

Part 1

Supporting the Sustainable Development of Japan and the Rest of the World

- Helping Ensure the Stable Supply of Electricity_25
- Developing Technologies for Stable Power Supply_27
- Supporting the World's Sustainable Development_29
- Initiatives as a Global Citizen_31

Part 2

Enhancing Communication

- Close-up** Harmony between the J-POWER Group and Society_33
- Promoting Business Activities_35
- Developing Human Resources and Creating a Dynamic Workplace_37

Social Responsibilities

Fiscal 2008 Highlights

J-POWER Group Approach to Social Contribution Activities

P. 33

The J-POWER Group Approach to Social Contribution Activities has been established to facilitate ongoing active and effective implementation of social contribution activities befitting the J-POWER Group.

1 Supporting the Sustainable Development of Japan and the Rest of the World

The J-POWER Group supports the sustainable development of Japan and the rest of the world through a wide range of activities at home and abroad that are rooted in electric power.

Helping Ensure the Stable Supply of Electricity

The J-POWER Group produces electricity at hydroelectric, coal-fired thermal and wind power stations throughout Japan and transmits it through its power transmission and substation facilities, supporting people in their daily lives. Backed by a highly trustworthy technical capability built up over a half-century of development and operations, it will continue to supply electric power in a stable and efficient manner, bringing peace of mind to people's daily lives.

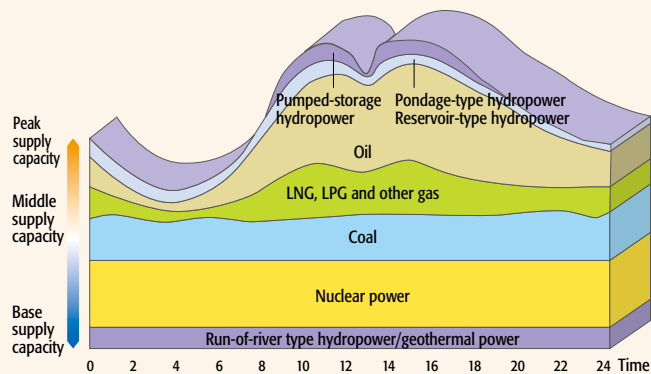
TOPIC.1 Fulfilling Our Commitment to Stable Supply

Drawing on Different Power Sources to Help Ensure Stable Power Supply

Electricity demand varies substantially throughout the day, with different amounts used during daytime and at night, as well as over the course of the year, as demand in summer and winter, when use of electrical cooling and heating tends to be heavy, differs from spring and fall when use is lighter. Since electricity cannot be stored, power utilities like J-POWER combine and coordinate various power sources—hydropower, thermal, nuclear, etc.—in an optimal balance to meet these constant fluctuations in demand and provide stable supplies of power.

As Japan's largest wholesale power company¹, J-POWER owns domestic power generating facilities with total output capacity of 16.39 GW, as of March 31, 2009, giving it a market share of approximately 7 percent. The electric power generated by these facilities, together with power generated by other Group companies, is delivered to consumers via general electric utilities² throughout the country.

Drawing on Different Power Sources to Match Daily Electricity Demand



TOPIC.2 Unifying Electric Power in Japan

J-POWER's Transmission lines and Converter Stations Help Distribute Power Throughout Japan

J-POWER owns and operates approximately 2,400 kilometers of transmission lines and eight substations and converter stations that link Japan's disparate regional power companies together. In this way it plays a major role in the overall operation of Japan's electricity grid. It also operates essential facilities that support power transmission over a wide area in Japan, including extra-high-voltage transmission lines that connect Japan's main island of Honshu with the other main islands of Hokkaido, Shikoku, and Kyushu, and the Sakuma Frequency Converter Station, the first facility in Japan that has made possible the transmission of electricity between the differing frequencies of Eastern Japan (50 Hz) and Western Japan (60 Hz) (see p. 3).

Additionally, 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.

At the same time, stable grid operations are supported by remote monitoring and operations that utilize the latest in information technology. Our communications network includes highly reliable microwave radio circuits, fiber-optic cables and other cutting-edge components.



Central Load Dispatching Center



Sakuma Frequency Converter Station (Hamamatsu)

key word

¹ Wholesale Power Company

A company with power generating facilities in excess of 2.0 GW that supplies electricity to general electric utilities (10 electric power companies).

² General Electric Utility

A company that supplies electricity to meet general demand. Japan's ten regional power companies are general electric utilities.

Facilities Maintenance and Technology Transmission

The J-POWER Group possesses various facilities in fields such as power generation, power transmission, transformation of electrical energy, telecommunications, civil engineering, and construction. To ensure stable supplies of power, it conducts high-quality facilities maintenance to maintain facility functions, prevent accidents and other incidents before they can occur and minimize environmental load. These maintenance activities help stabilize the power grid and ensure stable supplies of electric power throughout the country.

Efforts are being made to pass down facilities maintenance skills that have been accumulated through work in these various fields through on-the-job training³ and training programs conducted at training centers and other locations, with the goal of developing personnel and raising technical skill levels.

Ensuring Stable Facility Operations

In addition to 24-hour monitoring of power generation facilities, the J-POWER Group works to detect equipment abnormalities as early as possible through daily patrols and strives to maintain reliability and prevent accidents and other incidents via such measures as regular overhaul inspections of facilities.

Also, because transmission and substation facilities are located in various environments, from mountainous regions to urban cities, and subjected to harsh natural conditions such as wind, snow, lightning, and sea salt contamination, surroundings must be taken into account when addressing aging facilities and changes in local environments.

For example, undersea DC cable connecting Hokkaido and Honshu and large-capacity cable linking Honshu and Shikoku, which crosses a bridge connecting the two islands (Seto-Ohashi Bridge), must be managed while taking into account two extreme locations, the bottom of the ocean and the top of a bridge. Recently, J-POWER has worked to make its DC facilities connecting Hokkaido and Honshu more functionally advanced and reliable by upgrading control equipment and other components.



Tadami Main Transmission Line (Gunma Prefecture)

In addition, J-POWER strives to promptly and accurately respond to emergency situations and has conducted the following measures to prepare for the event of a natural disaster or accident.

- 1) Establishment of information contact routes with regions where its power generation and substation facilities and transmission lines are located
- 2) Operation of a mutual assistance structure with all related units
- 3) Stockpiling of supplies for post-accident recovery
- 4) Training for dealing with accidents

Improving and Passing Down Technical Skills

The J-POWER Group works to improve and pass down technical skills accumulated in various fields, including facilities maintenance.

In order to maintain stable operations at hydropower and thermal power facilities, the Hydropower Division's Kawagoe Training Center in Saitama Prefecture and the Thermal Power Division's Thermal Power Training Center in Kitakyushu City conduct technical training aimed at maintaining and further developing the practical capabilities of operators and onsite maintenance staff through the use of simulators and other training tools. In the IT & Telecommunications Division, the information technology training facility in Saitama Prefecture is equipped with microwave telecommunications systems and other devices used on actual communications networks. The facility conducts practical technical training to sharpen response capabilities, including training for maintenance workers on how to respond to malfunctions. In the Civil Engineering Division, 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.



On-the-job training in session



Thermal Power Training Center (Kitakyushu City)

PERSON

Shigenori Suzuki Planning Group, Energy Business Department

Securing Stable Supplies of Coal

The J-POWER Group holds stakes in four Australian coal mining projects for the purpose of further stabilizing long-term procurement of steam coal⁴ for consumption at J-POWER's coal-fired power stations around the country.

However, due in part to the upcoming closure of the Blair Athol Coal Mine, a key project among the four, we are faced with the need to diversify our portfolio by acquiring stakes in new mines. We are

therefore currently considering acquiring additional interests primarily in Australia, which boasts extensive coal reserves, a favorable investment environment and other advantages.

We will continue involvement in premier coal mines while paying attention to mine cost competitiveness, the coal supply-and-demand balance and competitor activity.



³ On-the-Job Training
Educating and training employees through actual work at the workplace.

⁴ Steam Coal
Coal used for power generation. J-POWER imports some 20 million tons of coal a year and is one of the largest consumers of steam coal in Japan.

Developing Technologies for Stable Power Supply

The J-POWER Group develops technologies to protect hydropower facilities, thermal power stations, wind farms and other facilities from natural disasters and accidents and to continue to deliver safe and stable supplies of electric power.

TOPIC Ensuring Safe, Secure Power Facility Operations

We are developing technologies for ensuring stable power supplies.



Technology Development Center Chigasaki Research Institute (Kanagawa Prefecture)

Akira Fukuhara
Director, Chigasaki Research Institute

The Chigasaki Research Institute, one of J-POWER's Technology Development Centers, was established in 1960 as a civil engineering testing center to support large-scale hydropower development and has grown in close step with J-POWER's history of development projects. The institute currently conducts a variety of research aimed at solving technical issues associated with the construction, operation, maintenance and management of hydro, thermal and wind power facilities. It seeks to pioneer the frontiers of both energy and the environment.

Recently, the institute has been actively involved in developing technologies for mitigating or adapting to environmental problems. Research is focused on rainfall and inflow forecasting technologies to help make dam operations safer, developing high-efficiency combustion technologies for coal-fired thermal power stations, and raising the value of renewable energies such as wind and solar. The institute is committed to improving technologies necessary for continuing to operate power facilities safely and securely.

Supporting safe dam operations

● Development of Rainfall and Inflow Prediction System

Abnormally heavy rainfall and flooding has been increasing in frequency across Japan due to global climate change. The Chigasaki Research Institute is involved in refining technologies for predicting rainfall and river inflow to raise safety levels of dam operations and ensure safe watershed areas. Forecasting precision is being improved by combining predictions based on Japan Meteorological Agency statistical models with methods for forecasting rainfall in the near future based on cloud movement observed by radar. We are also developing precision forecasting models for river inflow. Watershed areas are subdivided based on Digital National Land Information^{*1} and environmental factors such as plant life are incorporated into models for each subregion.



Rainfall and Inflow Prediction System

key word

*1 Digital National Land Information

A database developed by the Ministry of Land, Infrastructure, Transport and Tourism for the establishment and promotion of national land projects. The database includes numerical data on topography, land use and other geographic features.

Protecting Facilities from Major Earthquakes

● Improving Seismic Technologies for Power Facilities

Protecting power generation facilities from major earthquakes is an essential part of ensuring stable power supplies. Various seismic design standards and guidelines were revised following the Kobe earthquake of 1995. Dam structures on rivers now must also be inspected for seismic performance in the event of a major earthquake.

The Chigasaki Research Institute is involved in developing practical, rational methods for checking seismic performance against major earthquakes for dams and connected structures (flood gates,¹² etc.). It conducts experiments with a large underwater vibration platform, onsite vibration measurements and data analysis.



Vibration experiment using a large underwater vibration platform

Support for Stable Operations at Power Facilities

● Improving Power Grid Analysis Technology

Continuing stable operations at power facilities and maintaining power quality—voltage, frequency, etc.—during lightening storms and other scenarios is a major part of ensuring the stable supply of electricity. The Chigasaki Research Institute tests and analyzes control operations for power source facilities, DC conversion stations and other facilities using power grid analysis simulators, including analog simulators and real-time digital simulators. These grid analysis technologies are being improved in an effort to raise the operational reliability of facility control systems.



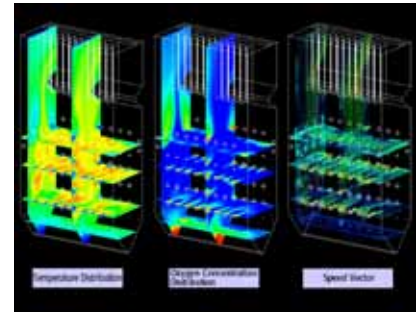
Power grid analysis simulator

Support for High-Efficiency Power Generation

● Development of Advanced Combustion Control Technologies

Almost all of J-POWER's thermal power stations are pulverized coal-fired power stations. Combustion control technologies are extremely important in keeping pulverized coal boilers operating stably, efficiently and economically. The Chigasaki Research Institute has developed a high-precision method for estimating the kinetic parameters of char oxidation (patent pending) that previously had not been included in combustion simulations.

The new method raises the sophistication of combustion simulation models. Application of the technology makes it possible to precisely predict temperature, oxygen concentration and speed vectors within the boiler when there are changes in coal type or operating conditions.



Boiler Combustion Simulation Example

Realizing High-Efficiency Fuel Cell Power Generation

● Development of an SOFC System

Fuel cell power generation produces electricity through an electrochemical reaction between hydrogen and oxygen. Electric energy is derived directly to deliver high generating efficiency with less energy loss. We are focused on solid oxide fuel cells (SOFC), which are operational under high temperatures and exceptionally durable, and are working to develop an SOFC system with a view to future application to large-scale power projects. Pilot testing using an SOFC cogeneration system (SOFIT) is being conducted to validate SOFC systemization technologies and long-term reliability.



SOFC cogeneration system

¹² Flood Gate

A gate that allows water that cannot be held safely by a dam during flooding to flow safely downstream.

Supporting the World's Sustainable Development

The J-POWER Group carries out international consulting and overseas electric power projects based on technologies and expertise cultivated in domestic operations. International consulting is provided in connection with designing power stations and supervising their construction work, environmental impact assessments, desulfurization and denitrification technology transfers, and promoting energy conservation. For overseas electric power projects, we promote hydropower, gas-turbine combined-cycle generation, and biomass plants. Through these activities we contribute to the world's sustainable development.

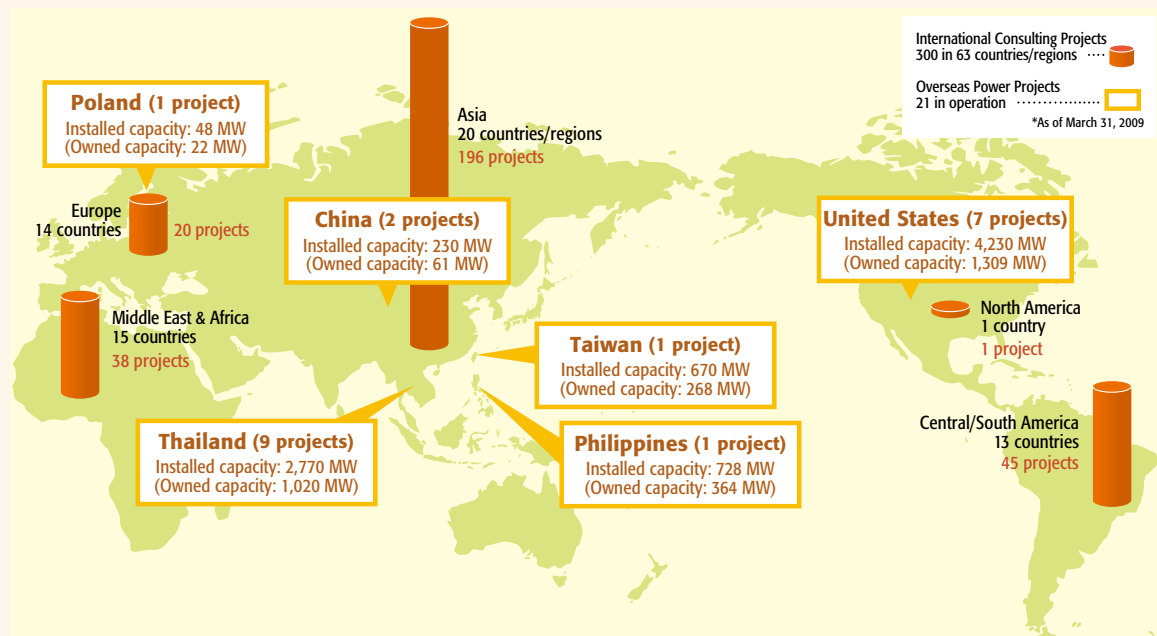
TOPIC Overseas Operations

International Consulting and Overseas Power Generation

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. Our track record in consulting over the nearly 50 years since stands at 300 total projects in 63 countries/

regions as of the end of fiscal 2008.

Moreover, we are involved in 21 overseas power projects in six countries/regions, mainly Southeast Asia, the U.S. and China. Our stake in power generated by these projects amounts to some 3.04 GW.



Promoting Overseas Power Projects

Responding to the worldwide trend toward privatization and deregulation of the electric power industry, the J-POWER Group is involved in a wide range of projects overseas. At the same time, we are applying domestically developed technologies for high-efficiency thermal power generation and environmental measures in projects designed to support economic growth without sacrificing the environment.

We initiated operations at Kaeng Khoi 2 Gas-Fired Thermal Power Station (gas combined cycle) in Thailand in 2008, participated in the Xinchang Coal-Fired Thermal Power Project in China, acquired stakes in the Birchwood thermal power station and three other gas-fired thermal power stations in the U.S. and acquired equity in the Nhon Trach 2 gas-fired thermal power station in Vietnam. These initiatives are intended to improve power supply conditions and facilitate

economic development in their respective countries.

In addition, through operations at Thailand's Roi-Et Rice Chaff Thermal Power Station and Yala Biomass Station, which uses waste from rubber-wood sawmills as fuel, we are contributing to the effective use of untapped resources and CO₂ emissions reduction.



Kaeng Khoi 2 Gas-Fired Thermal Power Station (Thailand)

International Consulting

For many years we have drawn on technologies nurtured in the J-POWER Group's Hydropower Division to supervise construction work in hydropower station projects and conduct other initiatives aimed at helping countries develop hydropower, a renewable energy source. Major projects currently underway include Upper Kotmale and Victoria in Sri Lanka and Son La SV in Vietnam.

We have also worked to widely share environmental technologies and expertise in high-efficiency operations accumulated as Japan's largest supplier of coal-fired thermal power. In addition, we are committed to pursuing effective energy conservation measures as a way to reduce CO₂ emissions, and have been involved in studies since August 2007 on promoting energy conservation in Indonesia, Sri Lanka and Vietnam. The studies are surveying socioeconomic conditions and energy consumption and demand trends in the countries. Policies for promoting energy conservation suited to each country's circumstances are formulated while drawing on our experience and expertise. The initiative is intended to further strengthen energy conservation programs and systems and enhance the technical skills of electric power professionals. We believe it will help stabilize energy supplies and lighten the environmental load in the decades ahead.



Victoria Dam (Sri Lanka)

Looking Ahead: Expanding Operations While Supporting Sustainable Development

In our international consulting business, we take part in electric power projects that leverage J-POWER's technological expertise, including ODA^{*1} projects. We also plan to expand our operations to private development projects and other areas.

Coal-fired thermal power faces a number of challenges, from the problem of sulfur oxide (SO_x) and nitrogen oxide (NO_x) emissions at the regional level to the global issue of CO₂ emissions. Nonetheless, coal-fired thermal power is expected to remain an indispensable energy source underpinning economic growth in China, India, and elsewhere in the world. Given this, we believe it is important to reduce environmental load by using advanced technology and raising generating efficiency. We are currently involved in a wind power project in Poland and biomass power generation in Thailand, and we intend to build on these achievements to branch out into new domains.

In a world where stable supplies of energy and the fight against global warming are increasingly urgent priorities, our aim is to contribute to global sustainable development while transferring technology to other countries through consulting and power generation operations, in keeping with the mission articulated in our corporate philosophy of ensuring constant supplies of energy to contribute to the sustainable development of Japan and the rest of the world.

>>> Recent Major Consulting Projects

Country	Project	Type	Description
Sri Lanka	Upper Kotmale Hydroelectric Power Project	Hydropower	Bidding support and construction supervision for dam and power station
Costa Rica	Pirris Hydropower Project	Hydropower	Detailed design and construction supervision for dam and power station
Uzbekistan	Tashkent Thermal Power Plant Modernization Project	Thermal	Construction of power station to promote efficient use of Uzbekistan's natural gas and reduce environmental load
Sri Lanka	Colombo Transmission and Substation Development Project	Power transmission and transformation	Construction of additional substations, establishment of new distribution lines, installation of remote monitoring and control systems, etc.
Myanmar	In-House Consulting Project	Hydropower	Construction of Kyeon Kyeewa Dam and eight other dams/power stations
Cambodia	Mondol Kiri Micro-Hydropower Project	Hydropower	Construction of three micro-hydropower stations and other facilities
Vietnam	Son La SV	Hydropower	Construction of hydropower station and reservoir upstream from existing hydropower station
Indonesia	Energy Conservation Promotion Study	Energy conservation	Measures to promote sustainable energy conservation initiatives
Indonesia	Keramasan Thermal Power Station Expansion Project	Thermal	Construction of 80,000 kW combined cycle power station in Keramasan
Vietnam	Nghi Son Thermal Power Plant Project Phase 1	Thermal	Construction of power station fueled by anthracite coal
Sri Lanka	Energy Conservation Promotion Project	Energy conservation	Measures to promote sustainable energy conservation initiatives
Vietnam	Study for Energy Conservation Promotion Master Plan	Energy conservation	Creation of roadmap and action plan for promoting energy conservation
Brunei	1 MW Solar Power Plant Project	Solar	Procurement support and construction supervision for solar power facility
India	Thermal Power Efficiency Improvement Project Study	Thermal	Project to improve the efficiency of India's thermal power stations

*1 ODA Official Development Assistance

Aid and investment provided by industrialized countries and government bodies to developing countries for the sake of international contribution

Initiatives as a Global Citizen

The J-POWER Group has been involved in a large number of overseas projects to develop power generation facilities and other forms of social infrastructure through its overseas operations. In addition to contributing to the global community through such infrastructure development projects, the J-POWER Group also engages in community-based social action programs while leveraging the experience and networks it has built up overseas.

TOPIC Bringing J-POWER Group Expertise in Coal-Fired Thermal Power to China

J-POWER leverages its expertise in advanced coal-fired thermal power generation to promote high-efficiency energy use and reduce environmental load.



Xinchang Coal-Fired Thermal Power Station under construction (China)



Liang Ping

China Business Development Office, International Business Management Department

China's high economic growth has resulted in the annual addition of 60–100 GW in new power sources every year since 2002, the majority of which are coal-fired thermal power stations. Many of the power stations in operation are small-scale facilities with output of 100,000 kW or less, meaning generating efficiency is low and environmental measures tend to be less than adequate.

The Chinese government has adopted a policy of constructing large-scale power stations and eliminating smaller facilities in order to improve this situation. It is currently promoting installation of ultra super critical (USC) power plants as well as desulfurization and denitrification systems to meet its objectives of converting to high-efficiency power generation and reducing the environmental load for China as a whole.

The J-POWER Group has been involved in consulting, training, inspection, technology exchange and other initiatives with a number of power companies in China for over 30 years. As a result, for China's second thermal power investment project, we have been selected to construct a coal-fired thermal station (two 660,000 kW units) using USC technology in partnership with Chinese firms. Utilizing our expertise in advanced coal-fired thermal power generation is expected to ensure stable plant operations.

Countries may have borders, but environmental problems are borderless. People living on this same earth must build the earth's future together. We intend to continue striving to make maximum use of the J-POWER Group's expertise in environmental preservation measures, in China and around the globe.

Accepting Trainees to Promote Energy Conservation

J-POWER is currently engaged in energy conservation promotion projects in Indonesia, Sri Lanka, Vietnam and Turkey on commission from the JICA.^{*1} As a part of this initiative, we conducted training in November 2008 and January 2009 for officials involved in formulating energy conservation policy in Indonesia and Sri Lanka.

The training course, which consisted of lectures and onsite training, conveyed Japan's policies and technologies as a leading nation in energy conservation as well as some of J-POWER's accumulated technologies and expertise.

We will continue to promote energy conservation as a

part of the global effort to bring about sustainable development by furthering energy conservation and creating socioeconomic structures that consume energy highly efficiently.



Training for JICA trainees

key word

*1 JICA: Japan International Cooperation Agency

JICA is a government agency under the jurisdiction of the Ministry of Foreign Affairs. It is one of the agencies in Japan involved in implementing Official Development Assistance (ODA). Its objectives are to contribute to economic and social development in developing regions and other areas and promote international cooperation.

Job Training in the Philippines

CBK Power Company Limited (CBK) is a hydropower company with an output of 728 MW that is located in Laguna Province about 100 kilometers southeast of the Philippine capital of Manila. J-POWER has a 50 percent stake in the company.

Since its establishment in 2001, CBK has made a wide variety of contributions to Filipino society. These have included improvements to public facilities in five local municipalities, dispatching medical professionals to provide assistance, providing medical supplies, and establishing a scholarship program. These activities by CBK are highly regarded locally and have earned many positive comments in surveys of local residents.

As a part of its community involvement, the company refurbished a building on the premises of its plant and is running a job training program in order to help expand employment opportunities. This is the largest need of the local region, which depends heavily on agriculture and lake fisheries and is lacking in industrial development.

Job training is conducted with grants from the Ministry of Health, Labour and Welfare through the Overseas Vocational Training Association, based on a framework established by the Asia-Pacific Economic Cooperation. The program also receives assistance from the Philippines' Technical Education and Skills Development Authority.

The program is comprised of the following four courses.

- 1) Beginning welding
- 2) Advanced welding
- 3) Basic electronics
- 4) Building wiring and electrical appliance installation

We sincerely hope that the young people who undergo training will utilize the skills they have learned to acquire employment and make contributions in various fields.



Working on radio assembly as a part of the basic electronics course

Support for Local Elementary Schools in China

The Tianshi Power Plant in Shanxi Province, China is a waste coal-fired thermal power station established by J-POWER together with Chinese partners. The power station is located in a coke producing region, and illegal dumping of coal debris given off by coke production had caused deterioration in local environmental conditions, which had become a problem for the region. J-POWER's decision to participate in this project was driven in part by the fact that the power station would effectively use low-grade coal and coal waste as fuel.

The power station was established as a comprehensive utilization type power generation project designed to conserve and effectively use resources in an environmentally sensitive manner. It was the first power station of its kind in China involving foreign capital. The power station has been operating smoothly since it came online in May 2001.

We work to provide stable supplies of electricity through operating such power stations and consider how we can give back to the regions where they are built.

● Support for Neighboring Elementary Schools

Like Japan, China has established an official "Children's Day," which falls on June 1 of each year. There are four towns in the vicinity of the Tianshi Power Plant and they each have elementary schools. To help celebrate Children's Day, every year since fiscal 2005 the Tianshi Power Plant has invited children from one of the local schools to the facility for a tour, Q&A and other activities. The power station also donates school supplies to the other schools in order to contribute to the communities in the area. The power station's entryway features drawings of the facility made by the children, which is a great source of enjoyment.

We intend to actively continue these activities and continue working together with local communities.



Local elementary students on a tour of the power station