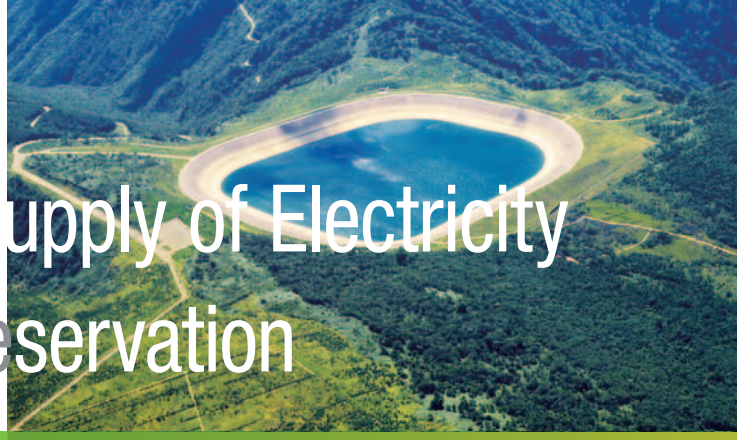


Measures for Stable Supply of Electricity and Environmental Preservation

The J-POWER Group operates power stations that it owns in Japan, engages in long-term wholesale power supply to electric power companies (general electric utilities) in various regions of the country, engages in the wheeling business using its own power transmission and substation facilities, conducts independent power producer (IPP) business, and supplies wholesale power-to-power producers and suppliers (PPS).
Based on the principle of achieving harmony between energy and the environment, the entire Group takes action to contribute to the stable supply of electricity throughout Japan through these business activities and to preserve the natural environment by minimizing the impact of its business activities.

Outlook for Electric Power Industry in Japan

Wholesale Power Supply Business and Wheeling Business

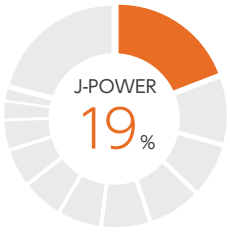
Thermal Power

Coal-Fired Power Stations Account for the Largest Share of Primary Baseload in Japan

Our seven locations throughout Japan have a total output of 8.37 GW, making our share of coal-fired power facilities the largest in the country. Electric power sold in the 2014 fiscal year was 52.5 billion kWh.

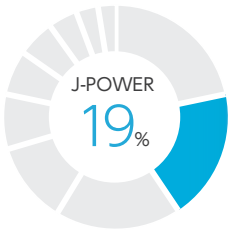
J-POWER's coal-fired power generating facilities are highly cost competitive compared to oil, LNG, and other fuels and are a key power supply for electricity demand baseload, and as a result are power supplies that offer high use rates and excellent economic efficiency.

J-POWER Share of Output from Japan's Coal-Fired Power Facilities (as of the end of March 2015)



Source: Based on Federation of Electric Power Companies, "Electric Power Industry Handbook" and Agency for Natural Resources and Energy, "Electric Power Statistics"

J-POWER Share of Output from Japan's Hydroelectric power Facilities (as of the end of March 2015)



Source: Agency for Natural Resources and Energy, "Electric Power Statistics"

Hydroelectric power

Essential Power Source for Meeting Peak Demand

With 60 locations throughout Japan and a total output of 8.57 GW, we have the second-largest share of hydroelectric power facilities in the country. Electric power sold in the 2014 fiscal year was 9.0 billion kWh.

J-POWER's hydroelectric power facilities are valuable CO_2-free power sources that can respond quickly to changes in electricity demand. In addition, the facility output of each power station is high, so hydroelectric power facilities are used primarily as peak power supplies to respond to daily and seasonal changes in electricity demand, contributing to the stability of electricity supply and the grid in regions throughout Japan.

Power Transmission, Substation (Wheeling), and Communications

Key Infrastructure Supporting Japan's Electric Power Grid

J-POWER owns approximately 2,400 km of backbone transmission lines including trunk lines that connect the different regions of Japan, four substations that supply power to major urban areas, four AC/DC conversion stations that provide interconnections within regions, and one frequency converter station that links eastern and western Japan, which use different frequencies. Our electric power security communication facilities include microwave radio circuits throughout Japan that extend over a total distance of approximately 5,900 km. These are extremely important facilities for comprehensive operation of Japan's electricity grid.

Other Electric Power Business

Developing Power Generation Businesses that Respond to Industry Liberalization and Support Low-Carbon Society Needs

In the wholesale power supply business, J-POWER has three IPP facilities with total capacity of 520 MW located in different areas of Japan and two facilities with total capacity of 210 MW used in the wholesale power supply business with PPSs located in different regions. We own 20 wind farms throughout Japan with a total capacity of 400 MW, giving us the number-two share of wind power generation capacity in Japan. All these businesses are operated through J-POWER subsidiaries or affiliates.

Report

Incident Concerning the No. 2 Unit at the Matsuura Thermal Power Station (Fall of Low-Pressure Turbine Rotor) (Restoration Report)

During a periodic inspection of the Matsuura Thermal Power Station No. 2 Unit (rated capacity: 1 GW; located in Matsuura City, Nagasaki Prefecture) on March 28, 2014, a low-pressure turbine rotor weighing approximately 100 tons that was suspended fell, causing damage.

As a result of this accident, we caused inconvenience and concern for numerous people throughout society and we reaffirm our apologies.

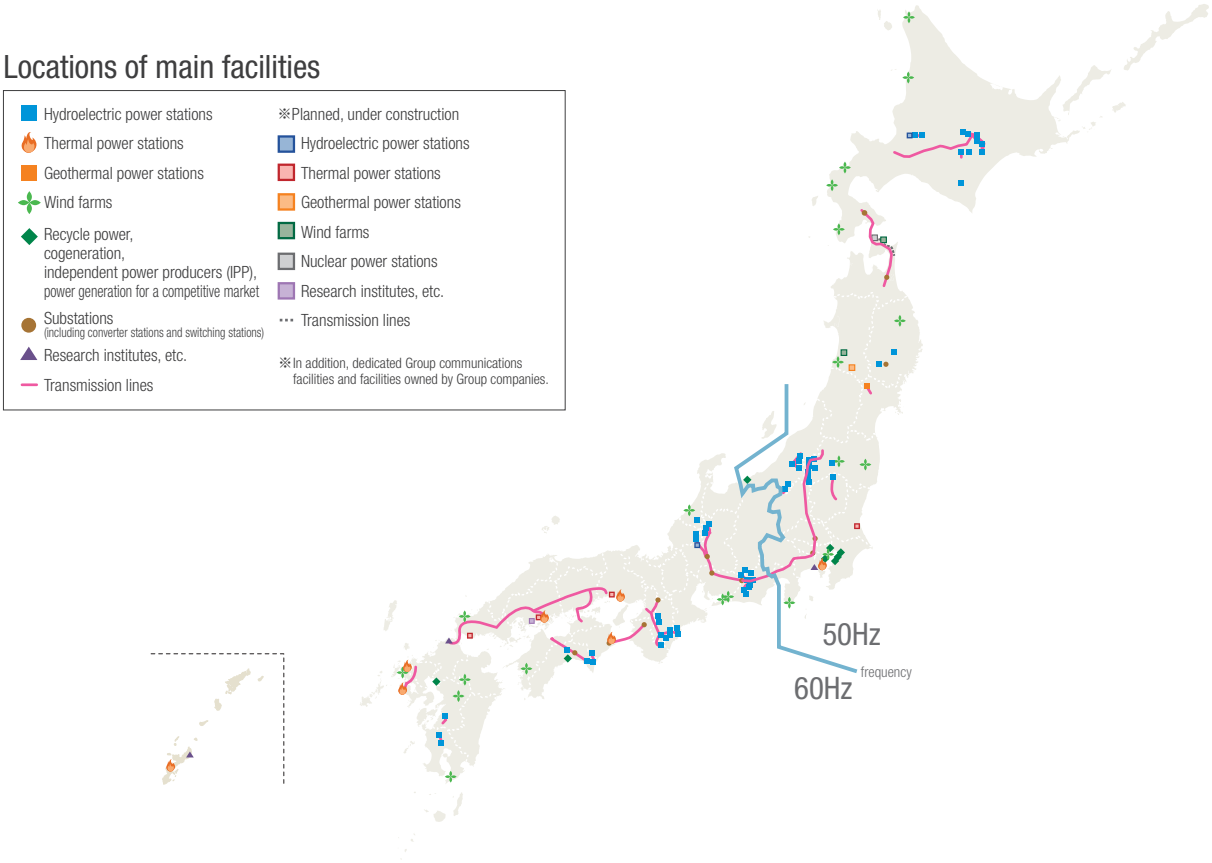
We proceeded with the manufacture of a new low-pressure turbine rotor in order to restore power generation at the earliest possible time and resumed operation under a partial load (with output of 425 MW) on August 6, 2014 in order to provisionally restore power supplies until a full restoration could be made. We began work for a complete restoration in the spring of 2015, and after the new low-pressure turbine rotor was installed and trial operations were completed, operation under a full load of 1 GW was resumed on June 11, 2015.

Following the occurrence of this incident, the J-POWER Group began investigating the cause and measures to prevent reoccurrence. An inter-departmental Restoration Countermeasures Headquarters was established and conducted various verifications. To objectively assess the effectiveness, an Expert Assessment Committee that included outside experts was established to investigate the incident.

Ultimately, the direct cause of the incident was not identified, but a determination was made of a high likelihood that the turbine rotor fell off because of the compound effects of a number of individual factors. Comprehensive countermeasures to prevent reoccurrence including facility measures and management measures were formulated and implemented throughout the Company, and extensive measures have been taken to prevent the occurrence of a similar accident.

In light of the seriousness of this incident, the J-POWER Group will continue to take preventive measures so that similar incidents never occur again, and remains committed to the safe operation of power stations.

Locations of main facilities

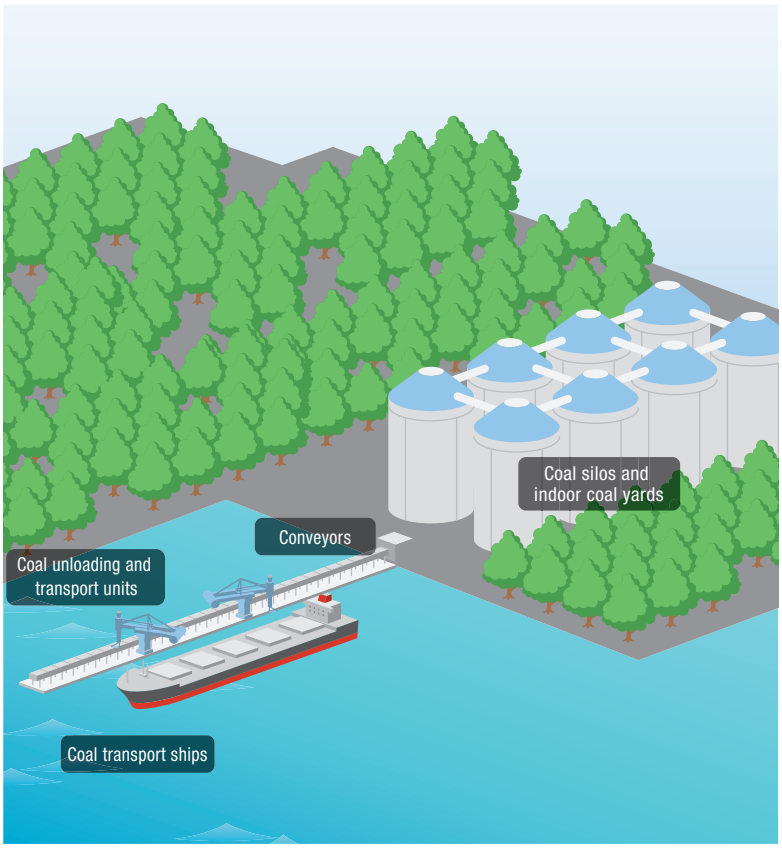


Thermal Power

The J-POWER Group's coal-fired power generating facilities maintain high use rates as economical and stable base power supplies. To achieve this, appropriate maintenance of generating facilities is reliably conducted and we make efforts to limit declines in thermal efficiency in conjunction with aging and the occurrence of problems with facilities and to maintain and enhance facility reliability.

Coal-Fired Power Generation Value Chain

The J-POWER Group is involved in the entire value chain for coal including procurement, transport, and receiving. We are building a global system that enables stable procurement of coal.



Procurement

Coal Mine Project in Australia

The J-POWER Group began its participation in the Blair Athol Coal Mine, in the state of Queensland, in 1982. We have been investing in coal mining interests since that time, and as of the end of fiscal 2014, we own coal mining interests in the states of Queensland and New South Wales, Australia.

For the future, we will be scrutinizing trends in coal supply-and-demand balance and among competing companies for stable procurement of the coal as we examine new, cost-competitive projects, and as we pursue participation in new coal mine projects.

Transport

Stable Transport of Coal

The J-POWER Group uses approximately 21 million tons of coal per year. Transporting this coal to the various power stations requires 200 or more ship voyages per year. We will introduce dedicated vessels* and so on for this purpose as part of our measures to provide stability in the transport of coal.

Receiving

Management of Coal at Power Stations

On-site at the power stations, the coal that has been received needs to be managed according to its particular characteristics. In order to control coal temperatures in the coal yard, we use infrared cameras and install water sprinkler systems in addition to enacting 24-hour systems of control.

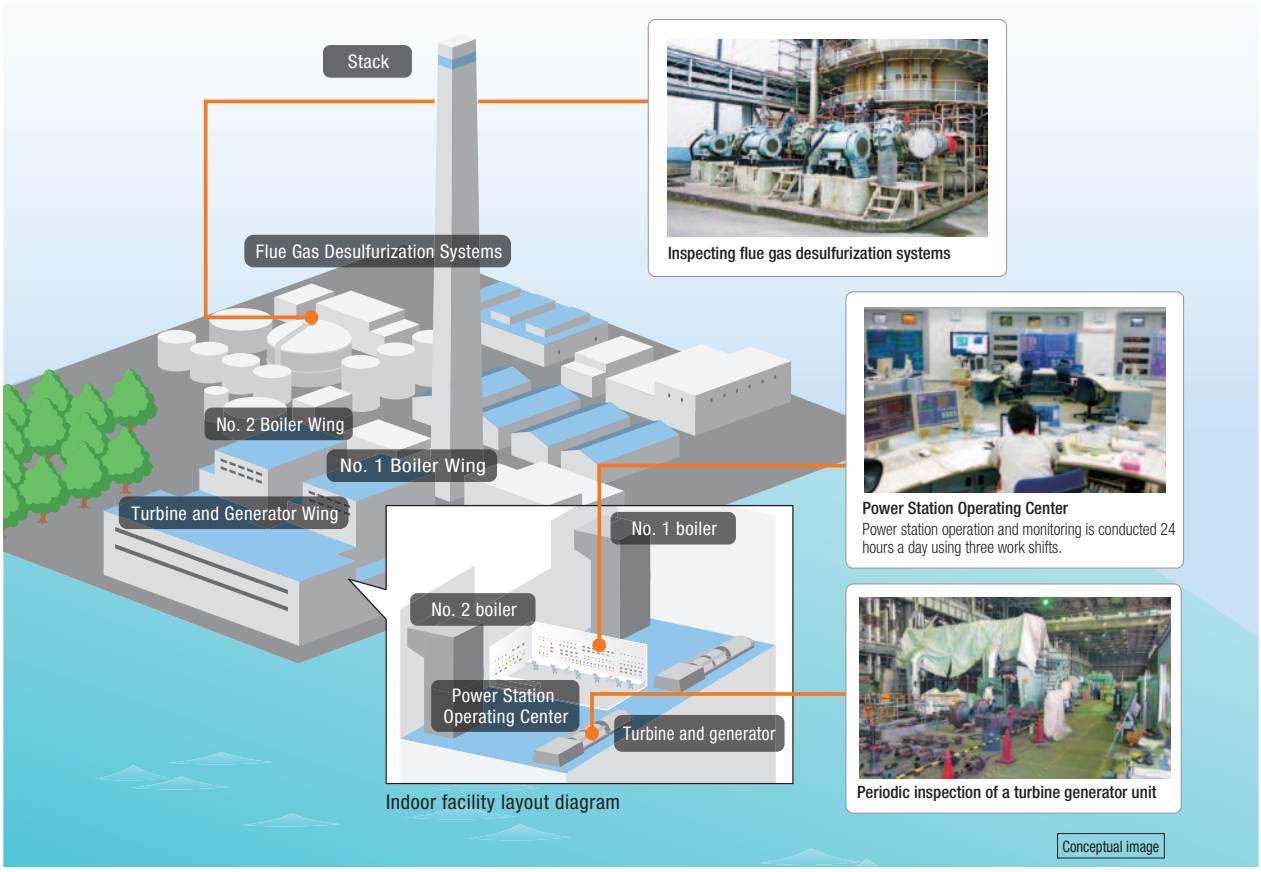
* **Dedicated Vessel:** A ship that is built and owned by a shipping company for the special purpose of carrying cargo exclusively under a long-term contract.

Voice

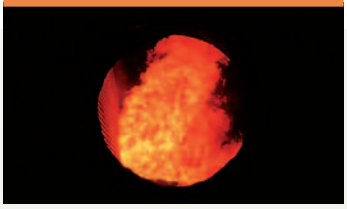
Employee Attitudes

I work on operating the Ishikawa Coal-fired Power Station (third shift). The power station operators conduct day-to-day operation and monitoring of the generating facilities and strive to maintain stable operation by quickly identifying any abnormalities in the equipment, taking responsive measures, and preventing shutdown of the power station by conducting on-site patrols. During the annual typhoon season (May to October) in particular, we work to ensure reliable operations and functioning as increases and decreases in output or even interruption of output can occur depending on the status of supply and demand in Okinawa Prefecture as a result of power outages in multiple locations on the main Okinawa Island, depending on the route of the typhoon. We take measures such as reciting "worker knowledge" together with the aims of sharing information with the day shift and on-duty workers and raising awareness. In the future, we will continue to use methods such as pointing and calling to ensure reliable operations, maintain strict compliance with laws and regulations and contribute to stable electric power supplies.

Ishikawa Coal-fired Thermal Power Station
Generating Group
Seiki Takamine



Combustion



Creating Steam

Coal stored in the coal yard is finely ground into a powder by a coal pulverizer. The powdered coal is combusted by burners and water is heated in a boiler to generate high-temperature, high-pressure steam.

Power generation

Generating Electricity

The high-temperature, high-pressure steam spins a turbine. The high-speed turbine generates electricity by spinning a generator.

Environmental preservation

Effective Use of Ash

The coal ash produced from burning coal is effectively used as a raw material in cement and other applications (see p. 31).

Voice

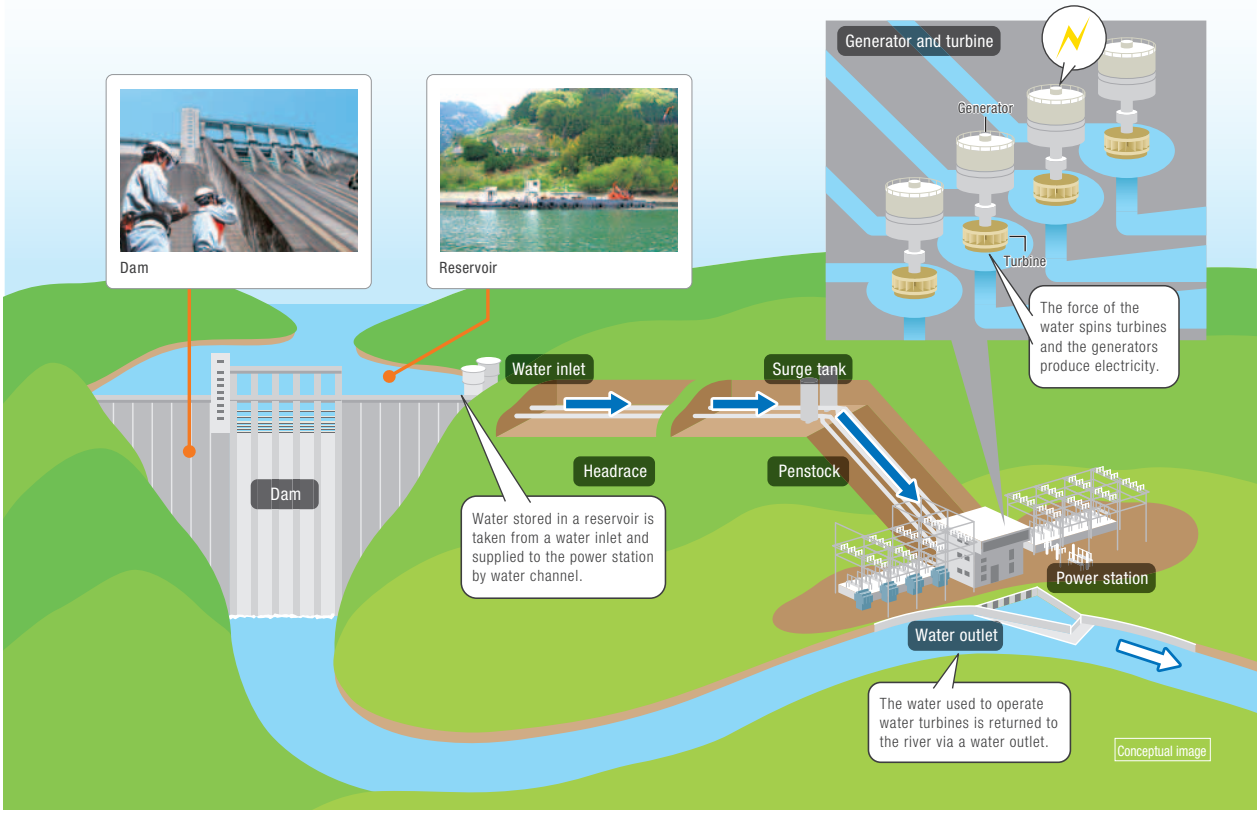
Story of Difficulties Relating to Operation of Power Stations

Many of the personnel who work at the Matsushima Thermal Power Station commute to work by municipal ferry, and vehicles that transport the goods needed at the power station travel by car ferry. When I was working in the water processing facility, I was quite worried about a sudden suspension of ferry services due to severe weather. It wouldn't be possible to obtain the chemicals necessary for operation of the wastewater treatment facility or to transport waste industrial sludge out, and I investigated its operations and coordinated communications with the related parties. I currently work on the third shift as an outdoor control room (environmental preservation facility) operator, and when suspension of the municipal ferry service is forecast, I stay in a dorm the day before so I can report to work the following day. This is one of the difficulties unique to the Matsushima Thermal Power Station, but I am able to communicate with colleagues more than usual, so it is also somewhat pleasant. The Matsushima Thermal Power Station has been in operation for 34 years, and I hope to continue contributing to the stable supply of electric power.

JPEC Co., Ltd.
Operations Group, Matsushima Company
Kiyoji Ishigaki

Hydroelectric power

J-POWER's hydroelectric power facilities are able to respond rapidly to changes in electricity demand and have high output per power station. For these reasons, they make significant contributions to electricity supplies in various regions around Japan as peak power supplies that can respond to daily and seasonal peak demand periods. In addition, hydroelectric power is a valuable, entirely domestic energy source and accounts for the J-POWER Group's largest renewable energy generation facilities, comprising 13% of Japan's total renewable energy capacity. As a result, hydroelectric power is a core presence for ensuring stable electricity supplies and reducing CO_2 emissions.



Voice

Collaboration between Power Generation and Facility Maintenance and Management

The Tenryu Office is involved in civil engineering facility maintenance and management and dam and water channel operations relating to the Akiba and Funagira Power Stations.

Smooth implementation of construction work relating to maintenance and management requires adjustment of the power station operations and dam water level, and as a result, work is performed through collaboration between construction and power station operations while keeping safety in mind. From the perspectives of maintaining harmony between the environment and energy, we consult with related parties and take measures such as creating fish ladders and restoring proper downstream sediment.

Hydroelectric Power Division, Chubu Branch
Sakuma Power Station (posted to Hamakita-ku, Hamamatsu City)
Takane Sato

Voice

Maintaining and Enhancing Reliability

At the Kamishihoro Substation where I work, there are nine power stations in the Tokachi territory. Some of the older power stations have been operating for more than 50 years. After living for 50 years, a person will begin to show their age, and a power station is the same, so the entire group works together to identify the signs of problems and perform maintenance. The winters in Tokachi are severe with temperatures falling to -30°C and whiteout conditions occur, making it difficult to travel to work sites. Despite this, maintenance personnel work day and night on maintenance and management to maintain and improve reliability, with maintaining stable electric power supplies as our mission.

Hydroelectric Power Division, Hokkaido Regional Headquarters
Deputy Manager, Kamishihoro Substation
Shigeru Nagaya

The J-POWER Group implements measures on a daily basis to increase the reliability and efficiency of its existing hydroelectric power facilities. To use hydroelectric resources, a CO_2-free, renewable energy source, we are actively developing small and medium-sized hydroelectric power stations, one of the policies set forth in Fourth Energy Basic Plan, and taking measures to increase generating capacity including installing new facilities and replacing facilities at existing dams to enhance use of facilities and resources.

Stable Operation of Hydroelectric power Facilities

The J-POWER Group operates 60 hydroelectric power stations located throughout Japan and monitors and controls each power station under a 24-hour system with three regional control centers located in Hokkaido, Saitama Prefecture, and Aichi Prefecture. At each power station, we conduct daily inspections to detect any abnormalities in facilities early and prevent accidents before they can occur so that J-POWER can provide stable power to the entire country. If a facility abnormality occurs, maintenance personnel immediately go to the site and work to restore the facility at the earliest possible time and use their knowledge to investigate and implement measures to prevent reoccurrence. To raise facility reliability even further, we will continue to undertake facility maintenance measures suitably adapted to accidents and environmental needs while working to maintain harmony with local communities.

North Regional Control Center (Hokkaido)

Measures for New Hydroelectric power Facilities

The J-POWER Group is pursuing various measures to enhance the reliability and efficiency of existing hydroelectric power facilities. One such measure is the complete overhaul of principal electrical equipment at hydroelectric power stations that are becoming obsolescent. We began updates at the Akiba No. 2 Power Station in 2015.

Hydroelectric power is a valuable, wholly domestic energy source for Japan, which is resource-poor, and to maximize the use of this valuable resource, the J-POWER Group is actively developing small and medium-sized hydroelectric power stations that utilize unused water resources.

Construction of the Kuttari Power Station began in 2013, and operation of the dam, which can generate a maximum of 470 kW by using previously-unused maintenance water flows released from the existing Kuttari Dam, commenced in April 2015. In October 2014, we also began constructing the Konokidani Power Station, which will utilize an unused drop from the Konokidani water intake of the existing Kuzuryu Dam reservoir. A dam will be constructed near the intake and a water turbine generator will generate a maximum of 199 kW. Since this is a region that experiences considerable snowfall, the highest priority is being placed on safety during the work.

Through measures such as these, the J-POWER Group is working to maximize hydroelectric power and the efficient use of water resources in order to ensure the stable supply of electric power.

The Kuttari Power Station (Hokkaido)

A rendering on the Konokidani Power Station (Fukui Prefecture)

Renewable Energy

We are actively taking measures concerning renewable energy under the Energy Basic Plan, which positions renewable energy as a promising domestic energy source that contributes to ensuring energy security. The J-POWER Group's renewable energy initiatives are diverse and include contributing to stable electricity supplies through existing hydroelectric power, wind power, and geothermal power stations, for which we have the second-highest shares among each type of domestic generation facilities; developing new power sources such as wind and geothermal power; and conducting research and development on offshore wind power. Renewable energy is a CO_2-free energy source that does not produce greenhouse gases such as CO_2 at the time of generation. The J-POWER Group is moving forward with the Ohma Nuclear Power Plant plan and expanding the use of renewable energy with the aim of increasing CO_2-free energy sources.

Wind Power

The J-POWER Group made an early entry into the wind power business with the start of operation of the Tomamae Winvilla Wind Farm in December 2000. We currently have 20 wind farms, total number of 229 units, with a total generating capacity of approximately 400 MW located nationwide.

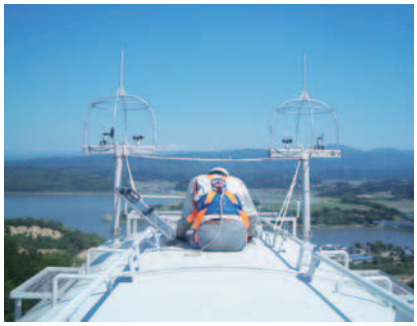
We conduct business by utilizing the technologies and know-how developed over many years as a wholesale power provider and using integrated implementation systems that cover everything from wind surveys to plans, construction, operation, and maintenance as strengths. Construction is currently underway at the Ohma Wind Power Plant (located in Ohma-machi, Shimokita-gun, Aomori Prefecture) and other facilities and we are moving forward with new development projects.

There are high expectations for offshore wind power in Japan, which is surrounded by seas on all four sides. J-POWER is conducting a demonstration project relating to offshore wind power in waters off Kitakyushu City in Fukuoka Prefecture (outsourced and joint research for NEDO*) and consistently conducting research, deepening our technical knowledge regarding offshore wind power generation.

* The New Energy and Industrial Technology Development Organization.

Kaminokuni Wind Farm (Hokkaido)

A turbine under construction



Maintenance work being performed on the nacelle of a wind turbine

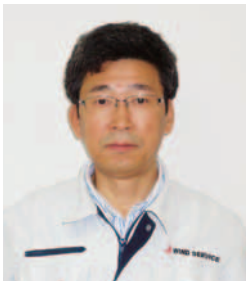
Voice

Working to Enhance Maintenance Skills at Wind Power Stations

At wind power stations, we periodically shut down the turbines to perform inspections and repairs from the perspective of preventive maintenance. If inspections and repairs are performed on a windy day, not only do we lose power generating opportunities but the work is dangerous, so we plan inspections and repairs for periods when the winds tend to be weak. On workdays we monitor wind conditions and coordinate processes such as turbine shutdown times and the number of units to be worked on so we can maximize power generation by the wind.

A large turbine with individual generating capacity of 2.4 MW, a first for J-POWER, was installed at the Kaminokuni Wind Farm, which went online in 2014. Responding to a breakdown required us to make repairs in locations where we had no experience, but the maintenance workers combined their knowledge to complete the repairs.

Now, one year after the start of operations, the turbine is steadily generating power. I will continue the daily process of repeated trial and error to acquire worksite knowledge and enhance my maintenance skills so that the wind farm, which has established deep local ties, can continue operating long into the future.



J-Wind Service Co., Ltd.
Manager, Kaminokuni Office
Koji Mima

Geothermal Power

Geothermal power is a CO_2-free power source that emits almost no CO_2 at the time of generation and is also a renewable energy source capable of providing a stable supply of electricity throughout the year without being affected by weather. For these reasons, there are high expectations for the future development of geothermal power.

The J-POWER Group owns and operates the Onikobe Geothermal Power Station in Osaki City, Miyagi Prefecture (output: 15 MW), and in April 2010 joined with Mitsubishi Materials Corporation and Mitsubishi Gas Chemical Company, Inc. to establish the Yuzawa Geothermal Co. Ltd. with the aim of building the Wasabizawa Geothermal Power Stations in Yuzawa City, Akita Prefecture. Construction is currently under way with commercial operations scheduled to begin in May 2019.

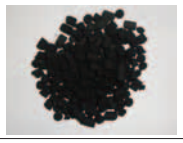
Onikobe Geothermal Power Station (Miyagi Prefecture)

Promoting the Biomass Mixed Combustion

Forestry offcut and sewage sludge are carbon neutral biomass that absorb and release equal amounts of CO_2 over their life cycles, but in Japan, much of these resources remains unused.

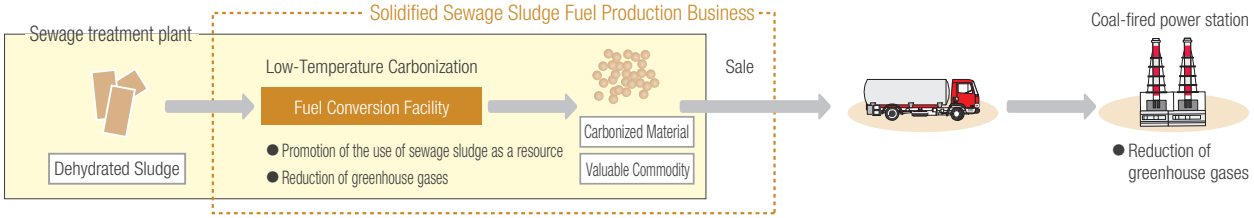
The J-POWER Group is reducing the carbon emissions of coal-fired power stations by utilizing unused biomass for mixed combustion at power stations.

Status of biomass mixed combustion initiatives

Biomass resources	Wood		Sewage sludge		Carbonization of ordinary waste for use as fuel
	Chips	Pellets	Low-temperature carbon fuel	Oil-desiccated fuel	
Examples of biomass fuels					
Characteristics of biomass fuels	Scrap construction timber is chipped and used. Comprise 50 to 70% of the calorific value of coal.	Forest offcut is dried, ground, and formed into pellets. They have about 70% of the calorific value of coal.	Sewage sludge is carbonized at a lower temperature than the incineration temperature used in conventional processing in order to manufacture fuel that produces less N_2O, a greenhouse gas, than conventional processing. The fuel produces little odor and has 50-70% of the calorific value of coal.	Sewage sludge and waste cooking oil are mixed and heated to remove the water content and produce fuel. This fuel has a calorific value about the same as that of coal.	General waste is carbonized to create a fuel able to be stored for long periods. It has about half the calorific value of coal.
Sites for the production of biomass fuel	Nagasaki City, Nagasaki Prefecture	Kobayashi City, Miyazaki Prefecture*	(1) Hiroshima City, Hiroshima Prefecture* (2) Kumamoto City, Kumamoto Prefecture* (3) Osaka City, Osaka Prefecture*	Fukuoka City, Fukuoka Prefecture	Saikai City, Nagasaki Prefecture*
Mixed combustion in coal-fired power stations	Matsuura Thermal Power Station	Matsuura Thermal Power Station	(1)Takehara Thermal Power Station (2)Matsuura Thermal Power Station (3)Takasago Thermal Power Station	Matsuura Thermal Power Station	Under consideration

* Sites at which J-POWER is also involved in the manufacture of biomass fuel.

Conceptual diagram of the biomass fuel business (using the solidified sewage sludge fuel production business as an example)



Power Transmission, Substation, and Communications Facilities

J-POWER's transmission facilities are used not only to send electricity that the J-POWER Group generates to users, but also utilize extra-high-voltage AC and DC transmission lines to link Honshu with Hokkaido, Shikoku, and Kyushu, connecting the electrical grids of different regions. The Sakuma Frequency Converter Station, which enables the transmission of electricity between the different frequencies of eastern and western Japan, and the Hokkaido-Honshu Electric Power Interconnection Facility, which links Honshu with Hokkaido via DC transmission lines, support power interchange over wide areas of Japan and contribute to reducing needed spare electric power and maintaining frequencies.

J-POWER has also constructed a nationwide high-reliability information and telecommunications network that uses microwave radio circuits, optical lines, and other communications lines operated by the Group to operate the electric power grid and conduct centralized, remote control of unmanned hydroelectric power stations and dams. These facilities are installed in various environments including mountainous regions and urban areas and are exposed to extreme weather conditions including wind, snow, lightning, and seawater. Consequently, we conduct daily patrols and regular inspections to discover irregularities at an early stage and prevent facility accidents before they can occur.

Honshu-Shikoku Interconnection (Okayama and Kagawa Prefectures)
500,000-volt transmission lines across the Seto Inland Sea to connect Honshu and Shikoku. These transmission lines are connected to backbone transmission lines in Honshu and Shikoku, contributing to stable electric supplies in western Japan.

Sakuma Frequency Converter Station (Shizuoka Prefecture)
This converter station enables the transmission of electricity between the different frequencies of eastern Japan (50 Hz) and western Japan (60 Hz). It is the world's first electricity business frequency converter station built to support efficient electric power operations.

Takatsue Radio Relay Station (Fukushima Prefecture)
A microwave radio relay station that links power stations, transformer stations, and other facilities. The station is located on the top of a mountain, where environmental conditions are extreme, but it is highly reliable in order to ensure uninterrupted communications even in the event of a disaster.

Voice

Overhauling Aging Facilities to Ensure the Stable Supply of Power

The Nishitokyo Substation is a large-scale transmission transformer station with 20 transmission lines and four key transformers (1,350 MVA) and plays a crucial role as a connection point in the power grid for the Tokyo metropolitan region. The substation began operating in 1956, and its facilities are aging, so we are performing a systematic overhaul. In FY2014, we began major construction to replace equipment for 154 kV (11 lines) with gas-insulated switches and completed the work in June 2015. As a result, reliability is substantially higher, and we can expect continued operation of the substation in the future as a cornerstone for the stable supply of power.

East Japan Regional Headquarters
Manager, Nishitokyo Substation
Yoshihiro Suzuki

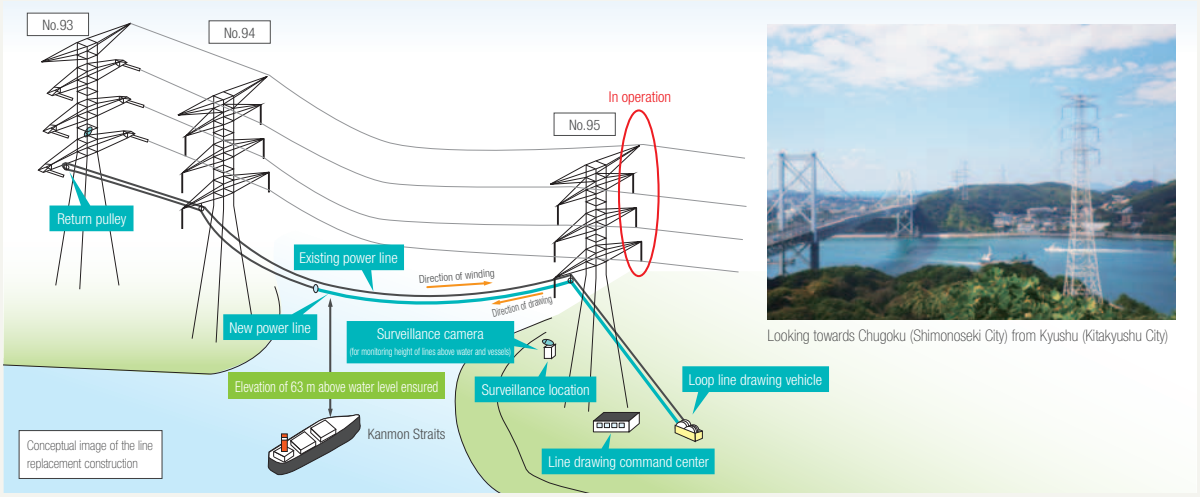
Voice

Maintenance and Operation of Radio Communications Facilities with Consideration for Environmental Preservation

The area where the telecommunication engineering center conducts maintenance is a mountainous region with deep snow and contains hydroelectric power stations, control centers and other facilities linked by radio, and as a result, many of the facilities are located on mountains. Stable operation of these facilities can sometimes require performing inspections at locations reached after walking for several hours or where the snow is piled up as high as a person's waist. Some facility locations have been designated as forest reserves to protect ecosystems, and when performing facility construction and operation and when passing through nearby areas, we perform the work with particular care for environmental preservation, including not entering areas where it is necessary in order to prevent harm to the wildlife.

East Japan Regional Headquarters,
Tohoku Telecommunication Engineering Center
Satoshi Toyosaki

Close Up Kanmon Interconnection (Strait) Line Replacement Construction



Looking towards Chugoku (Shimonoseki City) from Kyushu (Kitakyushu City)

The Kanmon interconnection was completed in May 1980 as a 500,000-volt backbone transmission line linking Kyushu and Honshu. The interconnection crosses the Kanmon Straits, an important international sea route through which nearly 1,000 vessels pass on busy days.

The lines and overhead grounding wires*1 that cross the Kanmon Straits (the "strait crossing") had anti-corrosion material applied to enhance corrosion resistance, but degradation took place over the course of time, so the lines and overhead grounding wires were replaced to maintain the reliability of this facility.

The replacement work was planned to take place over the three years from 2014 to 2016, with replacement of the first line scheduled for May 2014 to August 2015 and replacement of the second line scheduled for January to August 2016.

Prior to starting the construction work, consultations in coordination with the various concerned parties were conducted regarding the construction and power outage periods, and the construction periods were determined taking into consideration the status of use of the Kanmon Interconnection. In addition, transmission capacity was maintained during the construction by shutting down only the one line being replaced while keeping the other line in operation.

The construction method had two unique features. First, since the work was performed above a strait, prior consultations were conducted with the Maritime Safety Agency and other authorities involved in port management. Also, the line control height was set at a level so that the height of the lines above the water level would never fall below the height of transmission lines running parallel to the girders of the Kanmon Bridge to ensure there would be no impact on vessels passing through the strait. To carry out this height control, a vessel surveillance station was created to monitor both the lines being drawn across the strait and vessels in the waterway and rigorous visual monitoring was conducted. In addition, data from surveillance cameras and tensile force sensors was gathered at a line drawing command center, and the construction work was carefully conducted while confirming this data with the aim of maintaining optimal conditions.

As a second control method, a loop line drawing method*2 was used to ensure that the lines maintained a consistent height during construction as indicated above. For this construction method, we used a line drawing vehicle compatible with the high tensile force lines unique to the strait crossing developed about 10 years earlier by JPHYTEC Co., Ltd., a group company, for removal of the Chugoku-Shikoku backbone transmission line. The technological capabilities of the J-POWER Group were consolidated for this project, including engineers who had experience with the earlier project and development of highly detailed construction plans.

Furthermore, a new type of line for the replacement power lines and overhead grounding wires was developed to provide the required electrical and mechanical performance and to ensure outstanding corrosion resistance. In this way, we collaborated closely with various involved parties (including power line and fixture manufacturers) to make innovations and improvements. We are continuing to perform this construction work, which is taking place with no accidents or incidents.

*1. **Overhead grounding wire:** Wires hung above the power lines to serve as "lightning rods" in order to prevent direct lightning strikes on the power lines.

*2. **Loop line drawing method:** The line is connected in a loop between the line drawing vehicle and a return pulley. By performing the line winding and drawing at the same speed, the line height can be consistently maintained.

Voice Cooperation of Related Parties Essential for Transmission Line Facility Maintenance

The Kanmon interconnection crosses the Kanmon Straits, a sea route through which nearly 1,000 vessels pass on busy days. Before beginning construction, we engaged in repeated consultations in coordination with the related parties (including the Maritime Safety Agency) and gained their understanding that during the replacement construction, the work would be performed so that the minimum height of the transmission lines above the water would not drop below the height of the girders of the Kanmon Bridge. We will continue to perform the construction work while obtaining advice from related parties concerning the safety of maritime traffic and taking into consideration the surrounding environment.

The power lines also pass through the Mekari Park on the Kyushu side and the Hinoyama Park on the Honshu side in a designated region of the Setonaikai National Park, so we consulted and coordinated with various related parties (including local governments and property rights holders) to prevent any impairment of the scenery. We minimized tree cutting in the construction area, and depending on the conditions, stopped at pruning in an effort to preserve the natural environment while maintaining good communications with interested parties.

West Japan Regional Headquarters
Fukuoka Transmission Station
Mitsuharu Karimata

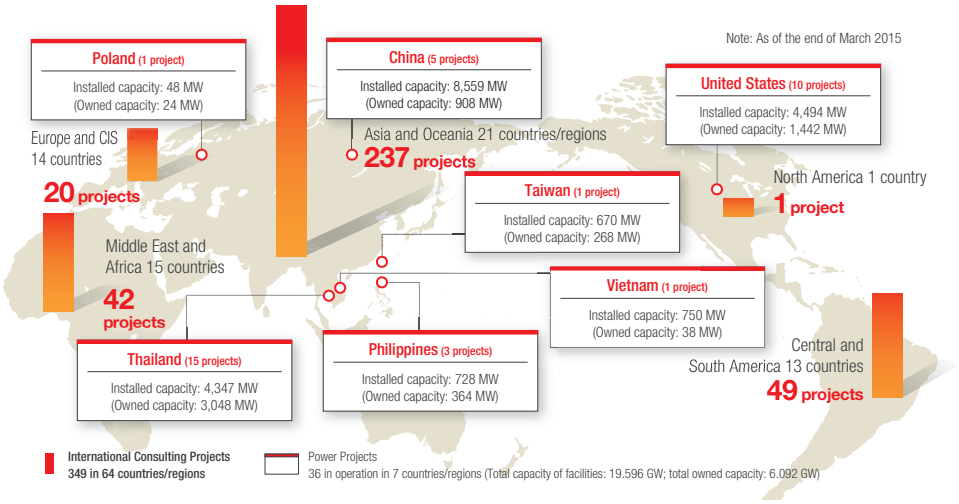
Overseas Business

The J-POWER Group's corporate philosophy calls on us to "play our part for the sustainable development of Japan and the rest of the world." Taking this as our basic approach, and leveraging the accomplishments and know-how we have acquired through a half-century of overseas operations, we are engaging in international consulting projects, which involve technical cooperation to develop power sources and protect the environment, and in overseas power generation projects, which involve our participation in businesses through the investment of capital and technology.

Overseas Business Initiatives

The purpose of J-POWER's overseas consulting business is to provide cooperation on electric power generation technology to emerging countries and so contribute to the international community. Since implementing our first project in 1962, we have been involved in 349 projects in 64 countries (as of the end of March 2015). In the overseas power generation business, we have 36 electric power generation facilities in seven countries and regions with a total output of 19.596 GW. Our owned share of this output amounts to 6.092 GW (as of the end of March 2015).

In terms of the environment, we will aim to use the clean coal technology we have in Japan to simultaneously achieve a contribution to growth primarily in Asia and to reduction of environmental burden.



Topics Consulting on Expansion of Thac Mo Hydropower Station in Vietnam

J-POWER has been performing construction management as a consultant for the Thac Mo Hydropower Station expansion plan being implemented by Electricity of Vietnam (EVN) since work began in July 2014. The Thac Mo Hydropower Station is located approximately 170 km north of Ho Chi Minh City, a commercial center in Vietnam, and can be reached from there in about three and a half hours by car. The plan provides for use of the existing Thac Mo reservoir and installation of one new vertical Francis-type turbine (maximum discharge: 93 t/s; effective head: 90 m; unit capacity: 75 MW) in order to increase generating capacity in Vietnam and respond to extreme peak demand. Following completion, total capacity of the facility in combination with the existing power station (75 MW × 2) will be 225 MW. The project includes construction of a new inlet channel, inlet, pipeline, surface-type powerhouse, and outlet downstream of the existing facilities. The planned construction period is 36 months. The plan will make use of the existing Thac Mo reservoir and will not entail an expansion of the inundation area, a major environmental consideration when developing hydroelectric power. Plans call for environmental impact to be kept to a minimum.


Foundation excavation work for the Thac Mo power station

Voice Expectations for a Safe and Secure Society

Modernization is progressing and convenience is increasing in Vietnam's major cities including Hanoi and Ho Chi Minh Cities in conjunction with economic growth, but in the agricultural village where I live, power outages lasting several hours occur about once a week. I have high expectations that the Thac Mo Hydropower Station expansion plan that I am involved with will improve the environment in rural areas with frequent power outages and contribute to the development of a regional society where everyone can live with a sense of safety and security.

International Marketing Division Project
Development Office, Assigned to Vietnam
Gaku Matsuoka

Close Up J-POWER Electric Power Generation Business in Thailand

U-Thai IPP

The J-POWER Group is actively expanding its electric power business in Thailand.

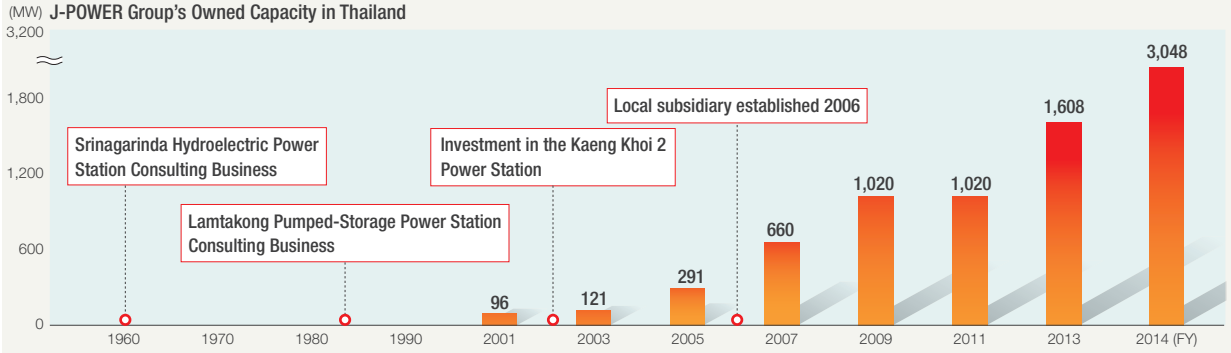
Seven 100 MW-class SPP projects that went online in 2013 was supplemented by an IPP project (Nong Saeng IPP, with capacity of 1.6 GW) in 2014, and an additional IPP project (U-Thai IPP; also with a capacity of 1.6 GW) is scheduled to go online in 2015. When combined with existing facilities in Thailand, the J-POWER Group will supply approximately 10% of electric power demand in Thailand. In this way, business in Thailand, along with our business in the United States and China, is a key part of our overseas electric power business, which is positioned as a second profit base after our domestic wholesale electricity business.

U-Thai IPP (1.6 GW, Gas-Fired Thermal)

The U-Thai IPP construction site was submerged during the flooding in 2011, but construction started as planned in December 2012. Commercial operation of the 0.8 GW No. 1 system began in June 2015, and we are working on the project in concert with related parties with the aim of beginning operation of the No. 2 system during 2015.

List of Power Stations in Operation and under Construction	Type	Facility Output
Roi Et	Biomass (chaff)	10 MW
Rayong	Gas-fired thermal (Combined cycle)	112 MW
Gulf Cogeneration	Gas-fired thermal (Combined cycle)	110 MW
Samut Prakan	Gas-fired thermal (Combined cycle)	117 MW
Nong Khae	Gas-fired thermal (Combined cycle)	120 MW
Yala	Biomass (rubber wood waste)	20 MW
Kaeng Khoi 2	Gas-fired thermal (Combined cycle)	1468 MW
Gulf JP KP1	Gas-fired thermal (Combined cycle)	110 MW
Gulf JP KP2	Gas-fired thermal (Combined cycle)	110 MW
Gulf JP TLC	Gas-fired thermal (Combined cycle)	110 MW
Gulf JP NNK	Gas-fired thermal (Combined cycle)	110 MW
Gulf JP NLL	Gas-fired thermal (Combined cycle)	120 MW
Gulf JP CRN	Gas-fired thermal (Combined cycle)	110 MW
Gulf JP NK2	Gas-fired thermal (Combined cycle)	120 MW
Nong Saeng	Gas-fired thermal (Combined cycle)	1600 MW
U-Thai	Gas-fired thermal (Combined cycle)	1600 MW

J-POWER Group's Owned Capacity in Thailand



Voice Working Together to Contribute to Electric Power Supply in Thailand

The seven SPP projects (0.79 GW) that went online in 2013 were supplemented by an IPP project (1.6 GW) in 2014 and are currently supplying power in Thailand. This is the result of people from different countries and different industries with diverse perspectives working together in all stages from development to construction, operation, and maintenance. I gained a strong sense that high-quality work can be achieved by numerous people working together. I hope to increase this type of business opportunity in the future and to contribute to the supply of electric power to people.

J-POWER Generation (Thailand) Co., Ltd.
Current position: Civil Engineering Construction Division, Construction Management Department
Kayoko Kurisaki

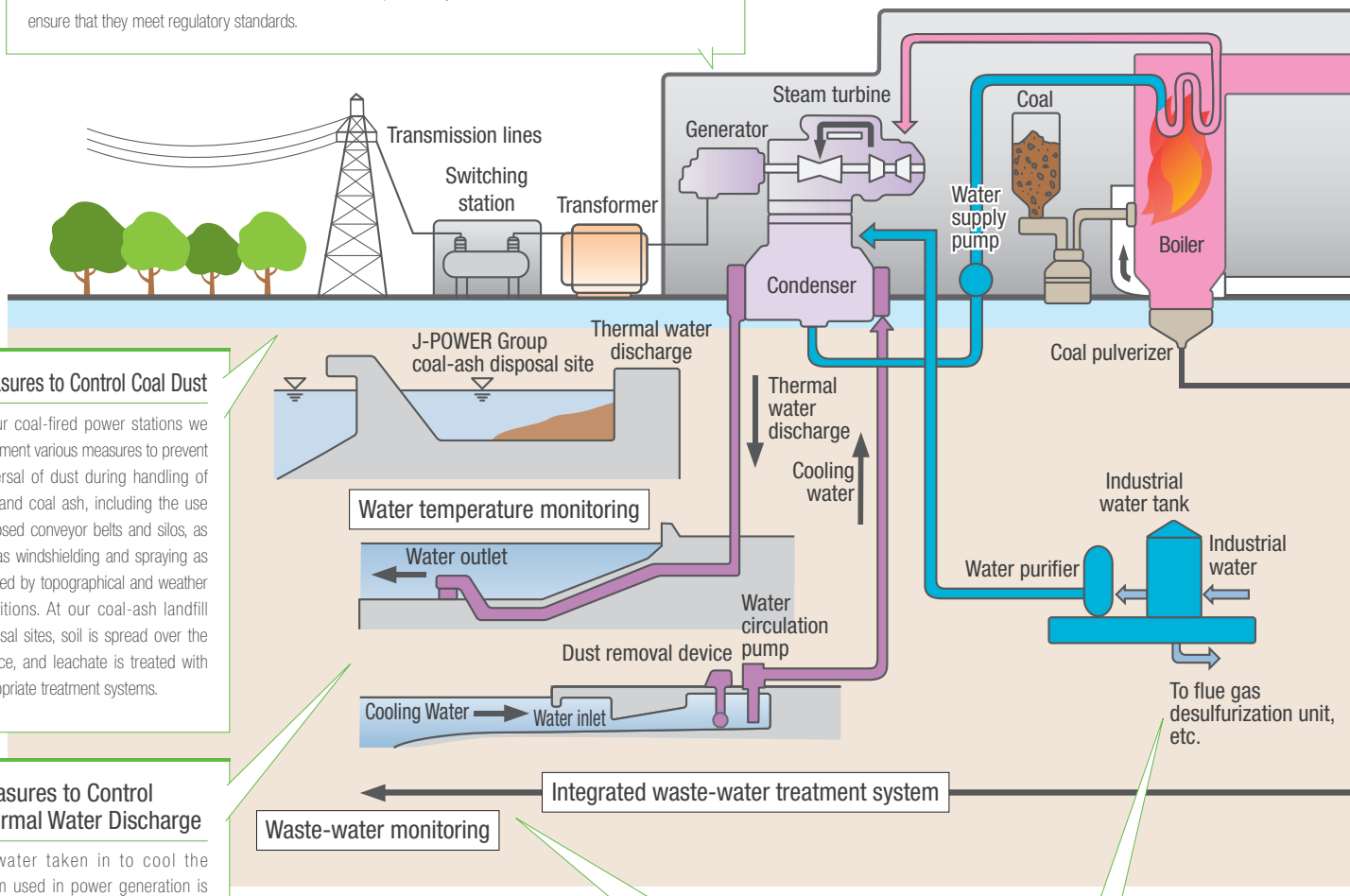
Environmental Preservation

The J-POWER Group undertakes environmental preservation initiatives using the latest technologies and knowledge to reduce the environmental impacts caused by its domestic and overseas electric power businesses.

Environmental Measures at Coal-Fired Power

Measures to Control Noise and Vibration

We work to prevent noise and vibration pollution by keeping such noise- and vibration-emitting equipment as boilers, turbines, and exhaust fans inside buildings. For outdoor equipment, we install soundproof covers and sound barriers as needed. Noise and vibration levels are periodically measured at the boundaries of our sites to ensure that they meet regulatory standards.



Measures to Control Coal Dust

At our coal-fired power stations we implement various measures to prevent dispersal of dust during handling of coal and coal ash, including the use of closed conveyor belts and silos, as well as windshielding and spraying as dictated by topographical and weather conditions. At our coal-ash landfill disposal sites, soil is spread over the surface, and leachate is treated with appropriate treatment systems.

Measures to Control Thermal Water Discharge

Seawater taken in to cool the steam used in power generation is released as thermal water discharge*. We control intake and discharge properly to reduce their impact on marine life in the vicinity, and monitor the temperature of thermal water discharge on a 24-hour basis to ensure that it remains at or below the reference values established by environmental agreements.

Measures to Prevent Water Pollution

Waste water from such facilities as desulfurization units and offices is appropriately treated in integrated waste-water treatment systems, through coagulation, precipitation, filtration, and so forth. Treated water is routinely monitored by automatic measuring equipment and analyzed periodically to ensure that it meets the standards set under the Water Pollution Control Law and environmental conservation agreements.

Cutting Back on Industrial Water Use

Industrial water is used in such equipment as boilers, cooling systems, and wet-type desulfurization systems. Part of this water is released into the atmosphere as steam. We are working to reduce our consumption of industrial water through the recovery and reuse, as far as possible, of wastewater that is not released into the atmosphere.

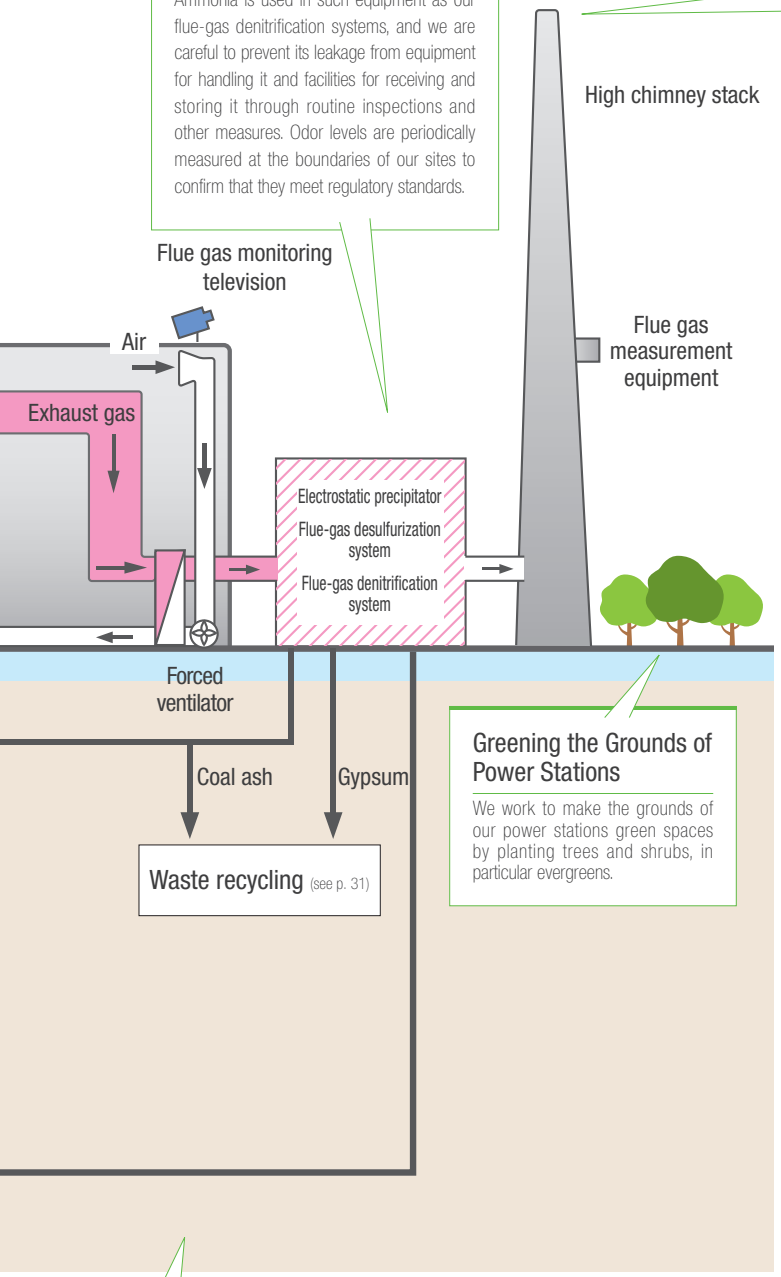
* Thermal water discharge:
In thermal and nuclear power generation, the steam that powers the turbine is cooled and turned to water in a condenser so that it can be used again. In almost all Japanese power stations, seawater is used for cooling in the condensers. As the seawater passes through the condenser, its temperature rises. It is then returned to the ocean through the discharge outlet, at which point it is referred to as thermal water discharge.

Measures to Control Odors

Ammonia is used in such equipment as our flue-gas denitrification systems, and we are careful to prevent its leakage from equipment for handling it and facilities for receiving and storing it through routine inspections and other measures. Odor levels are periodically measured at the boundaries of our sites to confirm that they meet regulatory standards.

Measures to Prevent Air Pollution

Combustion of coal and other fuels can generate sulfur oxides (SOx), nitrogen oxides (NOx), and soot and dust. To reduce these emissions we have improved our combustion methods and installed such flue gas treatment equipment as desulfurization and denitrification systems and electrostatic precipitators. Although the performance of equipment varies with its date of installation, at each facility we have installed the newest technology available at the time to remove pollutants with maximum efficiency. This equipment operates automatically with the aid of measurement devices that continuously monitor the content of flue gas. In addition, human operators monitor the equipment 24 hours a day and are able to mount a swift response in the event of any malfunction, ensuring that our emissions do not exceed the benchmark figures specified by the Air Pollution Control Act and environmental protection agreements.



Greening the Grounds of Power Stations

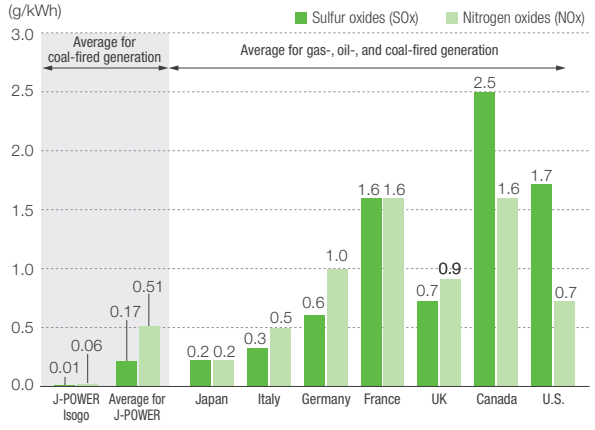
We work to make the grounds of our power stations green spaces by planting trees and shrubs, in particular evergreens.

Flue-gas Emissions, FY 2014 ★

Substance	Emissions	Emissions intensity
SOx	9,800 tons	0.17g/kWh
NOx	29,100 tons	0.51g/kWh
Soot and dust	800 tons	0.01g/kWh

Notes:
1. Emissions intensity: Emissions per unit of electricity generated at thermal power stations.
2. Emissions of soot and dust are calculated on the basis of measurements taken monthly.

International Comparison of SOx and NOx Emissions Intensity for Thermal Generation



Overseas: Emissions volume: OECD StatExtracts Complete Databases Available Via OECD's Library
Volume of power generated: IEA Energy Balances of OECD Countries (2012)
Japan: Materials published by The Federation of Electric Power Companies of Japan (10 electric power company and J-POWER)
Figures for Isogo and J-POWER are formulated from results for 2014

Measures to Prevent Soil Pollution

From FY 2004 through FY 2006, we conducted studies at all J-POWER Group domestic sites and determined that they were free of soil or groundwater contamination. We will continue working diligently to ensure that no soil pollution occurs.

Measures to Prevent Oil Leaks

We implement various measures to prevent the leakage and dispersion of fuel oil, lubricating oil, and other such substances within power station grounds, to include keeping adsorbent materials constantly ready in our power stations.

Proper Management and Disposal of Waste Material and Chemical Substances

Waste

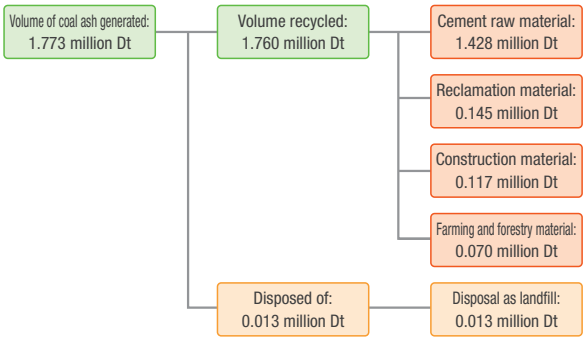
Reduction and Effective Utilization of Waste

The J-POWER Group has set the industrial waste recycle rate of 97% as a Corporate Target. The total amount of industrial waste we generated in fiscal 2014 was 2.14 million tons, and we achieved a recycle rate of 99%.

Making Effective Use of Coal Ash and Gypsum

The J-POWER Group's industrial waste consists of 97% coal ash and gypsum from thermal power stations.

Breakdown of the Coal Ash Recycle (displacement tons)



Information on Maintenance and Management of Industrial Waste Final Disposal Sites

The J-POWER Group discloses on its website its maintenance and management plan for waste final disposal sites, the results of groundwater and discharge water quality analyses, inspection results, the volume of landfill waste, and other maintenance and management information.

Chemical Substances

Management of Chemical Substances

The J-POWER Group complies with applicable laws and regulations and properly and rigorously uses, stores, controls, and treats chemical substances regulated by the PRTR Law that are used in electric power generation or are included in equipment or machinery, dioxins, PCB waste material (including equipment that contains trace amounts of PCB), and materials that contain asbestos and other substances.

PRTR Substance Release and Transfer Volumes (FY 2014) ★

Substance	Use	Volume handled	Volume released	Volume transferred as waste
33: Asbestos	Insulation for equipment	7.46t/y	—	7,460 kg/y
71 : Ferric chloride	Wastewater treatment agents	13.32t/y	—	13,320 kg/y
80 : Xylene	Coating for machinery	1.37t/y	1,366 kg/y	—
300: Toluene	Fuel for power generation (coal)	16.79t/y	16,784 kg/y	
405 : Boron compounds	Manure additives	17.43t/y	1kg/y	—
406 : Polychlorinated biphenyl	Transformers Insulating oil	19.48t/y	—	19,480 kg/y

Note:
Figures represent total release and transfer volumes for all business sites handling 1 ton or more per year of a Class 1 designated chemical substance or 0.5 ton or more per year of a Specific Class 1 designated chemical substance.

Voice

Beach Winds at a Coal-Fired Power Station

The Isogo Thermal Power Station is a coal-fired power station located in a coastal industrial region of Yokohama City. The nearby scenery includes the Bay Bridge and the Landmark Tower as well as the various ships that travel through Tokyo Bay, with the Boso Peninsula and Miura Peninsula in the distance. When the weather is good, we also have splendid views of Mt. Fuji, and these are one source of pride for the power station. It is for this reason that we reliably undertake business activities with great care towards maintaining good relations with local communities and consideration for the environment. We distribute a pamphlet entitled "Harmony between Energy and the Environment" to about 5,000 visitors each year and conduct tours of the facilities so people can experience them close up. One of the station manager's policies, which is raised as a banner for all station personnel, is "maintaining and improving efficiency and environmental performance as the world's leading plant and preventing environmental pollution." We will continue working to maintain harmony with the natural environment while making use of our experience so that everyone can enjoy the beach winds here.

J-POWER
Deputy Manager, Isogo Thermal Power Station
Hideyuki Nakayama

Preservation of the Natural Environment

Environmental Impact Assessment

Before expanding power plant facilities, we conduct environmental impact assessments in accordance with applicable laws and regulations and adequately take the environment into consideration while listening to the opinions of local residents during the planning stages. After a power plant becomes operational, we take environmental preservation measures based on the results of monitoring performed pursuant to environmental preservation agreements entered into with relevant local governments.

Environmental Impact Assessments conducted in the 2014 fiscal year (Projects conducted after submission of an environmental impact assessment report are included)

Project	Operator	Implementation area	Implementation status
Takasago Thermal Power Station New Units No. 1 and 2 Facility Upgrade Plan	J-POWER	Takasago City, Hyogo Prefecture	Environmental impact assessment report review completed (as of July 2015)
Wasabizawa Geothermal Power Station (provisional name) Construction Plan	Yuzawa Geothermal Power Co. Ltd.	Yuzawa City, Akita Prefecture	October 2014 Environmental impact assessment procedures completed May 2015 Facility construction started
Kashima Thermal Power Station Unit No. 2 Facility Construction Plan	Kashima Power Co., Ltd.	Kashima City, Ibaraki Prefecture	Environmental impact assessment report review completed (as of July 2015)
Ohma Wind Farm Construction Project	J-Wind OOMA Co. Ltd.	Ohma-machi, Shimokita-gun, Aomori Prefecture	September 2014 Environmental impact assessment procedures completed October 2014 Facility construction started
Yurihonjo Seaside Wind Farm Project	Yurihonjo Wind Power co., Ltd.	Yurihonjo City, Akita Prefecture	March 2015 Environmental impact assessment procedures completed July 2015 Facility construction started
Setana Osato Wind Power Farm Project (provisional name)	J-POWER	Setana-cho, Kudo District, Hokkaido	Environmental impact assessment report completed
Shin-nikaho Wind Farm Project (provisional name)	J-POWER	Nikaho City, Akita Prefecture	Environmental impact assessment report examination completed and under review (as of July 2015)
Shin-kuzumaki Wind Farm Project and Kuzumaki Wind Farm Project (provisional name)	J-POWER	Kuzumaki -machi, Iwate-gun, Iwate Prefecture Iwaizumi-cho, Shimohei-gun, Iwate Prefecture	Environmental impact assessment report examination completed and under review (as of July 2015)

Preservation of the Water Environment

In FY 2013, the J-POWER Group made preservation of the water environment a corporate target for its environmental management vision with the aim of reinforcing its environmental preservation initiatives regarding rivers and the seas.

We undertake environmental preservation measures based on the specific regional environment and characteristics of each business site such as taking measures to maintain water quality and prevent the accumulation of silt in dam lakes and downstream areas in the case of hydroelectric power station, and managing the discharge of wastewater into nearby bodies of water in accordance with applicable laws and regulations in the case of thermal power stations.

Forest Conservation

J-POWER owns approximately 4,600 hectares of forests in the areas near its hydroelectric power facilities located throughout Japan. We appropriately maintain these valuable forests in accordance with the J-POWER Group Forest Protection Guidelines (formulated in 2007).

Japan's forests are falling into ruin because of inadequate management caused by slumping forestry markets, but the J-POWER Group is contributing to forest conservation and reduction of CO_2 emissions through efforts to burn biomass fuel pellets made from forestry offcuts and other materials in coal-fired power stations along with coal (see p. 24).

Preserving Biodiversity

To reinforce its measures in light of the Basic Law on Biodiversity, in FY 2011, the J-POWER Group made preserving biodiversity a corporate target for its environmental management vision.

During the power generation facility planning and design stages, we implement environmental preservation measures taking into consideration the impact on the natural environment and ecological systems based on the results of wildlife and ecological assessments in the land and ocean areas surrounding the facility. We strive to preserve wildlife, particularly rare species, living in the vicinity of operating power plants and other facilities and their habitats.

These measures are tailored to local environments and characteristics such as making every effort to avoid outdoor work during the nesting season of the Japanese golden eagle and other endangered birds in the vicinity of the Okutadami Dam and Otori Dam and restoring, maintaining, and managing wetlands that became landfill areas when the Okutadami Dam in Niigata Prefecture was expanded.

An observation group in the Hassaki wetland, downstream from Okutadami Dam (Niigata Prefecture)