium, long-term	High	Certain financial impact, but mitigated by a stable nuclear power supply	<ul style="list-style-type: none"> Diversify supply sources Curb price hikes through contractual fixed price options, etc. (coal) Consider diversifying pricing methods by using new indicators with higher price stability (LNG) 	
		Reputation	Credibility	Higher financing costs due to investors deeming our efforts toward carbon neutrality as insufficient	Transition risk (reputation)	Medium to long-term	Medium	Approx. ¥0.8 billion (the impact of a 0.1% change in the interest rate on approx. ¥700 billion in actual funding from FY2022)	<ul style="list-style-type: none"> Steadily implement the Action Plan Promote proper information disclosure, including on the progress toward our KPIs
		Products and Services	Changing customer needs	Sales of non-fossil value	Opportunity (products and services)	Short, medium, long-term	High	¥20 billion to ¥40 billion (potential sales if all non-fossil value was sold)	<ul style="list-style-type: none"> Maximize the use of zero-emission power sources Expand renewable energy and CO₂-free rate plans
				Increased carbon neutrality needs in the region	Opportunity (products and services)	Medium to long-term	High	Approx. several hundred million yen (increased sales from distributed energy systems, EV services, etc.)	<ul style="list-style-type: none"> Establish distributed energy resource (DER) control technologies and develop an aggregation business using battery storage Consider new business models using EVs
	ICT Service / Urban Development businesses	Policy and Regulation	Costs and investments accompanying tighter GHG emission regulations	Carbon pricing (taxes, emission rights, etc.)	Transition risk (policy and regulation)	Medium to long-term	Medium	Small	Maintain and improve profitability by differentiating ourselves and adding higher value by improving energy saving performance, creating self-sufficient zero energy buildings (ZEBs) and houses (ZEHs), introducing renewable energy-based electricity, and promoting the use of digital transformation. Also, reduce the impact of carbon pricing
				Increased costs following a tightening of the Energy Conservation Act	Transition risk (policy and regulation)	Medium to long-term	High	Small	
		Products and Services	Changing customer needs	Increased need to promote electrification and for energy management in response to growing demand for decarbonization and energy conservation	Opportunity (products and services)	Short, medium, long-term	High	Medium	<ul style="list-style-type: none"> Provide an accurate response to disaster response needs of local governments and enter into agreements with them Collaborate with other companies on related products and services to differentiate us from competitors, including drone services and uninterruptible power supplies
				Increased demand for products/services tied to ensuring resiliency		Medium to long-term	Medium	Small	
		Physical	Facility damage	Losses incurred due to typhoons, floods, torrential rain, and other natural disasters (increased costs to restore damaged facilities and reduced earnings due to suspended operations)	Physical risk (acute)	Short, medium, long-term	Low	Small	<ul style="list-style-type: none"> Minimize impacts by constructing disaster-resistant facilities, selecting development sites and implementing disaster prevention measures based on hazard maps, and hedging risk with insurance coverage Build a decentralized and disaster-resilient telecommunication network Prepare disaster response manuals, etc.
				Operational costs		Increased electricity costs for air conditioning due to higher average temperatures	Physical risk (chronic)	Medium to long-term	High

[Timeframe] Short-term: Now through FY2025; Mid-term: FY2026-FY2030; Long-term: FY2031-FY2050

[Financial Impact] Small: Less than ¥1 billion; Medium: ¥1 to 10 billion; Large: ¥10 billion or more *FY2022 figures used to determine financial impact unless otherwise stated

[Presumptions] 1.5°C case: Intergovernmental Panel of Climate Change (IPCC)'s 6th Assessment Report (SSP1-1.9 scenario), IEA WEO 2022 (Net Zero Emissions by 2050 (NZE) scenario), Japan's 6th Strategic Energy Plan, etc.

4°C case: Intergovernmental Panel of Climate Change (IPCC)'s 6th Assessment Report (SSP5-8.5 scenario), etc.



Scenario analysis (4°C case)

Scenario	Scenario Drivers			Risk or Opportunity	Timeframe	Likelihood	Financial Impact (P&L basis)	Response Strategy		
	Major Theme	Topic	Driver							
<p>4.0°C Case</p> <p>There is a wide gap between the efforts different countries and regions have taken to address climate change, and GHG emission reductions have not progressed when viewed on a global basis. Temperatures have risen across the world, causing abnormal weather, including changes in the flow rate of water to increase also in Kyushu, the Kyuden Group's main area of business. The impacts of this have grown apparent, with some resource development sites overseas becoming inoperable. In Japan, the adoption of zero-emission power sources has progressed, maximizing the use of renewable energy and nuclear power. Moreover, the growing need for decarbonized power sources is advancing the debate on new types of nuclear reactors. Customers are highly environmentally conscious, and with progress made toward ambitious energy conservation measures, electrification has made headway in all sectors, including the widespread use of EVs. As total global GHG emission reductions have been insufficient, stricter carbon pricing schemes and other regulations are about to be imposed on power producers in developed countries.</p>	Electricity businesses (including Renewable Energy and Overseas)	Policy and Regulation	Costs and investments accompanying tighter GHG emission regulations	Carbon pricing (taxes, emission rights, etc.)	Transition risk (policy and regulation)	Medium to long-term	Medium	Costs would increase by ¥20 billion to ¥30 billion if GHG emissions were not reduced (assuming a carbon price of ¥4,000-¥6,000/t-CO ₂)	<ul style="list-style-type: none"> Reduce GHG emissions Make recommendations on and get involved in energy policies 	
			Phase-out of inefficient coal-fired power and improvements to thermal efficiency	Short, medium, long-term		High	Greater than the 1.5°C case	<ul style="list-style-type: none"> Establish co-firing technologies at our existing thermal power plants Develop hydrogen and ammonia supply chains Produce carbon-free fuel using renewable energy and nuclear power Switch from coal-fired to LNG combined cycle thermal power 		
		Technology	Maximizing the use of nuclear power	Unplanned outages of nuclear power	Transition risk (policy and regulation, technology)	Short, medium, long-term	Low	Approx. ¥10 billion per reactor for a one-month outage	Allocate appropriate budgets for repairs and improvement costs in line with the state of facilities	
		Market	Electric power demand	Increased electricity sales as a result of progress in electrification	Opportunity (products and services)	Short, medium, long-term	High	Not as prominent as the 1.5°C case	<ul style="list-style-type: none"> Contribute to the electrification of Kyushu <ul style="list-style-type: none"> Household: Strengthen liaisons with housing-related businesses Commercial: Suggest highly efficient heat pump systems, etc. 	
				Decreased electricity sales due to the spread of distributed energy systems, increased competition, etc.	Transition risk (market)	Medium to long-term	High	A 1% decrease in retail electricity sales would reduce sales by approx. ¥15 billion	Establish distributed energy resource (DER) control technologies and develop an aggregation business using battery storage	
		Reputation	Credibility	Higher financing costs due to investors deeming our efforts toward carbon neutrality as insufficient	Transition risk (reputation)	Medium to long-term	Medium	Approx. ¥0.8 billion (the impact of a 0.1% change in the interest rate on approx. ¥700 billion in actual funding from FY2022)	<ul style="list-style-type: none"> Steadily implement the Action Plan Promote proper information disclosure, including on the progress toward our KPIs 	
		Physical	Products and Services	Changing customer needs	Increased carbon neutrality needs	Opportunity (products and services)	Medium to long-term	Low	Not as prominent as the 1.5°C case	Maximize the use of zero-emission power sources
				Fuel	Reduced hydroelectric power generation	Physical risk (chronic)	Medium to long-term	Low	Approx. several hundred million yen/% (sensitivity of income and expenditures to a 1% change in flow rate)	Update our existing power plants and promote new development using FIT and FIP systems
			Facilities		Inability to operate resource development sites	Physical risk (acute)	Medium to long-term	Low	Fuel costs would increase by about ¥30 billion due to higher fuel prices (sensitivity to price increases of \$10/t for coal and \$1/MMBtu for LNG)	<ul style="list-style-type: none"> Diversify supply sources Curb price hikes through contractual fixed price options, etc. (coal) Consider diversifying pricing methods by using new indicators with higher price stability (LNG)
		Physical	Policy and Regulation	Costs and investments accompanying tighter GHG emission regulations	Carbon pricing (taxes, emission rights, etc.)	Transition risk (policy and regulation)	Medium to long-term	Medium	Small	<ul style="list-style-type: none"> Promote the shift away from utility poles Improve disaster response capabilities (through training, etc.)
	Increased costs following a tightening of the Energy Conservation Act				Medium to long-term		High	Not as prominent as the 1.5°C case		
	Products and Services		Changing customer needs	Increased need to promote electrification and for energy management in response to growing demand for decarbonization and energy conservation	Opportunity (products and services)	Short, medium, long-term	High	Not as prominent as the 1.5°C case	<ul style="list-style-type: none"> Provide an accurate response to disaster response needs of local governments and enter into agreements with them Collaborate with other companies on related products and services to differentiate us from competitors, including drone services and uninterruptible power supplies 	
				Increased demand for products/services tied to ensuring resiliency		Medium to long-term	Medium	Greater than the 1.5°C case		
	Physical	Facility damage	Losses incurred due to typhoons, floods, torrential rain and other natural disasters (increased costs to restore damaged facilities and reduced earnings due to suspended operations)	Physical risk (acute)	Short, medium, long-term	Medium	Greater than the 1.5°C case	<ul style="list-style-type: none"> Minimize impacts by constructing disaster-resistant facilities, selecting development sites and implementing disaster prevention measures based on hazard maps, and hedging risk with insurance coverage Build a decentralized and disaster-resilient telecommunication network Prepare disaster response manuals, etc. 		
Operational costs					Increased electricity costs for air conditioning due to higher average temperatures	Physical risk (chronic)	Medium to long-term	High	Greater than the 1.5°C case	Improve the energy efficiency of air conditioning at our data centers, etc.
ICT Service / Urban Development businesses	Policy and Regulation	Costs and investments accompanying tighter GHG emission regulations	Carbon pricing (taxes, emission rights, etc.)	Transition risk (policy and regulation)	Medium to long-term	Medium	Small	<ul style="list-style-type: none"> Maintain and improve profitability by differentiating ourselves and adding higher value by improving energy saving performance, creating self-sufficient zero energy buildings (ZEBs) and houses (ZEHs), introducing renewable energy-based electricity, and promoting the use of digital transformation. Also, reduce the impact of carbon pricing 		
			Increased costs following a tightening of the Energy Conservation Act		Medium to long-term	High	Not as prominent as the 1.5°C case			
	Products and Services	Changing customer needs	Increased need to promote electrification and for energy management in response to growing demand for decarbonization and energy conservation	Opportunity (products and services)	Short, medium, long-term	High	Not as prominent as the 1.5°C case	<ul style="list-style-type: none"> Provide an accurate response to disaster response needs of local governments and enter into agreements with them Collaborate with other companies on related products and services to differentiate us from competitors, including drone services and uninterruptible power supplies 		
			Increased demand for products/services tied to ensuring resiliency		Medium to long-term	Medium	Greater than the 1.5°C case			
Physical	Facility damage	Losses incurred due to typhoons, floods, torrential rain and other natural disasters (increased costs to restore damaged facilities and reduced earnings due to suspended operations)	Physical risk (acute)	Short, medium, long-term	Medium	Greater than the 1.5°C case	<ul style="list-style-type: none"> Minimize impacts by constructing disaster-resistant facilities, selecting development sites and implementing disaster prevention measures based on hazard maps, and hedging risk with insurance coverage Build a decentralized and disaster-resilient telecommunication network Prepare disaster response manuals, etc. 			
				Operational costs	Increased electricity costs for air conditioning due to higher average temperatures	Physical risk (chronic)	Medium to long-term	High	Greater than the 1.5°C case	Improve the energy efficiency of air conditioning at our data centers, etc.

[Timeframe] Short-term: Now through FY2025; Mid-term: FY2026-FY2030; Long-term: FY2031-FY2050

[Financial Impact] Small: Less than ¥1 billion; Medium: ¥1 to 10 billion; Large: ¥10 billion or more *FY2022 figures used to determine financial impact unless otherwise stated

[Presumptions] 1.5°C case: Intergovernmental Panel of Climate Change (IPCC)'s 6th Assessment Report (SSP1-1.9 scenario), IEA WEO 2022 (Net Zero Emissions by 2050 (NZE) scenario), Japan's 6th Strategic Energy Plan, etc.

4°C case: Intergovernmental Panel of Climate Change (IPCC)'s 6th Assessment Report (SSP5-8.5 scenario), etc.

For details on the Carbon Neutral Vision 2050 (including the Action Plan), please visit the following page:
https://www.kyuden.co.jp/english_index.html
 Home > For investors > Information on our Sustainability initiatives> [Carbon Neutral Vision 2050](#)



Indicators and Targets - Setting Climate-related Targets and their Progress -

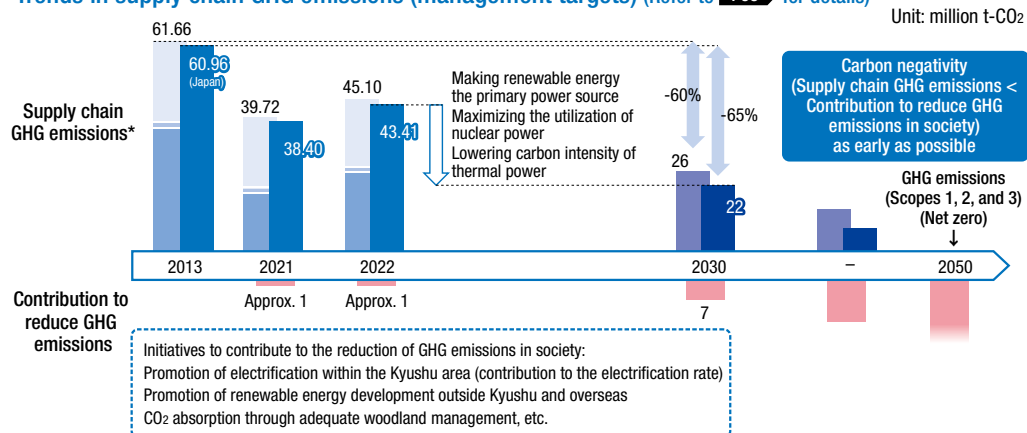
As an industry leader in low-carbon and carbon-free efforts, we will take on the challenge of achieving net zero greenhouse gas (GHG) emissions in our supply chains by 2050 and make significant contributions to reducing emissions across society by helping improve Kyushu's rate of electrification. In doing so, we aim to achieve carbon negativity for all of the Kyuden Group's business activities as early as possible before 2050.

We have also set interim management targets (environmental targets) for 2030 on our way toward carbon neutrality by 2050. These have been set at a level that goes far beyond the targets for reducing GHG emissions announced by the Japanese government, and we have formulated a concrete action plan (refer to **P40-41** for details on progress) to achieve them.

	KGI (2050)	Indicator	Interim Targets and KPIs (2030)	FY2022 Performance
Supply	Net zero supply chain GHG emissions	Supply chain GHG emissions	60% reduction of supply chain GHG emissions (65% for domestic business) (compared to FY2013)	26% reduction (28% for domestic business)
		Positioning renewable energy as a primary power source	Renewable energy developed: 5,000 MW (Japan and overseas)	3,020 MW (Japan and overseas, approved projects *1)
		Lowering the carbon intensity of thermal power	Achieve the benchmark indicators in the Energy Conservation Act (Indicator A: 1.0 or more; Indicator B: 44.3% or more; Coal only indicator: 43.0% or more) Establish technology toward co-firing of 1% hydrogen / 20% ammonia	Indicator A: 0.98; Indicator B: 43.02%; Coal only Indicator: 41.66 Investigated and examined hydrogen/ammonia co-firing technologies (tested co-firing of ammonia at Unit 1 of the Reihoku Power Plant from April 2023)
Demand	Contribution to reduction of GHG emissions in society – Help achieve a 100% electrification rate for the household and commercial sectors in Kyushu	Promotion of electrification	Contribute to the electrification of Kyushu (Household: 70%; Commercial: 60%)	Household: 61%; Commercial: 48% *2
		Household sector	Incremental electricity: 1,500 GWh (2021-2030 total)	Incremental electricity: 120 GWh
		Commercial sector	Incremental electricity: 1,600 GWh (2021-2030 total)	Incremental electricity: 110 GWh
		Transportation sector	100% replacement of company vehicles with EVs (excluding special-purpose vehicles)	Percentage of company vehicles replaced with EVs: 16% (95 EVs deployed)
	Contribution to reduction of GHG emissions in society		Contribution to reduce GHG emissions: 7 million t-CO ₂	Approx. 1 million t-CO ₂

*1: Total of projects for which development is expected by 2030 at the present stage *2: Calculations are based on the FY2020 figures (provisional figures) in the "Energy Consumption Statistics by Prefecture" reported by the Agency for Natural Resources and Energy

Trends in supply chain GHG emissions (management targets) (Refer to **P95** for details)



* GHG emissions data have received an Independent Practitioner's Assurance from Deloitte Tohmatsu Sustainability Co., Ltd in our ESG Data Book 2023.

Internal carbon pricing

The Kyuden Group has set an internal carbon price based on trading conditions in the non-fossil value market and other factors to use in making investment decisions to promote our renewable energy business in an aim to achieve carbon neutrality by 2050.

Our internal carbon price has been set at around ¥1,400 to ¥2,900/t-CO₂ based on the trading price (¥0.6 to ¥1.3/kWh), etc. of non-fossil value on the market (market for achieving the target mandated by the Sophisticated Methods Act).

We will also consider including making further use of the internal carbon price (expanding the scope of its application, reviewing the price level, etc.) to accelerate our efforts toward decarbonization, taking into account social trends and other factors.

Total investments in low-carbon and decarbonized energy sources

Total investments for FY2021-FY2025: Approx. ¥500 billion (of which renewable energy-related: approx. ¥250 billion)

In FY2022, we became the first former general electric utility in Japan to issue a transition bond and implement a transition loan, which is the government's first interest subsidy program.

(For details related to promoting green and transition financing, refer to **P46**)