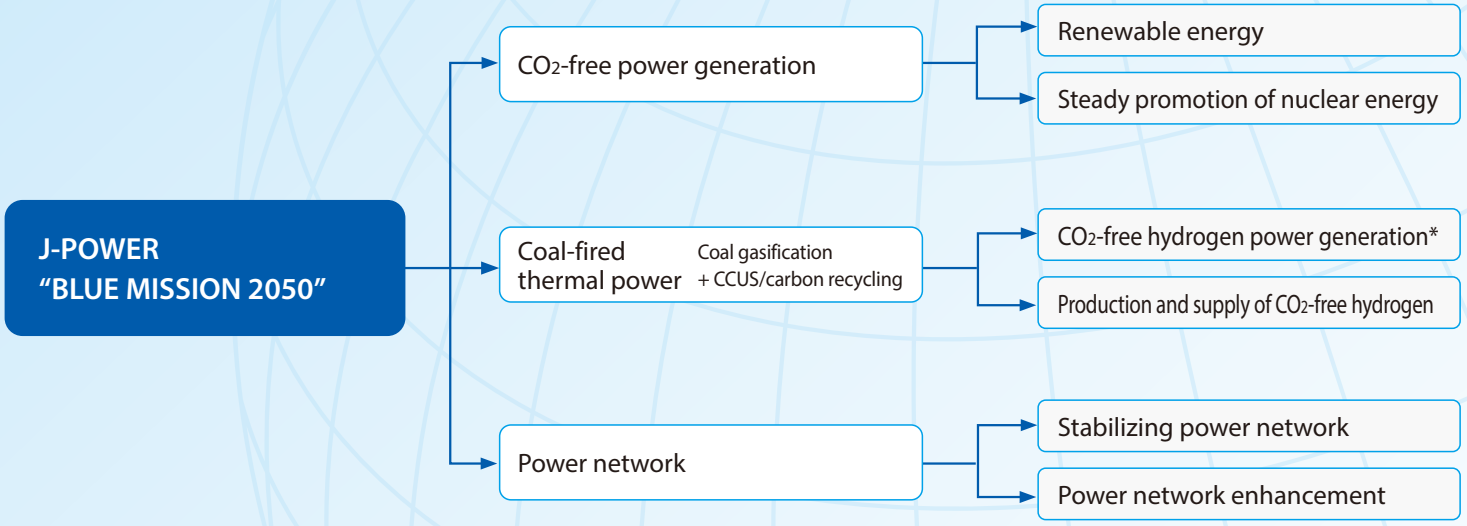
J-POWER "BLUE MISSION 2050"

In an effort to realize a carbon-neutral and hydrogen society, in February 2021, the J-POWER Group announced the J-POWER "BLUE MISSION 2050" which presents three approaches to reach carbon neutrality with priorities for their implementation centered on acceleration and upcycling.

Action Plan



* Including the use of hydrogen extracted from ammonia for power generation

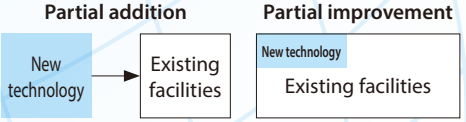
Priorities for Implementation

Acceleration

Having deployed renewable energies nationwide to date, the J-POWER Group will further accelerate their expansion.
By offering power balancing capabilities through technologies such as CO_2-free hydrogen power generation, and by contributing to the enhancement of the power network, the Group will also support the expansion of renewable energy throughout Japan.

Upcycle

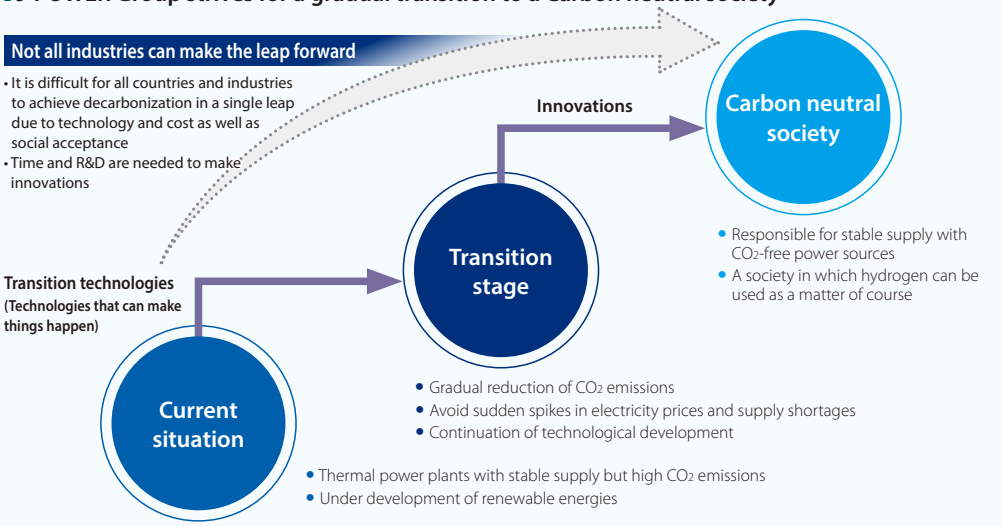
The Group aims to apply new technologies at an early stage with economic rationality while reducing environmental impact by upcycling (creatively converting) its existing resources into high value-added ones.



J-POWER "BLUE MISSION 2050"

J-POWER "BLUE MISSION 2050" as a transition strategy

J-POWER Group strives for a gradual transition to a Carbon neutral society



Based on the Ministry of Economy, Trade and Industry's (METI), *Transition Finance - Toward a Transition to Decarbonization*

Why do we need a transition strategy?

To achieve a sustainable society and carbon neutrality are common goals for the whole world. However, the means to achieve these goals depend on the circumstances of each country and industrial sector. Moreover, a lot of time and R&D are required to create and implement innovations, making it difficult to achieve carbon neutrality in all countries and industries in one go. Additionally, the shutting down and decommissioning of large-scale power plants that comes with a rapid shift to decarbonization will have a major impact on local economies and employment. A transition strategy is therefore vital for a gradual transition toward carbon neutrality. Electric power in particular, which forms the basis of our social and economic activities, needs to shift toward decarbonization while maintaining both stable supply and stable prices.

The J-POWER "BLUE MISSION 2050" is a transition strategy that aims to move toward a carbon-neutral and hydrogen society by 2050 while maintaining stable power supplies. While taking on the challenge of innovation based on our technologies and knowledge, we will steadily advance toward a carbon neutral society while gradually overcoming the challenges of renewable energy, thermal power supply, and power networks.

Resolving issues with the J-POWER "BLUE MISSION 2050"

Expansion of renewable energy

With the aim to become a mainstay power source in the future, we will promote new development in renewable energy, and improve its value. Yet, renewable energy such as solar and wind power, does have its problems with output dependent on the weather and time of day, resulting in an instable power system. At present, it is not possible to flexibly respond to sudden fluctuations in supply and demand, and large-scale use of renewable energy may interrupt the stable supply of electricity. The J-POWER Group will work on developing hydrogen power and upcycling hydroelectric power which will act as sources for balancing energy. We will also strive to enhance value in the large-scale pumped-storage hydroelectric power generation we own. By functioning as a type of water battery in terms of both absorbing surplus power and supplying power when there isn't enough, we will contribute to a more stable power network.

Nuclear power as a CO_2-free power source

Nuclear power is a baseload, CO_2-free power source. We will promote the Ohma Nuclear Power Plant Project with the highest priority on ensuring safety.

Zero emission power sources

Thermal power sources, which can generate a large amount and stable supply of electric power, will be the energy that supports the period of transition to carbon neutral by reducing CO_2 emissions. While gradually reducing CO_2 through the use of biomass and ammonia, we will also switch to hydrogen power by applying coal gasification and CO_2 separation and capture technologies. We hope to achieve CO_2-free hydrogen power generation by also combining with CCUS (carbon capture, usage and storage) technology.

Realization of a hydrogen society

The widespread use of hydrogen energy is essential for the decarbonization of society as a whole, including industrial sectors other than electric power, but it requires a large and stable supply of hydrogen. The J-POWER Group aims to produce and supply hydrogen in different ways, including CO_2-free hydrogen produced from fossil fuels and hydrogen derived from renewable energy.

Power network stabilization and enhancement

The issues involved with the mass introduction of renewable energy include stabilizing the grid and expanding the power network to carry electricity from suitable renewable energy generating areas to larger cities where much of it is used. The J-POWER Group will contribute to the stabilization and enhancement of the power network across the whole of Japan by improving frequency converter facilities, DC transmission lines, and submarine cables.

J-POWER "BLUE MISSION 2050"

Roadmap

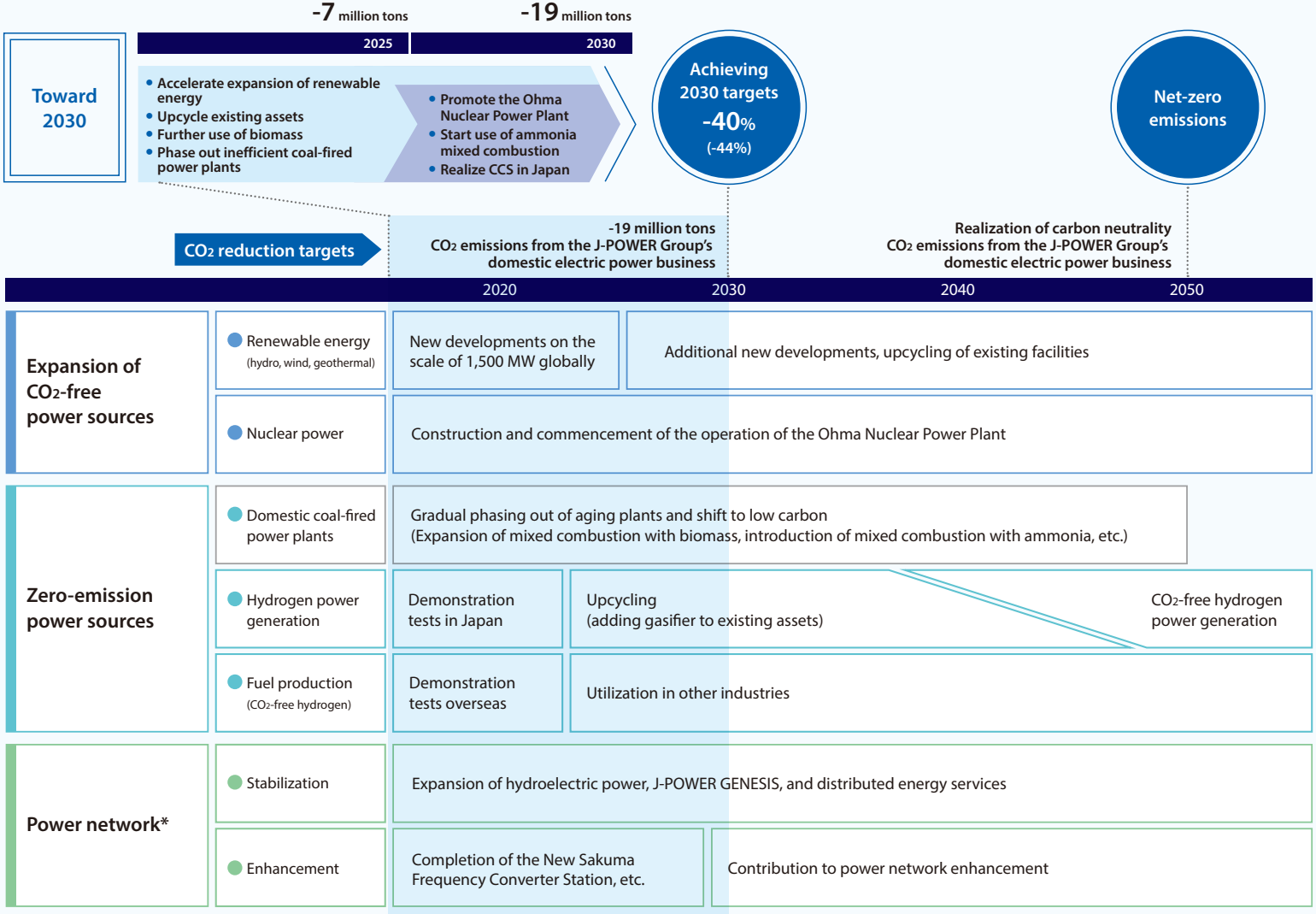
Achieving the J-POWER "BLUE MISSION 2050"

The J-POWER Group is promoting a transition strategy (see p.15) that aims to transition to a carbon-neutral and hydrogen society by 2050 while maintaining a stable supply of electricity. The Group has set a new target of reducing 7 million tons of CO_2 emissions by FY2025 in order to achieve the interim 2030 target.

We will work to develop 1,500 MW of renewable energy by FY2025, in addition to efforts to lower carbonization in thermal power with biomass mixed combustion.

Furthermore, we will reduce carbon emissions through phasing out and upcycling aging coal-fired power plants.

By 2030, we will aim to further reduce CO_2 emissions by 19 million tons by starting operations at the Ohma Nuclear Power Plant, mixed combustion CO_2-free ammonia in coal-fired power, and implementing CCS (carbon, capture and storage).



Notes: This roadmap will be updated and detailed as needed based on government policy conditions and the progress of industry development. In addition, the Group will review its contents as prerequisites change.
The amount and rate of CO_2 reductions are compared against three-year averages from FY2017 to FY2019. Figures in parentheses are compared against FY2013.
* J-POWER Transmission initiatives

J-POWER "BLUE MISSION 2050"

BLUE MISSION 2050

Development Status of Renewable Energy

The J-POWER Group, one of Japan's leading renewable energy providers

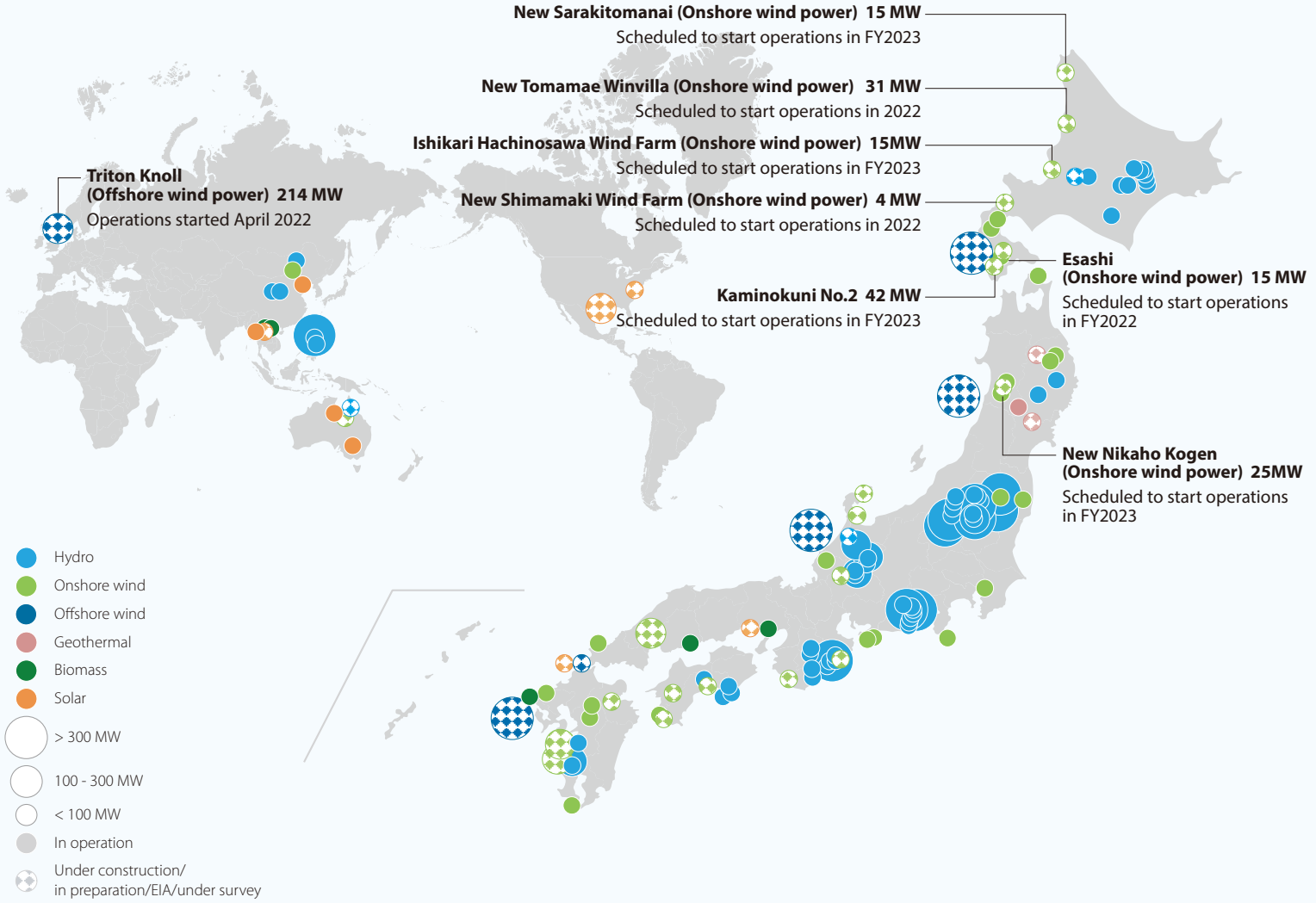
The J-POWER Group has a history of renewable energy development spanning approximately 70 years. The Group has extensive facilities and a wealth of knowledge gained through many years of construction, maintenance and operation. Renewable energy accounts for 50% of the Group's total generation capacity, and the Group is the second largest operator of hydroelectric and wind power respectively in terms of generation capacity in Japan.

As one of Japan's leading renewable energy providers, the Group utilizes its predominance and maximizes the value of existing facilities through wind and hydroelectric upcycling while at the same time aiming for further growth by promoting new developments in fields such as onshore and offshore wind power, small-scale hydroelectric power, geothermal power, and solar power.

Prioritizing investment in renewable energy

Going forward, the Group will be prioritizing investment in renewable energy and, by FY2025, will develop new facilities, expanding the Group's scope by 1,500 MW in comparison to FY2017. (See p.18)

Development Status of Renewable Energy (As of March 31, 2022)



- Generation capacity is calculated on owned capacity and, if capacity is not yet decided, on estimated maximum owned capacity.
- In addition to the above, wind power of up to about 1,850 MW is under research for development at four sites in Japan's general sea area (the operator of offshore wind power in the general sea area is decided by bidding after designating the promotion area, output for joint projects with other companies is estimated based on maximum capacity without considering equity for calculation).

J-POWER "BLUE MISSION 2050"

Expansion of renewable energy

The introduction of renewable energy is expanding worldwide. As such, the J-POWER Group will accelerate the development of new renewable energy in Japan and overseas by prioritizing the allocation of investment and increasing personnel.

The main focus of development is on domestic onshore wind power. Project sites amounting to roughly 800 MW under the environmental impact assessment.

In terms of hydropower, we are working to develop small-scale hydroelectric power plants and repower by renewing water turbines, etc., setting a FY2025 target of increasing hydroelectric power generation by 300 million kWh per year (compared to FY2017).

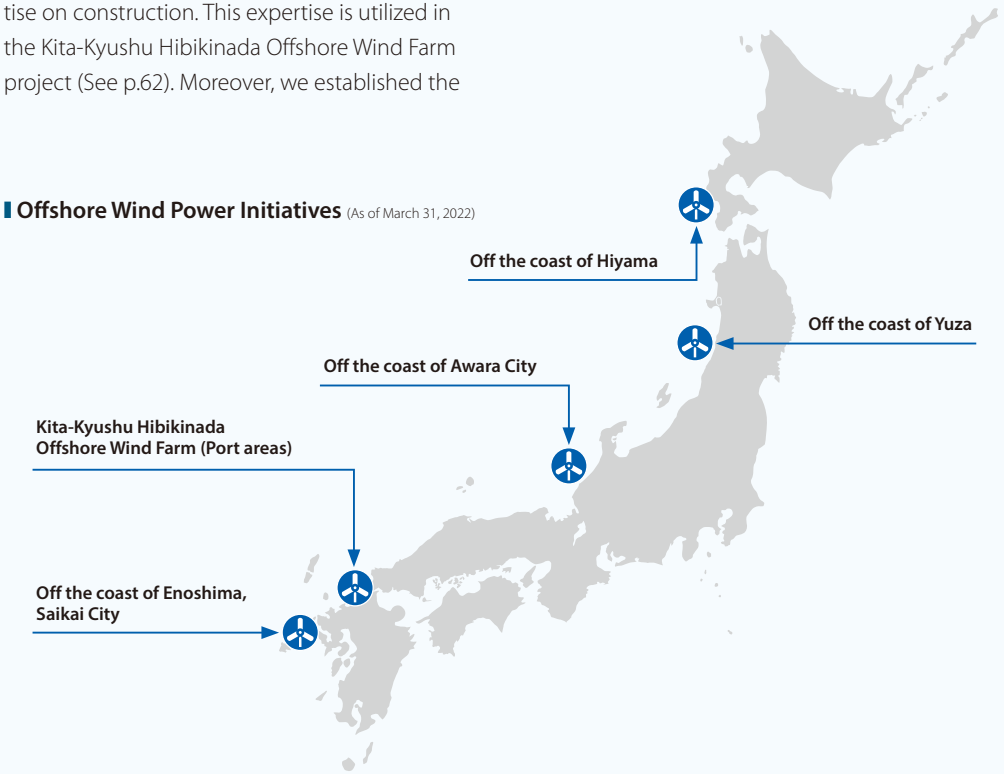
Renewable energy development goals (As of March 31, 2022)

Note: Owned capacity basis

Offshore wind power initiatives

In April 2022, the UK's Triton Knoll offshore wind farm began operations. For the construction of this wind farm, two engineers were dispatched from J-POWER where they gained experience with offshore project management and expertise on construction. This expertise is utilized in the Kita-Kyushu Hibikinada Offshore Wind Farm project (See p.62). Moreover, we established the Offshore Wind Power Business Dept. within the company in April 2022 which will help us to continue to develop offshore wind power in the future.

Offshore Wind Power Initiatives (As of March 31, 2022)



Domestic

Location	Generation Capacity	Status
General sea areas (4 locations)	Max. 1,850 MW	Development survey in progress
Port areas (1 location)	Max. 220 MW 40% stake 88 MW (owned capacity)	In preparation

J-POWER "BLUE MISSION 2050"

BLUE MISSION 2050

Upcycling to next generation hydroelectric power plants

Built to solve the power shortage after WWII, the Sakuma Hydropower Plant has contributed to the stable supply of electricity for over 60 years. J-POWER will transform it into a next-generation hydroelectric power plant that creates new value and energy by bringing together hydroelectric power, regions and drainage areas, and working people. The project was named NEXUS with the idea of "comprehensively engaging and thinking about what we (US) can do for a sustainable future (NEXT)", centering on "hydroelectric power," "local communities," and "people." The project not only replaces equipment but also aims to realize the next-generation hydroelectric power plant needed by the local community and society.

Next-generation hydroelectric power plants generating new value and energy

Further increase in power output and generation capacity

Maximizing valuable, purely domestic renewable energy
Contributing to the stabilization of power networks by improving adjusting capacity

Engagement with local communities

To become a power plant trusted and needed by the community
Working on what we can do through communication with local communities.

On-site capabilities × digital technology

With the latest technology, J-POWER will transform into a workplace where people can more easily achieve high performance, more effectively ensure high quality, and more safely work with security.

Transformation into a new high-value-added power plant

NEXUS

This project was named NEXUS[1] after "NEXT US," a vision of sustainable and better future required by people and society in the local communities. J-POWER will comprehensively address the issues that it should undertake for hydropower generation, regions, drainage areas, and people.

The plant was built by using the engineering marvel of the time

Use of large earth-moving machines enabled the project to be completed in just three years, becoming a model for other projects.

Abundant water resources from Lake Suwa

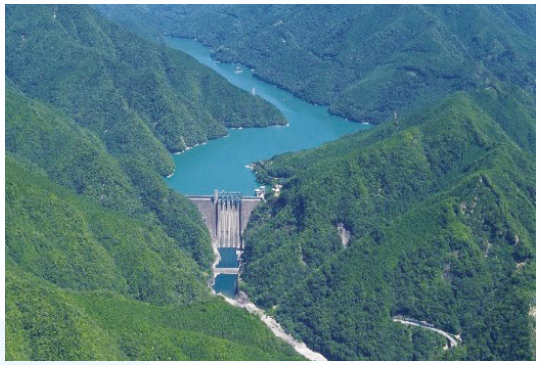
Basin area: 4,156.5 km^2
Total water storage capacity: 326.85 million m^3

Japan's largest class hydropower generation

Maximum output: 350 MW
Annual power generation: Approx. 1.4 billion kWh[2]

Power supply to both 50 and 60 Hz areas

The plant contributes to stable supply in both east and west Japan.



Sakuma Hydropower Plant, Hamamatsu City, Shizuoka Prefecture (present)

A huge amount of electricity has been generated by the Sakuma Hydropower Plant

Notes: 1. Trademark registration pending
2. Equivalent to the annual power consumption of approximately 460,000 ordinary households

J-POWER "BLUE MISSION 2050"

BLUE MISSION 2050

Steady promotion of the Ohma Nuclear Power Plant Construction Plans

The Ohma Nuclear Power Plant, a large-scale power plant with a capacity of 1,383 MW, will be a CO_2-free power source capable of stably producing large amounts of electricity once it begins operation. In addition, it will be the only power plant in Japan capable of using MOX fuel, made by recycling spent fuel, for the entire core.

For energy resource-scarce Japan, nuclear power is a power source that excels in terms of large-scale CO_2-free power, stable procurement and storage of fuel. The operation of the Ohma Nuclear Power Plant will promote the reprocessing of spent fuel in Japan, contributing to the stable operation of other nuclear power plants nationwide, which are CO_2-free power sources, helping to improve the energy self-sufficiency of Japan.

The J-POWER Group is implementing the Ohma Nuclear Power Plant Project by ensuring safety as its top priority.

Overview of the Ohma Nuclear Power Plant Construction Plans

Location	Ohma-machi, Shimokita-gun, Aomori Prefecture
Capacity	1,383 MW
Type of nuclear reactor	Advanced boiling water reactor (ABWR)
Fuel	Enriched uranium and uranium-plutonium mixed oxide
Start of construction	May 2008
Start of operations	To be determined

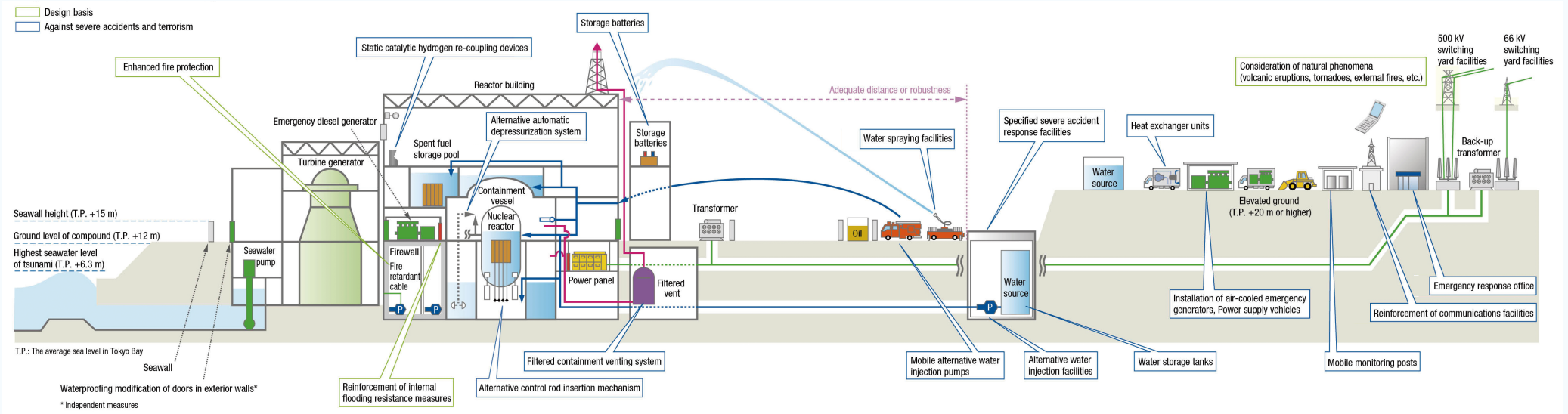
Social Issues

- Stable energy supply
- Securing diverse energy sources in Japan, a country with few energy resources
- Climate change

Value that the J-POWER Group Creates

- Both responding to the climate change issue and stable supply of power with CO_2-free baseload power sources
- Using MOX fuel to promote the nuclear fuel cycle and contribute to securing diverse energy sources

Illustration of Measures to Reinforce Safety at the Ohma Nuclear Power Plant



J-POWER "BLUE MISSION 2050"

BLUE MISSION 2050

Steady promotion of the Ohma Nuclear Power Plant Construction Plans

Ohma Nuclear Power Plant Safety Reinforcement Measures and Review Status

In the wake of the accident at the Fukushima Daiichi Nuclear Power Station, the new regulatory standards established by the Nuclear Regulation Authority are now thought to be the strictest safety standards in the world. At the Ohma Nuclear Power Plant, we are learning the lessons from the Fukushima Daiichi accident and incorporating measures to strengthen safety based on these new regulatory standards.

Examples include strengthening design standards to protect the functions of power plant safety equipment from natural disasters such as tsunamis and earthquakes, measures to respond promptly in the event of a severe accident, and measures to prevent serious accidents caused by terrorism and other causes. Furthermore, by not limiting ourselves to these measures and voluntarily and continuously improving safety based on the latest knowledge, we will strive to make the Ohma Nuclear Power Plant the world's safest power plant so that we can contribute to the local community and Japan.

The Nuclear Regulation Authority is currently reviewing the Ohma Nuclear Power Plant's compliance with the New Safety Standards for Nuclear Power Stations. Fifty-four review meetings have been held as of the end of April 2022, and our explanations are gradually being better understood and we are making steady progress. At present, seismic motion evaluation is under review to determine standard seismic motion. As the business operator, we are unable to predict the progress of the compliance review. However, once the review has been passed, we will begin construction on facility safety reinforcement in the latter half of 2022 based on the review findings, with the aim of completion in the latter half of 2027.

Ohma's position in the pluthermal project

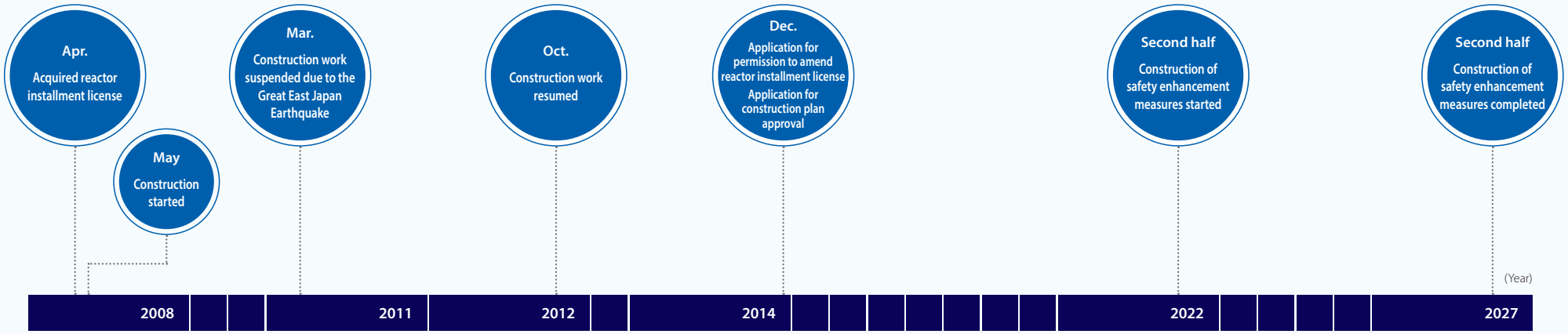
In July 2018, Japan's Atomic Energy Commission (JAEC) issued a new policy paper, *The Basic Principles on Japan's Utilization of Plutonium*, which stated that Japan will reduce the size of its plutonium stockpile. The Federation of Electric Power Companies of Japan (FEPC) unveiled in December 2020 its Pluthermal Program and a new plan for the utilization of plutonium in February 2022. In February 2022, J-POWER also released its MOX Fuel Utilization Plan at the Ohma Nuclear Power Plant. Approximately 1.7 tons* of plutonium can be used annually at the stage of loading MOX fuel into all reactor cores, thereby helping to reduce the size of plutonium stockpiles.

* This had been set to the amount of fissile plutonium (about 1.1 tons). However, since the setting of "The Basic Principles on Japan's Utilization of Plutonium" by the Japan Atomic Energy Commission in July 2018, which notes total amount of plutonium, we have set this to the total amount of plutonium (about 1.7 tons).

For details of safety enhancement measures, please refer to the J-POWER website. (Japanese only)

https://www.jpower.co.jp/bs/nuclear/safety_measure/

Process (actual results and outlook)



J-POWER "BLUE MISSION 2050"

BLUE MISSION 2050

CO_2-free Hydrogen Energy

Two ways to produce hydrogen

In order to ensure the future production of and power generation from CO_2-free hydrogen, the J-POWER Group is conducting demonstration tests of two methods— one being to import coal and produce CO_2-free hydrogen in Japan, and the other being to produce CO_2-free hydrogen in coal-producing regions overseas before transporting it to Japan, considering advantages and disadvantages of these methods.

Non-electrified sector needs large amounts of hydrogen

To achieve carbon neutrality, it is necessary to promote electrification, but a large amount of hydrogen is needed for decarbonization in sectors where electrification is difficult, such as transportation and steel manufacturing.

Limits to the amount of renewable energy installed

The production of CO_2-free hydrogen derived from renewable energy sources is limited in Japan due to geographical constraints, and CO_2-free hydrogen derived from fossil fuels is necessary to produce CO_2-free hydrogen in large quantities and in a stable manner.

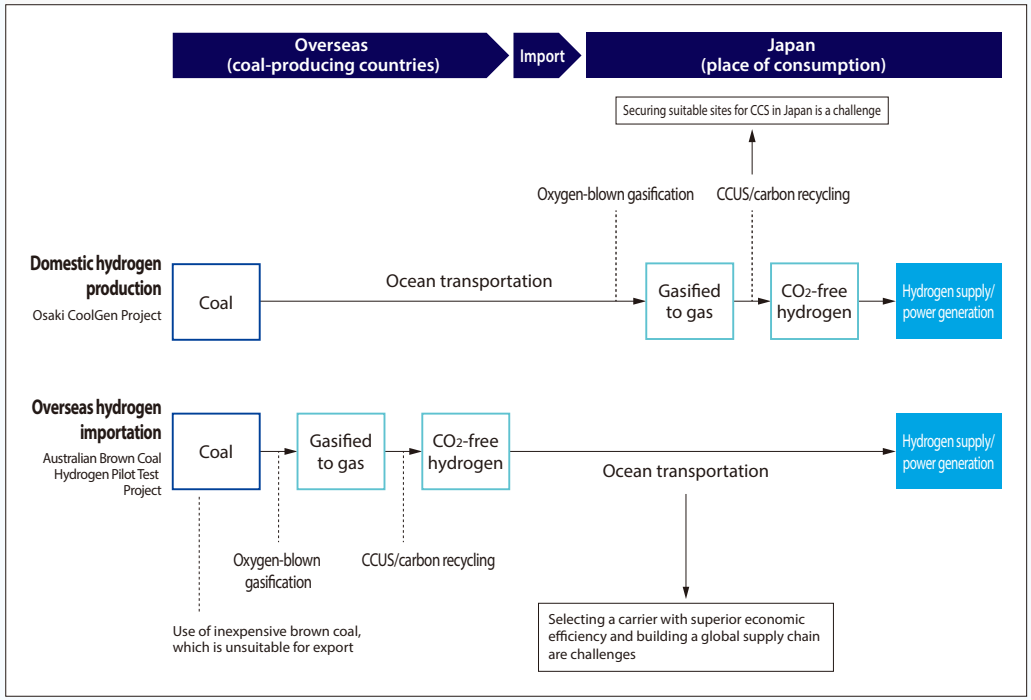
Coal with excellent storable properties and low geopolitical risk

Coal exists all over the world and it is characterized by its excellent storable properties and low geopolitical risk. Therefore, in order to stably produce CO_2-free hydrogen in large quantities, it is effective to use coal.

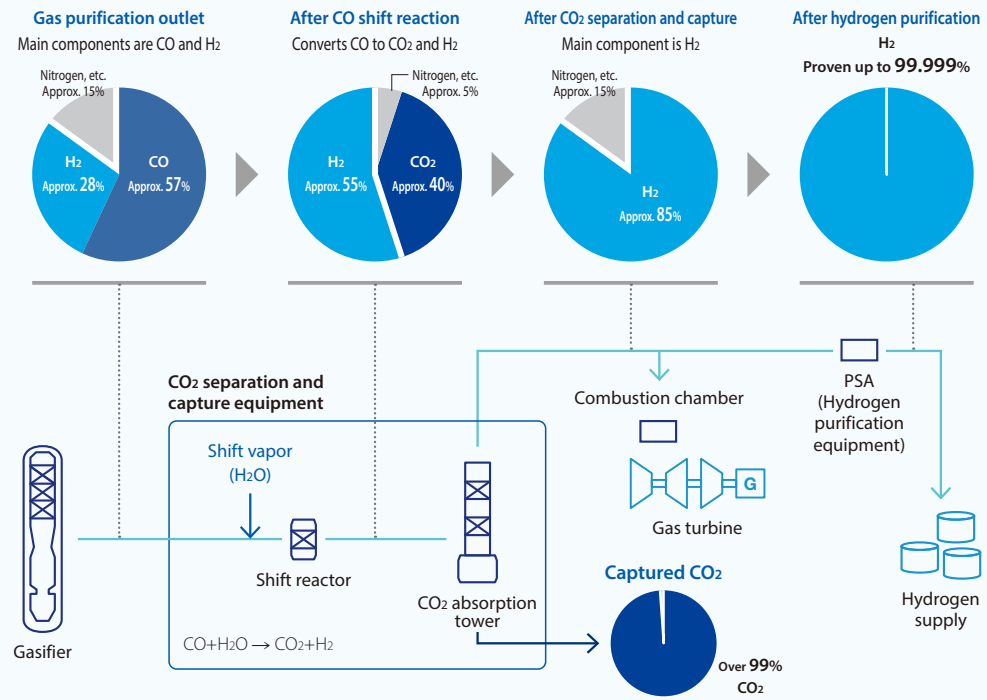
Contributing to the reduction of atmospheric CO_2

CO_2 generated during coal gasification can be separated and captured through CCUS/carbon recycling to produce CO_2-free hydrogen. In addition, mixed combustion biomass enables negative emissions.

* CCUS: Carbon dioxide Capture, Utilization, and Storage



Hydrogen production process by oxygen-blown coal gasification



J-POWER "BLUE MISSION 2050"

BLUE MISSION 2050

Osaki CoolGen Project

The Osaki CoolGen Project* is currently conducting a demonstration test of a system that produces CO_2-free hydrogen in Japan using coal gasification technology from imported coal and uses it to generate electricity. The coal gasification technology demonstrated up to phase 2 will be added and commercialized as a gasification system under the GENESIS Matsushima Plan to upcycle existing equipment.

The Osaki CoolGen Project is now in its third phase conducting tests on integrated gasification fuel cell cycles.

* Jointly conducted with the Chugoku Electric Power Co., Ltd. as a project subsidized by the New Energy and Industrial Technology Development Organization (NEDO), a national research and development organization.

Fuel cells in the Phase 3 demonstration test

(FY)

2000 | 2010 | 2020 | 2030 | 2040

EAGLE Project 2002-2013
Demonstration test of oxygen-blown coal gasification and CO_2 separation and capture

J-POWER Group's history of technological development in oxygen-blown coal gasification and CO_2 separation and capture dates back to the start of the EAGLE project in fiscal 2002, and the Group is at the forefront of the field with technologies accumulated over 18 years.

Osaki CoolGen Project

The Osaki CoolGen project is a demonstration test of a larger version of this project, also incorporating a fuel cell.

Phase1 2016-2018
Oxygen-blown IGCC demonstration
Approx. 25% hydrogen
Results Gross thermal efficiency: 51.9% (LHV)
Endurance test: 5,119 hours
Continuous operating time: 2,168 hours
Load change rate: Max. 16% per minute
Minimum load: Net thermal efficiency 0 MW

Phase2 2019-2022
Oxygen-blown IGCC demonstration with CO_2 separation and capture
Approx. 85% hydrogen[2] (High-purity hydrogen can be produced by refining)
Results CO_2 capture efficiency in CO_2 separation and capture equipment: Over 90%, Captured CO_2 purity: Over 99%

Phase3 2021-2022
IGFC demonstration with CO_2 separation and capture
Approx. 85% hydrogen[2] (Same as above)
Demonstration objective When applied to a 500 MW class commercial machine, it is expected to achieve a power generation efficiency (gross thermal efficiency, LHV) of about 66% with a CO_2 capture rate of 90%

GENESIS Matsushima Commercialization through upcycling[1]
Once the demonstration test in the Osaki CoolGen Project is complete, the next stage will be commercialization.

- IGCC: Integrated gasification combined cycle
  This is a combined cycle power generation system with two types of power generation: a gas turbine that generates electricity by burning gas containing hydrogen generated from coal, and a steam turbine that generates electricity by using the exhaust heat of the gas turbine, etc.
- IGFC: Integrated gasification fuel cell cycle
  This triple combined power generation system combines IGCC with a fuel cell.
- 85% hydrogen: Purification can increase purity up to 99.999%

1. See page 24 for details.
2. Hydrogen concentration after CO_2 separation and capture. For power generation, the concentration will be lowered for burning due to restrictions on the capability of the turbine used in the demonstration test.

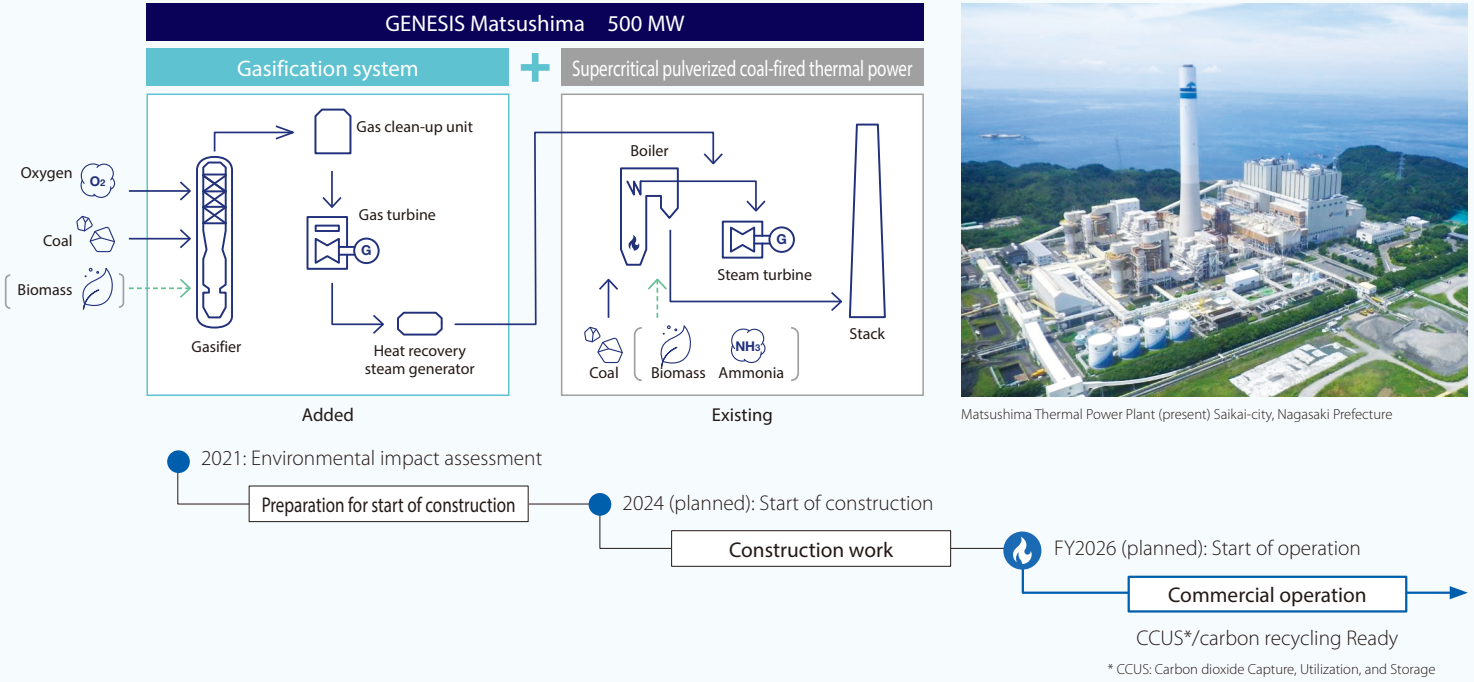
J-POWER "BLUE MISSION 2050"

GENESIS Matsushima

Upcycling existing power plants ensures economic efficiency, accelerating hydrogen power generation

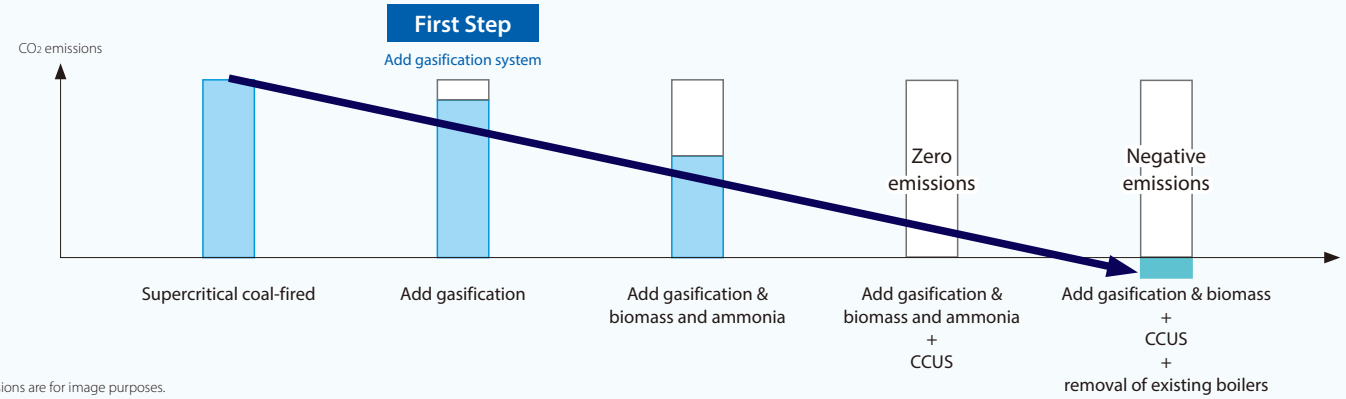
At the Matsushima Thermal Power Plant, which paved the way for the use of imported coal following the oil crisis, we took our first step toward the generation of CO_2-free hydrogen power. The J-POWER Group aims to enhance economic rationality and achieve the practical application of new technologies at an early stage through upcycling that adds gasification systems and gas turbines to existing facilities in the GENESIS Matsushima Plan.

The GENESIS Matsushima Plan marks the first commercialization of new technologies demonstrated through the Osaki CoolGen project (see p.23). This contributes to reducing environmental impact through improved efficiency and the stabilization of networks by demonstrating high load tracking capability in the Kyushu area, which is rich in renewable energy sources. Mixed combustion of biomass in a gasifier is also possible, enabling further carbon reductions. As achieving CO_2-free power generation requires capturing generated CO_2, the GENESIS Matsushima Plan uses a "CCUS/carbon recycling Ready" design that enables compatibility with future equipment.



Matsushima Thermal Power Plant (present) Saikai-city, Nagasaki Prefecture

J-POWER GENESIS zero emissions roadmap



* CO_2 emissions are for image purposes.

J-POWER "BLUE MISSION 2050"

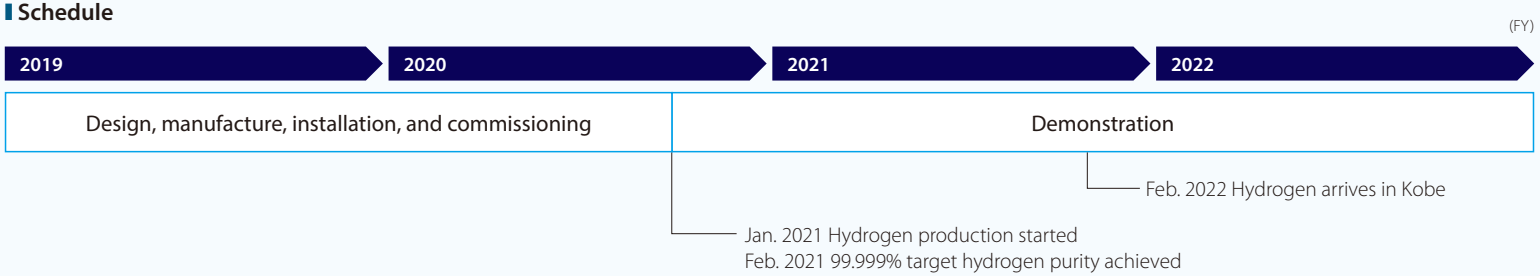
Australian Brown Coal Hydrogen Pilot Test Project

Hydrogen produced by J-POWER's gasification technology arrives in Kobe

The J-POWER Group is participating in a pilot test project to construct a supply chain in which hydrogen is produced[1] by gasifying brown coal[2] in Australia before transporting it to Japan. In February 2022, we completed a pilot test in which hydrogen produced from brown coal was transported by sea between Japan and Australia on a hydrogen carrier and unloaded at a testing terminal in Kobe. This test demonstrated that it is possible to build an international liquefied hydrogen supply chain. By demonstrating through tests that hydrogen can be used safely, we have taken another step forward toward the realization of a society in which hydrogen can be used as a natural energy source in the same way as with natural gas.

1. Sponsored by the Australian Federal Government and the Victoria State Government
2. Subsidized by the New Energy and Industrial Technology Development Organization (NEDO), a national research and development organization

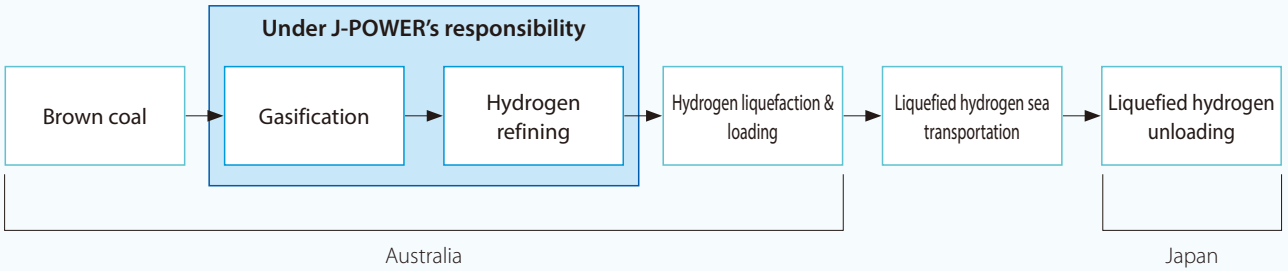
Schedule



Overall View of the Global Hydrogen Supply Chain

Benefits of using brown coal

- Unused
- Abundant
- Cheaper than "standard" coal



Brown coal gasification and hydrogen production facility in Australia
Photo credit: HySTRA, J-POWER/J-POWER Latrobe Valley

Drones were used to check the quality of the hydrogen produced from brown coal imported from Australia in June 2021

Hydrogen derived from Australian brown coal was used in Toyota's hydrogen-powered car that run in Round 5 of the Super Taikyu Endurance Race Series at Suzuka in September 2021

Photo credit: Toyota Motor Corporation

J-POWER "BLUE MISSION 2050"

CO_2-free Hydrogen Energy

Carbon Recycling Demonstration Project

The J-POWER Group also aims to achieve CO_2-free operations by capturing the CO_2 generated in the gasification of coal and utilizing this CO_2 as a resource (carbon recycling). Through the Osaki CoolGen Project, the Group is conducting a demonstration of carbon recycling by liquefying, transporting, and utilizing captured CO_2.

Osaki CoolGen

Oxygen-blown IGCC with CO_2 separation and capture process demonstration facility

Agricultural use (plant growth acceleration)

Schedule

(FY)

2020	2021	2022
Design, manufacture and installation		Demonstration

CO_2 Storage Demonstration and Technology Development Projects

Storing CO_2 in the ground makes it possible to dispose of large quantities of CO_2. CO_2 storage projects have already been implemented around the world, and the J-POWER Group has also acquired expertise in CO_2 storage through its participation in demonstration tests and technological development.

	Tomakomai CCS Demonstration Project	CTSCo CCS Project in Queensland, Australia
Implemented by	Japan CCS Co., Ltd.	Glencore Plc
Location	Tomakomai, Hokkaido	Near Moonie in Queensland, Australia
CO_2 injection period	April 2016 to November 2019	2025 to 2028
Amount injected	300,000 tons	Up to 110,000 tons
Facility exterior	 Tomakomai CCS Demonstration Center Photo credit: Japan CCS Co., Ltd.	 CO_2 injection site near Moonie in Queensland, Australia

Others

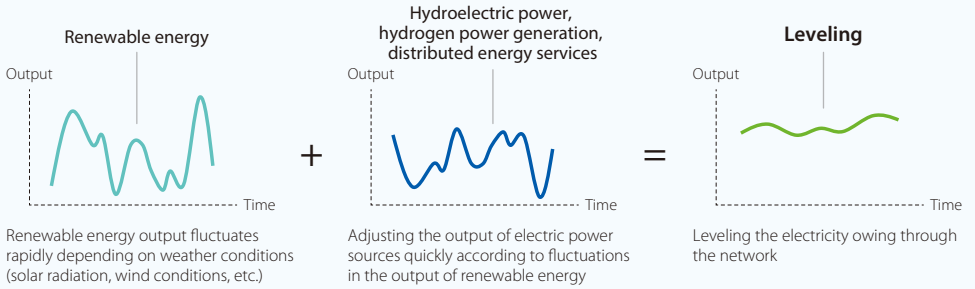
- The J-POWER Group and ENEOS Holdings, Inc. are jointly engaged in a large-scale domestic CCS feasibility study (see p.32).

J-POWER "BLUE MISSION 2050"

Power Network

Power Network Stabilization

Renewable energy sources such as solar and wind power experience sudden fluctuations in output due to weather conditions (solar radiation, wind conditions, etc.), meaning that introducing a large amount of such sources could lead to an imbalance between power supply and demand on the power network, resulting in large-scale blackouts. Accordingly, there is increasing value in power adjustment capabilities which can rapidly change output and compensate for the output fluctuations of renewable energy sources. The J-POWER Group utilizes hydroelectric power, hydrogen power generation, and distributed energy services which make it possible to swiftly balance output, contributing to the stabilization of Japan's power network.



Renewable energy output fluctuates rapidly depending on weather conditions (solar radiation, wind conditions, etc.)

Adjusting the output of electric power sources quickly according to fluctuations in the output of renewable energy

Leveling the electricity owing through the network

Contribution to Power Network Enhancement

Since suitable areas for renewable energy, such as Hokkaido, the Tohoku region, and the island of Kyushu, are far away from the large cities where power is consumed, enhancing the power network which transmits generated power to consumption areas is essential to the expansion of renewable energy sources. J-POWER Transmission owns and operates transmission and transformation facilities that utilize a wide range of technologies, and possesses the technology and knowledge necessary to enhance the power network, thereby helping to reinforce Japan's power network.

Expansion of trunk transmission lines and inter-regional connection lines

Expansion of trunk transmission lines to transmit large amounts of electricity and inter-regional connection lines to transmit electricity across regions

- J-POWER Transmission owns a total of approximately 2,400 km* of transmission lines throughout Japan.

Expansion of DC transmission facilities

Enhancement of DC transmission facilities to transmit electricity generated by renewable energy to power consumption areas

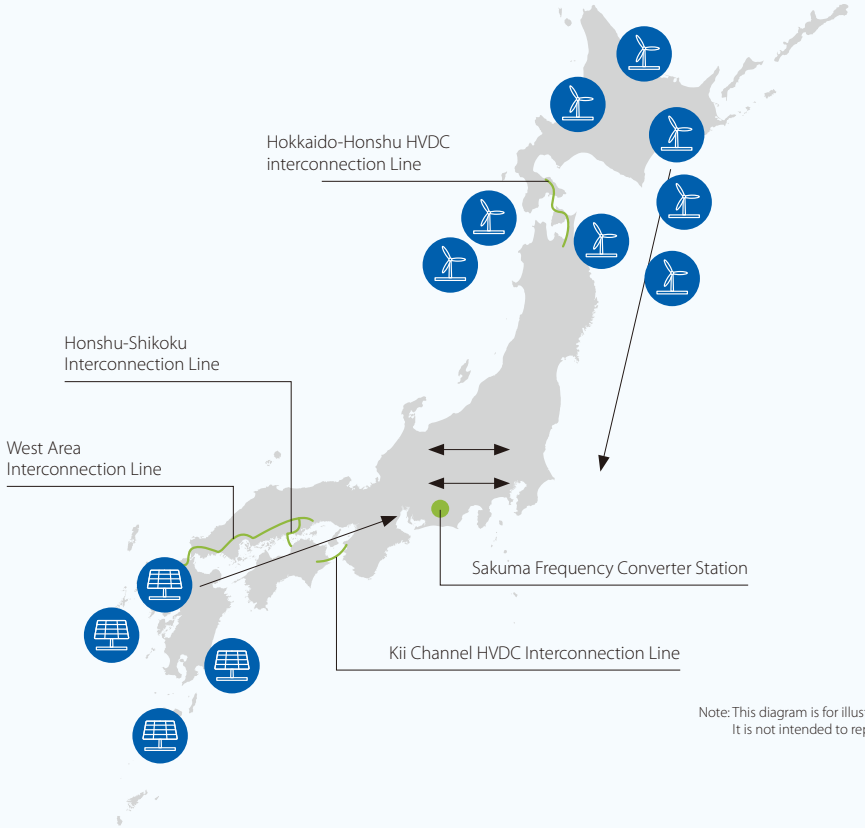
- J-POWER Transmission owns DC interconnection facilities (submarine cables and AC converters) for the Hokkaido-Honshu HVDC Interconnection Line and the Kii Channel HVDC Interconnection Line.
- J-POWER Transmission succeeded in constructing Japan's first ultra-high voltage DC power transmission facility and developed a DC XLPE cable enabling long-haul high-capacity power transmission without using insulating oil.

Expansion of frequency converter station

Expansion of frequency converter stations to exchange electricity between eastern Japan (50Hz) and western Japan (60Hz).

- J-POWER Transmission owns the Sakuma Frequency Converter Station.
- Preparations for the construction of the New Sakuma Frequency Converter Station and the replacement and expansion of related transmission lines are underway.

* Including DC transmission lines



Note: This diagram is for illustrative purposes only. It is not intended to represent actual projects.