Helping Ensure the Stable Supply of Electricity

The power generating facilities of J-POWER Group constitute a stable supply capacity, while the company’s transmission, substation, and communications equipment bear a portion of the load for the nationwide system of power companies. The company also contributes to the stable supply of electricity as a system of wide area interconnection that connects different regions.

Generation and transmission facilities that support the stable supply of electric power across Japan

Main facilities

- Hydroelectric power stations
- Thermal power stations
- Geothermal power stations
- Wind farms
- Recycling power generation, cogeneration, independent power producers (IPP), power generation for a competitive market
- Transmission lines
- Substations (including converter stations and switching stations)
- Research institutes, etc.

* Planned, under construction
* In addition, dedicated Group communications facilities and facilities owned by affiliated companies.
Unifying Electric Power in Japan

Electric Power Distribution on a Nationwide Scale

J-POWER owns and operates approximately 2,400 km of transmission lines and substations and converter stations at eight locations that supply power generated by the company to our demand areas. Our facilities also link Japan’s disparate regional power companies together, thus playing a major role in the wide-area operation of Japan’s electricity grid as a whole. Particularly noteworthy are the Kitahon DC Trunk Line that interconnects the islands of Hokkaido and Honshu, the Honshi Interconnecting Line and Aran Kihoku DC Trunk Line that link the islands of Honshu and Shikoku, and the Kannon Interconnecting Line that links the islands of Honshu and Kyushu, as well as other extra-high-voltage transmission lines. Another key capability comes from the Sakuma Frequency Converter Station, the first such facility in Japan to enable power transmission between the differing frequencies of Eastern Japan (50 Hz) and Western Japan (60 Hz). J-POWER facilities like these perform important functions in wide-area transmission of power across Japan as well as in improvement of power quality, and they have made major contributions to responses to the power shortages caused by the Great East Japan Earthquake.

Operation Management of Power Stations and Other Facilities

The Central Load Dispatching Center issues appropriate operating instructions (load dispatching) on a 24-hour basis to power stations and other facilities in order to help keep the electricity grid stable while maintaining stable, efficient operations at domestic power facilities owned by J-POWER. For our hydroelectric power facilities, we have divided the country into three regions that are operated by three control centers, the North Regional Control Center (Hokkaido), the East Regional Control Center (Saitama Prefecture), and the Middle & West Regional Control Center (Aichi Prefecture). J-POWER has been taking steps to upgrade the equipment at the various regional control centers with the aim of heightening the functionality of our facilities and increasing the efficiency of our operation management system. The equipment upgrades of all regional control centers were completed without incident and operations began again in April 2010.

At the same time, J-POWER is engaging in stable grid operations by means of remote monitoring and control using the latest in information technology. To that end, we possess an information telecommunications network of highly reliable microwave radio circuits, fiber-optic cable, and other such elements that we employ to conduct high-precision operation. This information telecommunications network is configured as a trunk system of microwave radio links that extend the length of Japan from Hokkaido in the north to Kyushu in the south, and when the branches leading off to our various business sites are included, the system is approximately 5,900 km in length.
Facilities Maintenance and Technology Transmission

The J-POWER Group possesses facilities of various different kinds, including power generation, substation, power transmission, telecommunications, civil engineering, and construction. We maintain the functionality of our facilities by engaging in high-quality facility maintenance that prevents problems before they occur, and so contribute to the stable provision of electric power in Japan as well as to the stabilization of Japan’s power grid. Our power generation and substation facilities are monitored on a 24-hour basis, with everyday patrols for early detection of equipment abnormalities. We also conduct regular overhaul inspections of facilities and other such activities to assure the reliability of facilities, and we make every effort to prevent accidents and incidents before they can occur.

We also engage in various activities to maintain readiness against the occurrence of natural disasters or accidents, including establishment of information contact routes, maintenance of mutual assistance systems with related locations, stockpiling of supplies for recovery from accidents, and training for dealing with accidents. We implement these measures during ordinary times so that we will be able to implement countermeasures certainly and rapidly in the event of emergency.

We are also making every effort to improve and pass on the facilities maintenance capability and other such technical capabilities that we have cultivated in various different fields. We are using workplace OJT*, training facilities, and so on to provide training of all kinds with the aim of “developing human resources” and “upgrading the technical capabilities” of our employees.

Hydroelectric Power Facility Operations

The J-POWER Group possesses hydroelectric power stations at 59 locations throughout Japan that it operates, together with substations and converter stations, from three regional control centers that conduct centralized control nationwide on a 24-hour basis. We engage in day-to-day patrol inspections, regular facility inspections, and other such on-site activities for early detection of abnormalities in the facilities, and we also take measures to prevent facility accidents before they occur. If abnormalities do occur, employees immediately rush to the site where they ascertain the situation and also engage in recovery operations. We make every effort to recover facilities promptly.

The Hydropower Division makes a regular practice of setting objectives for facilities maintenance technology, facilities operation technology, facilities construction technology, and so on in light of the particular characteristics of the work involved and implementing systematic, efficient education accordingly.

The Electric Section conducts technical training at the Kawagoe Training Center (in Saitama Prefecture) using simulators and other such facilities for maintaining and fostering the practical skills of operators and on-site maintenance personnel in order to maintain the stable operation of hydroelectric power facilities.

In the Civil Engineering Section, the Chigasaki Research Institute (in Kanagawa Prefecture) runs practical training on dam operations using dam simulators located onsite as well as Civil Engineering Technology Training, a comprehensive training program for J-POWER Group employees involved in the field. The practical training on dam operations seeks to further raise the level of dam operators by such measures as implementing simulator exercises that reflect data from the severe rain storms that occurred in Niigata and Fukushima Prefectures in July 2011.

Voice

Transmitting Our Technology to Future Generations

At the time it was built, Miboro Dam and Power Station (Gifu Prefecture) was called the top such structure in the Far East. It reached its 50th year in 2011, and the partner organizations that inherited the care of these facilities and are maintaining them are the J-POWER Miboro Power Administration Office and the JHYTEC Miboro site. There are some younger personnel among them who are having their first experience of on-site work, but they are ever eager and “There’s no better place to learn than on-site.”

Given recent developments, hydroelectric power has been receiving more and more attention as a renewable energy source, and even though this facility is respected because of its age, it will not do to leave it as it was long ago. It has to be handled from a broad perspective that includes facility maintenance, to include full use of technology to monitor the state of the facility, and other considerations. This is the work we are engaged in every day.

In order to keep the facility going well into the future, we also feel it is our mission as the elders to pass on our technology to the next generation and see that they receive it securely while making the most of their new thoughts and perceptions.

Akihiro Niwaya
Director
Miboro Power Administration Office

References

*1 OJT
On-the-job training for employees in the workplace.
### Thermal Power Facility Operations

The J-POWER Group possesses eight thermal power stations in Japan (including one geothermal facility). We are making every effort for early detection and early handling of abnormalities at our thermal power stations by monitoring the operation of thermal power facilities and conducting patrols on an everyday basis. We also accurately identify the facility operating conditions that change according to the type of coal, and we carry on operation management so that key equipment and environmental equipment will achieve full functionality. In addition, we conduct planning from a medium- to long-term perspective for preventive maintenance and planned repairs so as to assure the stable operation and reliability of our power stations, and we strive to implement appropriate maintenance.

The Thermal Power Division is engaged in upgrading and transmitting our technical capabilities by taking such measures as placing the operations and maintenance technology we have cultivated in running these thermal power stations into in-house databases for sharing, and holding conferences for managers and other responsible people. With the aim of fostering technicians who have a high level of practical capability that enables them to think and take action on their own, we are implementing simulator training at the Wakamatsu Operations and General Management Office Thermal Power Training Center (Kitakyushu City) for thermal power station operators (start-up, shutdown, accident handling) as well as specialized training for maintenance personnel (equipment theory, disassembly and assembly skills).

### In Order to Fulfill the Role of Wide-Area Power Source

Matsaura Thermal Power Station was constructed as J-POWER’s first jointly sited location (jointly with Kyushu Electric Power Co., Inc.). The No. 1 unit started commercial operation in June 1990, and the No. 2 unit in July 1997. The No. 2 unit was the first in Japan to introduce ultra-supercritical (USC) technology (main steam at 593°C and reheated steam at 593°C), and it has been a pathfinder in higher-efficiency coal-fired power generation.

Each generator has an output of 1 GW. They perform a critical function as a wide-area power source, and the electricity they generate supports the power supply to western Japan.

We are taking every possible care to deal with the electric power supply-demand situation, which has grown tighter nationwide since the earthquake disaster, and we are engaging in measures for stable operation. In order to detect advance signs of equipment trouble as early as possible, we implement carefully planned patrols and detailed inspections. In order to enable immediate response in the unlikely event that trouble does occur, we prepare for emergencies by conducting training, checking our systems for liaison, and so on. Everyone at the power station is united, including people from cooperating companies, in the effort to minimize the periods of plant shutdown during the regular work of maintenance and inspection as well as periodic inspection work, and to make it possible to conduct repairs safely and smoothly.

![Training underway at the Thermal Power Training Center (Kitakyushu City)](image)

### About the Fire on the Grounds of Isogo Thermal Power Station

At about 22:00 on November 24, 2011, a fire was detected near the CI-3 conveyor in the screen crusher room* at Isogo Thermal Power Station. The Fire Department was notified and fire extinguishing activities were begun starting at 22:12. At 00:09 on November 25, an explosion occurred near the upper portion of Coal Silo C. At the time the fire started, the power station was operating at full capacity, with the No. 1 unit generating 600 MW and the No. 2 unit generating 600 MW. The generators were shut down because of the fire and explosion, and the fire was extinguished at 15:38 on the 25th.

When the fire broke out, an Accident Countermeasures Committee was immediately formed within the company. The committee investigated the cause of the incident and studied measures to prevent recurrence. We also formed an Expert Evaluation Committee made up of outside experts in order to obtain an objective evaluation of the effectiveness of our measures.

The examinations conducted by the in-house and external committees determined the likelihood that the fire started in a conveyor belt tensioner device and that the fire occurred due to either spontaneous combustion or frictional heat generation or possibly a combination of the two.

Based on these in-house and external initiatives to ascertain the cause of the fire, we have implemented measures in terms of both physical plant and operations to prevent recurrence (installed sprinkler equipment, reinforced monitoring systems, etc.). At present, therefore, we have brought No. 1 and No. 2 units back into operation. This incident was the cause of great concern as well as inconvenience to residents of the area and other parties involved, and we wish to offer our heartfelt apologies to all. J-POWER is instituting thoroughgoing measures here and at our other thermal power stations to prevent any such incident from occurring again, and we will sustain these efforts.

![Isogo Thermal Power Station](image)

### References

* Screen crusher room
A facility placed midway along the conveyor that transports coal, this is a room containing the screen crusher equipment, which screens out large clumps of coal and crushes them.
Power Transmission and Substation Facility Operations

Transmission and substation facilities are located in various different environments, from mountainsides to cityscapes, and they are exposed to harsh natural conditions of wind, snow, lightning, sea salt, and so on. Therefore we conduct regular patrol inspections and do our best to detect facility abnormalities early. At the same time, we also conduct facility repairs with a preventive maintenance perspective, and we take measures to prevent facility accidents before they can happen. As a response to the tighter electric power supply and demand since the earthquake disaster, in particular, we have taken measures to implement positive independent security measures as well as to optimize and upgrade our facilities maintenance. In order to coexist harmoniously with local communities, we are also promoting the systematic updating of aging facilities and the rebuilding of power transmission lines in conjunction with changes in the local environment.

We conduct maintenance work training using training pylons and carry on accident response training to prepare for facility accidents with the aim of upgrading and transmitting our technical capabilities that are necessary for facilities maintenance of these power transmission and substation facilities. These programs are conducted at the J-POWER Group’s Sano Power Transmission Skill Training Center (Tochigi Prefecture). We are also taking steps to upgrade technical capabilities by providing Power Transmission Line Construction Technology Training to teach power transmission line construction and design technology, as well as Substation Technology Training to teach design technology for large-scale substation construction work.

We engage in our operations with the understanding that it is the mission of J-POWER to carry on steady maintenance of our power transmission and substation facilities and to work to provide a stable supply of electric power.

Information Telecommunication Facility Operations

J-POWER business sites, power generation facilities, and distribution facilities are distributed throughout Japan, and the information telecommunications network that links them together is employed for such purposes as remote monitoring and control using advanced information technology, and for protection of the power transmission grid. This network must therefore be highly reliable so that communications are not broken when earthquakes or other such disasters occur. To that end, we have implemented network redundancy through the use of microwave radio, fiber-optic cable, and other such means, and we are engaging in facility design and construction aimed at maintaining and improving reliability by such means as upgrading to equipment that incorporates the rapidly progressing advances in information telecommunications technology. In order to provide for stable operation, we also conduct regular patrols and inspections, maintain a constant grasp on the state of our facilities, and conduct appropriate preventive maintenance. We further perform constant monitoring of the operational status of our facilities, so that when an abnormality occurs, we can act with the organizations concerned to make operational adjustments to the telecommunications network. Our aim then is the speedy restoration of service. The implementation of these measures to maintain and improve reliability also requires efforts to upgrade and transmit our technical capabilities. Our training facilities therefore provide equipment identical to the microwave radio and other equipment in actual use, and we conduct practical skill training to upgrade our capability to apply solutions.

We are committed to making a contribution to the stable operation of power generation and distribution facilities by maintaining the functionality and constant soundness of our nationally configured information telecommunications network.

References

1 Redundancy:
The practice of preparing for system outages caused by natural disaster, equipment malfunction, etc. by configuring two or more parallel systems, putting them in place, and keeping them constantly operational so that the required functionality can be maintained by at least one of the systems.

Electricity Interchange by the Sakuma Frequency Converter Station and Kitahon HVDC Link in FY 2011

The Sakuma Frequency Converter Station (facility capacity 300 MW) was established in 1965 as the country’s first frequency conversion facility, and it interconnects the power grids in Eastern and Western Japan, which have different frequencies. At the same time, the Kitahon HVDC Link, facility capacity 600 MW, entered operation in 1979 as Japan’s first high-voltage DC transmission facility. Using a submarine cable laid across the Tsugaru Straits, it ties together the power grids on the islands of Hokkaido and Honshu. These facilities convert alternating current to direct current (AC/DC conversion), enabling the Sakuma Frequency Converter Station to interconnect the differing frequencies of Eastern Japan (50 Hz) and Western Japan (60 Hz) and enabling the Kitahon HVDC Link, to achieve long-distance power transmission over a submarine cable. These facilities additionally conduct electricity interchange (load flow control) variably according to supply and demand conditions, and they further contribute to maintaining the quality of electric power by suppressing frequency fluctuations that occur due to sudden load changes in the power grid or other such reasons (frequency control).
Stable Procurement of Coal

Coal Mining Projects in Australia

J-POWER Group seeks stable procurement over the long term of coal for use in coal-fired power stations, and we therefore own stakes in coal mining projects in the states of Queensland and New South Wales in Australia. Of these, the Blair Athol Coal Mine has until now been the key mine, and it will be closing down after 25 years or more since it began exporting. Meanwhile, we began taking coal from new coal mines, the Clermont Coal Mine and the Narrabri Coal Mine, in 2010.

In September 2011, we also entered an agreement with Aston Resources Limited (Aston) to acquire a 10% interest in the Maules Creek Coal Mine in New South Wales that is being developed by Aston with the aim of starting production in 2013. At the same time, this is also an agreement for our long-term purchase of steam coal from that mine. Maules Creek is a coal mine offering both superior quality and profitability, and plans call for the production of coking coal (semi-soft coking coal)*1 and high-quality steam coal*1.

Our aim is to continue diversifying our sources for coal procurement and securing revenues at the upstream end of the coal business. To that end, we will also study new coal mine investment projects that are relatively cost competitive, paying careful attention to the coal supply-and-demand balance and competitor activity, and we will continue taking steps to participate in new coal mining projects.

Stable Transportation of Coal

Measures for the Stable Transportation of Coal

J-POWER Group uses many different types of coal, and transporting them to the various power stations requires 200 or more voyages per year. Measures we take for stable transportation include the long-term engagement of specialized vessels to carry purchased coal and the conclusion of contracts of affreightment with the shipping companies.

Voice

Measures for Coal Mine Investments with a View to Stable Procurement of Coal

J-POWER invested in an export-oriented coal mine (Blair Athol Coal Mine) in Australia in 1982 in order to develop coal-fired power stations overseas for our company. Since then, we have been securing investment opportunities in blue-chip coal mines to use as leverage in coal transactions matched to the rise in coal procurement that has accompanied our increase in coal-fired thermal power.

At present, J-POWER is the largest user of steam coal in Japan, at approximately 21 million tons of coal annually. We import the coal mainly from Australia and Indonesia. In Australia, we own and manage our interests in coal mine projects through our local affiliate, J-POWER Australia Pty., Ltd. (JPA).

JPA is in the position of a seller that produces and markets coal. As such, JPA coordinates with J-POWER while checking on the status of development and keeping track of problems through participation in regular meetings and technical meetings held at each coal mining project as well as through communication with other project participants. These are among the measures JPA takes for stable coal procurement through investment in coal mines.

References

*1 Coking coal (semi-soft coking coal) and steam coal:
  Coking coal is mainly used in iron making while steam coal is used in electric power generation.
Developing Technologies for Stable Power Supply

In order to support the stable supply of electricity, J-POWER Group engages in technology development related to the stable operation and maintenance of electric power facilities, the reduction of the environmental load, and the effective utilization of limited resources.

Ensuring Safe, Secure Power Facility Operations

J-POWER has set up the Chigasaki Research Institute and the Wakamatsu Research Institute under the Technology Development Division. They work in coordination with the departments concerned, the thermal power stations, the regional headquarters, branches, and other units to promote the development of technology that supports the provision of a stable supply of electricity.

Of these facilities, the Chigasaki Research Institute was founded in 1960 as the Civil Engineering Testing Center to support large-scale hydropower development. Its organization was subsequently expanded to keep up with J-POWER business developments, and the institute presently has a Civil Engineering Laboratory, a Thermal Plant Engineering Laboratory, a Material Science Laboratory, and a Power System Engineering Laboratory as units of a comprehensive research and development organization. As such, the institute engages in a variety of research and development relating to the construction, operation, and maintenance management of hydropower, thermal power, wind power, and other such power facilities as well as of electric power distribution facilities.

In addition, the institute’s research facilities are used as the site of practical training in dam operation for employees involved in civil engineering, as well as for participation in academic societies, publication of research results, joint research with outside organizations, acquisition of academic degrees, dispatch of instructors to universities, and other such activities. In these ways, we are putting our efforts into the development of specialist technicians who have global capabilities.

At the same time, we also engage actively in exchanges with local corporations in Chigasaki City, we receive study tours for members of the public, and conduct other such activities that contribute to widespread instruction in electric power and science and technology as well as to their dissemination.

Increasing the Reliability of Grid Facilities

Power Grid Analysis

With the object of maintaining stable operation of electric power facilities as well as the voltage, frequency, and other aspects of power quality, the Chigasaki Research Institute runs Power System Engineering Laboratory where power grid analysis simulators are used to verify and analyze the operation of control systems for electric power sources, direct current substations, and other such facilities. These analyses aid in improving the operational reliability of facility control systems and enable a more precise response in case of lightning strikes and other such events, as well.
Working to Protect the Dam Reservoir and River Environment

Development of Efficient Technology for Aspirating and Supplying Dam Sediment

Sand and gravel from mountains and other upstream areas are washed down during floods into dam reservoirs, where they accumulate. This sand and gravel, which is referred to as sediment, can be a factor causing flooding in the vicinity of the dam reservoir or upstream from it, diminishment of dam reservoir capacity, and riverbed degradation when the downstream supply of sand and gravel from the dam is reduced.

There are locations in J-POWER dam reservoirs where large amounts of sediment have accumulated. We are going to be required, for the future, to drastically limit the impact on the natural environment of downstream rivers and other such areas while continuing to supply dam reservoir sediment downstream.

At present, we are developing a vertical double-pipe aspiration method to aspirate sediment and to transport sediment in order to supply it downstream from the dam. This is an efficient technology for aspirating and supplying sediment from medium and small dam reservoirs, and it works with vertical double pipes with multiple holes placed in the dam reservoir and used in combination with transport pipes.

Protecting Power Stations from Natural Disasters

Clarification of the Mechanism that Generates Waves of Various Kinds

Waves include more than just waves at sea caused by winds and tsunami caused by earthquakes. There are also waves generated by natural disasters on land, such as when large-scale slope failures, avalanches, pyroclastic flows, or other such phenomena enter a body of water.

There are cases of such waves caused by natural disasters on land that have occurred in Japan, and there is a possibility that they may occur, for instance, due to a slope failure close to a lake or dam reservoir.

J-POWER has used simulations and the latest analytical models to ascertain the mechanisms that generate various kinds of wave, and we are engaged in development of technology that will contribute to coastal power station structure and dam safety evaluations.

Supporting Large-Scale Thermal Power Stations

Accurate Determination of the Lifespan of High-Temperature Equipment

The equipment and piping at power stations includes large items that cannot be easily replaced. At thermal power stations, the soundness of heat-resistant steel that is exposed to an environment of high temperatures and high pressures is critical to stable operation. Accurate lifespan assessment is therefore required.

Lifespan assessments of heat-resistant steel have been conducted since long ago. However, the mechanisms of deterioration can change as the development of materials progresses, so the goal is to establish accurate assessment technologies that are permanently geared to the type of steel involved. Our coal-fired power stations that have adopted ultra-supercritical (USC) technology, in particular, have achieved power generating efficiency at the top world level with the support of high chrome ferrite heat-resistant steel. The Material Science Laboratory at the Chigasaki Research Institute is carrying on creep testing and other such work using a large single-axis creep tester to establish lifespan assessment technology for this type of steel.

Aiming for Diversification of Fuels

Evaluating Fuel Suitability for Thermal Power Stations

The main fuel of J-POWER’s thermal power stations is coal. Supplies of high-grade bituminous coal and sub-bituminous coal that have relatively high heating value and low moisture content have been growing tight in recent years, and expectations for the use of lignite and other low-grade coal are rising. We are also promoting the co-combustion of biomass fuel in order to contribute to reduction of CO2 emissions as a global warming countermeasure. When using these low-grade fuels, some of which undergo spontaneous combustion more readily, we must be able to transport and store those fuels safely. It is also necessary to maintain good combustibility and environmental properties in the boiler, and to avoid ash deposition, corrosion, and other such problems. With these purposes in mind, we are seeking to establish technology for assessing fuel suitability by promoting research in particular on the assessment of coal ash adhesion and spontaneous combustibility.
Overseas Operations

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 some 50 years 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. As of the end of March 2012, we had 29 overseas power generation projects in seven countries/regions operating electric power facilities with a capacity of approximately 3.67 GW (owned capacity), making this the second pillar of J-POWER Group management.

International Consulting Projects

J-POWER Technology Earns Trust Overseas

The J-POWER Group’s overseas operations began with our entry into the field of international technology cooperation, which was prompted by revisions to Japan’s Electric Power Development Promotion Law in 1960. We have been using the technology and trust we developed through our business in Japan to expand our international consulting projects for the purpose of sustainable development. Starting with the Tacna Hydropower Project in Peru in 1962, our track record in international consulting projects has reached a cumulative total of 333 projects in 63 countries/regions as of the end of March 2012.

For many years and in countries around the world, our international consulting projects have drawn on our technologies and experience in hydropower and thermal power to assess environmental impacts, transfer technology for removing sulfur and nitrogen during coal-fired power generation, and plan, design and supervise the construction of hydropower stations. Recent projects we have undertaken in new markets and fields include the Java-Sumatra interconnection transmission line project in Indonesia and Upper Seti Hydropower Project in Nepal. Starting in FY 2011, we have also implemented a project supporting the formulation of a Pumped Storage Hydropower Development in Maharashtra State, India.

These international consulting projects will help our host countries develop a stable supply of energy into the future and reduce environmental burdens by first surveying socioeconomic conditions and energy consumption and demand trends in the countries and then transferring technology from our experience and knowledge through individual projects.

International Consulting Projects

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Note: As of March 31, 2012

Installed capacity: 2,770 MW
(Downed capacity: 1,020 MW)

Installed capacity: 728 MW
(Downed capacity: 364 MW)

Installed capacity: 6,044 MW
(Downed capacity: 523 MW)

Installed capacity: 670 MW
(Downed capacity: 268 MW)

Installed capacity: 4,496 MW
(Downed capacity: 1,416 MW)

Installed capacity: 750 MW
(Downed capacity: 38 MW)

Installed capacity: 48 MW
(Downed capacity: 22 MW)

Installed capacity: 2,044 MW
(Downed capacity: 623 MW)

Installed capacity: 29 in operation in 7 countries/regions (Total capacity of facilities: 15.496 GW; total owned capacity: 3.672 GW)
Overseas Power Generation Projects

[Thailand] Contributing to Thailand’s Economic Development

Thailand has allowed private capitalization in the power generating sector since 1992 as it seeks to diversify its electricity business. Starting in 2000, J-POWER Group has been working with independent power producers (IPPs) in Thailand to keep up with the power demand in that country, which continues to grow from both industry and citizens. By taking part in numerous IPP*1 and SPP*2 projects, we are improving the electric power situation in Thailand and promoting its economic development with both funding and technology.

The Kaeng Khoi 2 Power Station, which began commercial operation in Thailand in 2008, is helping to provide a stable supply of electric power as one of the most important electricity providers in the country. In addition to the conventional electricity business, we are also developing and promoting biomass power generation, for instance at the Roi- Et Green Biomass Power Station, in Northeast Thailand, which uses rice chaff as fuel. This is contributing to the effective use of untapped resources and reduction of CO₂ emissions. We are currently developing IPPs in two locations and SPPs in seven locations.

[U.S.A.] Business Built up Through Collaboration with Numerous Corporations

J-POWER Group has been wholeheartedly pursuing business in the US since we set up a local affiliate in 2005. We currently have 10 power stations in the country with owned capacity of about 1.44 GW, accounting for some 40% of our power generation business outside Japan. The US offers features that differ from the conspicuously high-growth Asian market, such as the relatively advanced state of its electricity business system, the universality of its currency, and the maturity of its generating assets sales markets. Conducting business in the US is also significant for our business pursuits in Asia. The J-POWER Group was relatively unknown in the US at the time of our market entry there, but our efforts there to gain access to many projects, build networks with other enterprises, and bring talent on board have paid off well.

We recently completed our first US construction project, the Orange Grove Power Station in California, a state with very stringent environmental protection rules. The power station has now commenced operation, and we intend to use this experience as a foundation for implementing the next project as we continue our sustained initiative.

[China] Exchanges for a Period of Over 30 Years Contributed to Improved Power Generating Efficiency and Reduced Environmental Impact

With its rapid economic development, China has brought some 60 - 100 GW of new power sources online every year since 2002, and most of this has come from coal-fired power stations. Most of the conventional thermal power stations, however, have been of small scale, so they had low power generating efficiency and were unsatisfactory in terms of environmental protection. The Chinese government has adopted a policy of building larger power stations and reducing the number of small ones in order to improve this situation by increasing the efficiency of power generation and lowering its environmental impact on the country as a whole.

The J-POWER Group has taken part in the development and operation of many power stations, making effective use of its more than 30 years of experience participating in projects and technical exchanges. In the area of coal-fired thermal power, the Tianshi Power Station makes effective use of low-grade coal, and 13 stations are in stable operation under the Gemeng International Energy Co., Ltd. In the area of renewable energy, the Xihe and Shuhe Power Stations (hydropower) in the Han River are in stable operation. We are also now participating in the Hezhou Power Station Project to build a new USC coal-fired power station (two 1-GW units) in the Guangxi Zhuang Autonomous Region. Some environmental problems have no borders, and we will continue to apply the J-POWER Group’s technology for this reason, as well.

[Asian Countries and Regions] Power Generating Projects Expand in Asian Countries and Regions

In the Asia region, J-POWER Group is undertaking overseas power generating projects in the Philippines, Taiwan, and other such areas in addition to Thailand and China.

Of these, the CBK Project in the Philippines is the J-POWER Group’s first hydropower IPP project, and it consists of the Caliraya, Botocan, and Kalayaan hydropower stations. Kalayaan Power Station does not only sell the electricity it generates; As the country’s only pumped-storage hydropower station, it also plays an important role in adjusting voltage, frequency, and other such factors. In Taiwan, Chiaihui Power is a high-efficiency gas-turbine combined cycle power generation project we are undertaking jointly with Asia Cement Corporation of Taiwan. J-POWER dispatched staff to the site for this project, we have taken active part in assuring Chiaihui Power’s sound management and stable operation, and in these ways we are contributing to the stable supply of electric power in Taiwan.

In 2011, we acquired a development project in Indonesia for coal-fired power generation (the Central Java Project, 2 GW). This is J-POWER’s first project for new coal-fired power development, and it will be a high-efficiency, low-environmental-impact plant that uses domestically produced sub-bituminous coal. (See p. 58.)