J-POWER Group

SUSTAINABILITY REPORT 2008

Harmonizing energy supply with the environment

J-POWER Group

Corporate Profile (As of the end of March 2008)

Founded (J-POWER) September 16, 1952

Employees Group total 6,524
(including 2,201 parent company employees)

Main business activities

- Wholesale power supply (J-POWER)
  - Hydropower stations 59 Total output 8.56 GW
  - Thermal power stations (including geothermal) 8 Total output 7.82 GW
  - Transmission lines (total route length) 2,408 km
  - Customers 10 general electric utilities (regional power companies)
- Other electricity business
  - Wind farms 8 Total output 0.21 GW
  - Wholesale power supply to general electric utilities via independent power producers (IPP) 1 Total output 0.13 GW
  - Wholesale power supply to power producers and suppliers (PPS) 2 Total output 0.22 GW
- Ancillary business related to electricity
  - Design, construction, and maintenance of electric power facilities, supply of fuel for power generation
- Diversified business
  - Investment in overseas power generation projects and new energy businesses such as power generation from waste materials in Japan

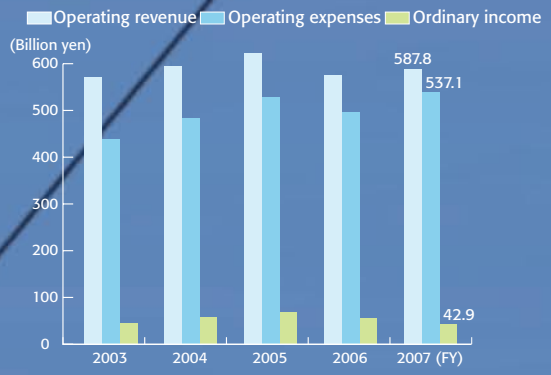
Total sales (consolidated basis) 587,800 million yen
Revenue from electricity supply 531,800 million yen

J-POWER Group

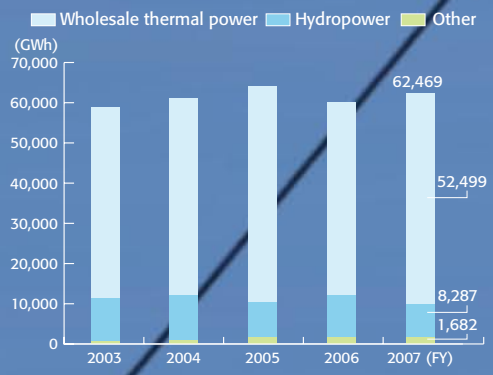
(J-POWER and consolidated subsidiaries, as of the end of March 2008.)

J-POWER was founded as an electricity wholesaler by the Japanese government in 1952 and is the only company with a nationwide network of transmission and substation facilities playing a key role in the generation and supply of electricity throughout Japan. Since its establishment J-POWER has contributed to economic growth and the improvement of everyday life in Japan by providing moderately priced and stable electricity supply to general electric utilities (10 regional power companies). The company was fully privatized in October 2004.

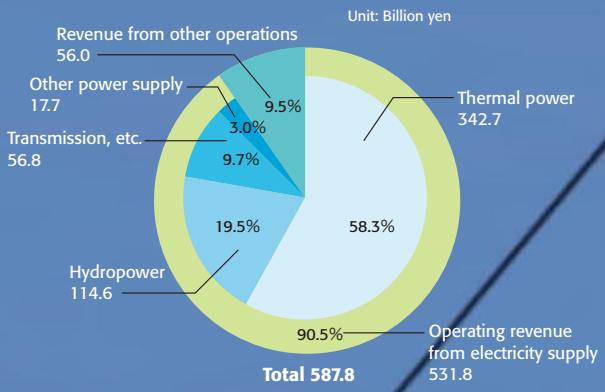
Main Business Indicators (Consolidated basis)



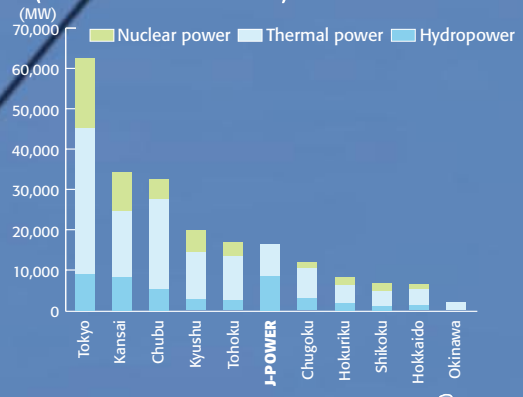
Electric Power Sold



Breakdown of Consolidated Sales (FY 2007)



Output of J-POWER and 10 Electric Power Companies (As of the end of March 2008)



Business Outline

Facilities in Japan (As of the end of March 2008)

Note: The group also has dedicated communication facilities, and there are facilities owned by group companies.

Overseas Operations

(As of the end of March 2008)

Contents

01 J-POWER Group Business Outline
03 Contents, Editorial Policies
04 J-POWER Group's Corporate Social Responsibility
05 Message from the President

Special Feature 1
07 Achieving Safe, Sustainable Use of Nuclear Energy

Special Feature 2
09 Fulfilling Our Commitment to Stable Supply

Special Feature 3
13 Making Coal Use Compatible with Measures to Counter Global Warming

Management

19 Corporate Governance
20 Emergency Management
21 Compliance
23 Information Security Activities

Environment

Environmental Management

25 Environmental Management Vision
27 Targets for the J-POWER Group's Action Program
29 Business Activities and the Environment (Fiscal 2007)
31 Environmental Accounting and Eco-efficiency

Efforts Relating to Global Environmental Issues

33 Four Strategies to Fight Global Warming
CO_2 Emissions from Business Activities
34 Maintenance and Improvement of Energy Use Efficiency
35 Development of Low-CO_2-Emission Power Sources
37 Development, Transfer, and Dissemination of New Technologies
39 Utilization of the Kyoto Mechanisms and Other Measures
41 Reduction of Emissions of Greenhouse Gases Other Than CO_2
42 Efforts to Reduce Environmental Load during Distribution
Stepping Up Energy Conservation at Our Offices

Efforts Relating to Local Environmental Issues

43 Reduction of Environmental Load
45 Management of Chemical Substances
46 Functioning in Harmony with Nature
48 Establishing a Sound Material-Cycle Society
50 Environmental Recycling Program
Environmental Infrastructure Operations
51 Supporting the World's Sustainable Development

Ensuring Transparency and Reliability

53 Continual Improvement in Environmental Management

Social Responsibilities

57 Ensuring the Stable Supply of Electricity
59 Harmony with Society
63 Developing Human Resources and Creating a Dynamic Workplace
67 Business Partner Relations

External Evaluation and Outside Opinions

68 Roundtable Discussion with Distinguished Experts
71 Readers' Opinions
72 Third-Party Review

References

74 Overview of Compliance Code; Fiscal 2008 J-POWER Group Environmental Action Guidelines
75 Fiscal Year Data
77 Treaties and Laws Relating to Global Warming
81 Glossary
84 J-POWER: Main Business Sites and Significant Consolidated Subsidiaries

Editorial Policies

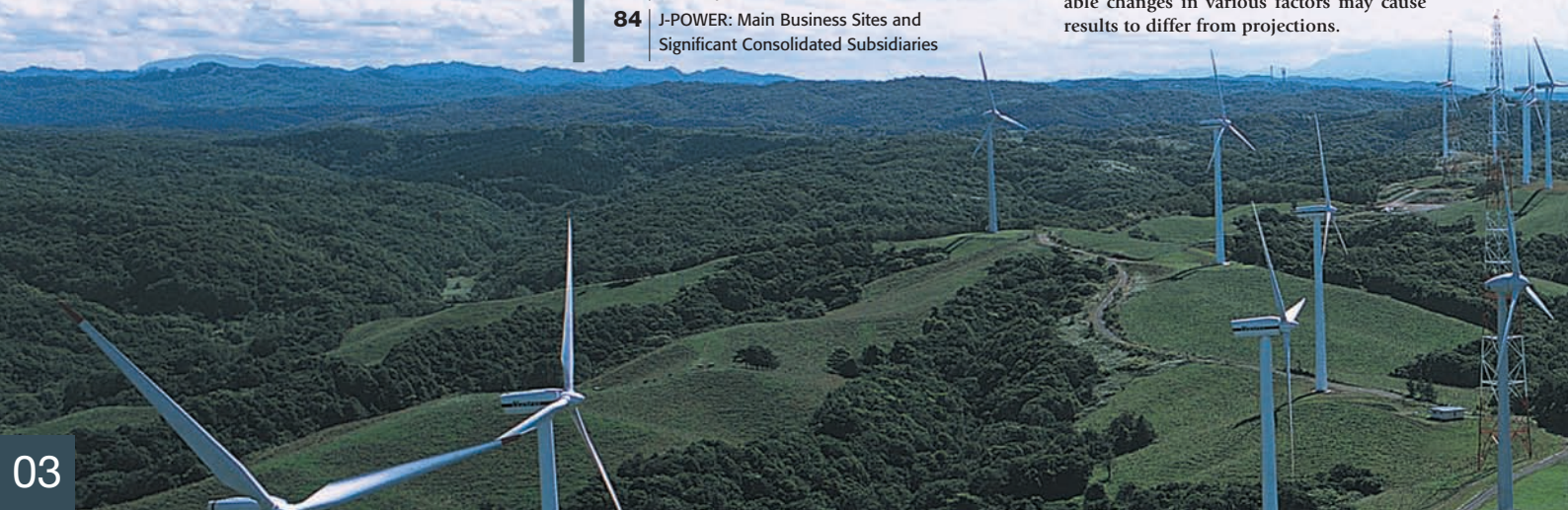
- The J-POWER Group operates under its corporate philosophy of contributing to the sustainable development of Japan and the rest of the world. Accordingly, this report is titled *Sustainability Report* to express our intention of achieving sustainable growth and development of both the Group and society. It summarizes and reports on J-POWER's corporate activities under the headings of Management, Environment, and Social Responsibilities.
- This report includes all consolidated subsidiaries and is representative of the entire J-POWER Group.
- Key issues of the J-POWER Group have been listed in the Special Features section with the aim of clearly identifying them.
- All data (inputs and outputs) on "Business Activities and the Environment" have been calculated for the J-POWER Group as a whole. Joint investments have been calculated according to the investment ratio.
- To ensure objective credibility, this report has been independently evaluated by Ernst & Young ShinNihon Sustainability Institute Co., Ltd. (see page 72 for details).
- Opinions on issues that exist toward the fulfillment of J-POWER's corporate social responsibilities have been drawn from a wide spectrum of experts, researchers, and journalists with the goal of improving corporate management so that it may contribute to building a sustainable society and of increasing the reliability and transparency of our operations.
- This report is also available at J-POWER's website as "J-POWER Group Sustainability Report 2008." Information on business plans and financial data are provided in its Annual Reports.

WEB http://www.jpower.co.jp/english/

Period covered: April 2007 to March 2008 (some items include information pertaining to April 2008 and beyond)
Scope: J-POWER and J-POWER Group companies (consolidated subsidiaries) Where data applies only to J-POWER, or includes Group companies, this fact is noted in the text.
Guidelines referred to:
Ministry of the Environment, Environmental Reporting Guidelines: Fiscal Year 2007 Version
Global Reporting Initiative (GRI), Sustainability Reporting Guidelines 2006
Report issued since: 1998
Next report due: July 2009 (tentative schedule)

Note concerning forecasts

The plans, strategies, and forecasts set out in this report have been formulated based on currently available information. Unforeseeable changes in various factors may cause results to differ from projections.



J-POWER Group's Corporate Social Responsibility

Our corporate philosophy calls for ensuring constant supplies of energy to contribute to the sustainable development of Japan and the rest of the world. This is fundamental to our ongoing efforts to deliver efficient, reliable electricity while protecting the environment. It is this corporate philosophy that forms the basis of our social responsibility.

The J-POWER Corporate Conduct Rules have been laid down as standards for the conduct of business grounded in our corporate philosophy. Individual Group companies also have policies relating to their own responsibilities to society. We endeavor to fulfill our corporate social responsibility by adhering to our corporate philosophy and Corporate Conduct Rules as we press forward in our operations.

J-POWER Group Corporate Philosophy

Established September 11, 1998

We aim to ensure constant supplies of energy to contribute to the sustainable development of Japan and the rest of the world.

Sincerity and pride underlie all our corporate activities.

We build community trust by harmonizing our operations with the environment.

Profits are a growth source, and we share the benefits with society.

We continuously refine our knowledge and technologies to be a leader in these areas.

We meet the challenges of tomorrow by harnessing our unique skills and enthusiasm.

J-POWER Group Corporate Conduct Rules

Established January 1, 2001

Reliable supply of energy
We will put forth every effort to reliably supply energy both in Japan and abroad utilizing our experienced personnel and cutting-edge technology.

Safety assurance
In conducting operations we will constantly work to raise safety awareness and give the highest priority to public and worker safety.

Environmental protection
Based on an awareness that our business operations are deeply linked with the environment, we will actively engage in environmental protection activities.

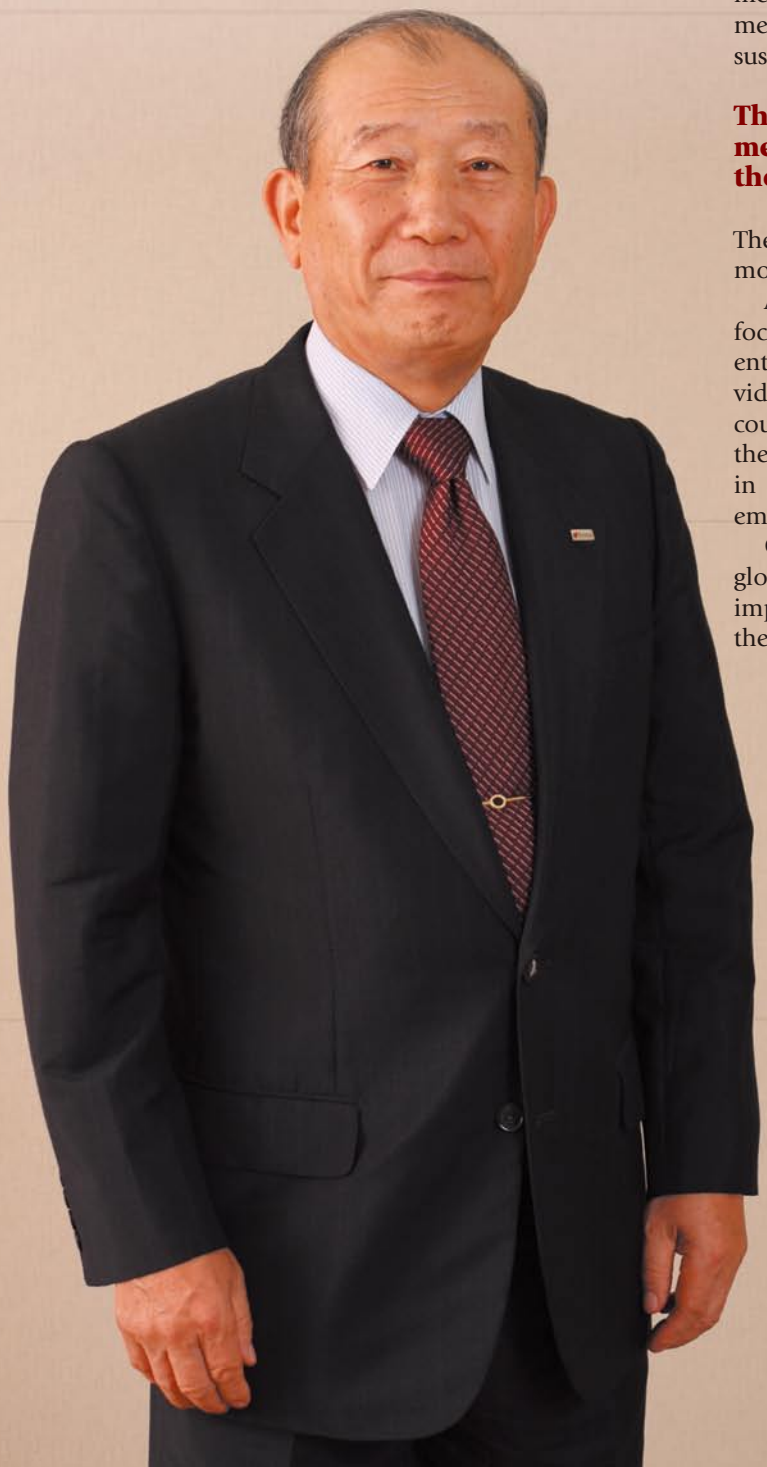
Communication with society
To establish communication with society we will conduct information disclosure and public relations activities in a fair and transparent manner.

Contribution to society
Aiming to be a good corporate citizen we will undertake activities to contribute to society and assist in the development of local communities both in Japan and abroad.

Creation of a rewarding corporate culture
In addition to providing safe and comfortable work environments, we will respect the individuality of our employees and endeavor to establish a rewarding corporate culture that encourages them to take on new challenges.

Compliance with laws, regulations, and corporate ethics
We will conduct business in good faith and in a fair manner with a strong commitment to compliance and ethics. We will stand firm against anti-social forces that undermine the order and security of civil society.

Role of top management
Recognizing their responsibility in putting into practice the spirit of these Corporate Conduct Rules, our top management must set an example for others and work to spread awareness of these Rules. Should an event occur that violates the spirit of these Rules, top management must take the initiative in dealing with the problem to determine the causes and prevent recurrence. Top management must also identify and take disciplinary actions against those responsible, including themselves.



Aiming for sustainable growth and development of society and the company

The J-POWER Group's corporate philosophy calls for the provision of reliable supplies of energy to support sustainable development in Japan and the world as a whole. On that basis we endeavor to ensure the efficient and stable supply of electricity necessary for daily life and for economic activity. This corporate philosophy is the wellspring of our social responsibility as a company.

In the supply of electricity, we are facing deepening environmental problems such as global warming that arise because of the environmental load imposed by the consumption of energy resources. We position "harmonizing energy supply with the environment" as a major management goal, and toward this goal we are endeavoring to ensure the harmony of our business practices and the environment and contributing to the sustained development of society while striving to achieve our own sustained growth.

The compatibility of coal use and measures to counter global warming is the most important issue

The year 2008 is a crucial one for our quest to harmonize energy supply with the environment.

Amid the increasing attention that is being focused on global warming, this year we have entered the first five-year commitment period provided for the Kyoto Protocol, which prescribes countermeasures to address the problem. We are therefore in a phase during which tangible results in such areas as the reduction of carbon dioxide emissions are under close scrutiny.

Given the global growth in energy demand, global warming is exerting an increasingly serious impact on the Earth's environment, as reports by the Intergovernmental Panel on Climate Change have pointed out, and it must be addressed urgently. In Japan, stepped-up efforts to save energy are being called for in industrial activity, in commerce, and in the residential sector.

Among fossil fuels, coal is the most abundant and in stable supply, and demand for it is expected to continue growing, particularly among developing countries. With regard to coal use, measures to reduce carbon dioxide with the aim of achieving zero emissions have

become an important issue globally. Since the J-POWER Group is one of the largest users of coal in Japan, and a leading company in the sphere of coal utilization, it is incumbent on us to tackle this issue on a global scale.

Today we are confronted not only by global warming but by significant change in our management circumstances. The structurally slow pace of growth in electric-power demand, in which the decline in the Japanese population is a long-term determinant, is becoming a reality. In addition, the steep worldwide increases in the prices of oil, natural gas, and other resources in recent years are also encompassing coal, casting a pall of uncertainty over the outlook for all resources in terms of both quantity and price, and creating a harsh environment that demands greater management effort and attention to risk.

In spite of this management circumstances, we recognize that we have a responsibility to society to resolve the global issue of ensuring the compatibility of coal use and measures to counter global warming. Cognizant of this, we will persist with our efforts to achieve a comprehensive resolution of the issue, and as appropriate we will release relevant information.

Aiming to achieve and spread technological innovation

We are developing a multifaceted, multilateral approach to the conquest of global warming. We have been maintaining and enhancing the energy efficiency of existing power generation facilities, at the same time developing power sources with low carbon dioxide emissions, including the Ohma Nuclear Power Station, on which construction started on May 27. We have also been implementing measures that utilize the Kyoto Mechanisms.

At the core of these countermeasures lie the development and diffusion of innovative technologies. To ensure the drastic reduction of carbon dioxide emissions over the medium to long term we are working tenaciously on innovations such as technologies for the radical enhancement of power-generation efficiency and CO_2 zero-emission technologies. We also aim to share the fruits of these innovative technologies both within Japan and overseas.

Keeping you informed

For the J-POWER Group to develop as a company that will remain an enduring presence in society, it is important to deepen our partnership with broader society.

To that end it is essential that we remain constantly alert, so that we may gain an accurate and early understanding of what society demands of us. In parallel, it is essential that we disclose information to all our stakeholders in a fair and timely manner, helping them to understand our business activities and gaining their support. Indeed, the key reason for the publication of this corporate report is to enable us to deliberate with you on the question of the compatibility of energy production and the environment, publicizing our thoughts and the efforts we are making and seeking your opinions and criticisms in return. Based on that, we will respond to your hopes and expectations.

The development of a sustainable society and the sustained development and growth of companies are interdependent. The goal of the J-POWER Group is to achieve sustainable development and growth both for society and for ourselves, and to reflect that we are publishing this corporate report and are calling it our *Sustainability Report*. I hope sincerely that you will give us your frank opinions about it.

中垣喜彦

Yoshihiko Nakagaki

President

Message from the President

Fulfilling social responsibility and pursuing sustainable development and growth both for society and the company, based on our corporate philosophy

Through energy business premised on the harmonization of energy supply with the environment, the J-POWER Group conducts its operations with the aim of being a company that underpins affluence, safety, and peace of mind in people's daily lives.

Special Feature 1

Achieving Safe, Sustainable Use of Nuclear Energy

Ohma Nuclear Power Station Construction Started

Plan and Background of the Ohma Nuclear Power Station Project

Nuclear power accounts for approximately a third of Japan's total electric power generating capacity, helping to assure a stable supply of electricity. Besides benefitting from the stable supply and price of nuclear fuel, nuclear generation produces almost no CO_2 emissions.

From vital standpoints that include achieving energy security and countering global warming, we believe it is necessary to diversify our energy sources by the addition of nuclear power generation. We have been carrying out surveys and studies concerning nuclear power development since 1954. Plans to build the Ohma Nuclear Power Station in Ohma-machi, Shimokita-gun, Aomori Prefecture were first devised in 1976. The Ministry of Economy, Trade and Industry (METI) approved the installation of a nuclear reactor in April 2008, and construction began in May.

With the aim of starting operation in 2012, we are now proceeding with work on this facility, giving highest priority to assuring safety and gaining the understanding of the surrounding communities.

Artist's rendering of completed Ohma Nuclear Power Station

Location: Ohma-machi, Shimokita-gun, Aomori Prefecture
Output: 1,383 MW
Reactor type: Advanced Boiling Water Reactor (ABWR)
Fuel: Enriched uranium and uranium-plutonium mixed oxide

■ Chronology of the Ohma Nuclear Power Station Project

1983 Environmental survey of proposed site
1984 Decision by Ohma town council to attract a nuclear power plant
1995 Atomic Energy Commission abandons prototype ATR plant in favor of full-MOX-ABWR
1998 Environment impact survey reports submitted to METI
First round of public hearings held
1999 Incorporated into the Basic Plan for Electric Power Development
Application for approval of nuclear reactor construction (withdrawn in March 2003 due to revision of power plant deployment plan)
2004 Application for approval of installation of nuclear reactor
2005 METI asks advice of Nuclear Safety Commission/Atomic Energy Commission
Second round of public hearings held
2008 Installation of nuclear reactor approved
Application for approval of phase 1 construction project
Approval and start of phase 1 construction project
Application for approval of phase 2 construction project

Significance of Full MOX-ABWR

For Japan, which depends on imports for most of its energy resources, promoting the "nuclear fuel cycle" is essential to achieving a stable supply of energy well into the future. This cycle involves reprocessing spent fuel from nuclear plants and reusing the extracted plutonium and uranium.

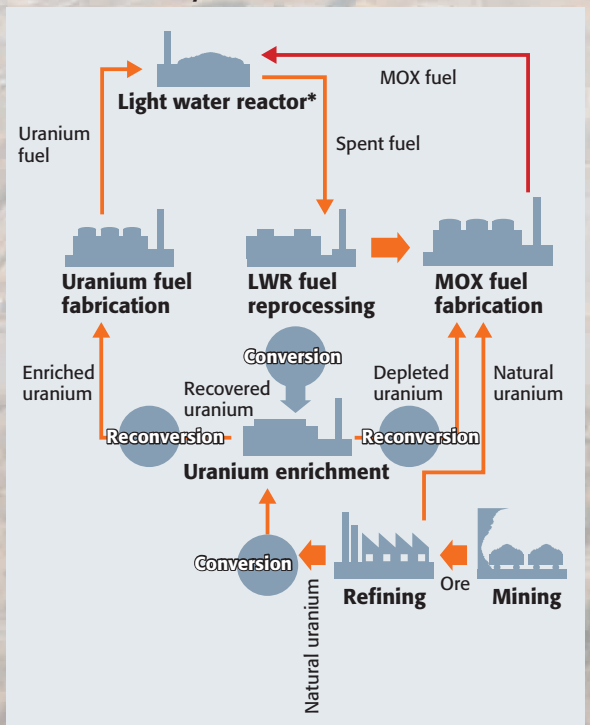
In order to use plutonium as nuclear reactor fuel, mixed oxide (MOX) fuel is created containing both uranium and plutonium and is used in nuclear power plants (light water reactors*), a program called "pluthermal" in Japan (from the words plutonium and thermal). Proceeding steadfastly toward realization of the reactor fuel cycle is a key part of Japan's nuclear energy policy.

The Ohma nuclear power station is being constructed as a full-MOX-ABWR facility, aimed at loading MOX fuel in all the reactor cores. A statement adopted by the Japan Atomic Energy Commission in August 1995 assessed the significance of full-MOX-ABWR as follows:

- **It has been positioned as part of Japan's policy of broadening flexibility of plans to use MOX fuel in light water reactors, which is a key means of medium-term recycling of nuclear fuel.**
- **It is seen as technically feasible without changing the existing basic ABWR specifications, and has ample prospects of being economically feasible for use in actual reactors.**

Based on this assessment, the project is regarded as being in line with national policy.

■ The Nuclear Fuel Cycle



Safety and Reliability of the Ohma Nuclear Power Station

Total Dedication to Safety

For a nuclear power station operator, the peace of mind and trust of the local communities are vitally important, and must be backed up by quality assurance. J-POWER has established a quality assurance organization headed by the President, in accord with the Nuclear Quality Regulations, and has drawn up a Quality Policy for Nuclear Safety.

Quality Policy for Nuclear Safety

Basic Policy

With sincerity and pride underlying all our corporate activities, and with safety as our first priority, each of us shall be involved in quality assurance activities by making ourselves fully aware of our duties and roles, as well as their importance. In this way we will build the Ohma Nuclear Power Station as a facility worthy of the local community's trust and peace of mind.

Conduct Rules

1. We will perform high-quality design and construction work, giving top priority to assuring safety.
2. We will observe the requirements in laws and regulations, as well as the company's own rules.
3. We will strive for smooth communication with the surrounding communities, the national government, and other related institutions.
4. We will work continuously to improve the effectiveness of quality assurance activities.

Issued March 2004
Yoshihiko Nakagaki
President, Electric Power Development Co., Ltd.

Defense-in-Depth Approach to Safety

Risk management for a nuclear power station must assume all kinds of possibilities, from design error to mechanical failure and human mistakes.

In the case of the Ohma Nuclear Power Station, the "defense-in-depth" approach is being applied, with multiple, redundant, independent safety layers. These layers are designed to prevent problems from arising in the first place, prevent errors from spreading and developing into accidents, and prevent abnormal emission of radioactive materials outside the site.

Measures Taken in Design of Important Full-MOX-ABWR Equipment

The Ohma Nuclear Power Station, while having the same basic specifications as conventional ABWR, uses MOX fuel in all reactor cores as a full-MOX-ABWR facility. To enable this use, necessary measures are taken in the equipment design so that sufficient safety can be assured.

Equipment Design Measures

- Larger main steam relief valve capacity keeps reactor pressure from rising when an abnormal condition occurs.
- A new fuel inspection system is adopted that reduces the exposure of workers to radioactive materials during incoming inspection of new MOX fuel.
- Some of the control rods adopted are of higher efficacy than conventional rods.
- Capacity of the standby liquid control system has been increased, enabling it to hold more standby liquid and raising the reactor shutdown capability.

Safety That Meets Revised Seismic Design Regulations

A nuclear power station is designed to withstand an earthquake of the maximum scale anticipated in the area where it is located. This is true also in the case of the Ohma Nuclear Power Station, for which detailed geological surveys have been conducted. The power station was designed with sufficient seismic safety margin and will be monitored as necessary with additional assessments and verifications based on the latest knowledge.

In September 2006, the Nuclear Safety Commission revised the *Regulatory Guide for Reviewing Seismic Design of Nuclear Power Reactor Facilities*, adopting a more sophisticated method of plotting seismic motion on which seismic design is based, and broadening the scope of equipment to be treated with the highest level of importance.

In the government safety review of the Ohma Nuclear Power Station, which was based on the revised Regulatory Guide, the design was determined to be sound. As a result of this review, approval was given in April 2008 for the installation of a nuclear reactor.

Coexistence with Local Communities

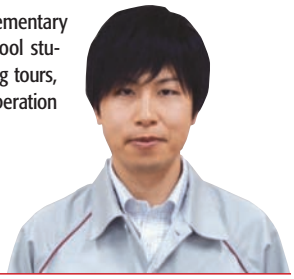
As construction begins in earnest, the Ohma Nuclear Power Project Construction Office is making every effort to communicate actively with the people in surrounding communities with the aim of building understanding and trust among local residents regarding the Ohma Nuclear Power Station.

COLUMN

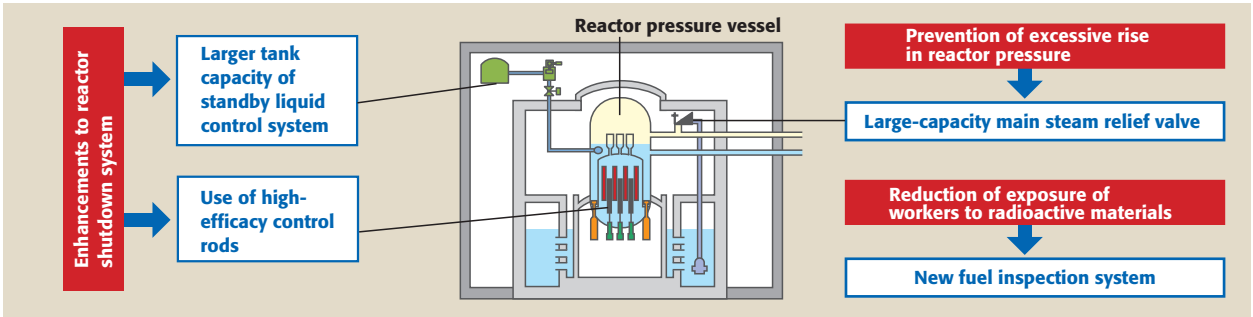
"We are building rapport with the local communities."

AT THE J-POWER Ohma Nuclear Power Project Construction Office, we are actively participating in local events, aware of our role as a member of the region. A cherry festival is held in early spring, and in summer three local communities hold events and traditional festivals. One by one, our employees are working in many different ways to form strong ties to the people living in this area, such as by helping out with preparations and with the actual events.

Our outreach also includes getting local elementary school children and junior and senior high school students interested in science and energy, by holding tours, lectures and other extracurricular events in cooperation with schools.



Koki Yoshii Administration Group
Ohma Nuclear Power
Construction Office



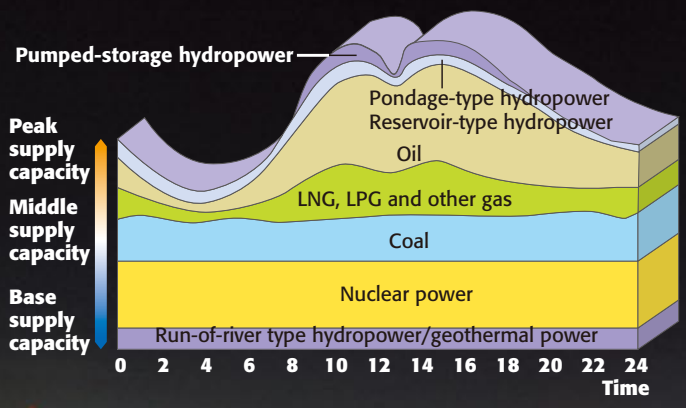
Special Feature 2

Fulfilling Our Commitment to Stable Supply

Electricity demand varies throughout the day, with different amounts used during daytime and at night. Over the course of the year, as well, demand in summer and winter, when use of electrical cooling and heating tends to be heavy, differs from spring and fall when the use is lighter. Since we cannot store electricity, power must be supplied optimally to meet these constant fluctuations in demand. The supply capacity for the average amount of electrical power required throughout the day and night is adjusted based on the "base supply capacity," while the supply capacity for times of peak power consumption is adjusted based on the "peak supply capacity".

In order to provide a stable supply of electricity without interruption, an electric power company like the J-POWER Group offers electrical power from a variety of sources, including hydroelectric, thermal, and nuclear power, seeking the optimal balance based on such considerations as their operation characteristics, economy, and environmental issues.

■ Drawing on Different Power Sources to Match Electricity Demand



Fuel procurement – Transport – Power generation (coal-fired thermal power)

The main fuel used in the eight thermal power stations of the J-POWER Group in Japan is coal. These facilities consume more than 20 million tons of coals per year. Because of its economic efficiency and other characteristics, coal serves as base and middle supply capacity.

Coal Procurement

As a means of ensuring stable procurement of coal, we are participating in a mining project in Australia, one of the main sources of coal used in power generation. At the same time we are diversifying procurement sources, taking into consideration not only coal-producing nations but production areas and loading ports as well. We are also actively test-burning new types of coal, striving for flexibility in procurement.

Unloading coal

Fuel Procurement and Transport

Katsuya Toda
Fuel Group, Energy Business Department

The J-POWER Group uses dozens of types of coal at all times. To transport all this coal to power stations, ships ply the seas more than 200 times annually.

As a basic means of assuring stable transport, the J-POWER Group over the years has invested in our own coal carriers for transporting the coal we procure. Since the amount of coal transported varies each year and each month, in addition to dedicated ships we have contracts with shipping companies for transporting certain quantities, aimed at achieving stable transport of procured coal.

We also need to gather and share information about weather and other unavoidable factors in each country and region, along with factors such as changes in ship layover at ports due to supply and demand, and to take preventive measures.

Lately we have been procuring also from traders other than coal producers. It's a daily struggle to keep track of the amount of coal produced at each mine, the quality, loading ports, the people in charge and other such matters. Besides the challenge of knowing what kind of coal is going to be available from whom, at what time, and in what quantities, the most nerve-wracking part of this job is maintaining outside relationships for enabling smooth communication.

Maintaining a Thermal Power Station

Michiaki Kawabe (Maintenance Group) and **Noboru Kaneda** (Operating Group)
JPec Isogo Company

An Operating Group member inspecting a coal conveyor noticed a problem. Immediately stopping the conveyor, upon further inspection he confirmed that the conveyor was damaged. Without taking action, it would be impossible to continue generating electricity. A call went out right away to the Maintenance Group. The conveyor was found to be torn down the center along its entire length. As the staff discussed what action to take, it was clear that a complete fix could not be implemented soon, but something would have to be done to allow operation to continue. After covering over the tear with tape, they loosened the scraper*1 to reduce the load on the conveyor. While they worked, the coal bunker*2 level continued to drop. It was a race against time. Then the maintenance staff announced that the emergency fix was complete. Thanks to the speedy work, the bunker level was still sufficiently high. They had succeeded in keeping the supply of electricity flowing.

A power station may seem quiet on the outside, but on the inside, daily efforts like these are what keeps things running.

*1: A device for scraping off the coal stuck to the conveyor.
*2: A silo for temporary holding of coal to be burned.

Isogo Thermal Power Station

Operating a Thermal Power Station

Hiroyuki Kawame, Operating Group, Isogo Thermal Power Station

During operation, a power station can be hit by sudden equipment trouble or trouble caused by nature. Besides staying on the alert day and night, with patrols and constant monitoring in the operations center to ensure early detection, we work to restore operations quickly in case trouble occurs, doing our utmost each day to meet customer needs.

Seawater is used for cooling in the surface condenser. For the sake of the environment, the facility is operated within strict limits to make sure the intake water and discharge water temperature never differs by more than 7ºC from the seawater temperature. If this condition cannot be met, we have to lower the generator output.

As an example of trouble caused by nature, sometimes in summer there will be an abnormally large number of jellyfish in the nearby waters. If they get into the facility in large numbers via the intake pipes, the operators monitoring instruments have to make a quick decision and take adequate action such as adjusting the inflow of seawater. To enable them to react quickly to such changes in the natural environment, our operators are put through accident training and other education to raise their skills, giving them the necessary knowledge, decision-making ability, and notification ability.

Maritime Transport

A coal-fired thermal power station depends on the stable procurement of coal used as its source of energy. It is a matter of constantly arranging for shipping and acquiring stable suppliers of quality coal. To these ends, procurement is made from a variety of suppliers in Australia, Indonesia, China, Russia, South Africa, and elsewhere, and shipped from diverse ports in each country.

Coal-Fired Thermal Power Stations

Coal imported from overseas is unloaded and stored in a coal storage yard. From there it is transported to coal-fired thermal power stations in various parts of the country for use as fuel to produce electricity.

The J-POWER Group employs the latest technologies for producing electricity from coal, aimed at generating power efficiently and minimizing the environmental load.

Timely Treatment and Effective Use of Coal Ash

Osamu Arakawa, Operating Group, Takehara Thermal Power Station
Takashi Ohtawa, Management Group, JPec Takehara Company

J-POWER operates three plants at Takehara Thermal Power Station. Stable operations require not only maintenance of reliable equipment but also management of the entire chain from procurement and transport of coal to disposal of coal ash. Coal ash is an inevitable byproduct of combustion in thermal power generation, so its dependable disposal is essential.

Since there is no ash disposal site in Takehara, coal ash is removed from the site, primarily by ocean transport. The shipping schedule is greatly affected by the weather, so it is always important to monitor the weather at Hiroshima prefecture and at seaports where the ash is unloaded. Dense fog in spring, summer typhoons, and winter storms demand special attention. We carefully manage our coal ash storage levels and secure proper shipment through arrangements with receivers.

Coal ash is reused in various ways, such as an ingredient in cement and as concrete admixture. Each of the three Takehara Plants uses a different type of coal, and consequently produces coal ash with different properties, for which we need to secure suitable recipients.

Dependable disposal of coal ash cannot be accomplished by thermal power stations alone. It requires close coordination and cooperation among all parties related to shipping, loading, and receiving, including our affiliate JPec.

Transporting coal ash by ship

Special Feature 2

Fulfilling Our Commitment to Stable Supply

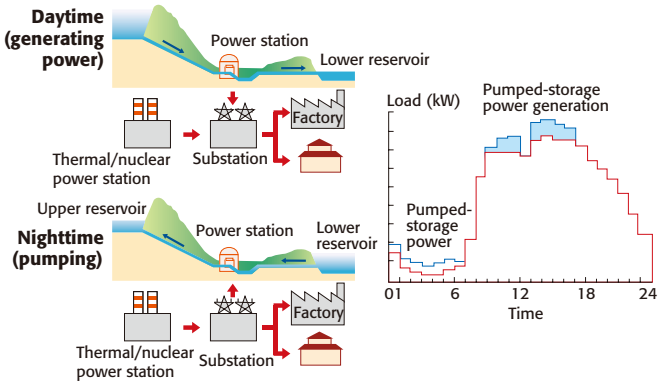
Operating a Pumped Storage Hydropower Station

Fujiharu Kishita
Electrical Engineering Group,
Hydropower & Transmission System Department

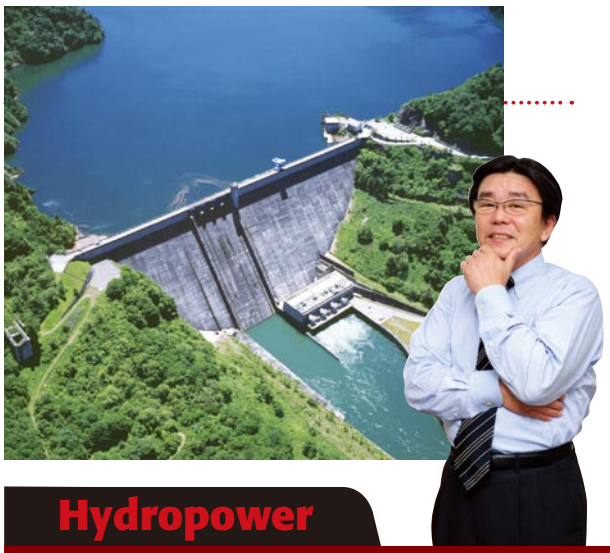
Providing a stable supply of electricity to consumers requires balancing demand and supply, by adjusting the amount of power generated in keeping with constantly fluctuating power demands. Pumped-storage power is a kind of hydropower generation that can be turned on and stopped in short intervals as needed. It also lends itself readily to adjustments in power output, system frequency, and system voltage, contributing to electric system stability and helping to meet emergency supply needs.

As the figure below illustrates, during off-peak demand periods such as late night and weekends, a pumped-storage power station reverses the pump turbines, pumping water up to a dam (upper reservoir) for storing, then releases this water to generate power when needed.

■ **How Pumped-Storage Power Generation Works**



Tagokura Hydropower Station



Hydropower

The composition of electric power generation in Japan has gradually shifted from the large-scale hydroelectric power development of the prewar and early postwar eras to the system we have at present, based on thermal and nuclear power. Hydropower utilizes the potential energy of water moving from a high location to a lower one to generate electricity.

Pumped-storage hydropower also has an important role to play in countering global warming, and is a major renewable energy source.

Transmission Line Network – Power Conversion Station – Substations

J-POWER owns and operates transmission lines totaling approximately 2,400 km in length, along with eight substations and power conversion stations.

High-voltage transmission lines connect the four main islands of Hokkaido, Honshu, Shikoku, and Kyushu, while frequency conversion stations make it possible to serve both the eastern and western areas with their different currency frequencies. Operating these and other facilities, J-POWER is a major provider of electrical power for all of Japan.

Transmission Line Network

The J-POWER Group has electric power facilities throughout Japan. The role of transmission lines is to gather electricity generated at each of these power stations and carry it efficiently. Hokkaido, Honshu, Shikoku, and Kyushu are each connected by ultra high-voltage transmission lines, which are key facilities for wide-area distribution of Japan's electrical power.

500,000-volt transmission cable installed on Seto Ohashi Bridge

Operating and Maintaining Transmission Line Equipment

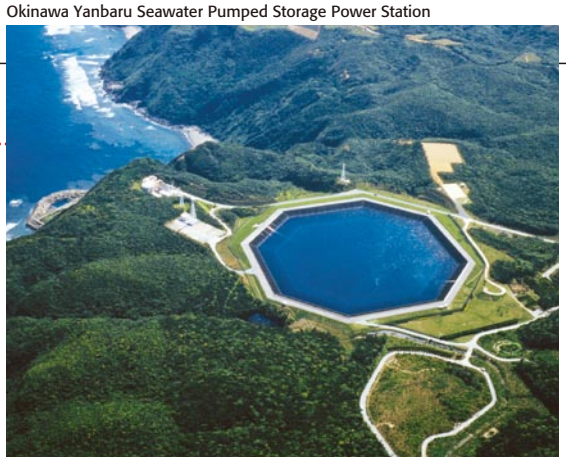
Masaki Naitoh, West Transmission Line Maintenance Center

Transmission line facilities are subjected to harsh natural conditions including wind, snow, lightning, and salt from the sea. Even under these conditions, the facilities have to be maintained so that a stable supply of electrical power can be delivered. Maintenance includes also replacing facilities that have deteriorated with age, and dealing with changes in the surrounding area, while maintaining harmony with the environment. It must be carried out in such a way that facility reliability is always assured.

To these ends, maintenance crews make patrol and inspection rounds so that the condition of facilities is always known, making repairs as needed to keep the facilities functioning and ensuring a stable supply of electricity.

Some of the transmission equipment is located in extremely harsh environments, notably the undersea DC cable linking Hokkaido with Honshu, and the large-capacity cable installed on the Honshu-Shikoku Bridge (Seto Ohashi). Besides performing maintenance by means of inspections under the sea and on the bridge, monitoring systems and other means are employed to enable immediate response to emergencies.

Okinawa Yanbaru Seawater Pumped Storage Power Station



Seawater Pumped-Storage Power Generation

Seawater pumped-storage power generation pumps water from the sea and uses it to generate electricity. Using seawater, there is no need to form a lower reservoir, and the supply of seawater is virtually endless, making possible the construction of large power stations. The main issues that need to be considered when using seawater are the corrosive effects of salt on equipment, the impact on marine organisms, and the environmental impact of seawater released from upper reservoirs. Having carried out verification testing, J-POWER is currently operating and maintaining the world's first seawater pumped-storage power station, in Kunigami, Okinawa.

Dam-Created Lakes

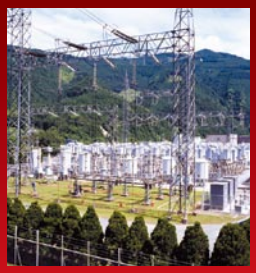
Hydropower produces electricity by using the force of descending water to power hydraulic turbine generators. Generally a dam is built upstream and water is stored in the lake created by the dam, so that electricity can be generated from the energy potential of the stored water. When electricity is not needed, the turbines are stopped and water is stored in the lake. In this way, the stored water can be converted into electricity as the need arises, without wasting it.

Hydropower Stations

The J-POWER Group operates approximately 20 percent of the hydropower facilities in Japan. Many of these were built to meet the shortage of electricity after World War II. Today the effective use, operation, and maintenance of these existing facilities are increasingly important. The J-POWER Group draws on technology and skills acquired over many years in carrying out efficient maintenance and operation.

Converter Stations

The Sakuma Frequency Converter Station performs frequency conversion between 50Hz and 60Hz, and the Hakodate and Kamikita AC/DC converter stations provide two-way conversion between alternating and direct current. They provide the necessary interconnection between the 50Hz and 60Hz systems in Japan and, using DC cable, interconnection between Honshu and Hokkaido systems.



Substations

Substations distribute electricity from each of the power stations to different destinations, and adjust the voltage. Power is sent from power stations at high voltage to minimize transmission loss, and is then dropped to a lower voltage at substations near the point of use, for efficient delivery of electricity.

Substation Operation and Maintenance

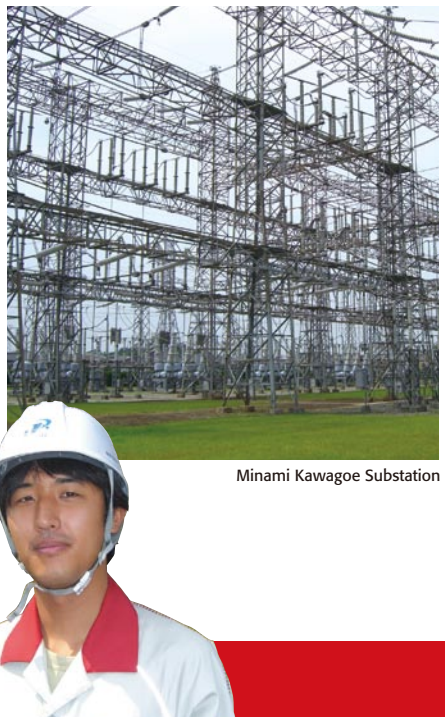
Atsuhiro Furuta, Kawagoe Office, JPHYTEC Co., Ltd.

The substations of the J-POWER Group were built so that power generated at large hydropower stations constructed and put into operation starting in the mid-1950s, including Sakuma Power Station, Okutadami Power Station, Tagokura Power Station, and Miboro Power Station, could be delivered to large power consumption areas such as Tokyo and Nagoya.

Because these hydropower stations are located in mountainous areas, high-voltage transmission lines of 275,000 volts (the highest available at that time) were adopted to ensure efficient power delivery. This required a full-scale effort to develop and manufacture high-voltage, large-capacity equipment in Japan for installation in substations. Starting in the late 1970s, the main transmission line system was gradually upgraded to 500,000 volts.

As the electrical power grid developed over time, the J-POWER Group coordinated efforts with the system upgrade plans of related power companies, adjusting the role of substations accordingly such as by increasing their output. Building a stronger power grid involves not simply increasing its scale; more than that, the equipment has to be made reliable and kept that way. In the past, reliability expected of the highest-voltage-class substations was required. The emphasis today is on equipment, where lack of reliability can have a direct and extremely serious impact such as a widespread power outage.

Substations even today contain equipment that has been in use for more than half a century, since the time of initial construction, as well as old models of equipment. While every effort is made to keep the equipment in top condition, during heavy load periods such as summer the maintenance job tends to be a constantly hectic one.



Minami Kawagoe Substation

Special Feature 3

Making Coal Use Compatible with Measures to Counter Global Warming

The J-POWER Group is one of the biggest coal users in Japan, consuming approximately 20 million tons of coal per year at eight coal-fired power stations. With a total capacity of 7.95 GW, these stations account for approximately 20 percent of Japan's total coal-fired generating capacity. The J-POWER Group is working as a leading company in the industry to balance the effective use of coal with responsiveness to global environmental issues.

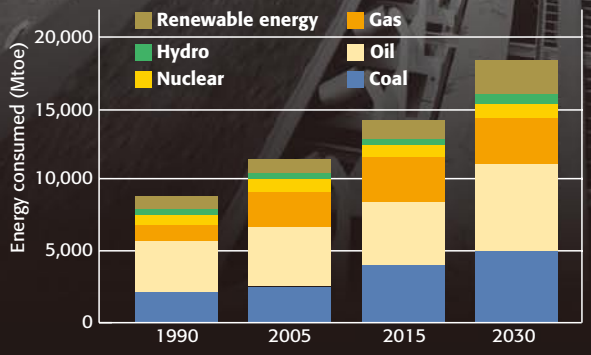
The Significance of Effective Coal Use in Today's World

The world today depends on fossil fuels for most of its energy needs. According to United Nations statistics, the world population (approximately 6.7 billion as of 2007) continues to grow by around 80 million people annually. World energy consumption, led by large-population countries China (approximately 1.3 billion) and India (approximately 1.1 billion) as well as other developing nations, is expected to increase by approximately 55 percent by 2030 over 2005 levels. Fossil fuels are likely to continue supplying much of this increase.

Among fossil fuels, coal has more abundant reserves than oil or natural gas. Moreover, it is widely distributed throughout the world including Asia rather than being concentrated in the Middle East, making it readily obtainable. For meeting the ever-rising global energy demand in China, India and elsewhere, coal will likely continue to be an indispensable fuel. As an energy source for electric power generation in particular, coal is expected to account for around 40 percent of future needs.

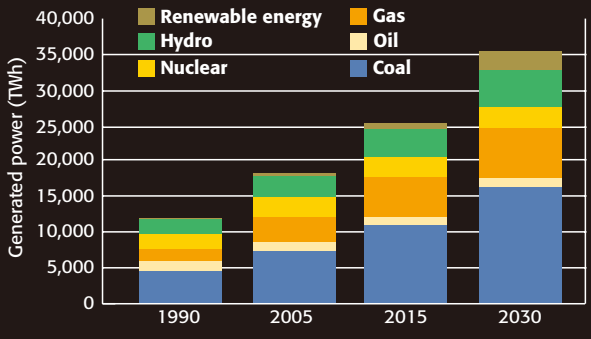
■ **Worldwide Energy Supply Trends and Outlook by Fuel Type**

Source: Compiled by J-POWER using data from IEA "World Energy Outlook 2007"



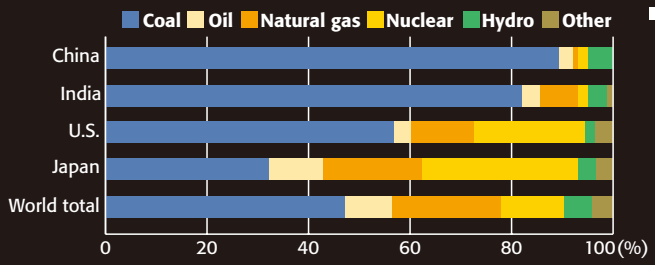
■ **Power Generation Trends and Outlook by Fuel Types**

Source: Compiled by J-POWER using data from IEA "World Energy Outlook 2007"



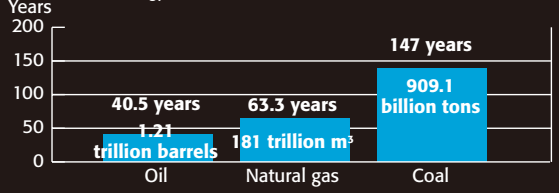
■ **Electricity Generation by Source**

Source: Compiled by J-POWER using data from IEA "World Energy Outlook 2007"



■ **Fossil Fuel Energy Resource Reserves**

Source: Compiled by J-POWER using data from BP "Statistical Review of World Energy 2007"



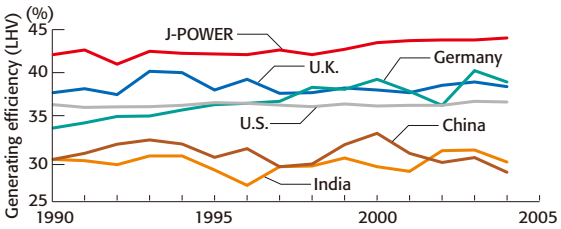
Improving Efficiency of Coal-Fired Power Generation

Alongside its many advantages, coal-fired power generation has the problem of relatively large amounts of CO_2 emissions from coal combustion. As the concentration of greenhouse gases (GHGs) including CO_2 in the atmosphere rises, the heat stored in the atmosphere builds up as well, causing the global temperature to climb. Today, with global warming, or climate change, giving rise to serious problems, the Intergovernmental Panel on Climate Change (IPCC) has concluded with near certainty that global warming is actually occurring and that the increase in man-made greenhouse gas emissions has caused it. Even as energy demands grow, the issue of how to reduce emissions of CO_2 and other GHGs is one facing the entire world.

To reduce CO_2 emissions it is necessary to lower the ratio of CO_2 emissions per unit of production and to reduce the absolute amount of emissions. In generating electricity through fossil fuel combustion, coal results in twice the amount of CO_2 emissions compared to natural gas. In Japan, however, coal-fired power stations are generating electricity with higher energy efficiency by raising the temperature and pressure in steam turbines to above the critical point, or to ultra supercritical (USC) conditions. This technology is contributing to the reduction of CO_2 emissions. If this high performance technology were introduced in the United States, China, and India, the world's big CO_2 emitters, it is estimated that CO_2 emissions in these three countries could be reduced by around 1.3 billion tons annually, an amount equivalent to Japan's annual total of CO_2 emissions and five percent of the world total. It is therefore important to transfer and disseminate these clean coal technologies.

In addition, the J-POWER Group is a pioneer in clean coal technology, and we are making efforts to develop two next-generation technologies aiming at higher energy efficiency: integrated coal gasification combined cycle system (IGCC) and integrated coal gasification fuel cell combined cycle system (IGFC). The combination of gas and steam turbines with fuel cells that use hydrogen from coal gasification could reduce CO_2 emissions by a third.

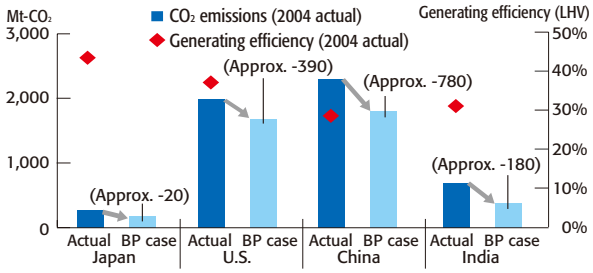
■ Trends in Coal Generation Efficiency by Country



Source: Ecofys Comparison of Power Efficiency on Grid Level 2006

■ CO_2 Emissions from Coal-Fired Power Generation and Potential for Reduction

BP case: Estimate for scenario in which best practices (the highest efficiency at commercially-operated power stations) in Japan are applied



LHV: Lower heating value

Source: IEA, *World Energy Outlook 2006*; Ecofys, *Comparison of Power Efficiency on Grid Level*

Ultimate Goal: Zero CO_2 Emissions

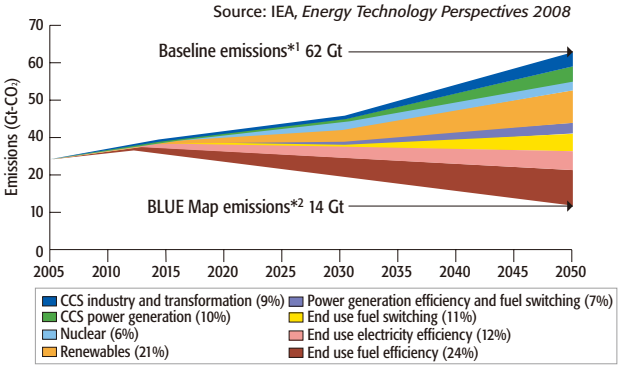
The combustion of fossil fuels inevitably produces CO_2. For this reason, efforts are under way around the world to develop carbon dioxide capture and storage (CCS) technology.

According to the *Special Report on Carbon Dioxide Capture and Storage* (released September 26, 2005) of the Intergovernmental Panel on Climate Change (IPCC), capture and storage of CO_2 has a major role to play in fighting global warming.

The IEA *Energy Technology Perspectives 2008* concludes that the required reduction in CO_2 emissions (as described in the graph on the right) will be achieved with improvement in energy efficiency and the combined use of renewable energy generation, nuclear power generation, and power generation at fossil fuel power plants equipped with CCS. The report claims that large-scale deployment of CCS will be needed for the CO_2 emission reduction.

■ IEA "World Energy Outlook (BLUE Map Scenario: A Scenario Aimed at Reducing CO_2 Emissions to Half of 2005 Levels by 2050)"

Source: IEA, *Energy Technology Perspectives 2008*



*1 Baseline emissions: The level of emissions based on a scenario of taking no new measures.

*2 BLUE Map emissions: The level of emissions based on a scenario of halving the 2005 level of CO_2 emissions by 2050.

Asia-Pacific Partnership on Clean Development & Climate (APP)

THE POWER Generation and Transmission Task Force of the Asia-Pacific Partnership on Clean Development & Climate (APP), consisting of the seven countries Japan, the United States, Australia, South Korea, China, India, and Canada, has conducted peer reviews on the maintenance and improvement of thermal efficiency at coal-fired thermal power stations. Its first session was held in Japan in April 2007, and they visited facilities such as the J-POWER Takasago Thermal Power Station in Hyogo Prefecture. Exchanging opinions on operations and maintenance strategies for maintaining and improving thermal efficiency, they shared their views of the current status and issues to be addressed. Then in February 2008, the second session was held in India, followed by a third session in the United States in April and May. Next on the schedule are Australia and South Korea.

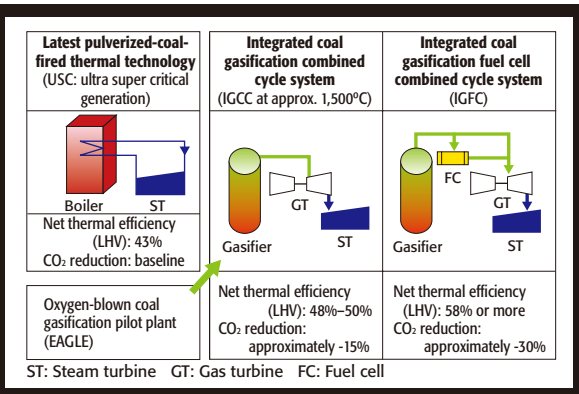
Visiting coal-fired thermal power stations in India, the members held lively exchanges and shared experiences on such matters as managing data relating to thermal efficiency, optimization of boiler combustion, the problem of coal quality, among others. An upcoming APP project will attempt to quantify CO_2 reduction potential using a standard model. J-POWER plans to continue taking part in APP activities.

Special Feature 3
Making Coal Use Compatible with Measures to Counter Global Warming

EAGLE Project

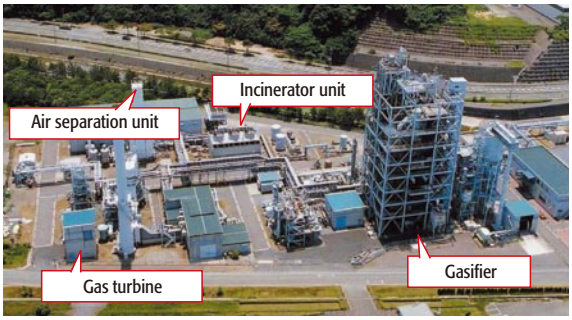
* EAGLE stands for Coal Energy Application for Gas, Liquid, & Electricity.

The EAGLE project is aimed at raising the efficiency of power generation from coal so as to reduce the amount of CO_2 emitted per unit power generated. Using coal gasification and a combination of methods for generating electrical power, much higher efficiency is achieved than the conventional pulverized coal-fired thermal power generation system. Whereas a pulverized-coal-fired plant generates electricity only by steam turbines, an integrated coal gasification combined cycle system (IGCC) uses both steam and gas turbines. Moreover, an integrated coal gasification fuel cell combined cycle system (IGFC) has been developed that uses these two types of turbines plus fuel cells as a third mode of generation. IGFC is the ultimate technology for coal utilization to generate electricity, and the J-POWER Group is the world pioneer in its development. Its commercial implementation could improve generating efficiency by as much as 60 percent, which should reduce CO_2 emissions by around 30 percent compared to existing pulverized coal combustion.



EAGLE Step I (2002–2006)

Step I of the EAGLE Project was carried out by building a pilot plant jointly with the New Energy and Industrial Technology Development Organization (NEDO), spanning the fiscal years 2002 to 2006. During this time, we verified basic performance and long-term reliability, and acquired test data necessary for scaling up to a larger plant. As basic performance measures, the pilot plant has achieved carbon gasification rates of above 99% (indicating the extent to which carbon in coal is converted to gas) and cold gas efficiency of 82% (a measure of how much of the energy in coal is converted to energy in the generated gas). Both have to be acknowledged as top-level results for a pilot-scale plant anywhere in the world. As for equipment reliability, we have achieved continuous operation of 1,015 hours, with rated load maintained over nearly the entire period, which confirmed the overall reliability of the plant. For the elements that will need to be modified when scaling up the design to that of a demonstration plant, we have acquired the necessary data by conducting simulations in the pilot plant.



EAGLE Step II (2007–2009)

With Step I successfully behind us, the EAGLE Project is now proceeding with Step II, toward development of a commercially viable gasifier, continuing our collaboration with NEDO. Step II is aimed at establishing technology for CO_2 capture and storage, and modifying the gasifier so that it can be used with coal that has high ash melting temperatures. The existing gasifier is well suited to coal with low ash melting temperatures, which cannot be used readily in conventional pulverized coal-fired plants. Existing gasifiers, however, should be able to use the range of coal types currently burned in pulverized coal combustion plants, allowing more flexibility in coal procurement. In Step II, we will work to achieve this flexibility in order to move

COLUMN

"We will be carrying out testing and equipment maintenance geared to an actual commercial environment."

HAVING successfully completed Step I of the EAGLE Project, since fiscal 2007 we have been busy with Step II testing. In summer 2008 we completed equipment modifications and additions so that testing could begin in earnest. Step I was largely a matter of trial and error for achieving the performance goals. With that out of the way, we can now settle down for some stable operation. Step II has its own areas of trial and error, as we modify the gasifier and make it applicable to a variety of coal types. Still, we now have the exciting sense that we are really getting somewhere. As we move toward a demonstration plant and then a commercial plant, we intend to carry out test operation and equipment maintenance more in line with an actual commercial environment.

Hiroshi Yamashita EAGLE Research & Engineering Group
Wakamatsu Research Institute, Technology Development Center

steadily toward a demonstration plant and then a commercial plant. On the way to commercialization, we will also study the feasibility of scaling up an oxygen-blown coal gasifier. The main reason for verifying whether the gasifier can be scaled up is that the initial aim is to commercialize an IGCC system. This is one step toward future realization of IGFC, toward further gains in efficiency, and toward achieving the ultimate goal of zero CO_2 emissions to stop global warming.


Facility being constructed for CO_2 capture and storage

Large-Scale Demonstration of Oxygen-Blown Coal Gasification Technology
(conducted jointly with Chugoku Electric Power Co., Inc.)

A large-scale demonstration test, reflecting the trials to date of oxygen-blown coal gasification and CO_2 capture and storage technologies, is expected to start in fiscal 2016 at the Chugoku Electric Power Company's Osaki Power Station.

The demonstration plant will be built with output in the 150 MW class (processing around 1,000 tons of coal per day). After verifying the reliability, economic efficiency, and operability as an electric power generation system based on oxygen-blown coal gasification, application of the latest CO_2 capture and storage technology will be tested, aimed at realizing revolutionary zero-emission high-efficiency thermal power generation from coal.

This demonstration is also being positioned as one of the projects for innovative zero-emission coal-based power generation of Japan's Ministry of Economy, Trade and Industry (METI), simultaneously meeting both the "High-Efficiency Coal Fired Power Generation" and "Carbon Dioxide Capture and Storage (CCS)" technological development goals of the METI Cool Earth Innovative Energy Technology Program.

COLUMN

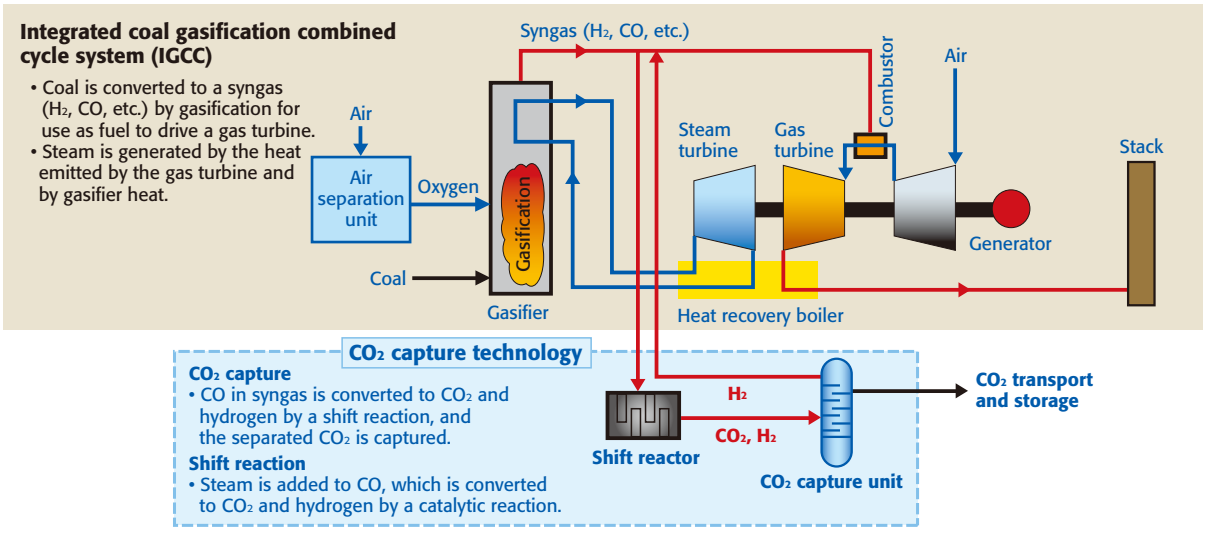
Carbon Dioxide Capture and Storage

IN EAGLE Step II, we are testing CO_2 capture and storage as a way of achieving zero CO_2 emissions in coal-based thermal power generation. The oxygen-blown gasification system adopted in the EAGLE Project should be well suited to CO_2 capture and storage, because of the low nitrogen content and relatively high CO content of the syngas. In the CO_2 capture and storage testing, we will attempt to characterize the shift reaction process by which CO in syngas is converted to CO_2 and hydrogen by catalytic reaction with steam. We will also characterize the CO_2 capture and storage process, in which CO_2 is absorbed using an absorbing solution and then CO_2 is desorbed from the absorbing solution. In fiscal 2007, we worked on detailed design of the test equipment, devised a prototype system, and considered the procedures for operating and testing the system. During the first half of fiscal 2008, we have been installing the equipment and testing its operation. From the second half of fiscal 2008 and into fiscal 2009, we will be test operating the equipment and acquiring data on equipment characteristics and operating characteristics. We will also try to determine the energy required for capture and storage in order to find out how to configure and operate the system for minimal energy loss.

For CCS to be applied successfully to a power generation system, the issues of economical operation and reducing energy loss must be overcome. Through the test operation, we expect to gain valuable data and experience toward overcoming these obstacles.

Kyouhei Nakamura
EAGLE Research & Engineering Group
Wakamatsu Research Institute
Technology Development Center

■ **Overview of the Demonstration Test System (Oxygen-blown IGCC)**



Special Feature 3

Making Coal Use Compatible with Measures to Counter Global Warming

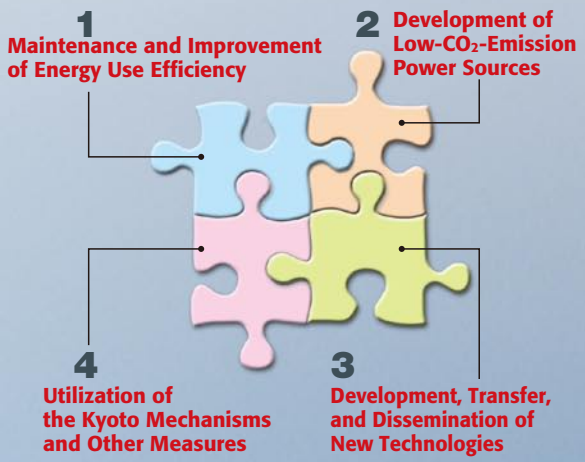
Four Strategies to Fight Global Warming

The J-POWER Group intends to continue reducing CO_2 emissions by combining the four strategies described below, including efforts to control CO_2 emissions in coal-fired thermal power generation by developing leading-edge technologies. For further details on each of these strategies, see "Environment" (pages 24 ff.).

In addition, in keeping with the Basic Policy of our Environmental Management Vision (page 25), we have formulated an Action Program (page 27) that clearly defines targets and approaches for key challenges and issues relative to Group business activities, and we are working together to achieve these Group targets.

As a leader in the use of coal, we believe that we have a social responsibility to make coal use compatible with measures to counter global warming. By fulfilling this responsibility, we are determined to contribute to the sustainable development of Japan and the world.

J-POWER Group efforts to combat global warming are centered around the four strategies below.



1 Maintenance and Improvement of Energy Use Efficiency

In addition to promoting increased efficiency in thermal power generation, we are further boosting the power generation efficiency of CO_2-emission-free hydropower by continually upgrading our facilities and making them more efficient.

2 Development of Low-CO_2-Emission Power Sources

The J-POWER Group is working to develop power generation that emits little or no CO_2, including nuclear power, wind power, solar energy, and biomass that utilizes living resources.

3 Development, Transfer, and Dissemination of New Technologies

The J-POWER Group is developing coal gasification technology to improve power generation efficiency as well as technology for capturing CO_2. We intend to continue our quest for next-generation technologies and lead the world in the improvement of coal-fired power generation.

4 Utilization of the Kyoto Mechanisms and Other Measures

J-POWER is making use of its technological and financial resources to apply such Kyoto Mechanisms as the Clean Development Mechanism (CDM), whereby its member countries are allowed to count the amount of emissions reduced by projects they conduct in other countries for cutting greenhouse gases as their own reductions. In this way we are contributing to efficient reduction of CO_2 emissions on a global scale.

Management

CONTENTS

Part 1 Corporate Governance
19 Basic Philosophy
20 Emergency Management

Part 2 Compliance
21 Compliance Philosophy
23 Information Security Activities

Fiscal 2007 HIGHLIGHTS

Establishment of overseas emergency response task force (Details on page 20)

The unit was established for prevention of overseas emergencies by sharing overseas emergency information and conducting training and drills for responding in the event of an emergency.

Development of compliance promotion system (Details on page 21)

To enhance our compliance promotion system, we improved our compliance organization and structure in such ways as the establishment of the Compliance Promotion Headquarters and the appointment of compliance duty personnel in every unit. The Fiscal 2008 Recurrence Prevention Action Program was announced.

Compliance training meeting for duty personnel and other interested parties

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

Part 1

Corporate Governance

THEME

Basic Philosophy

The J-POWER Group recognizes that comprehensive corporate governance systems and thoroughgoing compliance are critical to achieving long-term growth, raising corporate value, and earning stakeholders' trust. Consequently, we are undertaking various initiatives that address these key management issues.

Corporate Governance Framework

J-POWER has 13 directors. In accordance with the J-POWER Group corporate philosophy, the directors take the initiative in giving guidance on honest and fair business activity based on an unswervingly law-abiding spirit and ethical attitude in accordance with the J-POWER Corporate Conduct Rules. At the same time, they promote efforts to instill this attitude into all J-POWER employees. In addition, decision-making functions are apportioned among the Board of Directors, Executive Committee, and Management Executing Committee, and the introduction of an executive officer system has apportioned the execution of business among directors and executive officers. This has clarified responsibilities and authority, enabling precise and prompt decision-making and efficient corporate management.

J-POWER has five corporate auditors, three of whom are outside auditors, who together form the Board of Corporate Auditors. These auditors audit the execution by the directors of their business responsibilities by attending meetings of the Board of Directors and other important meetings and committees and interviewing directors and others about business execution. Additionally, they conduct accounting audits in collaboration with independent auditors and also audits of individual internal J-POWER units and principal subsidiaries.

The following measures are also being studied or have been implemented for the purpose of further strengthening the Board of Directors' oversight and at the same time its own supervision by the Board of Corporate Auditors.

- The establishment of an Advisory Board to assist the Board of Directors
- The strengthening of oversight by the Board of Corporate Auditors (Enhancement of exchanges of views with representative directors and directors, etc.)
- The study of means of enhancing the Board of Directors structure (Introduction of outside directors, the adjustment of authority apportioned to directors and executive officers, etc.) to be implemented in fiscal 2009

In addition, to ensure proper business execution, J-POWER has established an Internal Audit Department under the direct control of the president to implement internal audits of business execution. Also, to improve the accountability and transparency of its corporate activities, the Company has established the Disclosure Committee, chaired by the president, which ensures that the disclosure of the Company's information is vigorous, fair, transparent, and timely.

With regard to the administration of subsidiaries and affiliates, J-POWER's basic policy calls for Group-wide development in accordance with the Group's management plan. In addition to the administration of subsidiaries based on company regulations, we have set up a Group Management Meeting to enhance the fairness of business activity within the corporate group.

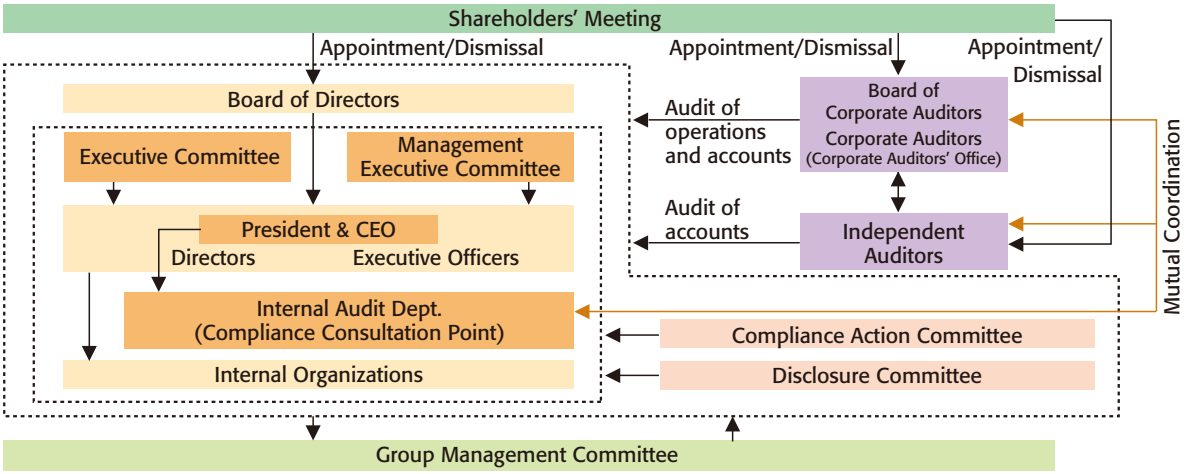
Compliance with Japan's SOX Act

In anticipation of the first year in which the system of internal control reporting is to be applied under the Financial Instruments and Exchange Law (Japan's version of the Sarbanes-Oxley Act, or "J-SOX"), J-POWER is progressing with steps to establish an internal control system pertaining to financial reporting.

To date, based on implementation criteria prescribed by Japan's Financial Services Agency we have completed visualization (documentation) and compiled regulations from the three perspectives of company-wide internal controls, internal controls relating to business processes, and internal controls that use IT. We have taken these measures for the purpose of identifying risks that may impact financial reporting throughout the J-POWER Group and clarifiying the controls needed to address them. We are now implementing activity aimed at putting these in place.

To enable the management to evaluate the internal controls, from fiscal 2008 their effectiveness is to be assessed by the Internal Audit Department and other units, and after subjecting it to a PDCA cycle the system of internal control for the J-POWER Group will be established.

■ **The J-POWER Group's Corporate Governance Framework**



THEME

Emergency Management

The risks surrounding J-POWER's business are becoming increasingly diverse and complex, requiring us to take responsibility for identifying the various risks accurately and to manage them appropriately in the event of an emergency, based on the principle of self-responsibility. To recognize these risks fully and to become a company trusted not only by customers, shareholders, local communities, and other stakeholders, but also by society as a whole, we make company-wide efforts to address risk and emergencies when they arise.

Emergency Management Structure

For its emergency management structure, J-POWER 1) has its permanent Emergency Response Team, 2) appoints personnel to manage and take responsibility for crisis management in each head office division and local unit, 3) when necessary it establishes an Emergency Response Headquarters and branch headquarters, and 4) sets up an overseas emergency response task force to prepare for emergencies and other contingencies outside Japan, taking in consideration an increase in its business activities in other countries.

1) Emergency Response Team

(1) The Emergency Response Team is established permanently within the General Affairs Department at head office to predict emergencies, conduct rapid firstresponse when they do occur, and take overall charge of emergency management.

(2) The Emergency Response Team manages the following matters.

- Prediction of emergencies and rapid first response when they do occur
- Risk identification, gathering and management of risk information
- Education and training

2) Emergency managers and emergency duty personnel

(1) Emergency managers and duty personnel are appointed in each head office division and local unit, and these undertake rapid first response and transmission of information.

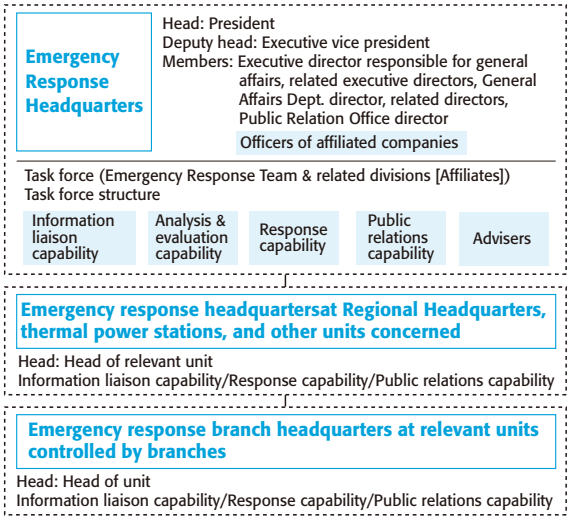
3) Emergency Response Headquarters and branches

(1) When emergencies are predicted and occur, and their seriousness warrants emergency countermeasures, the Emergency Response Headquarters (and branches) are established promptly.

4) Overseas emergency response task force

The overseas emergency response task force has been established under the Emergency Response Team in line with a growth in J-POWER's business outside Japan.

When Emergency Response Necessary
(After establishment of Emergency Response Headquarters)



Disaster Prevention Measures

In recent years, natural disasters such as earthquakes and floods due to abnormal weather have occurred frequently.

J-POWER is an electric power supplier with responsibility for the nation's vital lifelines, and it is a designated public corporation under the Disaster Countermeasures Basic Law and the People Protection Law. In view of this, it has long been developing disaster prevention measures, and formulated and announced operational plans for disaster prevention and plans for measures to protect the people. In this way, J-POWER has aimed to be a company that is resilient to disasters.

In-house manuals for responding to disasters, including a set of rules on disaster countermeasures and protection measures for the people, have been prepared, and the Company has built a disaster prevention structure that encompasses head office and all Group units in each region systematically.

In addition to the creation of this structure, disaster drills are held regularly in every unit to improve its practical ability to deal with actual disasters so that emergency situations can be handled appropriately.

COLUMN

Activities of the Disaster Prevention Task Force

GIVEN the frequent occurrence and growing severity of natural disasters since the Chuetsu Earthquake in Niigata Prefecture in 2004, steps have been taken to institute comprehensive and effective disaster prevention measures for J-POWER's entire power generation, transmission, and substation system. To that end, a Disaster Prevention Task Force was established in 2005 as a cross-functional organization straddling all related divisions. Taking effective advantage of the Company's knowledge in such spheres as civil engineering technology, assumptions about damage and impact analyses have been made with regard to every unit of J-POWER's plant or equipment, and countermeasures have been studied and implemented.

Specifically, with regard to potential earthquakes that are particular causes of anxiety in the studies conducted by the Japanese government and other related agencies, such as the Tokai earthquake, the Tonankai and Nankai earthquakes, and an earthquake directly below the Tokyo Metropolitan Area, J-POWER has analyzed their impacts on all of its locations and implemented necessary reinforcement and other measures. As for architectural facilities, J-POWER has conducted seismic reinforcement design and construction as well as seismic diagnosis, taking into consideration the importance of human life and its facilities. It also is taking steps to raise the level of disaster prevention capability on a Company-wide basis.

In addition to these activities, J-POWER will continue its vigorous efforts to implement disaster prevention measures. Its aim is to minimize damage in the event a disaster occurs and to fulfill its social responsibilities as an electric power supplier. We are committed to enhancing corporate value by building a corporate fabric that is resilient to disasters.

Emergency drills

Part 2

Compliance

THEME

Compliance Philosophy

J-POWER has always devoted considerable effort to compliance-oriented management, as all of its activities as a company have been premised on maintaining the trust of society. It is essential not to be obsessed with ephemeral thoughts of making profits, but to conduct ourselves in a legally compliant manner and in accordance with the highest standards of corporate ethics, so as to ensure unwavering public trust.

We have devised measures to prevent any recurrence of incidents such as those that came to light at the end of fiscal 2006, namely the falsification and improper handling of inspection data, and defective procedures at J-POWER power generation facilities. During fiscal 2007 we formulated action programs to prevent recurrence of such incidents, and the Company is now implementing the programs vigorously and steadfastly, taking steps to strengthen compliance still further.

Compliance Promotion Structure

In addition to laying down its Corporate Conduct Rules in January 2001, J-POWER instituted its Compliance Code (see page 74) to provide specific decision-making standards for managers and employees in their daily business activities. Based on the Corporate Conduct Rules and the Compliance Code we are evolving in-house rules to promote compliance. We have also created the Compliance Action Committee, chaired by the president, to deliberate on measures to foster Company-wide compliance activities, to evaluate how they have been applied, and to deal with out-of-compliance issues. In parallel with this, separate compliance committees have been formed within each unit engaged in practical compliance activities.

During fiscal 2007 the compliance promotion structure was strengthened further by the appointment of an officer to assist the president by assuming specific responsibility for compliance, and by the establishment of the Compliance Promotion Headquarters, whose task is to undertake all activities relating to compliance promotion promptly and appropriately under the supervision of the Compliance Action Committee. In addition, an attorney has been included as a member of the Compliance Action Committee, and collaboration between that committee and unit compliance committees has been enhanced by the appointment of compliance personnel in each unit.

With regard to the Compliance Consultation Point, which advises employees seeking advice when faced with compliance issues, in addition to acting as an in-house point of contact it has established an external point of contact at a law office, and we are promoting its use. The system protects the privacy of those employees who come forward, and ensures that they suffer no disadvantage as a result.

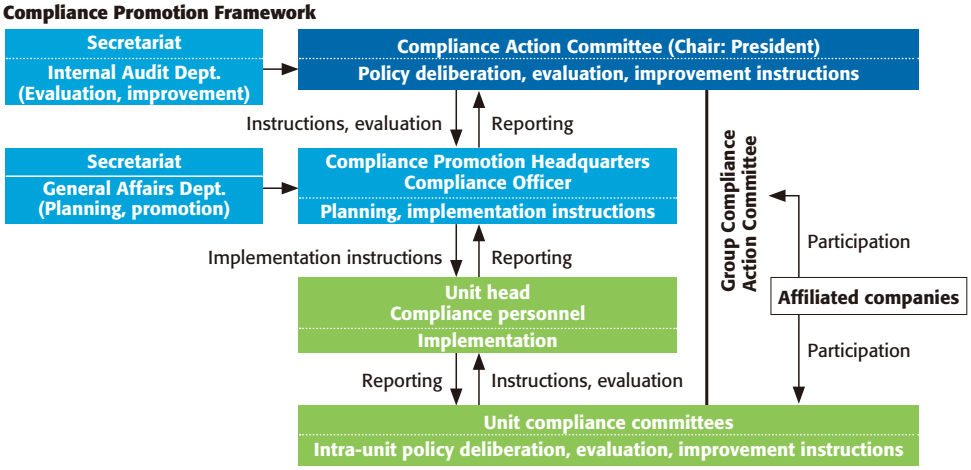
Additionally, given the importance of promoting compliance in a coordinated way throughout the Group, collaboration in this area is conducted in such ways as the participation of affiliated companies in the Group Management Committee and Group Compliance Action Committee.

Action Programs to Prevent Recurrence of Incidents

In response to the discovery, in fiscal 2006, of incidents such as the falsification and improper handling of inspection data and defective legal procedures at J-POWER power generation facilities, J-POWER has taken steps to ensure there are no recurrences. Incidents of a common type and background throughout the J-POWER Group have been classified as being related to corporate culture and employee attitudes, to internal control systems, to compliance promotion activities, or to lack of knowledge and understanding of business-related laws, and action programs with specific provisions to prevent recurrence in each category have been established. Under these, measures to prevent recurrences will be implemented steadily by checking and assessing the status of their implementation constantly.

As a result of checking and assessing the status of implementation in fiscal 2007, it was confirmed that all aspects of the programs are generally being implemented, excluding those initially projected to be implemented from fiscal 2008, and their effects were also confirmed. With the exception of those that have achieved their goals and been terminated, the implementation of these programs will continue.

■ **Compliance Promotion Framework**



Compliance Issues and Measures to Prevent Recurrence

During fiscal 2007, the following compliance issues came to light. We have taken very seriously and reflected deeply on the fact that we did not discover these during the inspections and examinations conducted in fiscal 2006 relating to our power generation facilities. In consequence, throughout the J-POWER Group we are devoting ourselves to the implementation of our ongoing action programs to prevent recurrence, and also to specific measures to prevent recurrence based on the incidents below.

❍ Violation of Electricity Business Act

For the reason set out below, under Article 106, Paragraph 3, of the Electricity Business Act the Company was directed by the Minister of Economy, Trade and Industry to submit a report (October 2007).

During a September 2007 on-site inspection at the J-POWER Misakubo Power Station (in Hamamatsu, Shizuoka Prefecture) by the Chubu Kinki Industrial Safety and Inspection Department under the Electricity Business Act, it was discovered that there had been a violation (start of engineering works before 30 days had elapsed since the acceptance of notification of a plan made under Article 48, Paragraph 1, of the Electricity Business Act) of the provisions of Paragraph 2 of Article 48 with regard to engineering works for the installation of ancillary facilities at the power station executed in February 1999.

In consequence, we conducted a study of all our hydro and thermal power generation facilities to identify any similar cases. From this we identified 16 cases of similar violations of Article 48, Paragraph 2, of the Electricity Business Act, and also found one case of a violation of Article 47, Paragraph 2 of the Act (application for approval of a revision to a construction plan), and duly reported these to the Chubu Kinki Industrial Safety and Inspection Department in October 2007.

These cases of violations of Article 47, Paragraph 2, of the Electricity Business Act relate to works for ancillary facilities at the Kurotani Power Station (in Tadami, Fukushima Prefecture). It was necessary to apply for approval for a revision of the construction plan in October 1993, during the construction of the plant, but in spite of this the ancillary facilities were installed without the requisite procedure being carried out. After the start of operations (April 1994), a works plan was submitted in October 1994 as a plan for the new installation of the facilities concerned.

After receipt of the instruction by the Minister of Economy, Trade and Industry to submit a report, in November 2007 we reported the results of our investigation to the minister and received a reprimand from the director general of the Nuclear and Industrial Safety Agency.

We have reflected very seriously on the results of this investigation, and in accordance with the guidance of the Nuclear and Industrial Safety Agency we are implementing not only the ongoing action programs to prevent recurrence but also specific measures to prevent recurrence based on this incident. These include developing a structure for staff education concerning the Electricity Business Act and a framework for checking activities for the making of applications for approvals and authorizations.

■ **Outline of Action Programs to Prevent Recurrence**

Common backgrounds and problems		Direction taken to prevent recurrence
Categories	Description	
Relating to corporate culture and employee attitudes	Individuals or units, or both, act in a way that construes everything in the most favorable light for them	Creation of atmosphere within workplaces that encourages dialogue Creation of rules that prevent self-construal
	Decision-making and judgment are effectively conducted within units or job categories, with no interaction with other units or job categories	Interaction between units
	Even if problems are perceived within units, the mentality is to deal with them internally and conceal them. (Deal with problems in the workplace, not reporting them to superior units or supervisory authorities)	Clarification of where responsibilities lie Thorough dedication to corporate ethics (particularly among officers responsible for management oversight)
	Priority is given to stable supplies of electric power (maintenance of output, continuous operation), making it impossible to make correct interpretation of rules	Creation of atmosphere within workplaces that give maximum priority to observance of rules Enhancement of compliance education
Relating to internal control systems	Controls are left to the staff responsible; the mechanism for checking improprieties and errors by managerial staff and superior units does not function	Visualization of business processes and of the risk that potential improprieties and errors will arise in the processes, and measures to address that risk
	Checks and restraints among units and job categories do not function	Invigoration of communication among units as well as job categories
	Even internal audits cannot prevent or detect legal violations	Revision of self-inspection, self-audit, and business audit
Relating to compliance promotion activities	PDCA cycle is inadequate	Reexamination of compliance promotion framework
	Inadequate collaboration companywide activity and intra-unit activity	
	Compliance training is inadequate	Repetition and continuation of effective training for all employees
	Little use made of Compliance Consultation Point	Making all employees familiar with the Compliance Consultation Point to encourage them to use it, and multiplication of access channels (including outsourced contact points)
Relating to lack of knowledge or understanding	Inadequate knowledge and understanding of business-related laws	Revision of form of staff education and training Education in laws relating to the business for which each unit is responsible

Based on cases of violations of laws brought to light by inspections and investigations, common backgrounds and problems throughout the J-POWER Group, and the directions taken to prevent recurrence, have been categorized and set out as shown above, and concrete steps have been taken in the form of the formulation of action programs to prevent recurrence. These action programs are being implemented by every division in accordance with the directions of the Compliance Promotion Headquarters, which was established under the Compliance Action Committee and chaired by the president.

THEME

Information Security Activities

As companies have become increasingly information-oriented and are making ever-greater use of IT, the significance of information security is growing. J-POWER has the duty to build vital national infrastructure in the form of nuclear power stations and to provide stable supplies of electricity. Given this important duty, it recognizes the importance of maintaining and enhancing information security to a higher level, and is implementing a variety of measures to achieve that.

Basic Policy on Information Security

J-POWER has formulated its group-wide "Basic policy on information security" and publicizes it on its website. Information security at all of the J-POWER Group companies is being developed and refined in accordance with this basic policy.

In the technical sphere, it incorporates countermeasures of various types, which include 1) prevention of unauthorized outside access through the Internet, 2) personal authentication of business-use personal computers, and 3) deployment of systems for preventing information leaks. Regarding personal security, we are instructing and educating employees continuously, and making them thoroughly conversant with the proper use of personal computers in their work.

In addition, J-POWER is well aware of the importance of information security measures to it as a producer of nuclear power, and all Group companies are taking steps to upgrade the level of their security still further.

Collaboration in Core Electric Power Systems

J-POWER is also making efforts in the field of IT to help ensure the stability of electric power systems. To position ourselves to deal rapidly and appropriately with IT problems in core systems for electric power operations, we are strengthening the structure of collaboration with the government and electric power companies as a whole.

Specific Measures

Organization and structure

- Establishment of Information Security Committee as a lateral organization whose membership comprises the heads of all J-POWER head-office divisions
- Designation of the IT & Telecommunications Office of the Corporate Planning & Administration Department as the unit in overall charge of information security to promote the development of rules and the implementation of concrete countermeasures
- Rapid response by an emergency management structure at any time an information security incident arises
- Countermeasures involving third-party inspections using external experts

Personal measures

- Instruction and education for all Group employees, including e-learning and seminars; thorough confirmation of matters to be observed in personal-computer usage; and training for staff in charge of promoting information security.

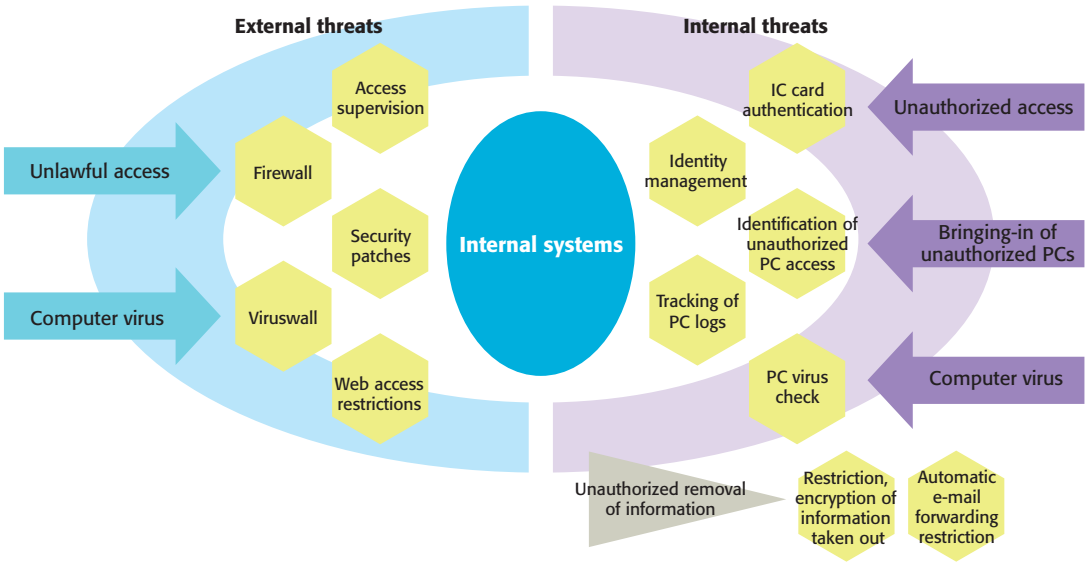
Physical measures

- Locking control (at head office) when people enter or leave the premises, by means of IC cards (for employee identification)
- Separation of business areas from meeting and reception space

Technical measures

- Limitation (authentication functions) of system users by means of IC cards (for employee identification)
- Approval by senior staff for removal of electronic information, and encryption of files
- Encryption of e-mail attached files
- Management of collation and analysis of operating logs

■ J-POWER Group Information Security Countermeasures



Environment

CONTENTS

Part 1 **Environmental Management**
25 Environmental Management Vision
Basic Policy
27 Targets for the J-POWER Group's Action Program
29 Business Activities and the Environment (Fiscal 2007)
31 Environmental Accounting and Eco-efficiency

Part 2 **Efforts Relating to Global Environmental Issues**
33 Four Strategies to Fight Global Warming
CO_2 Emissions from Business Activities
34 Maintenance and Improvement of Energy Use Efficiency
35 Development of Low-CO_2-Emission Power Sources
37 Development, Transfer, and Dissemination of New Technologies
39 Utilization of the Kyoto Mechanisms and Other Measures
41 Reduction of Emissions of Greenhouse Gases Other Than CO_2
42 Efforts to Reduce Environmental Load during Distribution
Stepping Up Energy Conservation at Our Offices

Part 3 **Efforts Relating to Local Environmental Issues**
43 Reduction of Environmental Load
45 Management of Chemical Substances
46 Functioning in Harmony with Nature
48 Establishing a Sound Material-Cycle Society
50 Environmental Recycling Program
Environmental Infrastructure Operations
51 Supporting the World's Sustainable Development

Part 4 **Ensuring Transparency and Reliability**
53 Continual Improvement in Environmental Management

Fiscal 2007 HIGHLIGHTS

Oxygen-blown coal gasification pilot test (EAGLE)

(Details on page 16)

Large-scale pilot testing begins on an innovative technology for zero-emission, high-efficiency thermal power generation from coal.

The J-POWER Group received the 17th Global Environment Award (Earth Environment Committee Prize for Excellent Corporation) from the FujiSankei Communications Group on April 22, 2008.

J-POWER Group honored for its environmental efforts, particularly the EAGLE Project, with its goal of making coal use compatible with measures to counter global warming.

(For information on the EAGLE project, see page 37)

Part 1

Environmental Management

The J-POWER Group believes that energy production and the environment can coexist in harmony. In light of this corporate philosophy, our environmental management aims to promote greater environmental responsibility while enhancing the economic value of our operations in order to further contribute to the development of a sustainable society.

Environmental Management Vision

In 2004 we established a Basic Policy for achieving the J-POWER Group's Environmental Management Vision. Based on that policy we formulated an Action Program setting out medium-term goals, and we are now working toward those objectives.

Basic Policy

The J-POWER Group adheres to the following Basic Policy.

Basic Stance

As an energy supplier, we will contribute to the sustainable development of Japan and the world by harmonizing our operations with the environment and ensuring the constant supply of energy essential to human life and economic activity.

As an energy supplier, we will efficiently generate and continuously supply electric power essential to human life and economic activity by effectively using limited resources such as coal to meet diverse needs. We will contribute to sustainable development in Japan and the world as a whole by minimizing the environmental impact of our business activities, reducing environmental risks such as global warming, and improving eco-efficiency by achieving higher productivity with lower environmental load, thus promoting greater environmental responsibility while enhancing economic value.

Efforts Relating to Global Environmental Issues

In accordance with the principles of the United Nations Framework Convention on Climate Change,* we will cost-effectively address issues relating to climate change on a global scale. We will continue to reduce CO_2 emissions per unit of electric power sold through an economically rational combination of measures including maintenance and improvement of the efficiency of energy use; development of low CO_2 emission power sources; development, transfer, and dissemination of new technologies; and utilization of the Kyoto Mechanisms. Furthermore, we will continue to work toward our ultimate goal of achieving zero emissions through the capture and storage of CO_2.

Since fossil fuels will inevitably remain a key energy source this century, global warming is one of the most important long-term issues facing humankind. As measures against global warming will entail major costs, we must adopt highly cost-effective measures and actions on a global scale to make larger reductions in greenhouse gas emissions at lower cost if we are to achieve sustainable development that harmonizes environmental and economic needs. This principle is set out in the United Nations Framework Convention on Climate Change, on which the Kyoto Protocol is based.

We will continue to reduce CO_2 emissions per unit of electric power sold through an economically rational combination of measures that takes account of cost-effectiveness on a global scale. Such measures include maintenance and improvement of efficient energy use; development of low CO_2 emission power sources; development, transfer, and dissemination of new technologies; and utilization of the Kyoto Mechanisms.

Vision

Recognizing that it will be necessary within this century to capture and store CO_2 generated by the combustion of fossil fuels in order to keep supplying energy to people throughout the world in a sustainable manner, we have also set the ultimate goal of achieving zero CO_2 emissions. We will continue developing and testing technology to achieve that objective.

* Framework Convention on Climate Change, Article 3, Paragraph 3 (Principles):
"…lack of full scientific certainty should not be used as a reason for postponing such measures, taking into account that policies and measures to deal with climate change should be cost-effective so as to ensure global benefits at the lowest possible cost."

Efforts Relating to Local Environmental Issues

We will take measures to reduce the environmental impact of our operations by saving, recycling, and reusing resources to limit the generation of waste and foster good community relations.

Recognizing that assuring attractive and safe living environments is the key to good community relations, both nationally and internationally, we work hard to earn community trust. We use the latest technologies and know-how to minimize the environmental impact of our operations on the air and water around our power stations, as well as reducing and appropriately processing waste by saving, reusing, and recycling limited resources. In addition, we ensure that we are prepared to deal with emergencies resulting from accidents or natural disasters.

Ensuring Transparency and Reliability

We will ensure that our business activities comply with all laws and regulations, disclose a wide range of environmental information, and enhance communication with stakeholders.

We work to earn the trust of society by improving our environmental management and assuring complete compliance with laws and regulations, as well as by increasing corporate transparency through disclosure of a wide range of environmental information. At the same time, we strive to enhance communication with stakeholders about environmental issues, calling upon the skills and knowledge of the entire J-POWER Group to continue meeting stakeholder expectations in terms of our business development and environmental activities.

April 1, 2004

Yoshihiko Nakagaki
President

Environmental Management

Targets for the J-POWER Group's Action Program

In accordance with the Basic Policy of the J-POWER Group Environmental Management Vision, we have formulated an action program setting out goals with respect to key issues or problems related to our business activities, along with methods to achieve the goals. The entire group is now working toward meeting these targets.

The following table summarizes the J-POWER Group's performance through fiscal 2007 and its targets for fiscal 2008 and subsequent fiscal years.

Note: Figures for "CO_2 emissions per unit of electric power sold" pertain to both domestic and overseas operations; those for all other items pertain to domestic operations only.

	Item	Base-year performance, etc	FY 2006 performance	FY 2007 performance	
Efforts relating to global environmental issues	• Reduce CO_2 emissions per unit of electric power sold (domestic and overseas operations)	FY 2002 0.72 (kg-CO_2 /kWh)	0.68 (kg-CO_2 /kWh)	0.70 (kg-CO_2 /kWh)	
	• Maintain/improve thermal efficiency of thermal power stations (HHV [higher heating value])	—	40.4 (Reference) LHV*1: 41.4*1	40.3 (Reference) LHV*1: 41.4*1	
	• Reduce SF_6 emissions; increase recovery rate during inspection and retirement of equipment	—	Inspection: 99% Retirement: 97%	Inspection: 99% Retirement: NA	
	• Reduce electric power consumption at offices	FY 2006 17.48 (GWh)*2	17.48 (GWh)*2	17.23 (GWh)*2 1.4% annual decrease	
	• Reduce fuel consumption by offices (gasoline equivalent)	FY 2006 1,644 (kl)	1,644 (kl)	1,339 (kl) 18.6% annual decrease	
Efforts relating to local environmental issues	• Reduce SOx emissions per unit of electric power generated (point of generation, thermal power stations)	—	0.19 (g/kWh)	0.20 (g/kWh)	
	• Reduce NOx emissions per unit of electric power generated (point of generation, thermal power stations)	—	0.53 (g/kWh)	0.50 (g/kWh)	
	• Increase recycling rate for industrial waste	—	95%	98%	
	• Increase paper recycling rate	FY 2006 87%	87%	86% 1-point annual decrease	
	• Increase rate of green purchasing of office supplies (stationery, etc.)	—	68%	69%	
	• Increase percentage of recycled copy paper purchased	FY 2006 95%	95%	95% no change	
	• Increase percentage of low-emission vehicles	—	85%	87%	
Ensuring transparency and reliability	• Improve level of environmental management	Adoption of environmental management systems at all consolidated subsidiaries by end of FY 2007			

	Target	FY 2007 evaluation and next steps
	Appr. 10% reduction from FY 2002 level (in FY 2010)	Emissions intensity was up 3% from previous year to 0.70 kg-CO_2/kWh owing to growth in sales of thermal power stemming from the increase in operating rate of thermal power plants, as well as decrease in sales of hydropower resulting from drought. The figure represents a decrease of about 3% from 0.72 kg-CO_2/kWh in fiscal 2002. We will continue to pursue our target, taking into account global cost-effectiveness, by combining the following four measures in an economically rational manner: (1) maintenance and improvement of efficiency of energy use, (2) development of low CO_2 emissions power sources, (3) development, transfer, and dissemination of new technologies, and (4) utilization of the Kyoto Mechanisms and other measures.
	Maintain current level (about 40%) (FY 2008 and each FY thereafter)	Although thermal efficiency of thermal power plants normally declines as the facilities age, the J-POWER Group maintained a total thermal efficiency of 40.3% (HHV) for its thermal power generation in fiscal 2007 by reducing plant electricity consumption, and working to maintain efficient operation through adoption of such new technologies as ultra super critical (USC). We will continue working to maintain and improve efficiency of energy use in thermal power plants by maintaining operating efficiency in existing plants, adopting high-efficiency technology in new facilities, and improving efficiency when replacing and upgrading equipment in existing plants.
	Inspection: at least 97% Retirement: at least 99% (FY 2008 and each FY thereafter)	The recovery rate during inspection in fiscal 2007 was 99% thanks to efforts to ensure thorough recovery and reuse (there was no retirement of equipment). We will continue our rigorous recovery and reuse to curb emissions of SF_6 into the atmosphere during inspection and retirement of gas insulation equipment.
	At least 4% reduction from FY 2006 (in FY 2010) At least 1% annual reduction	The fiscal 2007 target was achieved thanks to energy conservation efforts such as keeping lights off during lunch break, reducing power supply to equipment on standby, and turning down air conditioner settings, together with office energy audits. While continuing these efforts, beginning in fiscal 2008, we plan to take our energy-conservation efforts to the next level with the use of the Office Energy Conservation Support Sheet.
	At least 4% reduction from FY 2006 (in FY 2010) At least 1% annual reduction	In fiscal 2007 a reduction of 18.6% from the previous year was achieved largely through savings on heating fuel resulting from relocation of some offices. We will continue working to reduce fuel consumption by promoting the "Warm Biz" campaign, making maximum use of public transportation, making more efficient use of company vehicles, using green driving techniques, etc.
	Maintain current level (about 0.2 g/kWh) (FY 2008 and each FY thereafter)	The current level of SOx emissions per unit of power generated was maintained by curbing SOx emissions through improved coal combustion methods, flue gas desulfurization system, etc. We will continue efforts to curb emissions through proper combustion control and good management of environmental facilities.
	Maintain current level (about 0.5 g/kWh) (FY 2008 and each FY thereafter)	The current level of NOx emissions per unit of power generated was maintained by curbing NOx emissions through improved coal combustion methods, flue gas denitrification systems, etc. We will continue efforts to curb emissions through proper combustion control and good management of environmental facilities.
	97% (by the end of FY 2010)	The target for fiscal 2010 was achieved thanks to steps to promote effective use of coal ash and reduce industrial waste generated by maintenance and operation of power plants. We will continue working to maintain our high recycling rate for industrial waste.
	At least 85% (by the end of FY 2010) At least 1-point annual increase	The target was achieved for the second year in a row thanks to steps to promote rigorous sorting and recycling of paper. We will continue working to reduce disposal of non-industrial waste by intensifying recycling efforts.
	At least 80% (by the end of FY 2010)	Green purchasing initiatives were undertaken in accordance with the J-POWER Group Green Purchasing Guidelines, and the rate increased by only 1 percentage point. The Group will intensify its efforts and continue to work toward its target.
	At least 99% (by the end of FY 2010) At least 1-point annual increase	There was no change in the percentage purchased compared with the previous year despite efforts to maximize use of recycled copy paper. The Group will redouble its efforts to meet the target.
	At least 90% (by the end of FY 2010)	The percentage of low-emission vehicles increased by 2 percentage points from the previous year thanks to green purchasing initiatives based on the J-POWER Group Green Purchasing Guidelines. The Group will intensify its efforts and continue to work toward its target.
	Continuous improvement of EMSs (FY 2008 and subsequent fiscal years)	The initial goal of adopting environmental management systems in all Group companies (consolidated subsidiaries) was achieved in fiscal 2007. Henceforth the Group will apply itself to continuous improvement.

*1 LHV (lower heating value) estimated from actual HHV (higher heating value) using conversion coefficients supplied in the Agency of Natural Resources and Energy's Comprehensive Energy Statistics (2004 edition).
*2 Figures are adjusted to compensate for changes in the scope of available data.

Environmental Management

Business Activities and the Environment (Fiscal 2007)

Note: Figures represent aggregate of all J-POWER Group companies (J-POWER and consolidated subsidiaries); in the case of joint investments, figures are prorated according to the ratio of capital contribution. Figures do not include overseas affiliates.

INPUT

Thermal Power Generation (including Wakamatsu Research Institute)

Fuel

Wet coal	20.42 million tons
Heavy oil	51,000 kl
Light oil	34,000 kl
Nature gas	115 million Nm^3
Biomass (dried sewage sludge)	1,000 tons

Water

Industrial water	9.86 million m^3

Chemicals (undiluted equivalents)

Limestone ($CaCO_3$)	229,000 tons
Ammonia (NH_3)	13,000 tons
Hydrochloric acid (HCl)	1,000 tons
Sulfuric acid (H_2SO_4)	1,000 tons
Caustic soda (NaOH)	5,000 tons

Hydropower Generation

Power for pumped storage	2,800 GWh

Geothermal Power Generation

Steam	1.02 million tons
Hot water	5.02 million tons

Business Sites and Offices (internal use)

Electricity

Business sites	54.13 GWh
Offices	17.23 GWh

Fuel

Gasoline, diesel, city gas, etc. (gasoline equivalent)	3,773 kl

Water 590,000 m^3

Copy paper (A4 equivalent) 58 million sheets

Notes:
1. Apart from waste water, almost all industrial water used in thermal power stations is released into the atmosphere as steam.
2. River water used in hydroelectric stations is not included in the input figures, as all such water is returned to the river after power generation.
3. While steam is used in geothermal power stations, hot water is returned underground after power generation via injection well.

BUSINESS ACTIVITIES

Electric Power Generated

Thermal 57,000 GWh

Hydroelectric 10,400 GWh

Geothermal 100 GWh

Wind power 300 GWh

Auxiliary power for operation and transmission loss
3,700 GWh

Note: Due to rounding, figures may not add up to totals.

OUTCOME

Volume of electric power sold	62,200 GWh
Pumped storage hydroelectric power output	1,900 GWh

Total
64,100 GWh

Supply

The electricity generated at our power stations is supplied through regional power companies to end users throughout Japan. The 62,200 GWh of wholesale electric power we sold last year is equivalent to approximately 7% of total electric power sold by regional power companies.*

* 919,500 GWh: Total fiscal 2007 electric power sold according to confirmed figures on electricity demand published by the Federation of Electric Power Companies of Japan.

OUTPUT

Thermal Power Stations (including Wakamatsu Research Institute)

Atmospheric emissions	
CO_2	45.99 million t-CO_2
SOx	11,000 tons
NOx	28,000 tons
Soot and dust	1,000 tons
Waste water	3.40 million m³
Waste water COD	14 tons

Geothermal Power Station

Hot water	5.33 million tons

Industrial Waste

Coal ash	3,000 tons
Sludge (excluding gypsum)	6,000 tons
Other industrial waste	22,000 tons
Specially controlled industrial waste	1,000 tons

Non-industrial Waste

Waste paper	59 tons
Driftwood in dam reservoirs	900 m³

Internal Consumption at Business Sites and Offices

CO_2 emissions generated from consumption of electricity and fuel at business sites and offices 38,000 t-CO_2

(Amount generated from office activities) 10,000 t-CO_2

Recycling and Reuse of Resources

Coal ash	1.71 million tons (99.8%)
Sludge (excluding gypsum)	6,000 tons (48.5%)
Gypsum (desulfurization byproduct)	360,000 tons (100%)
Sulfuric acid (desulfurization byproduct)	15,000 tons (100%)
Other industrial waste	66,000 tons (74.9%)
Waste paper	370 tons (86.3%)
Driftwood from dam reservoirs	28,100 m³ (97.0%)

Percentages indicate recycling rate.

Cement plants, etc.

Environmental Accounting and Eco-efficiency

The J-POWER Group regards environmental accounting as an important tool for environmental management. Through ongoing disclosure of environmental accounting data, we aim to further enhance the reliability and adequacy of information on cost and effectiveness. In addition, improving eco-efficiency (production per environmental load) is one of the goals outlined as part of our basic stance in the Basic Policy section of the J-POWER Group Environmental Management Vision.

Environmental Accounting

To calculate the overall costs and benefits of the J-POWER Group environmental conservation activities in fiscal 2007 in light of the nature of our business, we referred to the Environmental Accounting Guidelines 2005 issued by the Ministry of the Environment.

Calculation Guidelines

- **Period:** April 1, 2007, to March 31, 2008
- **Format:** In accordance with Environmental Accounting Guidelines 2005 issued by the Ministry of the Environment
- **Scope:** Costs (including depreciation costs) for thermal power generation companies, which have the highest environmental load among J-POWER and Group operations
  - Costs were calculated focusing on expenses for: personnel contracting/repair/chemicals associated with operating and maintaining equipment; waste recycling and disposal; R&D; and overseas projects (contracting and personnel expenses).
  - However, upstream and downstream costs associated with the contribution of hydroelectric power generation to measures against global warming, and with green purchasing efforts, were deemed to present problems in terms of calculation scope and method and thus were excluded from calculations.

Environmental Conservation Cost

Total costs for fiscal 2007 were approximately 38.4 billion yen, with pollution control costs for preventing contamination of the air, water, etc., accounting for about 43% of the total.

Environmental Conservation Benefits

When looking at environmental load, the nature of our business requires that instead of tabulating total emissions we assess the overall environmental conservation benefit of our conservation measures on the basis of emissions intensity, thermal efficiency, and reuse/recycling ratio, comparing these levels with the fiscal 2003 benchmarks. Since our efforts to control NOx, SOx, and soot and dust have already attained a high level of effectiveness, our task with regard to these items is to maintain the current levels.

For items that allow assessment of environmental conservation on the basis of a total figure, we have used the total for fiscal 2007 as the measure of environmental benefit.

Category	Main measures and efforts	Cost (billion yen)	Environmental conservation benefit	FY 2003	FY 2007
Pollution control	Air pollution control (desulfurization/denitrification, soot and dust treatment), water pollution control (waste-water treatment), etc.	16.3	SOx emissions intensity (g/kWh)	0.17	0.20
			NOx emissions intensity (g/kWh)	0.49	0.50
			Soot and dust emissions intensity (g/kWh)	0.02	0.02
Global environmental conservation	Measures to reduce greenhouse gas emissions (maintaining high-efficiency operation of coal-fired power stations, developing renewable and unutilized energy sources, maintenance costs for energy-saving equipment, emission control of greenhouse gases other than CO_2)	1.6	CO_2 emissions intensity (kg-CO_2/kWh)	0.70	0.70
			Average coal-fired thermal efficiency (%)	40.3	40.3
Resource recycling	Waste reduction through reuse and recycling, treatment and disposal of waste	11.5	Coal ash recycling rate (%)	76.4	99.8
			Industrial waste recycling rate (%)	80	98
			Gypsum recycling rate (%)	100	100
			Volume of driftwood recycled (1,000 m³)		28.1
Management activities	Monitoring and measurement of environmental load, labor costs for environmental conservation organizations, costs for environmental education, etc.	1.2	Employees completing internal environmental auditor training		170
Research and development	High-efficiency generation, use of fuel cells, capture and storage of CO_2, recycling of coal ash and gypsum, etc.	2.4			
Social activities	Tree-planting, environmental advertising, environmental beautification, membership in environmental groups, preparation of environmental report, etc.	3.0	Environmental report (copies published)		12,000
			Environmental pamphlet (copies published)		12,000
International projects	Overseas cooperation projects for environmental conservation technologies	0.9	Overseas consulting projects (cumulative total)		288
Other	Pollution load levy	1.5			
Total		38.4			

Note: For detailed data regarding each category, see pages 75-76, Fiscal Year Data, in the Materials section.

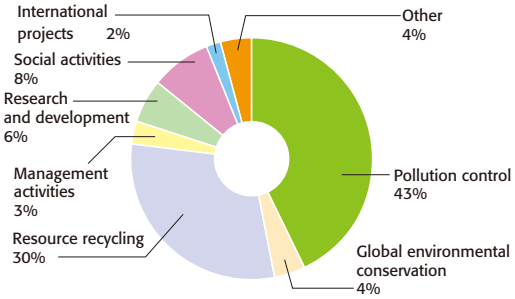
Economic Benefit

Efforts contributing to earnings and cost reductions were calculated to have had an economic benefit of approximately 8.7 billion yen.

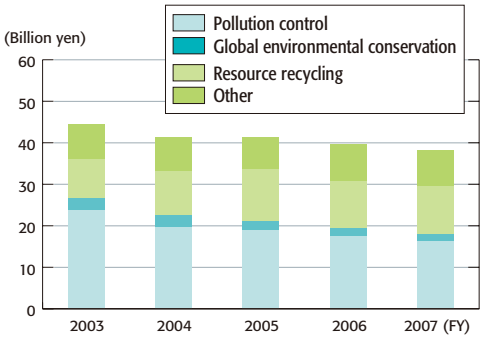
(Unit: billion yen)

Category	Details	Benefit
Revenue	Sales of marketable commodities from coal ash, gypsum, and sulfuric acid	0.5
Cost reduction	Reduction in fuel costs due to improved coal-fired thermal efficiency (introduction of USC)	3.3
	Reduction in disposal costs due to recycling of coal ash, gypsum, and sulfuric acid	4.9
Total		8.7

■ **Environmental Conservation Costs: Breakdown by Category**

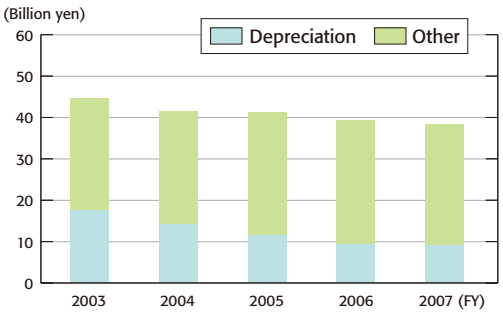


■ **Environmental Conservation Costs: Comparison by Fiscal Year**



Note: Figures for FY 2003-2004 are for J-POWER only, on a non-consolidated basis.

■ **Proportion of Depreciation and Other Costs**



Notes: 1. Figures for FY 2003–2004 are for J-POWER only, on a non-consolidated basis.
2. Depreciation: costs related to depreciation of environmental equipment.

Eco-efficiency

The Basic Policy section of the J-POWER Group Environmental Management Vision sets out our basic stance, which is to "contribute to sustainable development in Japan and the world as a whole by minimizing the environmental load of our business activities, reducing environmental risks such as global warming, and improving eco-efficiency by achieving higher productivity with lower environmental load, thus enhancing both environmental responsibility and economic value."

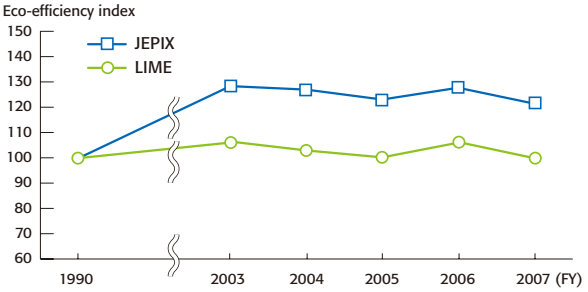
The data presented here is an integrated index of eco-efficiency arrived at by weighting each category of environmental load using an established coefficient and then calculating the total. By using such an integrated assessment system it is possible to use a single value to rate the overall eco-efficiency of all corporate activities.

A number of integrated assessment methods have been developed overseas, including Eco-indicator 99 in the Netherlands, EPS 2000 in Sweden, BUWAL 297 in Switzerland, and others. Japan has also developed its own methods, which take into account the country's local characteristics. These include JEPIX (which uses policy targets as indicators) and LIME (which uses damage to human health and ecosystems as indicators).

We have used both of these methods to evaluate our efforts to this point. Although the two methods assign different coefficients to various aspects of the environment, both indicate an overall trend of improving eco-efficiency since fiscal 1990.

As our medium- to long-term tasks henceforth, we are working to reduce the environmental load by improving the efficiency of energy use, which is closely tied to increased eco-efficiency, and developing renewable energy sources.

■ **Integrated Index (electric power sold per environmental load) of Eco-efficiency**



Notes: 1. Eco-efficiency: 100 = FY 1990 integrated index (electric power sold per environmental load).
2. Figures for FY 2003–2004 are for J-POWER only, on a non-consolidated basis.

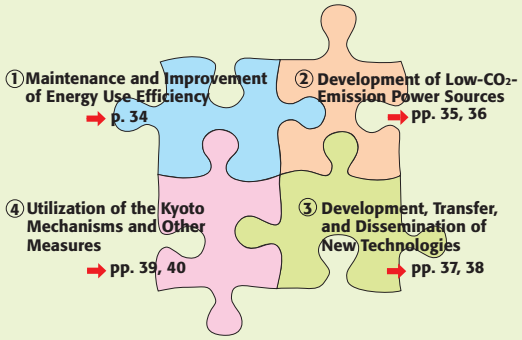
Part 2

Efforts Relating to Global Environmental Issues

With humanity obliged to continue relying on fossil fuels as its primary energy source through this century, the problem of global warming is the most serious issue to be tackled over the long term. The J-POWER Group regards measures to combat global warming as a top management priority and is pursuing such actions vigorously.

Four Strategies to Fight Global Warming

J-POWER Group efforts to combat global warming are centered around the following four strategies.



We will continue working to reach our targets through such strategies as the development of low-CO_2-emission power sources and utilization of the Kyoto Mechanisms.

CO_2 Emissions from Business Activities

Japan's total annual CO_2 emissions are approximately 1.27 billion t-CO_2 (actual emissions for fiscal 2006), of which about 30% is generated by power stations. Emissions from J-POWER Group companies (in Japan) account for about 3% of Japan's total.

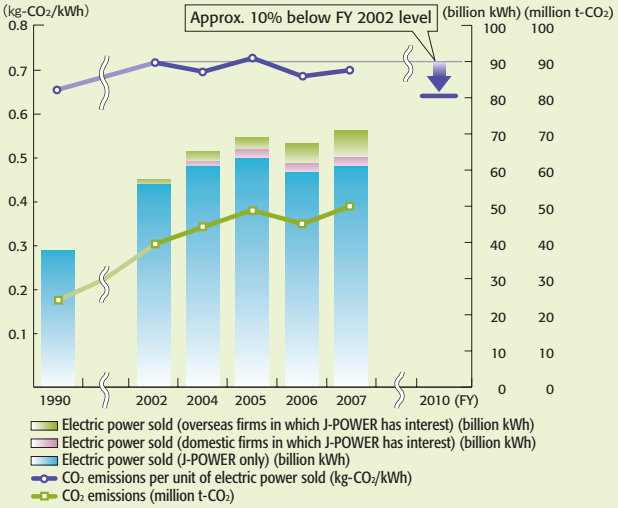
We take this situation seriously and are working to reduce emissions with the goal of achieving an approximately 10% reduction from the fiscal 2002 level of annual CO_2 emissions per unit of electric power sold by J-POWER Group electric power businesses in Japan and overseas, in fiscal 2010 (see page 27).

CO_2 Emissions by J-POWER Group Companies (Domestic and Overseas)

In fiscal 2007, electric power sold by the J-POWER Group as a whole—including that of all domestic and overseas subsidiaries and unconsolidated affiliates in which J-POWER has a stake, prorated according to J-POWER's holding ratio—was approximately 71.7 billion kWh, an increase of about 7% from the previous year. CO_2 emissions increased to 50.22 million t-CO_2, an increase of about 11% from the previous year, owing in part to an increase in the utilization rate for coal-fired power stations.

CO_2 emissions per unit of electric power sold rose to 0.70 kg-CO_2/kWh, approximately 3% higher than the previous year, owing to growth in sales of electric power from thermal power stations due to the increase in their utilization rate, as well as declining sales of hydroelectric power as a result of drought conditions. This level still represents a drop of about 3% from fiscal 2002, when emissions per unit of electricity sold were 0.72 kg-CO_2/kWh.

■ **J-POWER Group (Japan and Overseas) CO_2 Emissions**



Scope of Companies Included in the Calculation of CO_2 Emissions and Electric Power Sold

Inasmuch as our focus is on global environmental problems, when calculating CO_2 emissions per unit of electric power sold (CO_2 intensity)—the measure on which our corporate targets are based—we have made an effort to include in our aggregate all energy-producing businesses in which J-POWER has a stake, both domestically and overseas. To this end, we have calculated the electric power sold and the CO_2 emissions of each of the Japanese and overseas companies in which J-POWER has a stake, including non-consolidated affiliates, and prorated their figures in accordance with J-POWER's holding ratio.

In calculating the volume of CO_2 emissions, we have used the emission coefficients established under the greenhouse gas accounting, reporting, and disclosure system instituted under the amended Law Concerning the Promotion of Measures to Cope with Global Warming.

COLUMN

CO_2 Reduction Benefit from Hydroelectric and Other Power Stations

THE 59 hydroelectric power stations that J-POWER operates nationwide represent a total output of 8.56 GW, almost 20% of the total capacity of Japan's hydropower facilities. In fiscal 2007, the volume of hydroelectric power sold (not including power from pumped storage generation) was 8,290 GWh, for a CO_2 emissions reduction benefit of approximately 3.4 million t-CO_2.

In fiscal 2007 electric power sold by the Onikobe Geothermal Power Station and J-POWER Group's wind power facilities (domestic) were 90 GWh and 310 GWh, respectively, together yielding a CO_2 reduction benefit of approximately 170,000 t-CO_2.

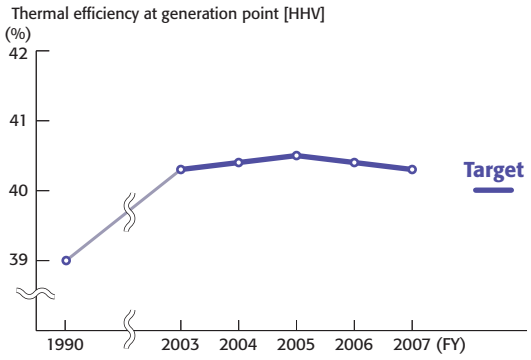
Note: These estimates are based on average CO_2 intensity (kg-CO/kWh) for all power sources throughout Japan.

THEME

Maintenance and Improvement of Energy Use Efficiency

The energy-use efficiency of the J-POWER Group's coal-fired power facilities is among the highest in the world, thanks to the company's efforts to develop and actively incorporate its own cutting-edge technology. In its hydropower and other facilities as well, J-POWER strives for stable operations and works to further improve equipment efficiency during upgrades. In addition, the Group as a whole is working to promote energy conservation.

■ Thermal Efficiency of J-POWER Group Thermal Power Stations



Note: Figures for 1990–2004 are for J-POWER only.

Maintaining Efficient Operation of Thermal Power Stations

The J-POWER Group is taking measures to reduce auxiliary power for operations in its thermal power stations, while working to maintain high-efficiency operation through the introduction of new technologies, such as ultra super critical (USC) technology. In fiscal 2007, the average thermal efficiency of all of our thermal power stations (at point of generation) was 40.3% (as compared with 40.4% in fiscal 2006). Although thermal efficiency of thermal generation equipment declines with age, we slow the aging process and stem the decline in thermal efficiency by installing high-efficiency equipment in our new facilities and conducting regular equipment inspections. By stemming the decline in thermal efficiency, it is possible to reduce the amount of fuel used and ultimately cut CO_2 emissions. The J-POWER Group will continue these efforts to maintain and improve the efficiency of energy use in its thermal power stations.

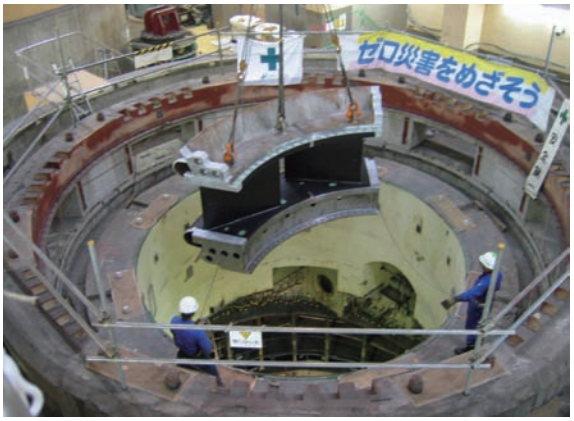
Measures to Maintain and Improve Hydropower Facilities (renewal)

J-POWER is carrying out a total replacement of the aging main generating facilities at the Tagokura Power Station. The plan is designed to prolong the life of the facility and improve the reliability of its equipment, while using the latest technology to improve power generation efficiency and boost output by about 5%.

We are also carrying out a total upgrade at Nukabira Power Station, and we are working at both sites to ensure stable operation of our hydroelectric power stations through proper maintenance and operation of facilities, as well as improvements in equipment efficiency.

Through these efforts, the power generation capacity of Tagokura Power Station is expected to gradually increase from the current 380 MW to 400 MW by 2012 (reaching 385 MW in 2006, 390 MW in 2008, and 395 MW in 2010), while the output of Nukabira Power Station is planned to rise from 42 MW to 44 MW after 2010.

We are currently studying the possibility of following up these projects with large-scale renovations at other sites.



Total upgrade of main equipment at Tagokura Power Station (Fukushima Prefecture)

COLUMN

A Lubricant That Can Make a Difference

ROYAL PURPLE, marketed by J-POWER in Japan (registered in Japan under the trademark RP-LUCID), is a high-performance lubricant perfected by the US firm Royal Purple using an advanced additive technology centered on its own proprietary additive Synerlec. Royal Purple achieves ideal characteristics that had eluded previous lubricants: combining film strength, oxidation resistance, and excellent separation from water in one product. At J-POWER we are currently using it to lubricate much of our equipment, including the large auxiliary systems at our thermal power stations, and we are hopeful that its excellent properties will lead to longer intervals between oil changes, reduced maintenance costs, and energy savings.

The lubricant is also being used at our wind-power facilities, which have benefited from greater lubricant stability and higher output performance, and we have plans to gradually expand its use.

Part of our mission is to maintain the reliability of existing power facilities to ensure that our customers have a stable, cheap supply of electricity, and we believe that this lubricant can play an important role in helping us fulfill that mission. We are also optimistic that the product will act as a metaphorical lubricant, as our efforts to promote widespread use by Group companies contribute to stronger technical networks among them.

Royal Purple high-performance synthetic lubricant

THEME

Development of Low-CO_2-Emission Power Sources

As one important low-CO_2-emission power source, the J-POWER Group is moving forward with the construction of nuclear power stations. We are also at work on gas-turbine combined-cycle power generation, which can achieve high efficiency of energy use. In addition, while promoting the uses of wind power, biomass, and other alternative energy sources, we are working to develop small hydropower, one of the precious natural resources remaining in Japan.

Construction of Ohma Nuclear Power Station

Nuclear power accounts for approximately one-third of Japan's total electric power generating capacity. In addition to benefiting from stable fuel supplies and prices, nuclear generation offers the environmental advantage of almost no CO_2 emissions. For this reason, we believe it has a key role to play in efforts to combat global warming.

We are currently working on the construction of a nuclear power station (full MOX-ABWR; 1,383 MW) in Ohma-machi, Aomori Prefecture, designed to use MOX fuel for the entire reactor core. We are carrying out this construction plan based on coexistence with local communities, with close attention to rigorous safety measures and environmental conservation. Ohma Nuclear Power Station is expected to yield an annual emission-reduction benefit of approximately 3.2 million t-CO_2 (assuming utilization rate of 80%).

Site of Ohma Nuclear Power Station
(Aomori Prefecture; photographed March 2007)

Gas-Turbine Combined-Cycle Generation

Gas-turbine combined-cycle power generation combines gas turbines and steam turbines to achieve high generation efficiency, in the area of 50%.

We have established Ichihara Power Co., Ltd. (a joint venture between Mitsui Engineering & Shipbuilding Co., Ltd. and J-POWER) and Bay Side Energy Co., Ltd. to work on gas-turbine combined-cycle power generation using natural gas as fuel.

Overseas as well, we are involved in gas-fired thermal power generation as the focus of 11 projects (as of March 2008), including the Kaeng Khoi 2 gas-fired thermal power station project in Thailand.

Ichihara Power Station
(Bay Side Energy Co., Ltd., Chiba Prefecture)

COLUMN

Hibikinada Solar Power Plant

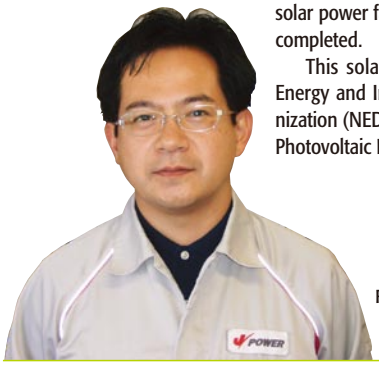
SOLAR POWER is one of the renewable energy sources that need to be adopted more widely, but the majority of solar power systems in Japan are for individual residences. There are expectations for more widespread deployment of large-scale facilities in the years ahead.

In the Hibikinada district of Wakamatsu Ward in Kitakyushu City (Fukuoka Prefecture), we reclaimed land using coal ash as landfill, and in March 2008 a solar power facility—Hibikinada Solar Power Plant—was completed.

This solar power system, approved by the New Energy and Industrial Technology Development Organization (NEDO) in 2007 as a Field Test Project on New Photovoltaic Power Generation Technology, is the largest single facility in Kyushu, with an installed capacity of 1,000 kW (1 MW). It consists of 5,600 solar cell modules of the polycrystal silicon type, each measuring 1.29 by 0.99 meters.

In the field test with NEDO, we are measuring and analyzing various actual-load operating data over a period of four years to evaluate a new control system using a high-capacity power conditioner.

The facility is expected to generate about 1 GWh of electricity per year, resulting in an estimated emissions reduction of about 410 t-CO_2.



Takao Araki
Facility & Environment Management Group
Wakamatsu Operations &
General Management Office

Photovoltaic array

Wind Power Generation

Using the know-how and technologies we have accumulated as an electric power supplier over the years, the J-POWER Group is operating wind power facilities at nine sites* in Japan (123 generators, total capacity 210 MW). We are also at work on the construction of the Zajaczkowo Windfarm in Poland (48,000 kW; scheduled to begin operation in 2008).

In addition, we are engaged in development and survey activities for future sites in Japan and overseas.

*Including one site owned by an equity method affiliate.

Koriyama-Nunobiki Kogen Wind Farm (Fukushima Prefecture)

Power Generation Using Biomass Fuel

❍ Utilization of Woody Biomass (Co-firing with Coal)

In October 2007 we began construction of facilities for receiving and storage of woody biomass fuel (storage capacity 250 m³) at Matsuura Thermal Power Station (Nagasaki Prefecture) in preparation for full-scale operation using woody biomass fuel. In fiscal 2008, after test-operating the facilities and making necessary adjustments, we plan to conduct long-term trials of woody biomass co-firing to verify that co-firing will have no negative effect on plant equipment.

Woody biomass handling facility (Matsuura Thermal Power Station, Nagasaki Prefecture)

❍ Utilization of Sewage Sludge (Biosolid) Fuel (Co-firing with Coal)

Biosolid fuel is produced by heating a mixture of sewage sludge from sewage treatment plants and discarded cooking oil in order to remove the moisture. For heating, the oil-heat depressurization drying method is employed. The resulting fuel has approximately the same heating properties as typical coal. In fiscal 2006 we began commercial operation at the Matsuura Thermal Power Station (Nagasaki Prefecture), launching the first such undertaking in Japan. Working within the constraints of limited fuel production, the facility co-fired about 700 tons of biosolid fuel in fiscal 2007, generating approximately 1,700 MWh. We are now aiming to increase the amount of biosolid fuel to be co-fired, working with such entities as the Fukuoka Prefectural Sewage Public Corporation to develop technology for manufacturing an oil substitute from waste cooking oil.

Biosolid fuel

Matsuura Thermal Power Station is the first commercial thermal power generation facility in Japan to be certified as a new energy facility under the Renewable Portfolio Standard (RPS) system (certification was received February 16, 2005).

❍ Development of Biomass Fuel Production Technology

In addition to biomass co-firing technologies at coal-fired power stations, we are developing technologies to produce a variety of biomass fuels. For biosolid fuels, we are currently developing a method for producing fuels from sewage sludge using low-temperature carbonization technology. Compared to conventional carbonization processes, the low-temperature method has been successful in upgrading the heating value of the fuel by about 40% while significantly cutting greenhouse gas emissions by reducing the amount of N_2O generated during sludge treatment. In fiscal 2007 the Japan Sewage Works Association carried out a technical evaluation of the process, and we were granted technical certification for application of this technology to sewage works.

Low-temperature carbonized fuel

Stable Operation of Geothermal Power Facilities

Geothermal power, which makes effective use of Japan's precious volcanic resources, is another energy source that emits almost no CO_2. We are working to ensure the stable operation of our Onikobe Geothermal Power Station (Miyagi Prefecture; 12,500 kW). We are also laying the groundwork for new geothermal power projects in Japan and overseas.

Onikobe Geothermal Power Station (Miyagi Prefecture)

Small Hydropower Generation

The J-POWER Group is also working on the development of small hydropower generation to make effective use of an important untapped energy source of 100% domestic origin. Thus far we have provided design and construction supervision for a power station that makes use of an existing erosion control dam (Oita Prefecture), facilities that use irrigation channels (Tochigi Prefecture and Yamanashi Prefecture), and one that uses the public water supply system (Mie Prefecture). We also undertook a project to redevelop a power station (Mie Prefecture) damaged by flooding and upgrade its capacity in the process, completing construction in April 2008.

The Mie Prefecture Public Utilities Agency's redeveloped hydroelectric power station, designed by KDC Engineering (now called JPD Engineering), with equipment designed and constructed by JPHYTEC (new capacity: 2,600 kW).

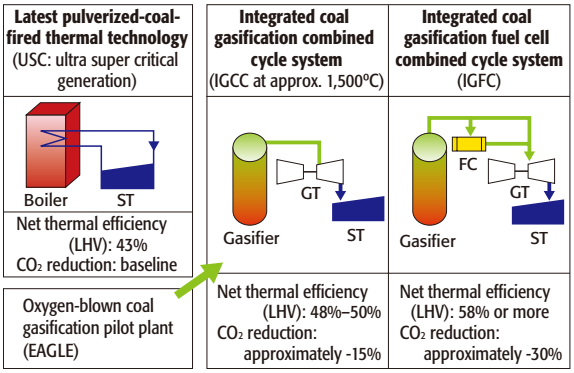
THEME

Development, Transfer, and Dissemination of New Technologies

Aiming for significant improvement in the efficiency of coal use, the J-POWER Group is pushing forward with the development of oxygen-blown coal gasification technology, which can be effectively combined with CCS (CO_2 capture and storage) technology. We are also testing technology for capture of CO_2 from pulverized-coal thermal power stations and conducting research into geological storage of CO_2.

Development of High-Efficiency Coal Gasification Power Generation Technology

For several decades now, technologies for high-efficiency coal-fired thermal power generation have been developed as a way of reducing atmospheric pollutants and coal consumption, and more recently as a way to reduce CO_2 emissions. There are two main types of coal-fired thermal power generation. One is pulverized-coal-fired (PCF) generation, in which coal ground to a fine powder is burned in a boiler, generating steam that drives a steam turbine to generate electricity. The other is integrated coal-gasification combined cycle (IGCC) generation, where a gasifier is used to convert coal to combustible gas, which is burned to power a gas turbine that generates electricity, while the waste heat is recovered and used to drive a steam turbine.



ST: Steam turbine GT: Gas turbine FC: Fuel cell

In PCF generation, which accounts for most coal-fired thermal power, we have achieved gross thermal efficiency of about 43% by creating ultra super critical (USC) steam conditions, and we expect to improve efficiency further by creating even higher-temperature steam conditions.

Coal gasification, meanwhile, offers considerably higher efficiency: up to 50% for IGCC and the prospect of 58% or higher when IGCC is combined with fuel cells in a system called integrated coal gasification fuel cell combined cycle (IGFC).

The aim of the J-POWER Group is the development and commercialization of IGFC, the ultimate technology for high-efficiency power generation using coal. To this end we are involved in the multi-purpose coal gas production technology development (EAGLE) project, as well as research and development of a solid oxide fuel cell (SOFC) (see Special Feature 3, pp. 13–16, and columns).

CO_2 Capture and Storage (CCS) Technology

The two alternatives for reducing CO_2 emissions from thermal power plants are (1) improving thermal efficiency and (2) adopting CCS technology. In terms of the first approach, IGFC is expected to reduce emissions by about 30% compared with existing pulverized-coal-fired generation. On the other hand, by adopting CCS technology to separate and capture CO_2 and store it underground, we can expect to reduce CO_2 emissions by 90% or more. In recent years interest in this technology has been soaring worldwide, because it holds out

COLUMN

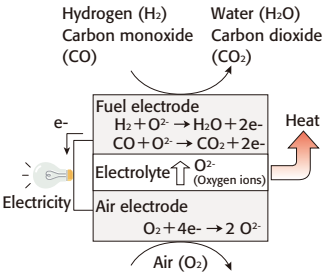
Development of an SOFC System

FUEL CELL power generation is a technology that produces electricity through the electrochemical reaction between hydrogen extracted from such sources as gasified fuel and the oxygen in the air. Unlike systems that convert the heat from fuel combustion into electricity, fuel cell systems derive the electric energy directly. This means less energy loss and high generating efficiency.

The fuel cell that we are developing is a solid oxide fuel cell (SOFC) that uses a ceramic for the electrolyte, making it operational under high temperatures as well as highly durable. In addition to the high generating efficiency made possible by an SOFC, the high-grade intense heat energy it emits when generating electricity lends itself to a variety of uses. With these features in mind, we are working to develop an SOFC system that could provide a power source for cogeneration projects or for smaller electric power companies, using technology that could also eventually be applied to systems for large electric utilities. Since January 2007, we have been conducting pilot testing using a 150 kW–class atmospheric SOFC cogeneration system (SOFIT) in order to validate SOFC systemization technology, establish operating methods, and verify long-term reliability. In addition to achieving an output capacity of more than 100 kW, the highest in Japan for such a system, we have also logged about 4,500 cumulative hours of operation, as of March 2008.

SOFC is believed to have great potential as a technology that can benefit the environment through high efficiency and energy conservation. Validation of an SOFC system of this scale has seldom been carried out anywhere in the world, and we believe it will provide us with valuable data and know-how. We want to use this pilot test to isolate and correct as many potential system problems as possible and get our SOFC system technology ready for prime time.

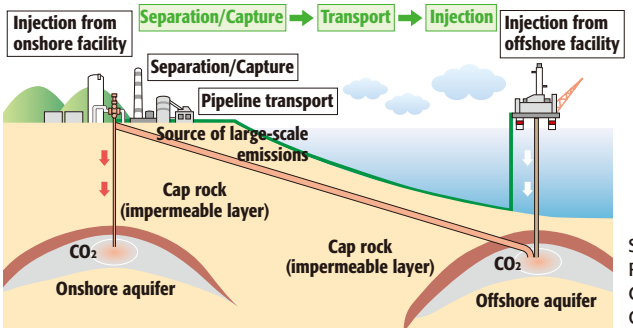
Norio Komiyama Hydrogen & Energy Resource Group
Technology Development Center



Principle of fuel cell (SOFC) power generation

150-kW-class module (SOFIT)

■ Illustration of CO_2 Storage Technology



Source:
Reference material for March 14, 2006 meeting, Global Environment Committee, Central Environment Council

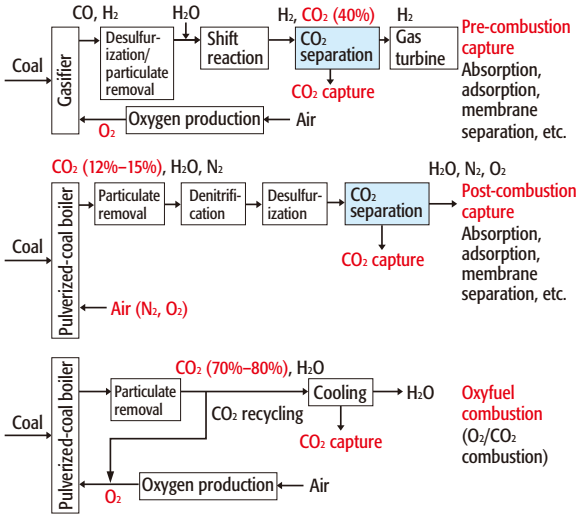
the promise of drastic reductions from a major source of emissions. Technology for the separation and capture phase is still at the pilot-testing stage, and before it can be applied commercially, engineers will have to address a number of challenges, such as making the technology more economical and reducing the amount of energy it consumes, and it will have to be validated through testing in large-scale demonstration test facilities.

CO_2 Capture from Coal-Fired Power Generation

There are three basic approaches to separating and capturing CO_2 from coal-fired thermal power generation: (1) pre-combustion capture, (2) post-combustion capture, and (3) oxyfuel combustion. Pre-combustion capture can be used in IGCC and IGFC plants that gasify coal, while post-combustion capture and oxyfuel combustion are suitable mainly for PCF plants.

We are working on development of technology for all three types of CO_2 separation and capture in recognition of the fact that PCF plants, which burn coal to generate energy, are currently widespread, while combination systems using high-efficiency IGCC and IGFC generation offer great potential for the future.

■ CO_2 Capture from Coal-Fired Thermal Power Generation



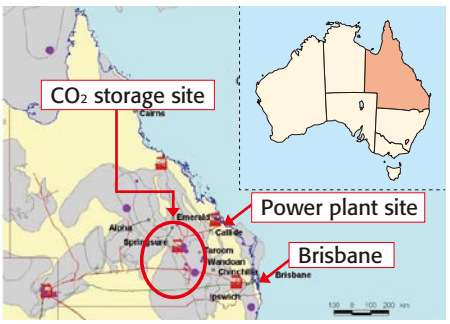
Capture From Coal Gas Synthesized from Oxygen-Blown Gasification

In the EAGLE Pilot Test, the coal gas produced has low nitrogen content owing to the use of the oxygen-blown method for gasification, making the CO_2 separation and capture more efficient. Hoping to build on this advantage, in fiscal 2008 we will be carrying out validation testing for CO_2 separation and capture technology at the EAGLE pilot test plant (see Special Feature 3).

Capture from Pulverized-Coal-Fired Power Stations

The separation and capture of CO_2 from flue gas following combustion is also considered a promising technique for the future. At Matsushima Thermal Power Station, we have been collaborating with Mitsubishi Heavy Industries, Ltd. during fiscal 2007 and fiscal 2008 in trials using the chemical absorption method. Test operation carried out to date has verified the applicability of this technology to pulverized-coal-fired thermal generation in respect to such issues as the long-term reliability of equipment and the effect on trace substances in flue gas.

In connection with the oxyfuel combustion method, which supplies the boiler with oxygen instead of air for combustion, we participated in a joint Japan-Australia demonstration project of a system planned in Australia (Callide Oxyfuel Project). This was the first validation anywhere of an integrated system to separate and capture CO_2 from an existing power plant and store it underground. Plans call for the project to begin test operation using oxygen combustion in fiscal 2010, with plant retrofitting carried out in 2008 and 2009.



Project location

Research on Geologic Storage of CO_2

J-POWER is involved in domestic and overseas projects aimed at enabling geologic storage of CO_2 in the years ahead. In fiscal 2007 we began studying geologic storage solutions for the Callide Oxyfuel Project discussed above (storage sites to be selected in fiscal 2008). Since fiscal 2007 we have also been participating in the project "Development of Technology for CO_2 Georeactor Sequestration of Flue-Gas CO_2" by performing reactive chemical transport simulation as part of a study on CO_2 mineral trapping at the Ogachi geothermal field (commissioned by the Research Institute of Innovative Technology for the Earth).

In addition, we are engaged in collaborative research work with the National Institute of Advanced Industrial Science and Technology to develop a reservoir simulator for supercritical CO_2 behavior and a simulation analysis method incorporating geophysical monitoring techniques.

THEME

Utilization of the Kyoto Mechanisms and Other Measures

The J-POWER Group has been moving ahead with application of the Kyoto Mechanisms, with emphasis on the development of CDM projects. In addition, we are actively supporting other companies' efforts to utilize the Kyoto Mechanisms. The CDM (Clean Development Mechanism) and JI (Joint Implementation) are essential mechanisms for minimizing Japan's economic burden and keeping Japanese industry internationally competitive, and the J-POWER Group is working actively to take advantage of them for the purpose of earning and utilizing carbon credits.

Overview of CDM Project Development

We have now crossed the threshold of the first commitment period (2008–2012) of the Kyoto Protocol, which establishes reduction targets for industrial countries' greenhouse gas emissions. The Kyoto Mechanisms (JI, CDM, and emissions trading) were established under the protocol as tools by which industrial nations can achieve their targets in an economically rational manner. The rules governing their application were formally adopted at the COP 11 and COP/MOP 1 meetings held in Montreal in November 2005.

The J-POWER Group began moving proactively to take advantage of the CDM even before the Kyoto Protocol went into effect in February 2005. The reason for the focus on CDM is that, unlike JI and emissions trading, for which carbon credits would not be issued until 2008, the CDM applies to activities undertaken from 2000 on, making it possible to earn credits even before 2008.

In order to accumulate experience, we began by participating in many small projects and assisting in activities leading up to actual registration as a CDM project, with the focus on receptive Central and South American countries. As the date of the protocol's enforcement neared, we began to participate in large-scale projects as well.

Today the J-POWER Group is participating in 13 CDM projects, primarily in Central and South America. As the number of CDM projects registered with the CDM Executive Board has mounted—from 4 at the end of March 2005 to 1,004 as of the end of March 2008—we have been applying ourselves diligently to the registration process. Of our 13 projects, 5 had been registered with the CDM Executive Board as of the end of March 2008.

■ **CDM Executive Board–Registered Projects Developed with J-POWER Participation**

Country	Project name	Description
Chile	Nestle Graneros Plant Fuel-Switching Project	Switch to natural gas in conjunction with renovation of facilities
Chile	Metrogas Package Cogeneration Project	Introduction of cogeneration for improved energy-use efficiency
Columbia	La Vuelta and La Herradura Hydroelectric Projects	Use of renewable energy sources
Brazil	Aquarius Hydroelectric Project	Use of renewable energy sources
Brazil	Caieiras Landfill Gas Emission-Reduction Project	Combustion of landfill gas to reduce greenhouse gases

COLUMN

CDM Project Field Studies

THE FIRST commitment period established by the Kyoto Protocol finally began this year, and public interest is so intense that scarcely a day goes by without some mention of global warming in the media. Here is what some of us are doing in connection with overseas greenhouse gas reduction projects that make use of the Kyoto Mechanisms.

These days we have been carrying out project feasibility studies and support for CDM and JI development in Eastern European countries, China, and Southeast Asia in addition to Central and South America.

Greenhouse gas reduction projects are varied, but most of the activities in which I am involved provide development support for CDM and JI projects relating to power generation using biomass residue as fuel or burning methane gas recovered from landfills and water treatment plants.

It is very difficult to get to the root of problems and issues that arise solely from the project information that one can obtain before on-site inspections. We travel to the site, gather information through direct communication with the people involved, and later reevaluate the project using that information to identify problems and seek solutions.

Fumiaki Mitsuyama Carbon Credit Group, Climate Change Office
Corporate Planning & Administration Department

Major Fiscal 2007 Activities

❍ CDM Projects

In fiscal 2007, the Metrogas Package Cogeneration Project (Chile), making use of natural gas cogeneration technology, was registered with the CDM Executive Board.

❍ Participation in Carbon Funds

As part of our ongoing effort to secure emissions credits efficiently through CDM and JI, the J-POWER Group contributes to the following carbon funds:

- Japan Greenhouse Gas Reduction Fund (JGRF)
- Dexia-FondElec Energy Efficiency and Emissions Reduction Fund

❍ Feasibility Studies

With a view to identifying new JI and CDM projects, we carried out feasibility studies for a number of projects, such as landfill gas emissions reduction projects and projects to reduce methane emissions from livestock manure. We also conducted a study to determine the feasibility of designing a CDM project based on the application of a composting technology developed by the J-POWER Group's JPec Wakamatsu Environmental Research Center for treatment of food waste, which was selected by Japan's Ministry of the Environment for the 2006 Environment Minister's Award for Global Warming Prevention.

Field study for a landfill gas emissions reduction project

Activities to Support Utilization of the Kyoto Mechanisms

The J-POWER Group is engaged in various activities to support utilization of the Kyoto Mechanisms by other Japanese businesses. For example, as the exclusive agent in Japan for the Norwegian firm Point Carbon, a world leader in information, analysis, and forecasts concerning the emissions trading market, we offer information services targeted to specialists. We also operate a Web-based service called GHG Solutions, which offers information and solutions targeted to Japanese businesses interested in global warming issues.

The Kyoto Mechanisms and J-POWER's CO_2 Intensity Target

Such Kyoto Mechanisms as CDM and JI allow industrially developed nations to earn carbon credits to offset their own emissions by taking part in emissions reduction projects in other countries. CDM and JI were adopted by the Kyoto Protocol as a way of achieving the emissions reduction targets at the lowest possible cost. This makes it possible for a country like Japan, which has already pushed energy conservation to the point where further reductions in greenhouse gas emissions can only come at considerable cost, to pursue CO_2 emissions reductions more cost-effectively, at the global level, by implementing programs to reduce CO_2 emissions in developing countries and elsewhere. These mechanisms are crucial to minimize the economic burden on Japan and keep domestic industry internationally competitive.

With this in mind, J-POWER has been working actively to earn and use credits via CDM and JI. To give due consideration to these efforts when evaluating the J-POWER Group's progress toward its CO_2 intensity reduction target, we subtract the carbon credits gained through CDM and JI projects from the CO_2 emissions from our electric power operations.

COLUMN

Feasibility Study for CDM Project Using Composting Technology

IN 2004 JPec received a request from the city of Kitakyushu and the Kitakyushu International Techno-cooperative Association to assist with development of a composting technique and system in Surabaya, Indonesia.

In Indonesia, household garbage is commonly disposed of in landfills without sorting, and in some cases simply thrown out. Because of the heat, it quickly rots, producing foul odors and other problems.

By enlisting the cooperation of the local residents, we were able to implement a composting system for turning food waste to fertilizer, and this system proved effective in mitigating odors and other problems. Largely because the method adopted was simple and inexpensive, it spread among Surabaya's residents, who were persuaded to keep using it. Eventually it spread to surrounding areas, permitting us to hope for widespread, long-term benefits.

In fiscal 2007, J-POWER commissioned a feasibility study to determine whether the Surabaya composting project could qualify as a CDM project on the grounds that it reduced greenhouse gas emissions by curbing emissions of methane and that it contributed to the region's sustainable development. The study concluded that at present the obstacles to turning the undertaking into a CDM project are too high, but we intend to continue monitoring the situation to respond to any new developments.

Local residents listen to a J-POWER Group employee explain the composter.

THEME

Reduction of Emissions of Greenhouse Gases Other Than CO_2

The Kyoto Protocol of the Framework Convention on Climate Change covers six types of greenhouse gases. The J-POWER Group is working to ensure adequate control not only of CO_2 but also of other greenhouse gases (SF_6, HFC, PFC, N_2O, and CH_4) and is doing its utmost to reduce emissions of these gases. We are also taking appropriate steps to control specified CFCs and halons that deplete the ozone layer.

Measures for Reducing Emissions of Other Greenhouse Gases

The greenhouse gases covered by the Kyoto Protocol include five types in addition to CO_2. With respect to emissions by the electric utility industry, the contribution of these gases to global warming is about 1/370 that of CO_2.*

Sulfur hexafluoride (SF_6) is used in a confined state and is therefore not released into the atmosphere during use. However, partial release can occur when equipment is inspected or discarded. We have established as targets a 99% recovery rate for inspections and a 97% rate for discarded equipment (p. 27). To achieve these targets, we are working to minimize emissions through careful and consistent recovery and reuse. In 2007 our recovery rate during inspections was 99% (there was no equipment discarded).

* Federation of Electric Power Companies of Japan, Environmental Action Plan by the Japanese Electric Utility Industry (September 2007).

■ **Measures for Reducing Emissions of Other Greenhouse Gases**

Gas	Applications and measures for reducing emissions
Sulfur hexafluoride (SF_6)	Used for insulation in gas insulation equipment. The J-POWER Group works to reduce emissions through rigorous recovery and reuse during inspection and disposal. In 2007, our rate of recovery and reuse was 99%.
Hydrofluorocarbons (HFCs)	Used as refrigerant in air-conditioning equipment, etc. Their use is expected to increase as they are adopted to replace government regulated CFCs. The J-POWER Group works to reduce emissions through cooperative efforts to recover and reuse such gases, as well as preventing leaks during installation and repair.
Perfluorocarbons (PFCs)	Not stocked by J-POWER Group companies.
Nitrous oxide (N_2O)	The J-POWER Group is working to keep emissions to a minimum by improving thermal efficiency of thermal power stations. (In fiscal 2007, emissions totaled approximately 1,150 t.)
Methane (CH_4)	As CH_4 concentrations in flue gases from thermal power stations are below average atmospheric concentrations, emissions are effectively zero.

Protecting the Ozone Layer

The ozone layer in the upper stratosphere (about 20 km–40 km above the earth) plays an important role in protecting life by absorbing harmful ultraviolet rays. There are concerns that specified chlorofluorocarbons (CFCs) and halons can destroy the ozone layer, resulting in serious damage to human health and to the ecosystem. For this reason international agreements prohibit the production of these substances and call for cuts in consumption.

In the J-POWER Group we periodically monitor our stocks and consumption and work hard to maintain appropriate controls and to limit emissions.

■ **Stocks and Consumption of Specified CFCs and Halons**

Category	As of year-end, fiscal 2007 (tons)		Application
Specified CFCs	Stock 1.8	Consumption 0.0	Refrigerant
Halons	Stock 4.6	Consumption 0.0	Fire extinguisher
Other CFCs, etc.	Stock 9.5	Consumption 0.3	Refrigerant
Total	Stock 15.8	Consumption 0.3	
CFC alternatives (HFCs)	Stock 5.9	Consumption 0.1	Refrigerant

About Specified CFCs and Halons

Ozone-depleting substances, including specified CFCs and halons, are chemically stable compounds that contain chlorine or bromine. Like HFCs, PFCs, and SF_6, they also have a powerful greenhouse effect.

Under the Ozone Layer Protection Law (Law Concerning the Protection of the Ozone Layer through the Control of Specified Substances and Other Measures), the production and consumption of substances targeted for regulation under the Montreal Protocol, referred to as "specified substances," are being phased out according to a regulatory schedule. As a result, halon production had completely halted by the end of 1993, and production of specified CFCs had stopped by the end of 1995. The production of other ozone-depleting substances is also being phased out.

THEME

Efforts to Reduce Environmental Load during Distribution

Reducing Environmental Load Using Larger Coal Carriers

J-POWER has been adopting larger dedicated bulk carriers (approximately 90,000–150,000 t) in contracts with shipping companies.

In fiscal 2007, we imported approximately 20 million tons of coal to our power stations from Australia, China, Indonesia, and other countries.

The use of larger bulk carriers makes it possible to cut back on marine fuel consumed per ton of coal transported, which reduces the impact of shipping on the environment (CO_2, SOx, NOx, etc.).

Reducing Environmental Load by Marine Transport of Coal Ash

Coal ash is the residue generated when coal is burned in coal-fired thermal power stations.

In fiscal 2007, we used marine transport to ship some 1.71 million tons of coal ash from our power stations to cement plants or other locations around the country, so that it could be put to use as a raw material for cement, concrete admixture, land reclamation material, and so on.

Amid rising concerns over global environmental problems, we recognize the importance of transporting coal ash using the mode of transport that places the smallest burden on the environment. Approximately 90% of the coal ash we ship is transported by dedicated carriers and other ships. The use of maritime transport reduces the environmental load of shipping, such as CO_2 emissions, as compared with truck transport.

The *Seisho-maru*

THEME

Stepping Up Energy Conservation at Our Offices

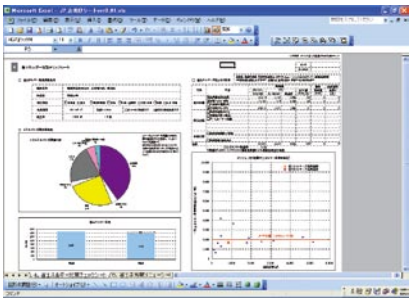
Energy Conservation Activities

As part of our effort to stem global warming, we implement rigorous energy-saving policies at all our business sites, including lights off during lunch break and reduced power supply to equipment on standby. In addition, we are actively installing energy-saving equipment in every new office we build.

In terms of Japan's overall efforts to combat global warming, more intensive energy conservation is called for in the commercial sector, which includes offices.

To do its part, the J-POWER Group is intensifying its efforts by adopting new targets for its existing policies, and all our Group employees are working as one to achieve them (p. 27).

In addition, we are taking our office energy conservation measures to the next level by conducting energy audits at ten J-POWER Group offices between fiscal 2005 and fiscal 2007. Through these audits, professionals measure things like energy consumption and the indoor environment and suggest ways to conserve energy. We are now applying the findings of those audits to all offices in the J-POWER Group. We have also developed a spreadsheet tool called Office Energy Conservation Support Sheet that enables offices to identify effective energy-saving strategies by themselves without undergoing an audit. We began using it at our offices in the spring of this year (see column below).



Output image showing amount of energy saved through energy conservation strategies (white portion of pie chart).

COLUMN

High Hopes for Office Energy Conservation Support Sheet

WE RECEIVED comments from many of the offices that underwent energy audits noting the difficulty of determining how successful and cost-effective one's energy-saving efforts are without such an audit.

To respond to this need, we developed Office Energy Conservation Support Sheet, an easy-to-use spreadsheet tool, to take the place of audits. With this sheet, one need only input such data as the amount of electricity and other energy consumed in an office building month by month, together with such basic building information as total floor area and year of construction, to carry out a simple energy self-audit. We are optimistic that this tool will enable our offices to make further progress on energy conservation and help the J-POWER Group as a whole meet its energy conservation targets.

Tsuyoshi Onoguchi Architectural Engineering Group
Thermal Power Engineering Department

Part 3

Efforts Relating to Local Environmental Issues

Through our power-generation activities in various locales, the J-POWER Group understands that the basis for harmony with local communities is to ensure the safety and preserve the living environment of the residents by taking measures to minimize the environmental impact of our operations.

THEME

Reduction of Environmental Load

To minimize the impact of our activities on air and water quality and other aspects of the local environment, we use the latest technology and know-how at our thermal power stations and other facilities to prevent air and water pollution, noise and vibration, and other environmental problems.

Air Pollution Control

Sulfur oxides (SOx), nitrogen oxides (NOx), and soot and dust are generated as a result of coal combustion at thermal power stations. To reduce these emissions we have improved combustion methods and installed flue-gas treatment equipment, including desulfurization and denitrification systems and electrostatic precipitators. Although the performance of equipment varies with its date of installation, at each facility we have used the newest technology available at the time to remove pollutants with maximum efficiency. This equipment operates automatically with the aid of monitoring devices that continuously measure the content of flue gas. In addition, human operators monitor the equipment 24 hours a day to ensure a swift response in the event of any malfunction.

Water Pollution Control

We install wastewater treatment systems in our thermal power stations and make sure that water discharged from desulfurization units, waste water from offices, and other effluents are appropriately treated.

Metals and organic substances contained in waste water are removed through coagulation, precipitation, filtration, and other methods in each facility's on-site integrated wastewater treatment unit. Treated water is routinely monitored by automatic measuring equipment and analyzed periodically to ensure compliance with the Water Pollution Control Law and environmental conservation agreements.

Noise and Vibration Control

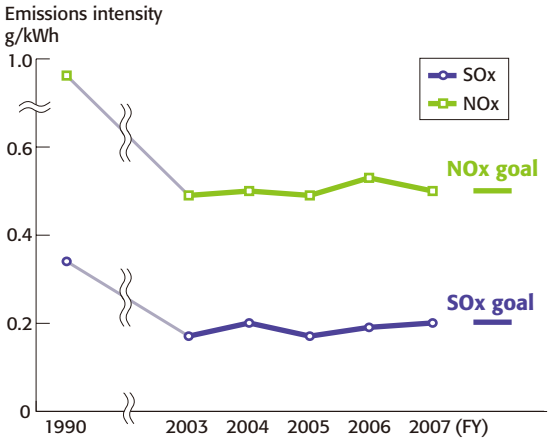
We work hard to prevent undue noise and vibration from boilers, turbines, exhaust fans, and other equipment by taking preventive measures such as keeping such equipment inside buildings. For outdoor equipment at our thermal and hydropower stations, we install soundproof covers and barriers as needed. Noise

■ **FY 2007 Performance (J-POWER Group)**

Substance	Equipment efficiency (removal efficiency)	Emissions	Emissions intensity
SOx	70%–99.6%	11,300 tons	0.20 g/kWh
NOx	72%–91%	28,500 tons	0.50 g/kWh
Soot and dust	99% (design value)	1,000 tons	0.02 g/kWh

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

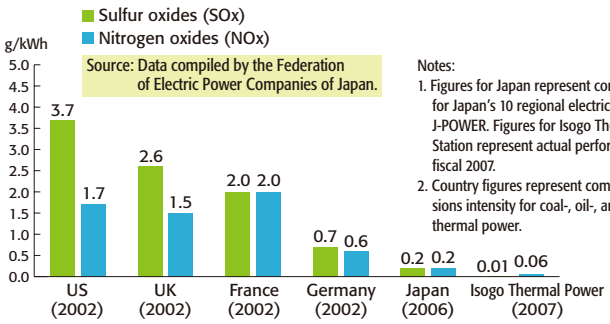
■ **SOx and NOx Emissions Intensity in the J-POWER Group**



Note: Figures for 1990–2004 are for J-POWER only.

COLUMN

Emissions Performance at the Isogo Thermal Power Station

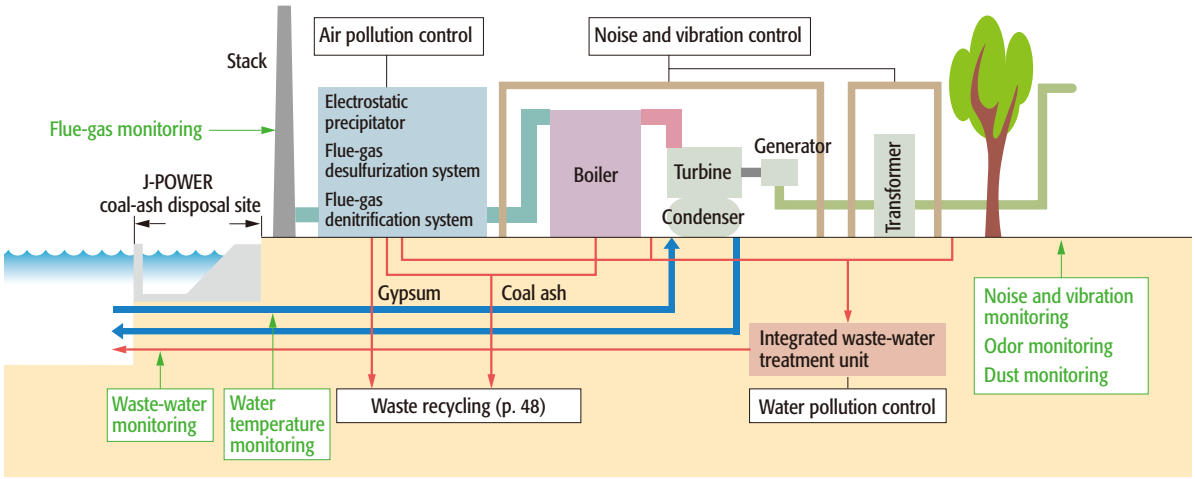


Notes:
1. Figures for Japan represent combined data for Japan's 10 regional electric utilities and J-POWER. Figures for Isogo Thermal Power Station represent actual performance for fiscal 2007.
2. Country figures represent combined emissions intensity for coal-, oil-, and gas-fired thermal power.

EMISSIONS of SOx and NOx per unit of electricity generated by thermal power generation in Japan's electric industry have decreased sharply since the mid-1970s owing to improvements in both fuel and equipment. As a result, today intensity for both substances is a fraction of that found in the other major industrial countries.

The Isogo Thermal Power Station new No. 1 unit has achieved particularly low levels, as indicated by the chart at left, thanks to the adoption of cutting-edge environmental technology.

■ **Examples of Environmental Conservation Measures at Coal-Fired Power Stations**



and vibration levels are periodically measured at the boundaries of power station sites to ensure that they meet regulatory standards.

Odor Control

Because ammonia is used in such equipment as the denitrification systems of thermal power stations, we have put in place rigorous safeguards to ensure that it has no impact on the surrounding area. These include periodic inspection, performance testing, and routine checking of equipment that makes use of ammonia. In addition, care is taken to avoid leakage of ammonia from receiving or storage facilities. Odor levels are periodically measured at the boundaries of power station sites to confirm that they meet regulatory standards.

Cutting Back on Industrial Water

Industrial water is used in thermal power stations for such equipment as boilers, cooling systems, and wet-type desulfurization systems. Virtually all of the water used by such equipment, apart from the waste water it discharges, is released into the atmosphere as steam. We are working to further limit our consumption of industrial water by recovering and reusing this waste water, recycling rainwater, and so forth.

Measures against Thermal Water Discharge

Thermal power stations intake seawater to cool steam used for power generation and release it as thermal water discharge. To prevent any negative impact on marine life in the vicinity, we control thermal water discharge with intake-discharge processes adapted to the conditions of the plant site. The temperature of thermal water discharge is monitored around the clock to ensure that it remains within the limits established by environmental agreements.

Measures against Coal Dust

At our coal-fired power stations we implement various measures to prevent the dispersion of dust when coal is handled, including the use of closed conveyor belts and indoor coal storage, as well as wind-shielding and spraying as dictated by topographical and weather conditions.

Measures at Coal-Ash Disposal Sites

At coal-fired power stations that are equipped with sites for landfill disposal of coal ash, soil is spread over the surface to prevent dispersion of the coal ash. Leachate treatment equipment is used to treat leachate as needed.

Measures against Soil Pollution

From fiscal 2004 through 2006, we conducted studies at all J-POWER Group domestic sites (370 locations, including thermal power stations, hydroelectric power stations, transmission system facilities, offices, and company-owned housing) and determined that all sites were free of soil or groundwater contamination. We will continue working hard to ensure that such pollution does not occur in the future.

Greening Measures

At our thermal power stations, we plant trees (primarily evergreen), grass, and seasonal flowers to provide the sites with greenery.

COLUMN

Dry-Type Flue Gas Desulfurization-Denitrification System (Regenerative Activated Coke Technology: ReACT)

THE ReACT dry-type desulfurization and denitrification system continuously regenerates and recycles activated coke and removes such pollutants as SOx, NOx, and soot and dust from flue gas. Another key feature is that it uses almost no water.

J-POWER has been using this system at two of its large-scale commercial plants, the Takehara Thermal Power Station No. 2 unit and the Isogo Thermal Power Station new No. 1 unit. In addition, the J-POWER Group company J-POWER EnTech, Inc., which specializes in ReACT engineering, has been supplying ReACT systems for power plants, steel mills, and other industrial facilities in Japan and abroad–including J-POWER's Isogo Thermal Power Station new No. 2 unit (scheduled startup fiscal 2009). By using this technology in our own power plants and making it available to other companies and industries as well, the J-POWER Group is helping reduce the environmental load across a broad economic spectrum.

Dry-type desulfurization system at Isogo Thermal Power Station new No. 2 unit.

THEME

Management of Chemical Substances

Storage and management of chemical substances is rigorous and in full compliance with the law. With regard to PCBs, we are following detoxification treatment procedures in conformance with Japan's regional waste-management program.

PRTR (Pollutant Release and Transfer Register) Law

The PRTR system is a mechanism for reporting and disclosing the level of chemical emissions and the transfer of chemicals to the environment through waste materials. The legislation was enacted in 1999, and monitoring and reporting of the targeted substances began in 2001.

While the J-POWER Group uses chemical substances for painting and coating, treatment of intake water at thermal power stations, and other purposes, we have traditionally managed these substances carefully by monitoring and recording the quantities procured and used. We are committed to further reducing the use of such chemicals and to controlling and managing those we use appropriately, complying with all established procedures. With respect to dioxins, we are working hard to reduce emissions through correct management and oversight of facilities.

Measures to Reduce Dioxins

At three of its business sites, the J-POWER Group operates facilities (incinerators, etc.) designated as "specified facilities" under the Law Concerning Special Measures against Dioxins. At these specified facilities we follow appropriate maintenance and management procedures, such as sorting prior to treatment and combustion temperature control. In compliance with the above-mentioned law, the dioxin concentration in the flue gas of these facilities is measured at least once a year and reported to the local government, and in fiscal 2007, all of them met emissions standards.

Management and Treatment of PCBs

PCBs have been widely used as insulators in transformers and other electric devices because of their excellent heat-resistance and insulation properties. Because of their toxicity, however, manufacture and import were outlawed in 1974, and all those in possession of such substances were required to observe stringent storage and management requirements. In July 2001, the Law Concerning Special Measures against PCB Waste came into force, and proper treatment of waste containing PCBs became mandatory.

The J-POWER Group began treatment of these substances under the regional waste-management program in February 2005, and as of March 2008 we had treated approximately 3 kl of insulating oil (containing high concentrations of PCBs). The J-POWER Group currently has approximately 136 kl of insulating oil (as of March 2008). This is stored and managed under stringent conditions in 31 warehouses and similar facilities that we have established nationwide.

Trace PCB Contamination

In July 2002, the Japanese government announced that extremely low levels of PCBs (under 5.0 ppm in about 60% of the cases) had been detected in products that had been accidentally contaminated by heavy electrical machinery following the prohibition on PCB use, and the cases were unfortunately labeled as "trace PCB contamination incidents." At the J-POWER Group we are diligent in enforcing stringent management procedures for machinery that uses insulating oil in which PCBs have been detected and in submitting the paperwork required by the relevant laws and regulations. Meanwhile, a national commission has investigated the causes of the contamination and will be deliberating measures for treating PCB-contaminated material. We will continue to respond to this issue in a conscientious and appropriate manner.

Asbestos

The J-POWER Group has adopted a policy for dealing with asbestos, under which we have conducted health checks and surveys of asbestos use in our equipment and buildings and undertaken appropriate countermeasures. According to the results of our surveys, there are no active or retired J-POWER Group employees who have been designated eligible for workers' compensation for health problems or death from asbestos, or who are in the process of applying for such compensation.

Where we have confirmed the presence of asbestos, we are systematically removing it and switching to alternatives while effectively managing the process to prevent dispersal of asbestos dust. Asbestos-containing material that has been removed is disposed of in a manner consistent with the Waste Management and Public Cleansing Law.

■ **Total PRTR Substance Release and Transfer Volumes (FY 2007)**

Chemical	Use	Volume handled	Volume released	Volume transferred as waste
26: Asbestos	Insulation material	2.45 t/y	–	2,445 kg/y
63: Xylene	Coating for machinery and equipment	6.27 t/y	3,290 kg/y	–
179: Dioxins	Waste incinerators	–	0.001 mg-TEQ/y	1.8 mg-TEQ/y

Notes:
1. 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.
2. For dioxins, figures represent total emissions from waste incinerators.

THEME

Functioning in Harmony with Nature

In all its business activities, the J-POWER Group strives for harmonious coexistence with the natural environment, including forest conservation initiatives.

For the Future of Our Woodlands: New Policy for Conservation of Company-Owned Forests

J-POWER owns approximately 4,600 hectares of forest land around the country, primarily in the vicinity of our 59 domestic hydroelectric power facilities. In pursuing our power-generation activity on these lands we have always taken account of its impact on the surrounding wildlife and natural environment. In fiscal 2006 we launched a two-year survey of all company-owned forest land with the aim of strengthening the efficacy of our conservation efforts. The results of the survey were used to draft a new policy for conservation of company-owned forests.

The survey confirmed the relatively pristine character of J-POWER's woodlands, determining that about 90% qualify as "natural forest," which is characterized by a low degree of human disturbance of vegetation.* It found that the composition of these natural forests was on a par with Japan's national parks and quasi-national parks, and that they are home to large-diameter trees and keystone species (listed in Japan's Red Data Book). Moreover, these company lands are often representative of the regional ecosystem, and there is a strong possibility that, in combination with the surrounding environment, they serve as habitat for rare and threatened species as well.

We are committed to using the policy drawn up on the basis of these findings to protect our valuable forests now and in the future.

Preserving Biodiversity

Recognizing the need to preserve biodiversity, the J-POWER Group carries out the planning, building, and operation of its business facilities on the basis of thorough environmental studies.

* An index for measuring how close an area is to its natural state on the basis of its vegetation.

❍ Environmental Measures for the Ohma Main Transmission Line

The Ohma Main Transmission Line will extend 61 km through Aomori Prefecture, from the Ohma Nuclear Power Station currently under construction (Ohma-machi), to Tohoku Electric Power Company's Higashidori Nuclear Power Station (Higashidori Village). During construction of the new line, it has been determined that the area bordering the planned route is a rich natural environment populated by a variety of rare species of flora and fauna, including the northern Japanese macaque, which is designated a protected species. For this reason we are proceeding very carefully with construction, taking adequate account of the impact on the surrounding environment.

Since 1997 we have solicited the views of experts in a number of ways, including a survey of the macaques' activity in the area surrounding the construction site by attaching radio transmitters to them, and have incorporated these opinions into measures designed to keep the impact on the macaques to an absolute minimum.

In addition to Japanese macaques, the area around the planned route is known to be home to a number of rare bird species, including the northern goshawk and the mountain hawk-eagle. Here, too, we are taking precautions to minimize the impact of our activities.

We also require all staff involved in the project, including construction personnel, to keep with them at all times a conservation handbook titled "Take Care of Nature—Construction of the Ohma Main Transmission Line" containing photographs of the precious wildlife of the area, and have instituted policies for transplanting or relocating rare species discovered near the site. In this way we are working actively to protect the natural environment.


Northern Japanese macaque

Conservation handbook

COLUMN

Forest Conservation in Umaji, Kochi Prefecture

KOCHI PREFECTURE, which has the highest ratio of forested land of any prefecture in Japan, has positioned itself at the cutting edge of woodland conservation by instituting Japan's first forest tax. Now J-POWER is participating in one of Kochi Prefecture's key conservation strategies, known as Collaborative Forest Restoration with Environmentally Progressive Companies, by entering into a three-way partnership agreement with Kochi Prefecture and the village of Umaji for restoration of the "Yanase water-resource forest."

Kochi Prefecture defines the purpose of this collaborative program as "supporting the role that forests play in water and soil conservation and in absorbing and fixing CO_2, in the process preserving the environmental quality of our forests, rivers, and atmosphere." In April 2007 the prefecture instituted its own unique "CO_2 Sink Certification System."

In August 2007, J-POWER received a 950 t-CO_2 "sink certificate" from Kochi Prefecture for forest management activities in fiscal 2006. We place great importance on this document as Japan's first certification of CO_2 sinks calculated according to the provisions of the Kyoto Protocol.

The J-POWER Group also looks on this program as a way to interact with the community and contribute to its welfare and vitality, and we have continued to take part in related activities, including the thinning of 40-year-old cedar and cypress in collaboration with Kochi Prefecture, the village of Umaji, the Umaji Forest Rescue Team, and the local forestry cooperative in March 2008.

CO_2 Sink Certificate

Participation in the collaborative restoration program in "Yanase water-resource forest."

Restoration of Wetlands

We have restored wetlands downstream from the Okutadami Dam (Fukushima and Niigata Prefectures) by creating a new, substitute wetland area in a project that has allowed us to preserve the local mountain wetland ecology while filling in land with rock generated from excavation associated with the expansion of the hydropower facilities there.

Since then, we have been able to confirm the continuous presence of precious dragonfly species in the restored wetland area and the newly created pond downstream from it. In fiscal 2007, we carried out our first scientific survey to determine changes in the flora and fauna since the new wetland was created. We intend to use the findings to draw up a maintenance plan for the period through 2013 and strive for ever more effective conservation measures.

Oike Pond, adjoining the substitute wetland

Sign explaining the substitute wetland

Hydroelectric Power and Harmony with the River Environment

❍ Reservoir Water Quality Management

Typhoons or torrential rains can send large amounts of muddy water flowing into dam reservoirs, where it builds up. The release of water for power generation purposes can then lead to prolonged river turbidity.

For this reason, we are constantly monitoring the water quality of reservoirs by making measurements using turbidimeters and carrying out water quality analyses on water samples. In this way we are able to discharge turbid water earlier or, at dams where turbidity threatens to become chronic, implement appropriate countermeasures, such as installation of surface-water intake systems that permit the intake of the relatively clear water at the surface.

At sites where the problem of turbid water is severe, we are taking preventive measures by cooperating with the national and prefectural governments in forest management and afforestation programs.

❍ Control of Reservoir Sediment

Each year large quantities of earth flow into dams from upstream and are deposited there as sediment. To avoid damage from flooding when rains cause the water level to rise, we control sediment by dredging to remove it or move it to another area of the reservoir.

❍ River Maintenance Discharge

Downstream from power station dams, river flow falls off between the dam and the generator outlet. For this reason, we carry out river maintenance flow discharge, in consultation with the Ministry of Land, Infrastructure and Transport and other relevant agencies, to preserve a normal flow of the river.

River maintenance discharge (Itoshiro Dam, Fukui Prefecture)

Environmental Assessment and Monitoring

When planning for the construction of a new power station, such as the Ohma Nuclear Power Station or the Isogo New No. 2 thermal power station, we implement environmental impact assessments and incorporate the opinions of local residents as we formulate measures to protect the local environment. We also adopt environmental management systems (EMS) to guide our efforts to improve and upgrade the environment. During construction we implement conservation measures aimed at harmonious coexistence with nature and monitor the results.

COLUMN

Sediment Control at Sakuma Dam

AT SAKUMA DAM we use boats for dredging as we work to control sediment so as to prevent flood damage upstream when the waters rise. In addition to routine supervision of work, I look for suitable places to deposit of the sediment, select the most appropriate methods, make arrangements to ensure safe navigation, and consult with relevant authorities to ensure legal compliance.

Completed a half-century ago, Sakuma Dam is a valuable public asset. My job is to ensure that we can continue making effective use of it by implementing our current sediment-control measures reliably and continually studying new strategies.

Yuji Fukushige Sakuma Power Administration Office
Chubu Regional Headquarters

THEME

Establishing a Sound Material-Cycle Society

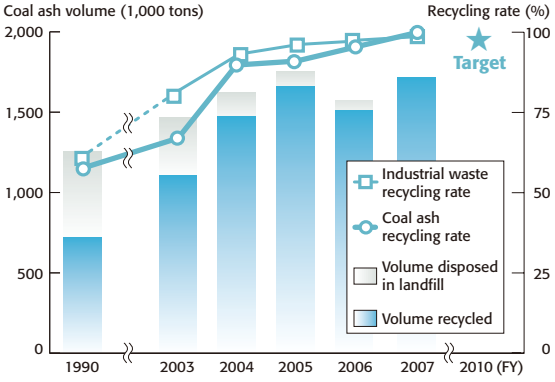
To help establish a sound material-cycle society, the J-POWER Group is working hard to reduce the waste we generate and to properly treat and recycle the waste we do produce. We are also pursuing business undertakings that build on these practices.

Effective Use and Reduction of Waste

In fiscal 2007, the J-POWER Group generated 2.18 million tons of industrial waste, while recycling or reusing resources totaling 2.15 million tons, or 98%.

Henceforth we intend to promote more extensive recycling of coal ash and reduction of industrial waste generated from the maintenance and operation of power stations to "achieve a recycling rate of 97% within the J-POWER Group as a whole by the end of fiscal 2010, with the goal of zero emissions of industrial waste." (p. 27)

■ **Industrial Waste and Coal Ash Recycling Rates**



Note: The figure for FY 1990 represents J-POWER's recycling rate for coal ash only; figures for FY 2002–FY 2003 are the rate for all industrial waste produced by J-POWER; FY 2004–FY 2007 and target figures represent the recycling rate for all industrial waste generated by all companies of the J-POWER Group.

○ Effective Use of Coal Ash

Coal ash, the residue from combustion of coal at thermal power stations, accounts for the largest volume of waste we produce. The stable operation of thermal power stations requires thorough removal of this coal ash, but its utilization has also become essential at a time when creating a sustainable society is a top national priority.

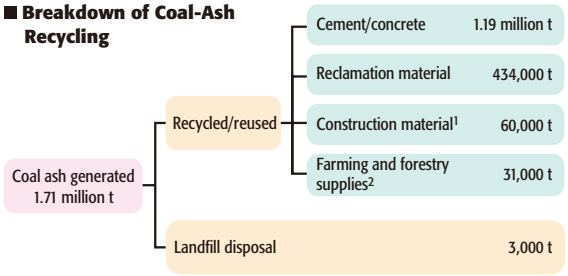
In fiscal 2007, the total volume of coal ash generated by all of J-POWER's thermal power stations was 1.71 million tons, of which 99.8% was recycled.

Most of the coal ash is reused as raw materials for cement or as concrete admixture. It is also used in land reclamation, as construction materials, and as farming and forestry supplies.

In the agricultural field, we sell potassium silicate fertilizer manufactured from recycled coal ash at a fertilizer plant operated by our affiliate JPec Co., Ltd.

The world's first potassium silicate fertilizer soluble in citric acid, made from recycled coal ash generated at thermal power stations.

■ **Breakdown of Coal-Ash Recycling**



Notes: 1. Primarily facing and filling material
2. Potassium silicate fertilizer, etc.

About the Act on the Promotion of Effective Utilization of Resources

Under the Act on the Promotion of Effective Utilization of Resources, the coal ash generated by electric utilities is classified as a "specified by-product." In November 2004 the Japanese government issued the interpretation that "coal ash supplied by electric utilities for public waters reclamation carried out on the basis of port and harbor plans for important or regional ports and harbors under the Harbor Law shall be considered reclamation material." Accordingly, since fiscal 2004 we have reported the use of coal ash for reclamation works in Kitakyushu Harbor (at Hibikinada) and the Port of Kinwan (Ishikawa Coal-Fired Power Station) as effective utilization.

In December 2007, the government issued the following interpretation in regard to the aforesaid interpretation (of November 2004): "Coal ash provided by businesses in the electric power industry for the purpose of use in public waters reclamation work carried out under license from a prefectural governor according to Article 2, Paragraph 1, of the Public Waters Reclamation Law shall be regarded as reclamation material." As a result, coal ash in the final disposal landfill of Matsuura Thermal Power Station was also reported as effective utilization.

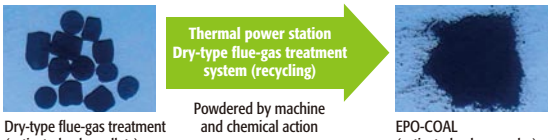
COLUMN

EPO-COAL: Recycled Granulated Coke Powder for Dioxin Removal

J-POWER's powdered dioxin remover EPO-COAL for waste incinerators is made from activated coke powder discharged by the dry-type flue-gas denitrification unit at Takehara Thermal Power Station No. 2 unit. Contracted sales volume for fiscal 2008 has doubled from the previous year, thanks to the high marks users and equipment manufacturers have given EPO-COAL's performance, quality, and stable pricing.

Meanwhile, we have installed new equipment to improve the quality of the activated coke discharged by the dry-type desulfurization system at our Isogo Thermal Power Station new No. 1 unit so that we can offer a higher quality recycled product, with commercial production scheduled to begin in the autumn of 2008.

The purpose of our involvement in this recycling operation is not only to reduce waste and raise the recycling rate in the J-POWER Group but also to contribute to the creation of a material-cycle society. We also regard this recycling as integral to our measures for stemming global warming, since it can help reduce the CO_2 emitted during manufacture of the activated coke commonly available on the market. As a responsible member of a society that is striving for harmonious coexistence with the environment, we plan to pursue such operations actively.



Dry-type flue-gas treatment (activated coke pellets)

EPO-COAL (activated coke powder)

❍ Effective Use of Gypsum

Gypsum is generated as a by-product of wet-type flue-gas desulfurization systems at coal-fired power stations. We recycle all of this gypsum in the form of gypsum board and raw material for cement. In fiscal 2007, we generated approximately 360,000 tons of gypsum, and we maintained a recycling rate of 100%.

❍ Effective Use of Construction By-products

We work with contractors and others to promote effective use of the by-products of new construction, expansion, and renovation of electric power facilities by a variety of means, including the recycling of concrete scrap and cleared trees and the use of loose earth generated during construction within the grounds of the facility.

❍ Effective Use of Driftwood

In the J-POWER Group we voluntarily retrieve driftwood that collects in dam reservoirs at our hydroelectric power stations and recycle it by manufacturing charcoal, extracting pyroligneous acid, or chipping the wood for use as building materials and mulch. We are now using driftwood chips as mulch in recreating the Fuda Path (which is said to have been used by members of the heroic Shinsengumi band of samurai when they traveled to a village to teach swordsmanship) as part of our project to develop a "community forest" around the site of the Nishi Tokyo Power Administration Office (p. 60). In addition, we are studying new uses for the recycled driftwood, such as boiler fuel for local businesses.

Driftwood accumulating in a reservoir (Ikehara Dam, Nara Prefecture)

Reducing and Recycling Office Waste

All J-POWER Group offices are working to reduce non-industrial waste by such measures as sorting waste paper, bottles, cans, and plastics; using both sides of copier paper; and reusing envelopes.

In respect to paper recycling, we intend to work harder than ever to reach the group target (p. 27) by further raising the awareness of every employee in the J-POWER Group.

❍ Promoting Green Purchasing

In order to promote these kinds of efforts and contribute to the development of a material-cycle society, we have adopted the J-POWER Group Green Purchasing Guidelines* and are actively committed to green purchasing, including the use of recycled paper and energy-efficient PCs, photocopiers, and other office equipment.

These guidelines apply not only to offices but to purchasing for core operations as well. By stipulating environmental clauses to be built into contract specifications when subcontracting work and encouraging environmental responsibility among our suppliers, we are attempting to pursue a wide-ranging policy. We have also conducted a questionnaire survey of our major suppliers to assess their environmental management.

Finally, we are striving to boost the level of all these efforts by establishing Group targets for the rate of green purchasing of office supplies (desk supplies) and the ratio of recycled copy paper to the total purchased, as well as the percentage of low-emission vehicles among group company vehicles (p. 27).

* WEB http://www.jpower.co.jp/company_info/environment/kankyo04gl.html (Available only in Japanese)

COLUMN

Co-firing of Woody Biomass Fuel from Construction Waste

LONG-TERM TRIALS of woody biomass co-firing have begun at Matsuura Thermal Power Station in May 2008, as we work toward our goal of commercially generating power from a mixture of coal and woody biomass chips derived from construction waste.

Woody biomass fuel made from construction waste is already used widely as an alternative to fossil fuels. But given the limited availability of scrap wood, the most important criterion from the standpoint of procuring fuel is the supply-and-demand situation in a given locale. We conducted a nationwide survey to gauge the quantities of woody biomass available in the vicinity of thermal power stations and determined that procurement of fuel could be accomplished most reliably and economically at Matsuura Thermal Power Station.

When using woody biomass derived from construction waste as a fuel at a coal-fired thermal power station, it is vital to make sure that the existing equipment will suffer no ill effects. Therefore, the fuel must be free of all foreign matter, including metal, preservative, and paint or other coatings. Metal is removed by the fuel manufacturer, first by removing visible objects prior to processing and then by magnetic extraction after chipping. Since preservatives and coatings are difficult to remove entirely using visual inspection alone, we have enlisted cooperation from fuel manufacturers in analyzing the properties of each of the ingredients of which the fuel is composed, a process that takes several months. As a result we are now confident of being able to secure a stable supply of fuel that meets our acceptance standards even in terms of properties.

Hideki Kouyama Plant R&D Group
Thermal Power Department

THEME

Environmental Recycling Program

The J-POWER Group's environmental recycling program comprises the promotion of the use of untapped energy sources derived from waste or biomass and the proper treatment of waste. In expanding our environment business, we are focusing on public infrastructure projects organized around PFI/PPP* schemes.

Waste-Power Generation

❍ Omuta Recycle Power Station

In Omuta, Fukuoka Prefecture, we are operating a high-efficiency waste-power station combusting RDF (refuse-derived fuel) made by shredding, drying, and pelletizing non-industrial waste.

Omuta, Fukuoka Prefecture; startup December 2002

RDF

❍ Narumi Waste Gasification Plant, Nagoya

J-POWER is also participating in a non-industrial waste gasification power project in Nagoya. In addition to generating electric power from waste, this plant also achieves material recycling by exhausting metal and slug.

Nagoya, Aichi Prefecture; scheduled startup July 2009

Demonstration Trials of Non-industrial Waste Carbonization

Non-industrial waste contains biomass resources, and there are high expectations for its utilization as an energy source. We are working on developing a technology for producing carbonized fuel from non-industrial waste.

Currently we are involved in a NEDO (New Energy and Industrial Technology Development Organization) field test project on biomass and other untapped energy sources in collaboration with the city of Saikai in Nagasaki Prefecture. Aiming for a more effective use of biomass, we are conducting research on the use of carbonized fuel derived from non-industrial waste for supplemental use at coal-fired thermal power stations, as well as developing technology for producing carbonized fuel. In March 2006, a test run of the production of carbonized fuel was launched at the demonstration test facility at the Matsushima Thermal Power Station, and in fiscal 2007 about 30 tons of carbonized fuel was produced from approximately 135 tons of non-industrial waste.

Facility for test manufacture of carbonized fuel from non-industrial waste.

THEME

Environmental Infrastructure Operations

The J-POWER Group is taking part in a district cooling project in the Middle East as part of our growing business in the area of environmental and energy-saving infrastructure.

District Cooling Project

J-POWER has become the first Japanese power company to take part in a district cooling project in the Middle East by teaming with Sumitomo Corporation and the United Arab Emirates company Tabreed to establish Sahara Cooling Limited. J-POWER has already provided consulting services for district heating and cooling projects in Japan and overseas, and we are building on that experience, together with our know-how in the design, management, maintenance, and operation of hydroelectric and thermal power stations, to improve the operating stability and increased efficiency of the system's cooling plants.

The UAE district cooling project involves six cooling plants for a total capacity of 54,500 RTs*. District cooling helps save energy by centralizing the thermal energy source for higher efficiency and by permitting load leveling among multiple users. Tabreed has estimated that by shifting to a district cooling system the UAE could cut energy consumption by 55% compared with the use of individual cooling units.

With demand growing in the UAE and neighboring countries for environmentally friendly, energy-efficient district cooling systems, J-POWER plans to expand its Middle East operations and continue taking part in projects designed to lighten the environmental load.

T 20 plant, United Arab Emirates

■ **PFI/PPP Projects and Other Activities**

Examples of PFI/PPP Projects Relating to Environmental Recycling
Kanda Eco Plant Project
Samukawa Water Purification Plant Waste-Water Treatment PFI Project
Edogawa Water Purification Plant Waste-Water Treatment Facility Construction and Operation PFI Project
Omuta District Waterworks Project
PFI consulting services for local governments – etc.
Other Efforts Relating to Environmental Recycling
Utilization of sewage sludge (biosolid) fuels (co-combustion)
Development of technology for production of carbonized fuel from sludge – etc.

Notes: 1. PFI (Private Finance Initiative) and PPP (Public-Private Partnership) are schemes that take advantage of private funds, management know-how, and technical expertise in the design, construction, maintenance, and operation of public facilities or projects.
2. RT (refrigeration ton): a unit used to measure refrigerating capacity. 1 RT is the thermal energy necessary to freeze a ton of water at 0°C in 24 hours. 1 RT is also about the capacity needed to cool the average Japanese house.

THEME

Supporting the World's Sustainable Development

Through various international projects, the J-POWER Group is transferring the environmental technology it has nurtured in its domestic operations. Through our international consulting work we conduct environmental impact assessments, transfer desulfurization and denitrification technology, and promote energy conservation. In our overseas electric power projects as well, we are applying our environmental engineering expertise to the development of such alternatives as hydropower, gas-turbine combined-cycle generation, and biomass power generation.

Overseas Operations

Our international operations go back about fifty years, ever since we added international technological cooperation to our business lines in response to the 1960 revision of Japan's Electric Power Development Promotion Law. Since then we have undertaken a number of projects around the world, mostly in a consultative capacity, receiving high marks and earning widespread confidence.

Making the most of the technology and experience we have accumulated here in Japan, we have served as a technical adviser to overseas organizations and institutions in connection with power plant feasibility studies, design, and construction. We also send our experts to agencies in the host countries and invite engineers from developing countries to train with us under programs run by the Japan International Cooperation Agency (JICA).

As of the end of fiscal 2007, we had been involved in a total of 288 international consulting projects in 62 countries and regions.

Since 1997, we have also focused on expanding our power generation services overseas with the goal of establishing this as a second major revenue source and have taken an active part in a variety of international power generation projects abroad, primarily in Southeast Asia, the United States, and China. As of the end of fiscal 2007, we were operating 16 overseas power generation facilities with a total output capacity of about 2,700 MW (ownership capacity) in five countries and regions.

International Consulting

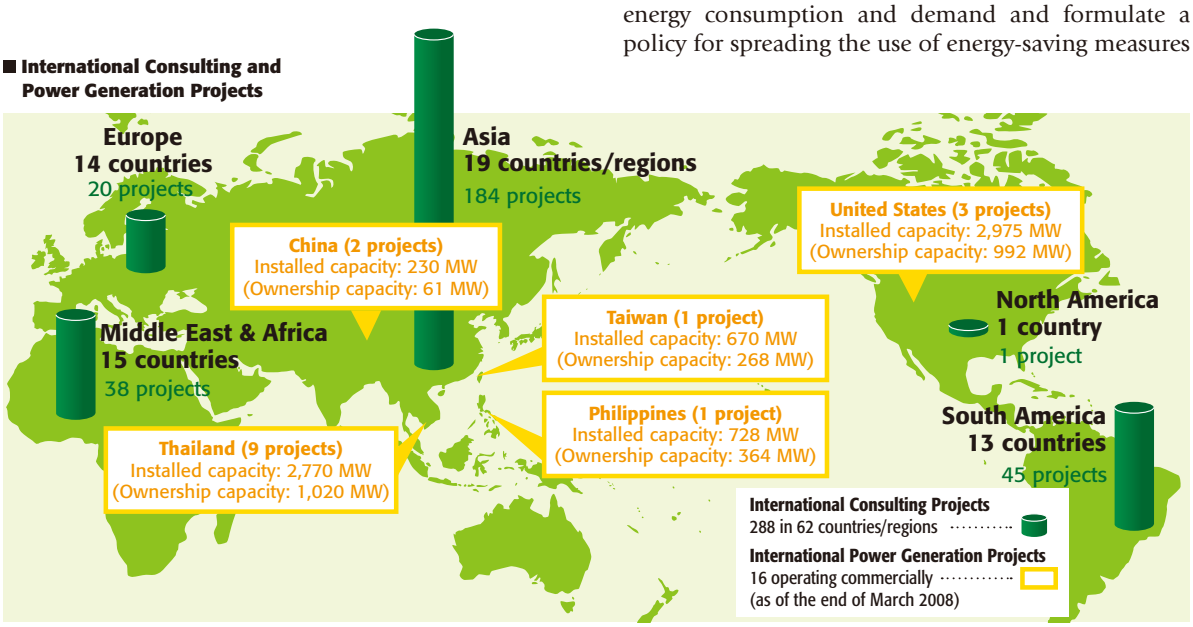
For many years we have been making use of the technologies nurtured in our domestic hydropower operations to assist countries around the world in developing hydropower—a renewable energy source—through such means as supervision of construction works. In fiscal 2007 we were involved in a number of large-scale power generation projects, including the Purulia Pumped-Storage Project in India and the Upper Kotmale Hydroelectric Power Project in Sri Lanka.

Purulia Pumped-Storage Project (India)

In the field of coal-fired thermal power generation, we have worked to spread the environmental technology and high-efficiency operating know-how we have built up as Japan's biggest supplier of coal-fired thermal power. Examples of our international contribution in this area are technical assistance provided to countries of the European Union for reduction of SOx and NOx emissions, technical recommendations to East European countries plagued by acid rain on the most suitable measures for reducing SOx emissions, and demonstration trials in China of technology to desulfurize coal with high sulfur content (commissioned by METI).

We are also committed to pursuing effective energy conservation measures as a way to reduce CO_2 emissions. Since August 2007 we have been conducting a study for the promotion of energy-saving measures in Indonesia. This study will survey the social and economic situation in Indonesia together with trends in energy consumption and demand and formulate a policy for spreading the use of energy-saving measures

■ **International Consulting and Power Generation Projects**



■ **Major Recent Consulting Projects**

Name	Project type	Country	Description
Rehabilitation Project of the 4th Thermal Power Plant in Ulaanbaatar	Thermal	Mongolia	Supervision of construction for high efficiency rehabilitation of thermal power station
Bakreswar Coal-Fired Thermal Power Project, Extension Unit No. 4 & 5	Thermal	India	Detailed design and construction supervision for expansion of coal-fired thermal power station
Nghi Son (1) Thermal Power Plant Construction Project	Thermal	Vietnam	Design, bidding support, and construction supervision for new coal-fired thermal power station
Purulia Pumped-Storage Project	Hydropower	India	Detailed design and construction supervision for dam and power station
Upper Kotmale Hydroelectric Power Project	Hydropower	Sri Lanka	Bidding support and construction supervision for dam and power station
Pirris Hydropower Project	Hydropower	Costa Rica	Detailed design and construction supervision for dam and power station
Cebu-Negros-Panay Interconnection Uprating Project	Power transmission	Philippines	Detailed plan and supervision of construction project linking small islands with underwater cable
Kunming Water Supply Project	Other	China	Construction of reservoir and waterway to alleviate water shortage
Zletovica Basin Water Utilization Improvement Project	Other	Macedonia	Creation of multipurpose system to improve water supply
Master Plan Study for Rural Electrification by Renewable Energy	Other	Peru	Master plan study for electrification of rural areas using renewable energy
Study on Energy Conservation and Efficiency Improvement in the Republic of Indonesia	Other	Indonesia	Study for promoting wider adoption of energy conservation measures

suited to that country's circumstances, based on our experience and expertise on energy conservation. In this way we believe we can help strengthen Indonesia's energy-conservation systems, enhance the technical know-how of its electric-power professionals and officials, and contribute to a stable energy supply and lighter environmental load in the decades ahead.

Overseas Power Generation Business

Responding to the worldwide trend toward privatization and deregulation of the electric power industry, we are 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.

Fiscal 2007 saw the startup of the Kaeng Khoi 2 Gas-Fired Thermal Power Station (gas combined cycle), which we had been building in Thailand. We believe it will improve power supply conditions in Thailand and contribute to the country's economic development.

Through the operations of the Roi-Et Rice Chaff Thermal Power Station and the Yala Biomass Station, which uses waste from rubber-wood sawmill as fuel, we are contributing to the effective use of untapped resources and CO_2 emissions reduction.

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

Roi-Et Rice Chaff Thermal Power Station (Thailand)

Looking Ahead: Expanding Operations While Supporting Sustainable Development

In our international consulting business, we intend to continue our efforts in areas where we can apply J-POWER's technological know-how, especially electric power projects carried out with Official Development Assistance (ODA). We also plan to expand our operations to non-ODA endeavors, such as private development projects.

Coal-fired thermal power faces a number of challenges, from the problem of SOx and NOx emissions at the regional level to the global issue of CO_2 emissions. Nonetheless, economic growth in China, India, and elsewhere in the world is expected to depend heavily on coal-fired thermal power for some time to come. Under the circumstances, we believe it is important to reduce the environmental load of coal-fired thermal power stations as much as possible by using advanced technology and raising generating efficiency.

We also intend to work actively to develop renewable energy. 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 our consulting business and power generation business alike, in keeping with the mission articulated in our corporate philosophy: to ensure constant supplies of energy to contribute to the sustainable development of Japan and the rest of the world.

COLUMN

International Wind Power Projects

IN JANUARY 2007, J-POWER joined with Mitsui & Co., Ltd. and WFL Windfarmer AG of Switzerland in establishing a joint venture, Zajaczkowo Windfarm Sp.zo.o., marking the first time that a Japanese company has participated in a wind power project in Poland. We are currently at work on the construction of a 48,000 kW-capacity wind power station (24 generators, 2,000 kW each) in Zajaczkowo in northern Poland, with an eye to launching commercial operation in 2008. J-POWER is actively pursuing wind power projects in Poland and other countries of Central and Eastern Europe, as well as other regions around the world.

Zajaczkowo Windfarm (Poland)

Part 4

Ensuring Transparency and Reliability

The J-POWER Group is working to improve environmental management and ensure legal compliance in all its business activities. We also disclose a wide range of environmental information. Through good communications with our stakeholders, we strive to earn society's trust.

THEME

Continual Improvement in Environmental Management

In 1997 the J-POWER Group decided to put in place environmental management systems (EMS) complying with the ISO 14001 international standard for environmental management to guide our implementation of environmental initiatives based on our corporate philosophy. By 2002 EMSs had been put in place at all J-POWER business sites, and by the end of fiscal 2005 all of J-POWER's power generation, transmission, and communication facilities had obtained ISO 14001 certification.

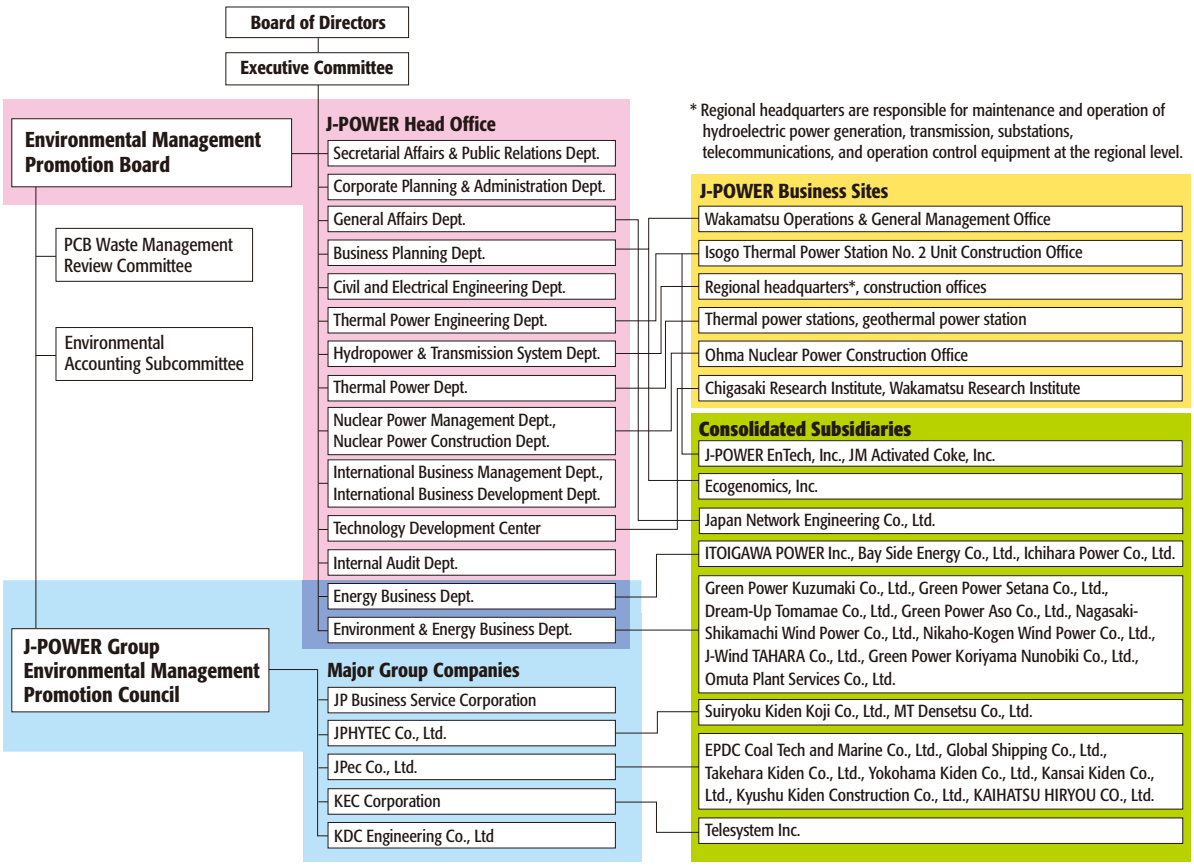
It was not long before the major group companies each completed introduction of an EMS, and by the end of fiscal 2007, every one of our consolidated subsidiaries had an EMS in place. We are now committed to ensuring the development and adoption of an EMS for new consolidated subsidiaries in the J-POWER Group.

Environmental Management Structure

The Environmental Management Promotion Board was established to discuss, coordinate, and report on overall environmental management in the J-POWER Group. It is led by an executive director in charge of environment and made up of relevant executives and division heads. In addition, the J-POWER Group Environmental Management Promotion Council was established as a subgroup of the Board to encourage cooperation and coordination throughout the group.

Based on the J-POWER Group Environmental Action Guidelines reviewed annually by management, J-POWER business sites and group companies with an EMS in place draw up their own Environmental Action Plans. They periodically review and evaluate their initiatives and revise measures to be taken, following the PDCA (plan-do-check-act) management cycle.

■ **J-POWER Group Environmental Management Organization Chart (As of July 2008)**



EMS Overview

Each business site in the J-POWER Group establishes and implements its own EMS for planning/design, construction, and maintenance/operation, and works continuously to improve its system. Group companies engaged in maintenance and management of power facilities implement an EMS at each maintenance/operating business site (thermal and geothermal power stations and regional headquarters for hydropower stations) in close cooperation with J-POWER. In addition, each group company establishes and implements an EMS in accordance with its own business activities and strives for its continuous improvement. At the end of fiscal 2007, every consolidated subsidiary in the J-POWER Group had completed the process of instituting an EMS.

■ **Business Sites and Companies Receiving ISO 14001 Certification**

Facilities managed by J-POWER regional headquarters (Hokkaido, East Japan, Chubu, West Japan): hydroelectric plants, transmission facilities, substations, telecommunication engineering centers, etc. Facilities managed by regional companies of JPHYTEC Co., Ltd., (Hokkaido, East Japan, Chubu, West Japan)
J-POWER thermal power stations (Isogo, Takasago, Takehara, Tachibanawan, Matsushima, Matsuura, Ishikawa Coal) JPec Co., Ltd., companies (Isogo, Takasago, Takehara, Tachibanawan, Matsushima, Matsuura, Ishikawa)
J-POWER Onikobe Geothermal Power Station JPec Co., Ltd., Onikobe Office
J-POWER Civil and Electrical Engineering Dept.
J-POWER Environment & Energy Business Dept. (Water Treatment Engineering Group, Subsurface Space Engineering Group)
JPHYTEC Co., Ltd. (Transmission and Compensation Division)
JPec Co., Ltd. (Wakamatsu Environmental Research Center)
KDC Engineering Co., Ltd, main office
KEC Corporation (whole company)
Ichihara Power Co., Ltd.

Environmental patrol (Takasago Thermal Power Station)

Oil spill response drill (Wakamatsu Operations & General Management Office)

Internal environmental auditor follow-up training

Environmental Information for Employees

In order to enhance environmental management and raise group employees' awareness, information is made available for all employees to view at any time through media such as electronic bulletin boards, the environmental information network "Intra," and the group magazine, *J-POWERs*.

■ **Media for disseminating environmental information to employees**

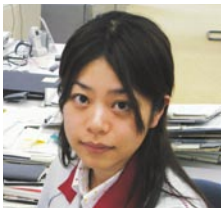
Medium	Name	Content
Electronic bulletin board	Environmental Laws, Regulations, and Data	• Implementation and revision of laws and regulations
	Environmental Management and Events	• Social trends • In-house environmental events • EMS
	Nature, Environment, and Wildlife Forum	• Forum for free exchange of ideas among employees
Intranet	Environmental Information Network	• Overview of laws and regulations • Overview of EMS • Environmental education and training

COLUMN

Environmental Management Initiatives

Getting the Most Out of Environmental Equipment

MY JOB is running and overseeing the environmental equipment at the Matsuura Thermal Power Station, including the exhaust-gas and waste-water treatment systems. I study the results of various analyses to catch any changes in those systems and plan and carry out any necessary response to make sure that the level of pollutants is under the threshold set by the power station. Controlling substances that are invisible to the naked eye is a challenge, but I work hard to monitor the operating condition of our environmental equipment by carefully reading the analyses and inspecting the facilities firsthand to ensure that our operations put the least possible burden on the environment.



Akiko Konno
Operating Group
Matsuura Thermal Power Station

Going for 100% Green Purchasing

MY WORK involves purchasing green products in accordance with the Green Purchasing Guidelines, J-POWER's basic policy for promoting environmentally friendly goods. To keep waste to a minimum, I choose items with replaceable cartridges when purchasing ballpoint pens, marking pens, correction tape, and so forth. We reuse our rubber stamps as much as possible by keeping the wooden part and replacing only the rubber part. We also reuse our inkpads by adding more ink when needed.

In purchasing supplies, the usual tendency is to select low-priced items, but lately I've acquired the habit of looking for eco-products, going so far as to check the manufacturer's website to see what materials go into the items. The corporate target is 80% green purchasing, but my personal goal is 100%.

Mizue Kamo
Management Group
JPec Takasago Company

Education and Training

The J-POWER Group conducts various in-house and external environmental training programs to raise employee awareness and cultivate a sense of personal responsibility regarding environmental issues.

In fiscal 2007 we implemented a wide range of training programs with the goal of promoting a better understanding of environmental statutes and ensuring full compliance.

At the general level, we sponsored lectures and briefings and added a new e-learning course, "Ensuring Full Compliance with Environmental Statutes."

We also offered technical training courses, including "Internal Environmental Auditor Training" and "Training Course on Environmental Laws" and brought in outside specialists to teach courses like "Waste Management Skills Upgrade" and "Waste Management Risk Assessments" for the purpose of facilitating a better understanding of, and full compliance with, the waste management law.

■ **In-House Environmental Training in Fiscal 2007 (group-wide)**

Level	Category	Course/activity	Participation	Coverage of environmental statutes, compliance, etc.
General	Environmental management (general)	Environmental briefings, various lecture presentations on the environment	1,145 participants	J-POWER Group's efforts
	E-learning*	Introduction to environmental issues	78%	General overview of environmental issues
		The J-POWER Group Sustainability Report (Environment)	63%	Overview of Sustainability Report
		Global warming	71%	J-POWER Group's efforts to fight global warming, etc..
		Ensuring full compliance with environmental statutes	63%	Overview of environmental statutes, etc.
Technical	EMS implementation	Internal environmental auditor training	170 trainees	Requirements of ISO 14001, internal environmental audit method
		Follow-up training for internal environmental auditors	105 trainees	Practice in identifying non-conformity, etc.
	Environmental laws and regulations	Waste management skills upgrade	251 trainees	Understanding of the Waste Management Law and application of guidelines for selecting contractors, etc.
		Waste management risk assessments	6 sites	Check of legal requirements for contracts, manifestos, etc.
		Environmental law courses by level	134 trainees	Explanation of environmental statutes, etc.
	E-learning*	EMS course (overview)	75%	Overview of ISO 14001
		EMS course (advanced)	64%	Requirements of ISO 14001, audit method, etc

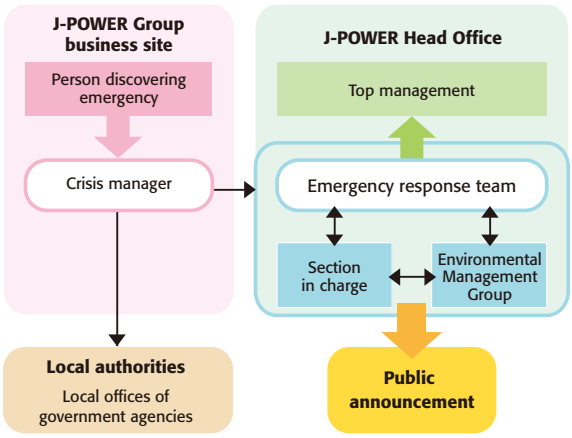
*Participation rate for E-learning courses is cumulative.

Response and Information Disclosure in the Event of an Environmental Emergency

In the event of an environmental emergency:

1. The official in charge of crisis management at each business site will take the necessary steps to prevent damage from spreading and will contact the relevant local organizations, the Head Office Emergency Response Team, and the head office section in charge of the business site.
2. The Head Office Emergency Response Team will promptly report to top management and provide information on the emergency to the media and other interested parties.

■ **Response and Information Disclosure in the Event of an Environmental Emergency**



Environmental Incidents

One environmental incident occurred between April 2007 and March 2008. On this occasion a press release was issued, and we are working to prevent a recurrence through improvements to facilities and other means.

Location	Situation/response
Wakamatsu Research Institute (Kitakyushu, Fukuoka Prefecture)	From 7:30 p.m., July 31, to 1:40 a.m., August 1, 2007, while the gasifier at the coal-gasification pilot test facility was running and the derived gas was being combusted for test purposes, the concentration of nitrogen oxides (NOx) in the exhaust gas surpassed the emission standard for NOx under the Air Pollution Control Law (70 ppm) and the agreed limit for NOx under the local Pollution Control Agreement (15m³ N/h).* This incident occurred because the NOx concentration did not appear correctly on the monitoring screen, resulting in a delayed response. Equipment improvements have been made, and more intensive monitoring and warning procedures have been instituted. In addition, efforts are being made to prevent any recurrence by revising operating manuals and providing rigorous education and training. * Maximum values reached: 95 ppm (Air Pollution Control Law); 16.4m³ N/h (local Pollution Control Agreement).

Social Responsibilities

CONTENTS

Part 1 **Ensuring the Stable Supply of Electricity**
57 Helping Ensure the Stable Supply of Electricity

Part 2 **Harmony with Society**
59 Social Contribution by the J-POWER Group
61 Initiatives as a Global Citizen

Part 3 **Developing Human Resources and Creating a Dynamic Workplace**
63 J-POWER Group's Basic Philosophy on Human Resources
Employment
64 Human Resources Development
65 Occupational Safety and Health
66 Establishing Workplace Environments for Better Work-Life Balance

Part 4 **Business Partner Relations**
67 Recycling Resources for Mutual Benefit
Joint Research and Development

Fiscal 2007 HIGHLIGHTS

Social Contribution with a Global Reach

(Details on page 61)

As a member of the global community, J-POWER is working to expand the scope of its initiatives under a corporate philosophy of contributing to the sustainable development of Japan and the rest of the world.

Employee Attitude Survey

(Details on page 66)

An Employee Attitude Survey was conducted in fiscal 2007 under the direction of the Work-Life Balance Promotion Committee, which was established in fiscal 2006.

Part 1

Ensuring the Stable Supply of Electricity

The J-POWER Group produces electricity at 78 facilities throughout Japan, including hydroelectric, coal-fired thermal, and wind power stations, 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.

THEME

Helping Ensure the Stable Supply of Electricity

The J-POWER Group's power generation facilities have the capacity to ensure stable supplies. Its power transmission and substation facilities form part of the system formed by electric power companies nationwide, linking different regions to create broad-ranging cooperation, and thereby helping to ensure stable supplies.

Steady Development of Stable Power Sources

J-POWER is Japan's largest wholesale power company with a total output capacity of 16.38 GW within Japan as of March 31, 2008, giving it a market share of approximately 7%. The electric power generated through these facilities, together with power generated within Japan by other Group companies, is delivered to consumers through general electric utilities (regional power companies) throughout the country.

J-POWER has been planning the construction of the Ohma nuclear power station in Aomori Prefecture since 1976, and in April 2008 the Ministry of Economy, Trade and Industry granted approval for the installation of the nuclear reactor. Construction got underway on the facility in May this year, which will have an output of 1,383 MW.

In addition, J-POWER is currently constructing the Isogo New No. 2 Thermal Power Station (in Kanagawa Prefecture; 600 MW capacity), scheduled to start operations in July 2009.

Through these two projects designed to develop large-scale, stable sources of power, J-POWER's output capacity will increase by some 2,000 MW. The additional capacity is expected to make a significant contribution to the stability of power supply in Japan. J-POWER will continue with the steady expansion of its power generation plant and equipment and other electric power facilities.

Transmission, Substation, and Telecommunications Facilities Linking Electricity in Japan

J-POWER owns and operates transmission lines of approximately 2,400 km and eight substations and converter stations that link disparate regions of Japan 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 the wide-area power transmission 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 different frequencies of Eastern Japan (50 Hz) and Western Japan (60 Hz).

In addition, J-POWER operates a telecommunications network comprising components such as highly reliable microwave radio circuits and fiber-optic cables, which enables it to conduct the remote monitoring and operation of its electric power facilities. Its usage of sophisticated IT underpins the stable operation of the country's electricity grid.

COLUMN

Contributing to Power System Stability —Frequency Converter Stations and DC Transmission Facilities

IN ORDER TO maintain stable supplies of electricity, it is necessary to maintain the balance between supply and demand by adjusting the volume of supply in line with changes in power demand, which fluctuates constantly.

Frequency converter stations and DC transmission facilities are located between neighboring power companies to allow the two to operate jointly in normal conditions and adjust the flow of electricity between their power networks in order to balance supply and demand to the extent possible. These facilities include automatic frequency controllers and system stabilizing controllers, which quickly and automatically adjust the flow of electricity between the two networks in order to ensure their stability.

At the Hokkaido-Honshu HVDC Link, two DC transmission lines are operated so that in normal conditions the flow of electricity through one line cancels out the reverse flow through the other line, which makes it seem as if electricity is not moving between the two networks at all. But, if an accident were to take place on either of the networks due to lightening, for example, and the frequency were to fall below the standard value, this state of mutual cancellation would be eliminated and the DC power would be adjusted and distributed until the frequency is brought back to within the normal range. The facility is capable of making subtle adjustments of power networks even during nighttime hours and holidays, when power generation and demand volume are small and network stability is low.

In addition, if a power station goes offline due to an emergency situation, DC power between the two networks is adjusted instantaneously in order to prevent power outages. The Sakuma Frequency Converter Station and Kii Suidou DC Interconnection Facility are also capable of operating in this way during emergencies.

The Hokkaido-Honshu HVDC Link, which consists of a bipolar system, finished upgrading the pole No. 1 control and protection panels and related equipment in April 2008. The facility is working to make its capabilities even more advanced and reliable in an effort to help further stabilize the grid. This latest upgrade took place under extremely strict restrictions on the outage of the HVDC link, so it was necessary to carry out numerous, complicated tasks and tests over a short period of time avoiding any influence to pole No. 2 operation. The entire J-POWER Group worked together to complete this difficult project without incident.

Hokkaido-Honshu HVDC Link (Hakodate AC/DC Converter Station's thyristor valves)

Contributing to the Stable Operation of the Power System

To operate J-POWER's power generation and transmission facilities stably and efficiently, the Central Load Dispatching Center works in coordination with the power system operation conducted by related electric power companies. It has a 24-hour operating structure for issuing appropriate operating instructions (load dispatching) to our four regional control centers and thermal power stations.

In addition, beyond this regional structure J-POWER contributes to the stable operation of the entire national power system through the operation of facilities such as the Sakuma Frequency Converter Station and the electric power interconnection facilities that link Honshu and Hokkaido (Hokkaido-Honshu HVDC Link).

Central Load Dispatching Center (Tokyo)

Facilities Maintenance

The J-POWER Group possesses various types of facilities in such fields as power generation, power transmission, transformation of electrical energy, telecommunications, civil engineering, and construction. To ensure stable supplies of power, J-POWER aims for the constant improvement of the high-quality maintenance work that is conducted to maintain the functions of these facilities, prevent malfunctions and accidents before they can occur, and minimize environmental load.

At thermal power stations, the constant emphasis is on the stability of operations. On the hardware side, reliability is ensured through day-to-day control to identify equipment abnormalities promptly and by such means as regular overhaul inspections of operating facilities under the system of "Autonomous Periodic Safety Inspection," while on the software and knowledge side the measures employed include the use of simulators to maintain and enhance operators' operating skills and a variety of drills to prepare for possible natural disasters and accidents. Other steps taken to ensure year-round stable power supplies include the conduct of special patrols every year, particularly during the summer months when the need for electric power is high.

Hydropower stations are subjected to inspection tours, regular inspections, and repairs. By maintaining and restoring the functioning of plant and equipment through prevention and predictive maintenance based on these activities, the potential for accidents and other problems is avoided. In addition, the four regional control centers monitor equipment round the clock, to ensure that any incidents affecting equipment at any of the 59 hydropower stations nationwide are addressed promptly. Also, at the dams used in hydropower production we monitor information relating to the associated river systems, including rainfall, river-water level, and meteorological data.

Transmission and substation facilities are subjected to harsh natural conditions such as wind, snow, lightning, and sea salt contamination, making it essential to deal appropriately with environmental changes and aging in the affected regions. The state of these facilities is constantly monitored by means of patrols and detailed inspections, and all necessary repairs are effected in order to maintain their functions and ensure stable power supplies.

The equipment-maintenance techniques and technologies built up in each of these fields are provided to employees through hands-on experience and training for the purpose of preventing human error, for human-resource development, and for the maintenance and enhancement of technical capabilities.

Emergency Response

To be prepared for events of disaster or accident, the J-POWER Group has established information contact routes with the regions in which its power generation and substation facilities and transmission lines are located, and it also operates a mutual assistance structure with all related units. Other measures include the stockpiling of supplies for post-accident recovery and the conduct of training for dealing with accidents.

COLUMN

Passing Down Accumulated Technologies

THE J-POWER Group conducts training at a number of training centers in order to maintain, improve and pass down technical skills in areas such as facilities maintenance.

In the Thermal Power Division, we work to maintain and improve operational techniques by conducting simulator and control training and by holding specialized courses in areas such as pump disassembly and assembly. The training is held at the Thermal Power Training Center in Wakamatsu of Kitakyushu City, Fukuoka Prefecture and taught by in-house instructors. This also plays a role in fostering educational specialists for the sake of maintaining or improving the training curriculum.

In the Hydropower Division, technical training is held at our training facility in Kawagoe City, Saitama Prefecture for the purpose of maintaining and developing the practical capabilities of onsite maintenance staff and operators. The training facility is equipped with hydropower station and substation simulators, operational training simulators, and equipment for network protection training. This equipment makes the drills especially realistic.

In the IT & Telecommunications Division, our information technology training facility in Kawagoe City is outfitted with microwave telecommunication systems, telephone exchanges, and IP network devices—the same devices used on actual telecommunications networks. Practical technical training is held in order to sharpen response capabilities. This includes drills for maintenance workers on how to respond to malfunctions.

Practical training on dam operations using dam simulator facilities

In the Civil Engineering Division, practical training on dam operations is held using dam simulators located in the Chigasaki Research Institute. In 2007 we also started Civil Engineering Technology Training, a comprehensive training program for J-POWER Group employees involved in civil engineering works.

Part 2

Harmony with Society

The J-POWER Group is committed to bringing about a sustainable society at the local and global levels.

Social Contribution by the J-POWER Group

OUR CORPORATE activities are supported by the communities where our power stations and other facilities are located. Every employee is committed to being a good resident and neighbor in these local communities. Our power stations and business sites also strive to be a good corporate citizen, which means earning the trust and friendship of local residents and striving for harmonious growth with local communities.

Electricity and other forms of energy are indispensable to everyday living and economic activity. At the same time, generating electricity inevitably entails a certain amount of impact on the natural environment. Both a healthy natural environment and life-supporting energy are needed for people to be able to enjoy meaningful, enriching lives. We provide opportunities for people to experientially learn about energy and the environment in order to raise awareness of the importance of both.

J-POWER Community Concerts

This classical music concert series was started in 1992 in order to provide people who have limited access to live classical music with the chance to enjoy authentic live performances of it. In fiscal 2007 six community concerts were held at elementary schools and social welfare centers.

WEB http://www.jpower.co.jp/concert/index.html (available in Japanese only)

J-POWER Experiential Learning Project for Ecology and Energy

Partnering with Kiyosato Educational Experiment Project, Inc., an environmental non-profit organization, J-POWER began a new educational program that provides support for hands-on learning experiences on energy and the environment.

The program is dedicated to direct experience, collaboration and learning from each other. It seeks to encourage people to use energy with care and treat the environment with care by providing fun learning opportunities involving direct contact with energy and the environment.

WEB http://www.jpower.co.jp/ecoene/index.html (available in Japanese only)

Hydropower and River Environments

(J-POWER Owase Office, JPHYTEC Owase Branch Office: Mie Prefecture)

We invited around 50 local fifth-grade students to tour the Owase No. 1 Power Station and help stock the Choshi River with juvenile Japanese trout. The students learned how hydropower stations work, got a sense for the importance of electricity, and, with the help of the local fisheries cooperative, learned the importance of river environments and water resources.

Children touring the hydroelectric power station

Computer Consultation in Sakuma

(Sakuma Branch Office, KEC Corporation: Shizuoka Prefecture)

J-POWER Group employees have drawn on their own computer skills to offer community computer classes for beginners since 2004. The classes were started out of a desire to help local residents in some way.

There is no set curriculum; rather, the teachers provide instruction based on questions from the participants. The program has been a real hit with local community members, and we intend to continue it into the future.

J-POWER Group employees help participants in a computer class.

COLUMN

Partnering with Local Communities

THE J-POWER Group conducts business operations throughout Japan, from Hokkaido to Okinawa. J-POWER organizations all over the country are involved in a variety of activities, from participating in local festivals and traditional art events to environmental conservation activities and public tours of power stations.

Every region has its own characteristics and personality, so our business sites learn the particular needs of each community and engage in an array of initiatives in order to be of maximum benefit to them. What is important is continuing to engage with the community. Our community involvement will continue to revolve around local partnerships and harmony between energy and the environment. We intend to continue supporting programs and initiatives all over Japan.

Osamu Yoshikawa Public Relation Office, Secretarial Affairs & Public Relation Dept.

Nature Observation Outing at Power Stations

(J-POWER Ishikawa Coal-Fired Thermal Power Station, JPec Ishikawa Company: Okinawa Prefecture)

We have started holding nature observation outings for the general public while utilizing natural forestland, coal ash disposal sites and other facilities on the premises of our power station. Three outings were held in fiscal 2007 and drew a total of 100 participants. J-POWER Group employees serve as instructors and introduce the participants to birds and trees on the site in the colorful Okinawan dialect.

We plan to continue this program while trying various new and creative ways to enhance it in order to bring children even closer to nature and energy.

A J-POWER employee explains one of the living creatures found at the power station.

Kazenoko Juku Wind School

(J-POWER, Asahi Beer, Green Power Aso: Kumamoto Prefecture)

J-POWER partnered with Asahi Beer to start an experiential learning program for some 120 elementary students from four local schools. The program is conducted with the cooperation of the Japan Environmental Education Forum, the NPO Commu-Net Association and local educators.

The students take part in hands-on experiments with the wind, learn about wind power and the natural environmental in Aso, and participate in "eco-actions" with their families, which involve using shopping bags brought from home and conscientiously turning off lights and appliances in order to help prevent global warming.

The students present the results of their activities, which reveal the changes that have taken place in their feelings and behavior.

Students searching for where the wind is strongest with a wind gauge.

Learning about the Environment through Rooftop Gardening

(J-POWER Wakamatsu Operations & General Management Office, JPec Wakamatsu Environmental Research Center: Fukuoka Prefecture)

This program provides the opportunity for local elementary school students to learn about energy and the environment. The program was held eleven times in fiscal 2007 for two schools.

The office building's rooftop garden features a nature observation area and an area that allows students to experience rice cultivation. The program has garnered attention as an environmental education initiative developed through collaboration among industry, academia and government.

Students observing nature on the rooftop garden of one of our office buildings.

J-POWER Kurokawa Community Forest

(J-POWER Nishi Tokyo Power Administration Office, JPHYTEC, KEC Corporation, JP Business Service Corporation: Tokyo)

J-POWER conducts a woodlands education program on company property as a part of its activities to promote "community forests" in the West Tokyo area.

In November 2007, around 140 local fifth-grade students were invited to the company, after first doing some preparatory studies, for the opportunity to plant trees and participate in an experiential nature program, which was held with the help of Kiyosato Educational Experiment Project, Inc.

Nettle trees planted two years earlier were already home to caterpillars of the Sasakia charonda (large purple fritillary butterfly). We intend to continue this program while collaborating with other organizations in various capacities in order to help create quiet woodland areas in urban settings.

J-POWER Group employees planting trees with the children

Excursion to the Ohma Geological Formations

(J-POWER Ohma Nuclear Power Construction Office: Aomori Prefecture)

An excursion to the Ohma Geological Formations has been held for local elementary and middle school students. In fiscal 2007, 116 students participated in the event. The students got the chance to see up close how the land is formed, both through lectures by J-POWER employees specializing in geology and through directly touching and handling real geological formations and various rocks, and in addition fossil samples, which were presented to the students for the first time in this excursion program.

Children observing rock formations with J-POWER employees

Volunteer Tree Planting Initiatives

Volunteer employees from the J-POWER Group participate in activities conducted by such organizations as the Japanese Alpine Club's Society for Naturalization of Takao's Forests (Tokyo) and Society for Naturalization of Sanage's Forests (Aichi Prefecture).

J-POWER Group employees help plant trees in the Takao area.

THEME

Initiatives as a Global Citizen

The corporate philosophy of the J-POWER Group calls on us to contribute to the sustainable development of Japan and the rest of the world, and we have developed our international power business on the basis of this philosophy.

For around 50 years J-POWER has been involved in a large number of overseas projects to develop power generation facilities and other forms of social infrastructure through consulting services and other contributions. For developing countries, social infrastructure development plays a major role in promoting economic growth, raising living standards and eradicating poverty.

In addition to contributing to the global community through such infrastructure development projects, J-POWER also engages in community-based social action programs while leveraging the experience and networks it has built up overseas.

Support for Local Elementary Schools in China

The Tianshi Power Plant in Shanxi Province, China is a waste coal-fired thermal power plant established by J-POWER together with Chinese partners. The plant 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 plant would effectively use low-grade coal and coal waste as fuel.

The plant 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 plant of its kind in China involving foreign capital. The plant came onstream in May 2001 and continues to operate smoothly.

We work to provide stable supplies of electricity through operating such a plant and are committed to being a safe, reliable and trusted presence in the regions where we will build power stations.

❍ 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 plant also donates school supplies to the other schools in order to contribute to the communities in the area.

The plant'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 plant

■ **Tianshi Power Plant, Shanxi Province, China**

1) Location	Lingshi Prefecture, Shanxi Province, China (160 kilometers south of Taiyuan City, Shanxi Province)
2) Type	Debris and low-grade coal-fired, internal circulating fluidized-bed boiler thermal power plant
3) Output	Two units each output 25 MW
4) Fuel	Low-grade coal given off by coke production, etc.
5) Timeline	Construction started in December 1998 Unit No.1 went into commercial operation in December 2000 Unit No.2 went into commercial operation in May 2001

Job Training in the Philippines

CBK Power Company Limited (CBK) is a hydropower company with an output of 728 MW, which is located in Laguna Province about 100 kilometers southeast of the Philippine capital of Manila. J-POWER has a 50% 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 started 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 fishery 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 four courses: 1) beginning welding, 2) advanced welding, 3) basic electronics, and 4) building wiring and electrical appliance installation.

The job training program, which has been conducted since November 2007, has attracted the participation of a total of 105 unemployed young people from the local area (as of January 31, 2008). 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.

Practicing pipe welding as a part of the welding course

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

COLUMN

Pumped Storage Power Station in Purulia, India Starts Operations

ALL THE UNITS at the pumped storage power station in Purulia, India are now in full operation as of February 2008. J-POWER supervised the construction of the plant, which has an output of 900 MW, in its capacity as a consultant.

The Purulia Pumped Storage Power Station was an ODA project of the Japanese government. It was constructed in the eastern Indian state of West Bengal, which is located on the border with Bangladesh, and was the country's first large-scale pumped storage power station. The power station operates as a source of power to meet peak demand in the evening hours in West Bengal, where thermal power plants are the main source of electricity supply. It is expected to play a major role in making the operations of coal-fired thermal power plants more efficient.

Along with contributing to India's development through the construction of power facilities, the J-POWER Purulia Pumped Storage Project Office has also devoted itself to supporting education for minority ethnic groups in highland regions out of a desire to make a lasting contribution to local communities in ways other than dam and power station construction.

J-POWER was in agreement with the philosophy and activities of VVK, a local non-governmental organization dedicated to helping impoverished ethnic minority groups of certain castes gain autonomy through education. We therefore wondered if there was anything we could do to help, and this led to a project to bring power to a school run by VVK. We also served as an intermediary between VVK and the Consulate-General of Japan in Kolkata in order to receive grassroots assistance for the construction of a new schoolhouse. One of the consulate officers in charge of grassroots assistance was very appreciative of this project: "When we search for people who need assistance, we tend to end up focusing on urban needs and do not receive much information from outlying areas. We wanted to increase the number of assistance projects in remote areas, and the information provided by J-POWER enabled us to gain awareness of some of the latent needs of the region. It was an extremely significant assistance project for this very reason."

J-POWER intends to continue its involvement in these types of community-based social contribution activities.

The building dedication was held under clear blue skies.

A large number of local residents attended the dedication.

Part 3

Developing Human Resources and Creating a Dynamic Workplace

The J-POWER Group strives to ensure safe, comfortable working environments while endeavoring to create a corporate culture that respects the character and individuality of employees and inspires them to constantly meet new challenges with a high level of motivation.

J-POWER Group's Basic Philosophy on Human Resources

HUMAN RESOURCES are the key to a company's sustainability. For the sustainable growth of business, all employees are required to cultivate their skills and abilities in order to create new ideas and added value. Under our new medium-term management plan that started in fiscal 2008, we have placed the highest priority on securing and developing human resources in order to strengthen the foundation of the company for the purpose of ensuring sustainable growth. We intend to reinforce policies for labor and personnel overall, including career development programs (CDP), establish work environments and systems that harness diversity in values and in the workforce, which includes experienced employees and women, and improve both individual skills and workforce productivity by promoting work-life balance.

Developing Group Human Resources and Creating Dynamic Workplaces

Securing Human Resources

- Create a foundation of human resources through stable hiring to support the sustainable development of the Group
- Promote human resources diversity to cope with changes in labor markets and business needs

Human Resources Are Key to Corporate Sustainability

Developing Human Resources

- Improve the abilities of all group employees (introduce and coordinate group CDP)
- Strengthen rotations and on/off-the-job training to pass down technical skills and meet domestic/global business expansion needs.

Invigorating Human Resources

- Establish work environments that motivate every employee to take on challenges
- Promote initiatives to improve individual abilities and workforce productivity (manage time by promoting work-life balance)
- Establish work environments and systems that allow diverse personnel to flourish, including experienced employees and women

THEME

Employment

In order to grow continuously while "harmonizing energy supply with the environment, the J-POWER Group aims at stably recruiting new employees from various fields and age groups and creating opportunities that enable them to thrive.

Utilizing Diverse Human Resources

J-POWER strives to hire a diverse array of people for its workforce. We hire mid-career professionals and specialists in addition to new graduates. We are currently creating work environments and systems that enable our diverse personnel to fully demonstrate their capabilities, without regard for gender, age or other such distinctions.

■ **Employment of New Graduate (J-POWER)**

	FY 2006	FY 2007	FY 2008 (as of April)
Men	23	36	40
Women	2	5	8
Total	25	41	48

Harnessing the Abilities of Experienced Employees

The J-POWER Group introduced a continuing employment system in April 2006 in order to make further use of the abilities of experienced employees. The system allows employees who have reached retirement age to continue working until they turn 63. We also have a personnel registration system that provides job opportunities in the Group for employees between the ages of 60 and 65. We aim to make further use of the experience, technical skills, and will to work of older Group employees in our ongoing business development.

■ **Use of Continuing Employment System**

Employees applying for continuing employment system (as of March 31, 2008)
148

Employing People with Disabilities

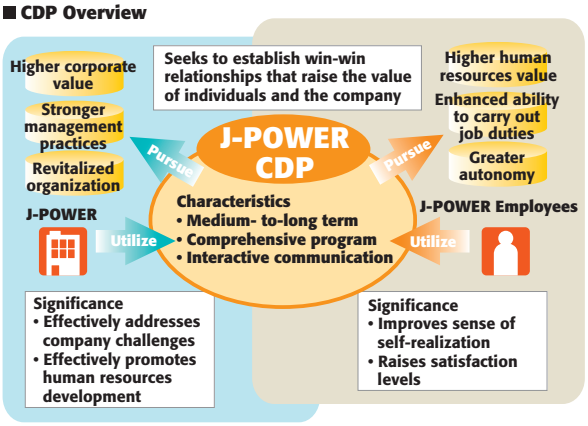
Our employment ratio for people with disabilities as of June 1, 2008 was 1.98%, which exceeds the legal minimum. We have a consultation desk that helps employees with disabilities and provides information on work environments. We will continue to work to enhance work environments, through such initiatives as making office buildings barrier-free, and promote greater understanding among all employees.

THEME

Human Resources Development

The J-POWER Group has introduced a career development program based on the vision for our business. The program, which consists of long-term plans for developing the careers and abilities of individual employees, conveys to employees what is expected of them and serves as an effective system for education and training. The program provides management with specific guidelines for fostering personnel. It provides employees with an interactive development tool that helps them think about their own career trajectories and take the initiative in developing their abilities and raising their value to the company. We encourage employees to make active use of the program.

■ CDP Overview



Human Resources Development Programs

J-POWER believes in the importance of using work itself, particularly on-the-job training, to enable employees to improve their job performance and facilitate their growth. At the same time, as the scope of our business activities has expanded, we have established programs to systematically train personnel through a well-designed plan so that their abilities are fully utilized.

○ Various Training Programs

We run level-specific training courses designed to provide employees with business knowledge and management skills that match their qualifications and age. Career training is also provided for employees to review their careers to date and consider their next steps. We also conduct divisional training, objective-specific training, and other off-the-job training courses to enhance employee knowledge, skills, and specialization in order to meet divisional requirements and ensure we are capable of quickly accommodating changes in business conditions.

We have established technical training facilities in Chigasaki, Kanagawa Prefecture for civil and architectural engineering divisions; Kawagoe, Saitama Prefecture for hydropower, transmission, and telecommunications divisions; and Kitakyushu, Fukuoka Prefecture for thermal power divisions. We systematically conduct training for engineers in technical divisions at these facilities. Level-specific training is held at the Human Resources Development Center in Tokyo's Chuo Ward. These initiatives are aimed at fostering personnel in line with our career development programs.

○ Helping Employees Voluntarily Develop Their Careers and Abilities

J-POWER introduced a self-assessment system for employees to convey their career intentions to the company once a year and discuss them with their immediate superiors. The system was introduced to facilitate career-related discussions between employees and management. We also have a voluntary training incentive program and an academic training program that provide financial assistance to employees who attend foreign language classes or business school or take a correspondence course after work or on weekends. These programs are aimed at helping employees develop their abilities on their own initiative.

■ Participating in Level-Specific Training and Career Training

	FY 2005	FY 2006	FY 2007
New assistant managers	78	69	65
New managers	97	83	120
Career plan training	87	57	55
CLDS*	125	79	91
Total	387	288	331

* Career & Life Design Seminar

■ Participation in the Voluntary Training Incentive Program

	FY 2005	FY 2006	FY 2007
School attendance	88	47	74
Correspondence	139	116	101

COLUMN

Improvement Suggestion Program: Further Vitalizing and Rationalizing Operations

THE IMPROVEMENT suggestion program has an extremely long history at J-POWER. It has been in place since 1965 for the purpose of helping to vitalize and rationalize operations. Ideas are sought from employees on how to raise efficiency or improve business practices and then utilized to those ends. This program began to be used throughout the J-POWER Group in 2004, and every year it produces suggestions that help make our operations more rational and efficient.

As in previous years, suggestions came from every region of the country in fiscal 2007, many involving ideas to improve power generation utilization or reduce costs.

Suggestions received from employees are reviewed, and particularly strong ideas are singled out for a grand prize or excellence award. Award certificates are handed out to the winners by J-POWER president Yoshihiko Nakagaki.

We intend to continue using this program to further vitalize and rationalize operations.

Awards ceremony for the grand prize and excellence award

THEME

Occupational Safety and Health

The J-POWER Group is committed to creating safe, healthy, and invigorating workplaces as the foundation of our business activities. Through the establishment and operation of occupational safety and health management systems within the Group, each group company fulfills its roles and responsibilities, and overall safety management is promoted. This serves to prevent workplace accidents and maintain or improve employee health.

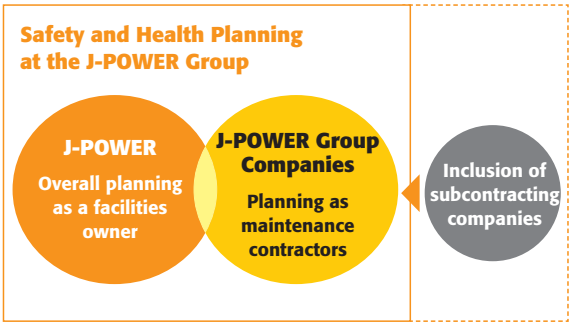
Planning Based on Mutual Cooperation

At the J-POWER Group, common issues pertaining to the Group as a whole and how to address them are compiled into a J-POWER Group plan for occupational safety and health following discussions with group companies on these issues. Based on this overall plan, group companies formulate their own plans for occupational safety and health while taking into account their positions and responsibilities.

In drawing up the Group plan, J-POWER checks to ensure that overall safety management is being conducted appropriately from the perspective of a facilities owner and outsourcer. At the same time, J-POWER's group companies formulate their plans based on their perspective as organizations with direct responsibility for maintenance work.

Moreover, because joint activities and cooperation with subcontracting companies on the frontlines are essential to preventing workplace accidents, we engage in safety activities together with all related companies at each business site. These safety activities include safety promotion meetings, on-site safety patrols, safety training, and traffic safety classes.

■ **Occupational Safety and Health Planning Through Mutual Collaboration**



J-POWER Group Safety and Health Initiatives

The J-POWER Group has established the following priorities as common themes in safety and health activities.

1. Safety Priorities
1) Raise safety awareness and enhance communication to that end
2) Prevent (recurring) workplace accidents involving contractors
3) Prevent on-the-job traffic accidents

2. Health Issues
1) Promote mental and physical health

■ **Incidence of Workplace Accidents**

	Deaths	Serious Injury	Minor Injury
FY 2005	0	10	8
FY 2006	0	2	10
FY 2007	2	5	8

■ **Accident Frequency and Severity**

	Frequency	Severity
FY 2005	0.76	0.05
FY 2006	0.48	0.01
FY 2007	0.58	0.82

Notes: 1. The frequency rate is the number of deaths and injuries caused by industrial accidents that lead to at least one day of missed work per one million hours worked.
2. The severity rate is the number of days of work missed due to an industrial accident per 1,000 hours worked.

Unfortunately two accidents occurred that resulted in death, and both accidents were those that tend to recur. We intend to work to prevent their recurrence through enhancing basic safety operations and communication.

Maintaining the Health of Employees and Their Families

The J-POWER Group has initiatives designed to help employees and their families maintain or improve their health. We encourage employees and their families to undergo health checkups and provide guidance in the area of health maintenance. We also place emphasis on measures to prevent mental health disorders and metabolic syndrome, which have become widespread social phenomena. We intend to further strengthen initiatives to enhance mental health care, prevent lifestyle diseases, and raise awareness of them through training and counseling.

■ **Participation in Health Exams**

	Ratio of employees receiving regular spring health exams
FY 2006	99%
FY 2007	99%

COLUMN

J-POWER Group Communication Day in Tokyo Dome (THP Communication Event)

A TOTAL Health Promotion Plan (THP) Communication Event was held for employees and their families in the vicinity of the head office in Tokyo in July 2007. A similar event was also held in fiscal 2006. The event was designed to foster a greater sense of unity within the J-POWER Group and further promote the health of employees and their families. Employees and their families competed in sporting events and games, participated in a variety of family events, and raised money for charity* in a way that brought social contribution closer to home. These activities helped create a greater sense of solidarity within the Group and deepened relations with employee family members.

* Donations were collected through the Japanese Red Cross Society and other organizations.

THEME

Establishing Workplace Environments for Better Work-Life Balance

The J-POWER Group believes that a better work-life balance can help ensure sound labor force reproduction and lead to improved efficiency. We are committed to helping employees generate new ideas and added value by creating workplaces that enrich both work and private life and enable diverse employees to fully demonstrate their abilities.

Findings of Fiscal 2007 Employee Attitude Survey

An Employee Attitude Survey was administered in fiscal 2007 under the Work-Life Balance Promotion Committee, which was established in fiscal 2006. The survey found that most employees are satisfied with the company and their jobs. At the same time, the survey also found that employees felt job complexity and coordination were adding to their workload, awareness was high regarding the problem of work efficiency, and there were major differences between genders and among age groups on awareness of the company's labor policies.

Based on the findings of the survey, we will put priority on promoting the following two approaches to ensuring work-life balance:

- Create work environments that allow motivated, able employees to flourish even when there are restrictions on working hours
- Create time by strengthening management of working hours

Specific Measures

First of all, as an initiative designed to "create time," we will set new targets for ensuring appropriate working hours and include them within organizational goals for all units. In addition, we will institute a new time management training course for managers. We will also strengthen head office measures to ensure that employees leave the office at the official end of the working day. The measures will include turning out the lights, stopping elevators, and patrolling the office.

In addition, we will strengthen measures to ensure compliance with labor laws and other rules and promote health management.

Furthermore, we will work to make our labor systems highly visible in order to ensure that both managers and employees have an equivalent understanding of them. These efforts are intended to improve work-life balance and develop work environments that support this goal.

■ **System Utilization**

	Child-care leave	Shortened working hours for child care
FY 2005	15	8
FY 2006	13	8
FY 2007	20	10

Labor Relations

To ensure smooth business administration with the J-POWER Group Worker's Union (JPGU), the company strives to maintain stable working conditions by appropriately holding meetings with the union, deliberating on working conditions, and concluding labor contracts that have the assent of the union.

In addition, we strive to maintain a cooperative relationship with labor through daily communication. For example, when we promote initiatives such as work-life balance, which require the coordinated efforts of labor and management, we ask the union to request employee participation in the Employee Attitude Survey.

Allowing Diverse Employees to Flourish (Future Initiatives)

J-POWER is working to create a workplace where people's character and their rights are respected and diverse employees can fully demonstrate their abilities and flourish. As one of the measures to ensure this, we have established an internal consultation desk for issues related to working hours and work environments and such problems as sexual and moral harassment. The consultation desk has been established in order to resolve problems and prevent them before they can occur.

Looking ahead, we plan to continue to focus on work-life balance activities and assistance in order to ensure that employees continue to feel that their jobs are worthwhile. We will also carry out initiatives that make human resources diversity a positive contributor to corporate activities being developed on a global basis.

Utilizing the Child-Care Leave Program

COLUMN

I RETURNED TO WORK in April 2008 after taking a year and a half's worth of child-care leave. Before going on leave, it was an extremely busy time for my department, and I'm very appreciative of the generous support I received from my supervisors and colleagues. While I was on leave, I kept abreast of the company's activities at home through the company's intranet, which significantly relieved the anxiety I felt about being away.

After returning to work, I've maintained a good balance between work and family and have experienced many fulfilling days in both arenas. Looking ahead, I hope to help propose and create systems that overcome job transfer problems and other hurdles.

Midori Yamaoka
Personnel & Employee Relations Department

Part 4

Business Partner Relations

**The J-POWER Group is committed to bringing electrical security to people's lives.
This commitment is supported by our many business partners.
Together with these partners we will strive to ensure the stable supply of energy.**

Recycling Resources for Mutual Benefit

The business field of Mitsubishi Materials includes production and sale of cement. Natural resources are used as raw materials and fuels in the manufacturing process, but Mitsubishi Materials promotes effective use of waste materials and byproducts as alternatives in order to conserve resources and contribute to environmental preservation.

Waste processing at cement factories has the following characteristics. Unlike other materials, cement is made by mixing ingredients commonly found on the earth, allowing a variety of raw materials and fuels to be selected. Large amounts of waste can be processed under strict quality management. Because all waste materials and byproducts are used effectively as ingredients in alternative fuels, no secondary byproducts emerge. Organic substances and odors are decomposed into harmless matter at high temperature (1,450°C).

Mitsubishi Materials' cement factories accept and process coal ash as a clay substitute. Cement production is the only way to dispose of massive amounts of coal ash other than using it as landfill. In other words, utilizing coal ash in cement manufacturing can substantially extend the life of reclamation sites. Using coal ash reliably and in quantity as a substitute for natural clay enables Mitsubishi Materials to conserve resources.

Firing facilities at the cement factory

Cement factory's receiving silo for coal ash

In addition, J-POWER uses calcium carbonate (limestone) from Mitsubishi Materials for flue gas desulfurization at thermal power stations, and in turn, Mitsubishi Materials uses gypsum produced by the desulfurization process in its cement kilns.

In this way, both J-POWER and Mitsubishi Materials make a substantial contribution to protecting the environment through resource recycling.

Joint Research and Development

❍ Cooperating in SOFC System Development

Mitsubishi Heavy Industries has been involved in the development of tubular-type SOFC cell tubes since 1984. The modules, the part that includes these cell tubes and generates electricity, were developed through joint research with J-POWER from 1988 to 2006.

SOFC's module is made up of a bundle of cell tubes. The first step of bundling the cell tubes involved conducting experiments on electricity generation with one and ten kilowatt modules to grasp their basic characteristics, including temperature distribution within the module, gas distribution characteristics of fuel and air, and volt-ampere characteristics of the bundle.

J-POWER applied the results of this joint research and established a 150 kw-class atmospheric SOFC cogeneration system (SOFIT) for the purpose of creating an SOFC system as early as possible. Tests are being done to verify the system's long-term reliability and other characteristics. Mitsubishi Heavy Industries is responsible for design and production of the SOFC portion of the system.

COLUMN

Collaborating with Partners on the Transport of Coal Ash

COAL ASH is transported to our cement factory by ship. In general, it is received in accordance with the shipping schedule of the power stations, but sometimes this schedule must be adjusted due to the capacity of the receiving dock, the status of coal ash stock, or as a result of shipping delays caused by the weather. We intend to collaborate closely with our partners in making skillful adjustments to enable the smooth operation of power stations and cement factories.

Norio Nagashima
Raw Materials, Fuel & Recycle Dept.
Cement Company
Mitsubishi Materials Corporation

Operational Collaboration between J-POWER and a Manufacturer

IN ORDER TO make J-POWER's SOFIT practically viable, it is essential that the system's overall reliability be raised so that it can endure actual operation. In this sense, I think it is highly significant that a manufacturer is partnering with J-POWER, which, as a power company, has ample experience in operating power generation facilities.

Nagao Hisatome
Boiler Technology Development
Engineering Department
Nagasaki Shipyard & Machinery Works
Mitsubishi Heavy Industries, Ltd.

Roundtable Discussion with Distinguished Experts

How can we promote the harmonization of energy supply with the environment?

Masahiko Kawamura Senior Researcher
Insurance Research Group
NLI Research Institute

In a discussion session with outside experts, we exchanged views on what the J-POWER Group can do to fulfill our social responsibility of "harmonizing energy supply with the environment," with special focus on the issue of global warming.

Date:
Wednesday, October 24, 2007

Place:
J-POWER head office

Participants:

Masahiko Kawamura
Senior Researcher, Insurance Research Group,
NLI Research Institute

Yuko Sakita
Journalist and environmental counselor

Mizue Tsukushi
President and Chief Executive Officer,
The Good Bankers Co., Ltd.

Gento Mogi
Associate Professor, Department of Technology Management for Innovation, School of Engineering,
The University of Tokyo

Izumi Washitani
Professor, Department of Ecosystem Studies,
Graduate School of Agricultural and Life Sciences,
The University of Tokyo

Masayoshi Kitamura
Executive Vice-President; Chair, Environmental Management Promotion Board, J-POWER

- I appreciate initiatives like EAGLE and CCS that J-POWER is undertaking to counter global warming and reduce CO_2 emissions. In the near future, investors and financial institutions will become able to consider the materiality to their finances of such factors as climate change risk and carbon risk. The time is coming when J-POWER will have to give a clear indication of the Group's strategies and priorities in this regard.
- The J-POWER Group appears to be keenly interested in transforming coal into an environmentally efficient energy source. Given your involvement in coal-based power, I believe you are obligated to produce quantitative data on "making coal use compatible with measures to counter global warming," and to show the process as it evolves.
- From an ultra long-term standpoint, the role of coal as a fuel is presumably a transitory one. One effective approach would be for you to indicate where you would like to be as a company in the future, based on the world society envisioned in the year 2050, and to determine by "backcasting" what you need to do in order to reach those aims. Then you could aim to attract investment by making public your zero emissions strategy, which also makes financial sense. I believe this would let people see more clearly how J-POWER intends to proceed from here.
- One more point is that other issues facing society, not just the environment, are also basic issues for sustainability. I hope you won't forget these.

Yuko Sakita Journalist and environmental counselor

Mizue Tsukushi President and Chief Executive Officer The Good Bankers Co., Ltd.

- In thinking about the kind of society that will be able to cut CO_2 emissions in half by 2050, I believe it will be important for each individual to have a desire to create sustainable communities. It is also vital to view things from the standpoints of making communities energy-self-sufficient, renovating social infrastructure to make it sustainable, and making places where people enjoy fulfilling lives by accessing communities' untapped energy.
- When I think about the outlook for the future in these ways, I really want J-POWER to succeed in efforts to achieve dispersed energy, or to adopt technologies that enable it to reduce CO_2 and other environmental effects while making effective use of coal.
- With energy use and global warming increasing faster than anticipated, people are talking seriously about introducing nuclear energy. As I stated in the Atomic Energy Commission's Roundtable Conference on the Vision for Nuclear Energy Policy for Global Environment Protection and Security of Energy Supply,* from the standpoint of CO_2 reduction, this is an age that calls for understanding of nuclear power; but since public trust has not yet been formed regarding its safety, proper attention must be paid to communication.
- I recognize that nuclear energy, on which Japan depends for a third of its electric power, is necessary for stable energy supply and for countering global warming. At the same time, I would like you to reveal your next-generation vision of how Japan will coexist with nature, such as by showing us the potential for use of wind power, solar energy, biomass, geothermal, and other renewable energy, and the roadmap to fuel cell use.
- Finally, I believe it is also important for corporations to take action from the standpoint of contributing to local communities.

* Roundtable Conference on the Vision for Nuclear Energy Policy for Global Environment Protection and Security of Energy Supply: A group formed by the Japan Atomic Energy Commission in June 2007, made up of experts in various fields. Their mission is to study issues relating to the proper role of nuclear power and how it should be used in helping to achieve the worldwide goal of halving greenhouse gas emissions by 2050 while maintaining a stable energy supply. They are also taking up issues of nuclear safety, public trust, and mutual understanding between industry and the public.

- The bottleneck with green energy is achieving a stable supply, but I think many people are being brought up to accept that energy supply does not always have to be stable. Of course technology development is necessary, but one possibility would be to establish the infrastructure for supplying renewable energy and to let people choose this kind of electricity generated from green energy even while recognizing that its cost is high and that there won't necessarily be a steady supply.
- With coal as the main energy source of J-POWER, I believe the technology and company policy of pursuing green energy from coal and decarbonization will appeal to investors. With your technology for power station maintenance and power source development, it is also a good strategy to raise the presence of J-POWER globally.
- A keyword for management likely to be talked about with increasing frequency is "public-private partnerships." In addressing the big themes of energy development and sustainability, not just governments but private corporations and individual citizens will need to become actively involved. Companies already engage in what is called "corporate foreign policy." This refers to the need of corporations to have their own diplomatic strategy for dealing with other countries. CDM is also an area where companies need to take an active role from start to finish. Important strategy issues include determining the extent to which human assets should be deployed overseas and finding ways to get them actively involved in the initial stages.

Roundtable Discussion with Distinguished Experts

How can we promote the harmonization of energy supply with the environment?

Gento Mogi
Associate Professor
Department of Technology Management for Innovation, School of Engineering
The University of Tokyo

- Inasmuch as effective use of coal is essential to humankind, your role in this process is a deeply significant one.
- I applaud your work in developing CO_2 capture and storage (CCS) technology as one approach to the problem of CO_2 emissions issue. There are two issues here. One issue is the technology for separating and recovering CO_2; another is the underground disposal location. I wonder if there are any suitable places in Japan. Now that the London Convention has been amended, disposal in the sea floor has become possible, but I tend to doubt that the safety of this has been confirmed.

  Globally speaking, it is believed that CO_2 can be safely stored in depleted oil and natural gas reservoirs. While it's important to have technologies for achieving capture and storage, I believe it is even more important to have a vision of how such technologies can be properly applied.

  As for CDM, it's difficult to get a quantitative idea of just how much reduction this can bring about. Yet in the future I believe CDM is going to become a major policy pillar.
- I see regionally dispersed energy, or distributed generation, as becoming increasingly important. The technology development for this purpose definitely needs to be carried out. Lack of stable supply is said to be the bottleneck for realizing natural energy such as wind and solar. The technology for leveling the supply from these sources is a must. Use of batteries and various other systems are being considered. It would be a good idea for you to think about this kind of technology development as well.

Izumi Washitani
Professor
Department of Ecosystem Studies
Graduate School of Agricultural and Life Sciences, The University of Tokyo

- In going about trying to harmonize the supply of electricity with the need for sustainability, which includes safety in various senses of the term as well as minimizing environmental load, I feel we still have some way to go in developing the concepts, methodologies, and technologies.
- Up until now, the emphasis has been on building large-scale, efficient systems that can meet demands. What's important now is to look ahead to "soft" power and get involved in future concepts, which is what innovation is all about.
- Looking at human energy use in terms of the ecosystem, even though man-made alterations are unavoidable, I think it's important not to deviate too much from the circulation of energy (or energy flow) in the ecosystem. Even if technology can be used to extract large amounts of energy efficiently in the short term, it may not be possible to sustain that for very long. From the standpoint of safety and climate stability, there should be some means of utilizing solar energy, which regularly pours down onto the surface of the earth, by taking advantage of that physical process or something akin to it. I have in mind the kind of system in which small amounts of power are produced by each element and together they cover the overall demands. I suspect not much research has been devoted to this kind of system up to now. From an ecosystem viewpoint, I would like to see that kind of study carried out.
- The world contains an abundance of biomass. I believe there is a place for studies on ways of using recovered CO_2 to fertilize perennials and other naturally growing plants, and deriving energy from them. For example, plants growing nearby a power station could be utilized in this way.

"We will pursue innovation unique to J-POWER."

Masayoshi Kitamura
Executive Vice-President
Chair, Environmental Management Promotion Board

The very reason for the J-POWER Group's existence is to pursue innovation based on our technical knowledge, if only one step at a time. In this discussion, we have received many different innovation hints related to global warming issues from distinguished experts in various fields. While we consider "making coal use compatible with measures to counter global warming" as our biggest theme, we intend to make the most of the offered advice in proceeding with innovation.

External Evaluation and Outside Opinions

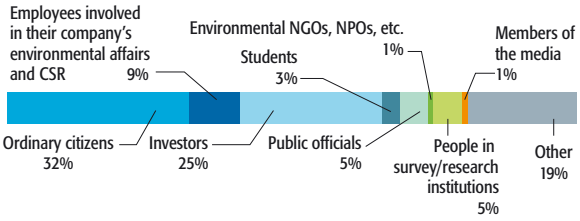
The J-POWER Group strives to incorporate various forms of third-party evaluations and recommendations into its activities, including reviews, questionnaires on our Sustainability Report, and expert opinions. By means of these evaluations and opinions, we determine the kind of business development and environmental activities that others expect of the J-POWER Group and work to improve our sustainable management. By making such comments public, we also enhance our transparency and reliability.

Readers' Opinions

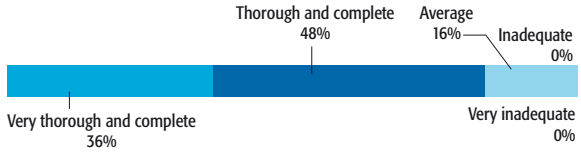
We received many comments from readers in response to the *J-POWER Group Sustainability Report 2007* (published July 2007). We consider these valuable comments to be important guidelines for compiling subsequent reports and conducting sustainable management in the future, and intend to put their lessons to use in our corporate activities.

Aggregate Questionnaire Results (as of the end of March 2008; 63 respondents)

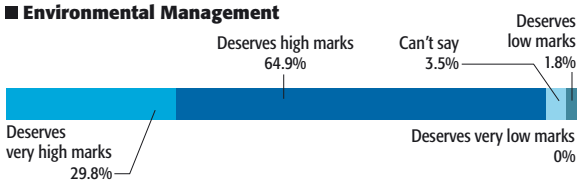
■ **Readership**



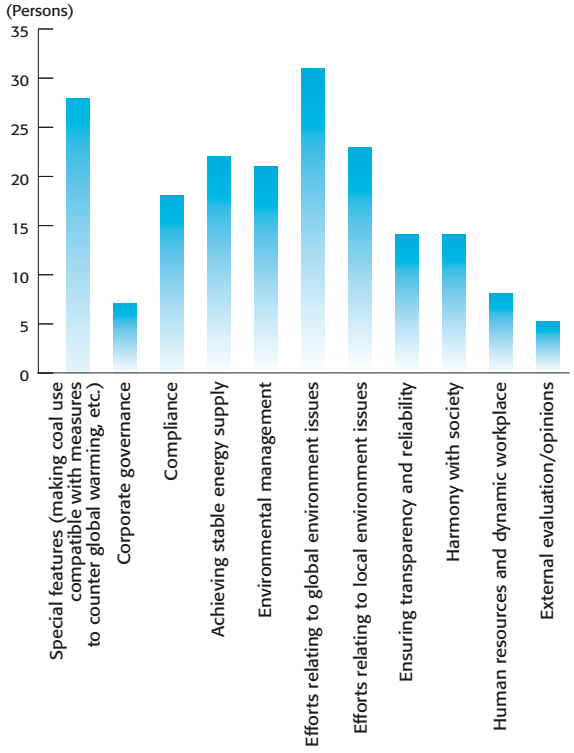
■ **Quantity and Quality of Information in the Report**



■ **Environmental Management**



■ **Areas That the J-POWER Group Should Tackle More Aggressively (up to four responses per person)**



■ **Expectations for the J-POWER Group**

Report Readers	Typical comments	Our response
Ordinary citizen	What is sustainability? (What are the goals you are pursuing, or would like to pursue?) You need to come up with a title that anyone can understand at a glance.	The 2008 edition states our goal of making energy supply compatible with protecting the environment in the subtitle, "Harmonizing energy supply with the environment".
Investor	I was expecting to learn that you would be switching entirely to nuclear energy for your power generation, as the only option for the sake of the environment. Instead, I see that you are emphasizing coal use, and I have come to understand your stance of applying your technology and development strengths to protecting the environment. By all means, I hope you will make an effort to provide that technology overseas. It was a good report, with new information to make me hopeful about coal use.	Our 2008 edition gets further into the significance of coal use and balancing that with global warming measures. Featured topics include improving energy use efficiency, technology transfer to other countries, and zero CO_2 emissions. We hope you will read and comment on these feature articles.
Investor	I would like the J-POWER Group to leverage its strengths to help improve the environment in places like China and India, and report how such efforts improve the global environment while bringing benefits to the Group. I would also like you to include a report in plain language that is able to convince the public of the safety of the Ohma Nuclear Power Station.	Improving the environment in India and China is hardly something that we can do alone, but our involvement in international initiatives for this purpose are summarized in the feature on "Making Coal Use Compatible with Measures to Counter Global Warming." We would welcome your further comments. As for nuclear power station safety, work on constructing the Ohma facility began on May 27, and it is featured in "Achieving Safe, Sustainable Use of Nuclear Energy," which we encourage you to read also.
Ordinary citizen	By further emphasizing examples and benefits of J-POWER's technology for reducing environmental impact of coal-based power generation, I believe you could deepen understanding of your active involvement in environmental issues.	We hope you will read the 2008 edition, which contains special features on the keyword "innovation" and reports on many examples of our initiatives.

Other comments and our responses can be viewed on our website at WEB http://www.jpower.co.jp (available only in Japanese).

Third-Party Review

To ensure the accuracy and comprehensiveness of important environmental and societal data as well as performance indicators (hereinafter "sustainability information") contained in the J-POWER Group Sustainability Report 2008, the sustainability information herein has been independently reviewed and certified by Ernst & Young ShinNihon Sustainability Institute Co., Ltd. (formerly Shin Nihon Environmental and Quality Management Research Institute Co., Ltd.), in accord with the sustainability report review and registration system of the Japanese Association of Assurance Organizations for Sustainability Information (J-SUS; formerly the Japanese Association of Assurance Organizations for Environmental Information). As a result of this review, an "Independent Assurance Report" has been received.

The J-SUS mark on the back cover indicates that the sustainability information contained in this report fulfills the reliability criteria established by the Association for its sustainability report review and registration system.

Document review (Miboro Power Administration Office, Gifu Prefecture)

Checking the data collection system
(Takasago Thermal Power Station, Hyogo Prefecture)

Independent third-party certification of
J-POWER Group Sustainability Report 2008

TRANSLATION

Independent Assurance Report

July 1, 2008

Mr. Yoshihiko Nakagaki
President
Electric Power Development Co., Ltd.

1. Purpose and Scope of our Assurance Engagement

We have performed certain assurance procedures, based on the engagement with Electric Power Development Co., Ltd. (the "Company"), to express an independent opinion on the Company's Key Sustainability Performance Indicators (the "Key Sustainability Information"*1 as provided in the Assurance and Registration Scheme of the Sustainability Report) of the Company and the major subsidiaries reported in the Company's "J-POWER Group Sustainability Report 2008" (the "Sustainability Report") for the year ended March 31 2008, with respect to whether the Key Sustainability Performance Indicators are measured and calculated accurately and whether the material information are disclosed completely in accordance with the reporting standards of a sustainability report*2.

The preparation of the Sustainability Report is the responsibility of the Company's management. Our responsibility is to express an independent opinion on the Sustainability Report.

*1 The Key Sustainability Information refer to the information stipulated in the "2008 Sustainability Reporting Assurance and Registration Criteria" of the Japanese Association of Assurance Organizations for Sustainability Information ("J-SUS").

*2 The reporting standards refer to the "2007 Environmental Reporting Guidelines" of the Ministry of Environment, the "2006 Sustainability Reporting Guidelines" of the Global Reporting Initiatives, and the "2008 Sustainability Reporting Assurance and Registration Criteria" of the J-SUS in the context of specifying the subject matter.

2. Outline of Assurance Procedures Performed

We have performed limited assurance procedures*3 which are mainly composed of inquiries, reviews and analytical procedures in accordance with the "2003 International Standard on Assurance Engagements (ISAE) 3000 Assurance Engagements Other than Audits or Reviews of Historical Financial Information" of the International Federation of Accountants (IFAC) and the "2008 Practical Guidelines for the Assurance of Sustainability Information" of the J-SUS. Therefore, our assurance engagement provides relatively limited assurance compared to a reasonable assurance engagement.

*3 We have reviewed and assessed the Company's procedures for the collection and aggregation of data, as well as recalculated and reconciled them with the corroborating evidences on the quantitative sustainability information on a test basis. Also, we have reviewed the minutes, checked for consistency and made inquiries on the qualitative sustainability information.

3. Conclusion

Based on the assurance procedures performed, we were not aware of any Key Sustainability Performance Indicators (the "Key Sustainability Information" as provided in the Assurance and Registration Scheme of the Sustainability Report) that are not prepared accurately and not disclosed completely in accordance with the reporting standards of sustainability reports.

4. Independency

We, as a subsidiary of the Ernst & Young ShinNihon LLC, comply with the "Certified Public Accountant Law", and the "Ethics Regulation" of the Japanese Institute of Certified Public Accountants. Therefore, there has been no interest to be noted between the Company and us.

Akihiro Nakagome
Representative Director
Ernst & Young ShinNihon Sustainability Institute Co., Ltd.

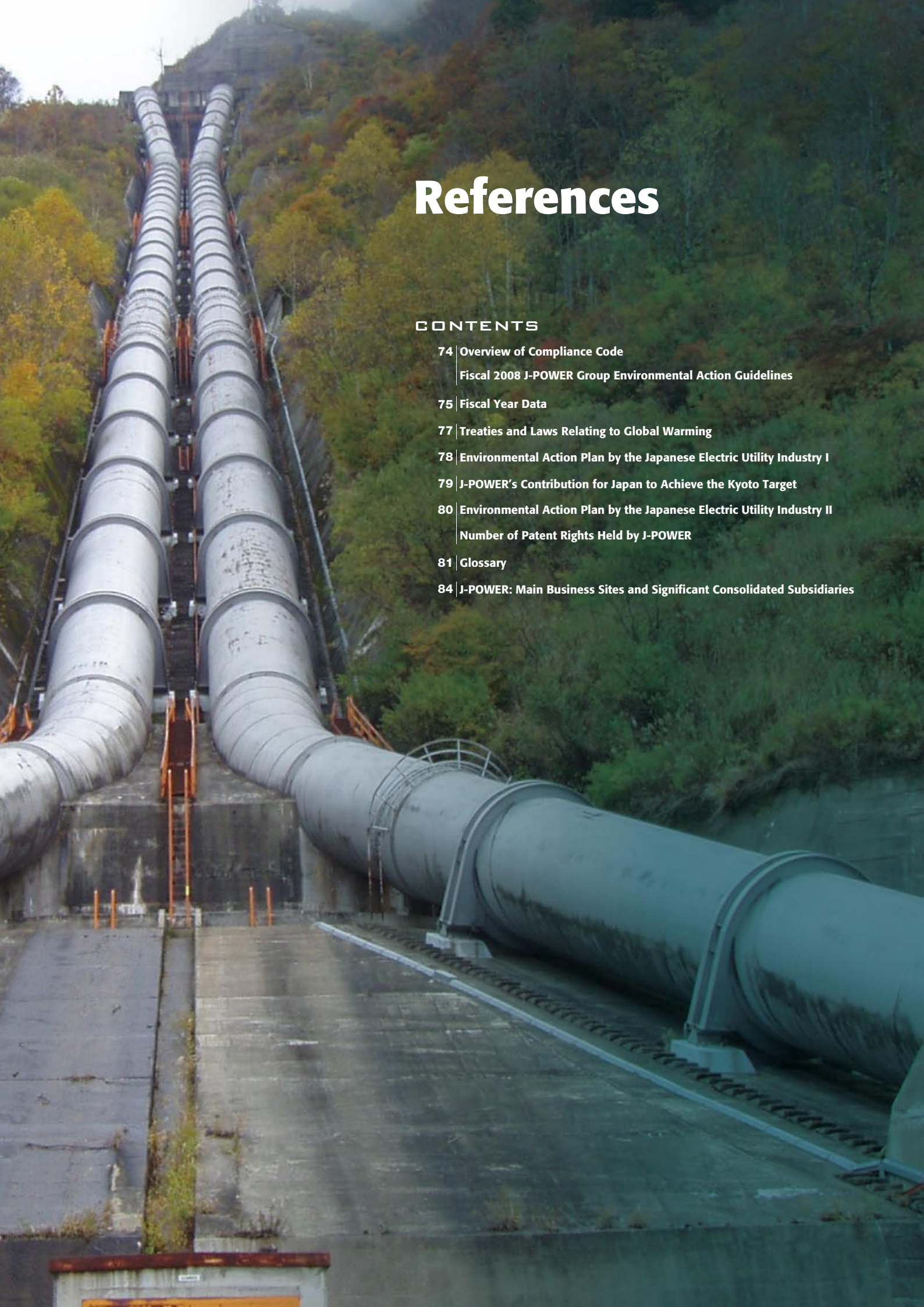
Note: This Independent Assurance Report was prepared as a translation of the original Japanese version.

COLUMN

Acquisition of Eco-Leaf Certification

J-POWER's product, electrical power, is certified and registered as "wholesale electricity" under the Eco-Leaf environmental labeling program managed by the Japan Environmental Management Association for Industry (JEMAI). This information is available on the association's website. ISO 14025 defines three types of environmental labels: I, II, and III. Eco-Leaf is a Type III label, which means the product's environmental load has been quantitatively calculated for every stage of its lifecycle—manufacture, use, and disposal—using the lifecycle assessment (LCA) approach, and this fact has been independently verified.

Information on the Eco-Leaf label can be found on the Japan Environmental Management Association for Industry's website at
WEB http://www.jemai.or.jp/english/ecoleaf/index.cfm.



References

CONTENTS

74 Overview of Compliance Code
Fiscal 2008 J-POWER Group Environmental Action Guidelines
75 Fiscal Year Data
77 Treaties and Laws Relating to Global Warming
78 Environmental Action Plan by the Japanese Electric Utility Industry I
79 J-POWER's Contribution for Japan to Achieve the Kyoto Target
80 Environmental Action Plan by the Japanese Electric Utility Industry II
Number of Patent Rights Held by J-POWER
81 Glossary
84 J-POWER: Main Business Sites and Significant Consolidated Subsidiaries

Overview of Compliance Code

I. Basics
(1) Compliance with laws and internal regulations
(2) Acting in accordance with social norms

II. Areas for Compliance
1. Relations with Society
(1) Contribution to society
(2) Compliance with laws and ethical requirements; respect for cultures and customs
(3) Proper information disclosure
(4) Appropriate PR activities
(5) Regulation of donations and contributions to political parties
(6) Terminating relations with anti-social elements
(7) Environmental conservation
(8) Appropriate use of information systems

2. Relations with Customers, Suppliers, and Competitors
(1) Security and reliability of energy supply and products sales
(2) Compliance with the Antimonopoly Law
(3) Dealing fairly with suppliers
(4) Preventing unfair competition
(5) Entertainment/gifts

3. Relations with Shareholders and Investors
(1) Disclosure of business information
(2) Prohibition of insider trading
(9) Protection of intellectual property rights
(10) Compliance with import/export laws and regulations

4. Relations with Government Agencies/Officials
(1) Adherence to approval and notification procedures
(2) Entertaining/giving gifts to government officials

5. Relations with Employees
(1) Respect for human rights; prohibition of discrimination
(2) Sexual harassment
(3) Protection of privacy
(4) Workplace safety and hygiene
(5) Compliance with labor laws
(6) Compliance with employment regulations
(7) Proper accounting and tax procedures
(8) Appropriate use of company assets

Fiscal 2008 J-POWER Group Environmental Action Guidelines

1 Efforts Relating to Global Environmental Issues
- Maintenance and Improvement of Energy Use Efficiency
- Development of Low CO_2 Emission Power Sources
- Development, Transfer, and Dissemination of New Technologies
- Utilization of the Kyoto Mechanisms and Other Measures
- Reducing Emissions of Greenhouse Gases Other Than CO_2

2 Efforts Relating to Local Environmental Issues
- Reduction of Environmental Load
- Recycling and Reuse of Recyclable Resources and Ensuring Proper Waste Disposal
- Management of Chemicals
- Natural Environment and Biodiversity Conservation Initiatives
- Environmental Conservation Initiatives in Overseas Projects
- Promotion of Technological R&D

3 Ensuring Transparency and Reliability

(1) Continual Improvement of Environmental Management (Greater Reliability)
- Improvement of Environmental Management Level
- Efficient Operation of EMS
- Full Compliance with Laws, Regulations, Agreements, and other Rules
- Green Purchasing Efforts

(2) Communication with Society (Greater Transparency)
- Publication of Environmental Information
- Active Communication
- Efforts in Local Environmental Conservation Activities

Fiscal Year Data

The following data represent annual values or year-end values in each fiscal year.
Unless specially noted, data for FY 2004 or earlier is for J-POWER only; data for FY 2005 onward includes that of the Group companies.

Notes: 1. The sum of the figures in each column may not equal the total due to rounding.
2. All figures include J-POWER and its consolidated subsidiaries. Except for the chart for power facilities, joint ventures have been accounted for based on the ratio of ownership.

■ Power Facilities (maximum output)

	Unit	FY 1990	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007
Hydroelectric	GW	7.09	8.55	8.55	8.55	8.56	8.56
Thermal	GW	4.65	7.82	7.82	8.18	8.18	8.18
Coal-fired	GW	4.64	7.81	7.81	7.95	7.95	7.95
Natural gas	GW				0.22	0.22	0.22
Geothermal	GW	0.01	0.01	0.01	0.01	0.01	0.01
Wind power	GW				0.14	0.21	0.21
Total	GW	11.74	16.38	16.38	16.87	16.94	16.94

■ Electricity Output

	Unit	FY 1990	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007
Hydroelectric	GWh	12,451	12,103	12,892	10,187	12,212	10,428
Thermal	GWh	29,551	51,237	52,708	58,922	52,429	57,054
Coal-fired	GWh	29,452	51,133	52,616	58,070	51,624	56,264
Natural gas	GWh				748	701	686
Geothermal	GWh	99	104	92	104	104	104
Wind power	GWh				203	230	321
Total	GWh	42,002	63,340	65,600	69,312	64,870	67,803

■ Electric Power Sold

	Unit	FY 1990	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007
Hydroelectric (excluding pumped storage)	GWh	10,046	10,850	11,172	8,583	10,633	8,287
Thermal	GWh	27,293	47,937	49,345	55,205	49,128	53,576
Coal-fired	GWh	27,206	47,841	49,261	54,413	48,381	52,842
Natural gas	GWh				698	652	640
Geothermal	GWh	87	96	84	94	94	94
Wind power	GWh				195	245	307
Total	GWh	37,338	58,787	60,517	63,983	60,006	62,170

■ Fuel Consumption

	Unit	FY 1990	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007
Coal (dry coal 28 MJ/kg equivalent)	million t	9.56	16.21	16.69	18.39	16.30	17.91
Use intensity (coal-fired thermal)	t/GWh	351	339	339	338	337	339
Natural gas	million m^3N				124	117	115
Heavy oil	million kl	0.1	0.07	0.06	0.06	0.06	0.05
Diesel	million kl	0.01	0.03	0.03	0.03	0.02	0.03

Note: Denominator for use intensity represents electric power sold by coal-fired thermal power stations.

■ Greenhouse Gas Emissions

	Unit	FY 1990	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007
CO_2 emissions (domestic and overseas power generation)*	million t-CO_2	24.67	43.27	44.76	49.49	45.36	50.22
	kg-CO_2/kWh	0.66	0.70	0.69	0.72	0.68	0.70
(domestic power generation)	million t-CO_2	24.67	41.37	42.54	47.18	42.14	45.97
	kg-CO_2/kWh	0.66	0.70	0.70	0.74	0.70	0.74
SF_6 emissions	t	–	0.1	0.0	0.1	0.1	0.0
Handled	t	–	6.2	3.4	3.3	6.4	4.4
Recovery rate	%	–	98	99	98	99	99
HFC emissions	t	–	0.0	0.0	0.1	0.0	0.1

* Figures for CO_2 emissions (domestic and overseas power generation) include all consolidated subsidiaries and joint venture companies.

Notes: 1. Denominators for emission intensity represent electric power sold.
2. Excluding Wakamatsu Research Institute.
3. Please refer to page 33 for the CO_2 calculation method.

■ Average Thermal Efficiency of Coal-fired Power Stations (at generation point)

	Unit	FY 1990	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007
Average thermal efficiency (at generation point)	%	39.0	40.3	40.4	40.5	40.4	40.3

■ Usage of Specified CFCs

		Unit	FY 1990	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007
Specified CFCs	Stocked	t	3.6	2.5	1.4	1.8	1.8	1.8
	Consumed	t	0.7	0.0	0.0	0.0	0.0	0.0
Halons	Stocked	t	4.7	3.9	3.9	3.9	4.3	4.6
	Consumed	t	0.0	0.0	0.0	0.0	0.0	0.0
Other CFCs	Stocked	t	2.8	9.5	9.1	10.2	9.9	9.5
	Consumed	t	0.0	0.1	0.2	0.3	0.3	0.3
HFCs (CFC alternatives)	Stocked	t	—	1.4	1.9	7.7	8.4	5.9
	Consumed	t	—	0.0	0.0	0.1	0.0	0.1

■ SOx, NOx, and Soot and Dust Emissions

	Unit	FY 1990	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007
SOx emissions	1,000 t	9.9	8.4	10.4	10.2	9.9	11.3
Intensity (thermal)	g/kWh	0.34	0.17	0.20	0.17	0.19	0.20
NOx emissions	1,000 t	26.4	25.0	26.6	28.9	28.0	28.5
Intensity (thermal)	g/kWh	0.90	0.49	0.50	0.49	0.53	0.50
Soot and dust emissions	1,000 t	1.0	1.0	1.0	1.0	0.9	1.0
Intensity (thermal)	g/kWh	0.03	0.02	0.02	0.02	0.02	0.02

Notes: 1. Soot and dust emissions calculated from monthly measurements.
2. Denominators for emissions represent the electricity output of thermal power stations (excluding geothermal stations).

■ Industrial Waste Recycling

	Unit	—	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007
Volume generated	million t	—	1.80	2.06	2.23	1.96	2.18
Volume recycled	million t	—	1.44	1.89	2.09	1.86	2.15
Recycle rate	%	—	80	92	94	95	98

Note: Figures for FY 2004 and later are for the entire J-POWER Group.

■ Coal-Ash and Gypsum Recycling

	Unit	FY 1990	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007
Coal-ash created	1,000 t	1,257	1,474	1,657	1,806	1,556	1,714
Coal-ash recycled	1,000 t	719	1,119	1,507	1,696	1,512	1,711
Coal-ash recycle rate	%	57.2	75.9	91.0	93.9	97.2	99.8
Gypsum created	1,000 t	—	320	371	380	334	360
Gypsum recycle rate	%	100	100	100	100	100	100

Notes: 1. Please refer to page 48 for details on coal-ash recycling rate.
2. Figures for FY 2004 and later are for the entire J-POWER Group.

■ Office Power Consumption

	Unit	—	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007
Power consumed by offices (company total)	GWh	—	17.28	15.64	22.00	17.38	17.23
Head office* power consumption	GWh	—	8.81	8.99	8.89	8.73	8.61
Lighting/power sockets	GWh	—	1.79	1.79	1.76	1.78	1.80

* J-POWER head office building

■ Fuel Consumption at Business Sites (vehicles, ships, emergency generators, etc.)

	Unit	—	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007
Gasoline	kl	—	372	342	1,162	1,191	1,136
Diesel	kl	—	185	182	1,026	1,984	1,783

■ Green Purchasing

	Unit	—	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007
Copy paper* purchased	million sheets	—	24.92	25.97	62.41	69.53	57.84
Recycled copy paper* purchased	million sheets	—	24.53	25.11	57.22	65.87	54.87
Recycled copy paper* purchase rate	%	—	98	97	92	95	95

* A4 paper-size equivalent

Treaties and Laws Relating to Global Warming

Overview of the United Nations Framework Convention on Climate Change

The United Nations Framework Convention on Climate Change is a treaty that establishes an international framework for stemming global warming. It was adopted in June 1992 at the first World Summit on Sustainable Development in Rio de Janeiro (commonly known as the Earth Summit), and came into force on March 21, 1994. Thus far it has been ratified by 192 countries and one territory.

The ultimate aim of the convention is to stabilize the concentration of greenhouse gases in the atmosphere at levels that will not cause dangerous human disruption of the earth's climate system.

Principles

1) Protection of the climate on the basis of common but differentiated responsibility
2) Consideration of special circumstances
3) Implementation of precautionary measures
4) Right and duty to promote sustainable development
5) Cooperation to promote a supportive and open international economic system

Note: Complete text of Principle 3:

"The Parties should take precautionary measures to anticipate, prevent or minimize the causes of climate change and mitigate its adverse effects. Where there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing such measures, taking into account that policies and measures to deal with climate change should be cost-effective so as to ensure global benefits at the lowest possible cost. To achieve this, such policies and measures should take into account different socio-economic contexts, be comprehensive, cover all relevant sources, sinks and reservoirs of greenhouse gases and adaptation, and comprise all economic sectors. Efforts to address climate change may be carried out cooperatively by interested Parties."

Overview of the Kyoto Protocol

The Kyoto Protocol is a resolution establishing the greenhouse gas emissions-reduction targets for the Annex I countries.[1] It was adopted in December 1997 at the Third Session of the Conference of the Parties to the UN Framework Convention on Climate Change (COP3) and came into force on February 16, 2005.

Notes:

1. 35 developed countries (including 11 economies in transition) and the European Community.
2. Emissions trading: International trading of emissions allowances (or emissions reduction units earned through CDM or JI). Annex I countries may add allowances acquired from other countries to their own allowances.
3. Joint Implementation (JI): Mechanism whereby Annex I countries can jointly carry out GHG emissions-reduction projects and distribute the resultant reduction volume among the countries concerned. Applicable to reductions between 2008 and 2012.
4. Clean Development Mechanism (CDM): Mechanism whereby Annex I countries can carry out GHG emissions-reduction projects in developing countries and distribute the resultant reduction volume among the countries concerned. Applicable to reductions carried out in 2000 and after.

Targeted greenhouse gases (GHGs)	6 categories of gases: CO_2 (carbon dioxide), methane, N_2O (nitrous oxide), HFCs (hydrofluorocarbons), PFCs (perfluorcarbons), and SF_6 (sulfur hexafluoride)
Commitment period	2008–2012 (first commitment period)
Goal	To reduce average yearly emissions of greenhouse gases by the Annex I countries by 5% from 1990. In Annex B of the Kyoto Protocol, the Annex I countries commit themselves to specific reduction targets; Japan's reduction target is 6%.
Use of sinks (absorption forests)	Countries may include in their calculation of emissions reduction the removal of CO_2 by "sinks" resulting from land use change and forestry activities, limited to afforestation, reforestation, and deforestation since 1990.
Kyoto Mechanisms	Emissions trading,[2] Joint Implementation (JI),[3] and the Clean Development Mechanism (CDM)[4] have been adopted as economically rational means to achieve reduction targets on a global scale.

Overview of the Revised Kyoto Protocol Target Achievement Plan

In accordance with the Law Concerning the Promotion of the Measures to Cope with Global Warming (Law No. 117, 1998), on April 28, 2005, the Japanese government formulated the Kyoto Protocol Target Achievement Plan establishing the measures and mechanisms needed for Japan to be certain of meeting its Kyoto Protocol commitment to reduce emissions by 6% from the 1990 level. The plan was later revisited and updated following a review of the targets and measures it laid down. On March 28, 2008, a fully revised plan was adopted by cabinet resolution.

Countermeasures and Policies to Achieve the Targets

1. Countermeasures and Policies Concerning Reduction, Removal, etc. of Greenhouse Gas Emissions

(1) Countermeasures and Policies Concerning Reduction of Greenhouse Gas Emissions

Key measures added

- Promotion of voluntary action plans
- Improvement of the energy efficiency of homes and other buildings
- Measures involving top-runner products, etc.
- Thoroughgoing measures to save energy in factories and other places of business
- Improvement of vehicle fuel efficiency
- Promotion of measures to reduce emissions by small- and medium- sized enterprises
- Measures for improvements in areas including agriculture, forestry, and fisheries; water and sewage systems; and traffic flow
- Urban greening and efforts concerning wastes, the three fluorinated gases, etc.
- Promotion of the use of new forms of energy

(2) Greenhouse Gas Sink Measures and Policies

- Forest management through thinning, etc., and promotion of the campaign to create well-managed forests

2. Cross-sectoral Policies

- Systems for calculation, reporting, and public disclosure of greenhouse gas emissions
- Development of national campaigns

■ Quantitative Targets for Emissions Reduction and Absorption of Greenhouse Gases

		Emissions target range for FY 2010	
		million t- CO_2	Ratio to base year total emissions
Energy-related CO_2		1,076–1,089	+1.3%– +2.3%
	Industrial sector	424–428	-4.6%– -4.3%
	Commercial and other sectors	208–210	+3.4%– +3.6%
	Residential sector	138–141	+0.9%– +1.1%
	Transport sector	240–243	+1.8%– +2.0%
	Energy conversion sector	66	-0.1%
Non-energy-related CO_2, CH_4, N_2O		132	-1.5%
Three fluorinated gases		31	-1.6%
Greenhouse gas emissions		1,239–1,252	-1.8%– -0.8%

Japan will ensure achievement of its 6 % reduction target under the Kyoto Protocol by combining the reduction of greenhouse gas emissions with such means as the use of carbon sinks and the Kyoto Mechanisms.

Environmental Action Plan by the Japanese Electric Utility Industry I

(Summarized from the Environmental Action Plan by the Japanese Electric Utility Industry, Federation of Electric Power Companies of Japan, September 2007)

The Environmental Action Plan by the Japanese Electric Utility Industry lays out the electric industry's policy and plan for dealing with global warming and other environmental issues. Each year the plan is reviewed in relation to the industry's progress toward its goals and domestic and international trends.

This plan is incorporated in the Keidanren Voluntary Action Plan on the Environment, adopted by Nippon Keidanren in June 1997. Progress toward the Keidanren plan as a whole and the various voluntary industry plans that make it up is regularly monitored by national councils and similar organs.

Measures for Stemming Global Warming

● CO_2 Emissions Suppression Targets

The electric utility industry has set the following as an index for CO_2 emissions suppression goal as measured in kg-CO_2 per kWh of energy used by the end user (this is also known as CO_2 emissions intensity).

From fiscal 2008 to fiscal 2012, we aim to further reduce CO_2 emissions intensity (emissions per unit of user-end electricity) by an average of approximately 20% from the fiscal 1990 level, to about 0.34 kg-CO_2/kWh.

Goal of 12 FEPC-Affiliated Companies

CO_2 emissions (kg-CO_2) = Electric power consumption (electric energy) (kWh) × CO_2 emissions intensity (CO_2 emissions per unit of electric power consumed)) (kg-CO_2/kWh)

■ Overview of Measures to Reduce CO_2 Emissions

- **Supply side**
  - Increased use of non-fossil energy sources
    - Expanded introduction of nuclear or LNG-fired thermal power generation sources and increased use of nuclear power
    - Development and application of renewable energy sources
      - Hydroelectric, geothermal, solar, wind power and biomass power generation
  - Efficiency improvement of electric power plants
    - Efficiency improvement of thermal power generation
      - Combined cycle power generation and high-efficiency coal fired thermal power generation
    - Reduction of transmission and distribution loss
      - High-voltage transmission, low-loss transformers
- **Demand side**
  - Energy conservation
    - Development and application of highly efficient energy-saving appliances
      - Heat pumps, heat storage air conditioning
    - Enhanced utilization of untapped energy sources
      - Heat recovery from river water, waste incineration facilities and substations, geothermal
    - PR activities and provision of information aimed at energy conservation
      - Household eco-account book, exhibitions on energy-saving appliances, and seminars on energy saving
  - Load leveling
    - Promotion of load-level management through the use of regenerative heat storage systems
      - Heat storage air conditioning

■ Electric Utility Industry's CO_2 Emissions

Item \ Fiscal year	1990 (results)	2004 (results)	2005 (results)	2006 (results)	2008 to 2012 *1 (average of five-year)
Electric power consumption *2 (billion kWh)	659	865	883	889	(est.) 921
CO_2 emissions *3 (million t-CO_2)	275 [2] *4	362 [25]	373 [26]	365 [28]	(est.) 340
CO_2 emissions intensity user end electricity *5 (kg-CO_2/kWh)	0.417	0.418	0.423	0.410	(est.) 0.37

*1 Estimates for fiscal 2008 to 2012 are based on fiscal 2007 energy supply plans, which consider GDP indicators, demand trends and other factors. The average value over the five years has been listed.

*2 Electric power consumption includes power purchased from cooperative thermal power plants, IPPs (independent power producers), and household generators and then sold.

*3 CO_2 emissions include CO_2 emissions that are emitted at the time of generation of electric power purchased from cooperative thermal power plants, IPPs (independent power producers), and household generators. They also include CO_2 emissions equivalent to transmitted and received electric power in wholesale electric power trading.

*4 Figures in parentheses represent total CO_2 emissions from the power purchased from IPPs and household generators, and CO_2 reduction efforts are expected from each source. For the purposes of calculation, calorific value is estimated from the amount of power purchased.

*5 CO_2 emissions intensity (user end electricity) = CO_2 emissions ÷ electric power consumption

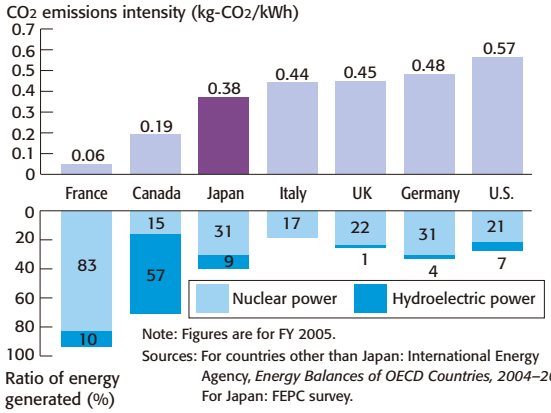
CO_2 emissions are the total of CO_2 emissions for each type of fuel. It is calculated as follows:

CO_2 emissions = Calorific value attending fossil fuel combustion × CO_2 emissions coefficient

Calorific value uses figures stated in the Agency for Natural Resources and Energy's Monthly Report of Electric Power Statistics Survey (fiscal 2006 results), etc. The fuel-specific CO_2 emissions coefficient uses the figures stated in the revised Law Concerning the Promotion of Measures to Cope with Global Warming, which came into effect in 2006.

■ Country-by-Country Comparison of CO_2 Emissions Intensity

(per unit of energy generated; preliminary calculation by FEPC)



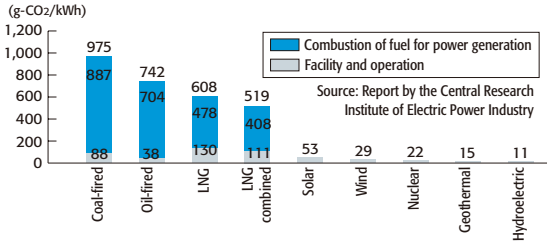
Note: Figures are for FY 2005.

Sources: For countries other than Japan: International Energy Agency, *Energy Balances of OECD Countries, 2004–2005.* For Japan: FEPC survey.

Life Cycle Assessment-based CO_2 Emissions Intensity for Japan's Energy Sources

The chart below represents the CO_2 emissions for various power sources when the entire life cycle is taken into account (LCA CO_2). This method calculates CO_2 emissions not only from the combustion of fuel for power generation but also from all energy consumed from such activities as mining and drilling, building power generation facilities, transporting fuel, refining fuel, operating and maintaining facilities, and so forth.

■ Life Cycle Assessment-based CO_2 Emissions Intensity for Japan's Energy Sources



Source: Report by the Central Research Institute of Electric Power Industry

J-POWER's Contribution for Japan to Achieve the Kyoto Target

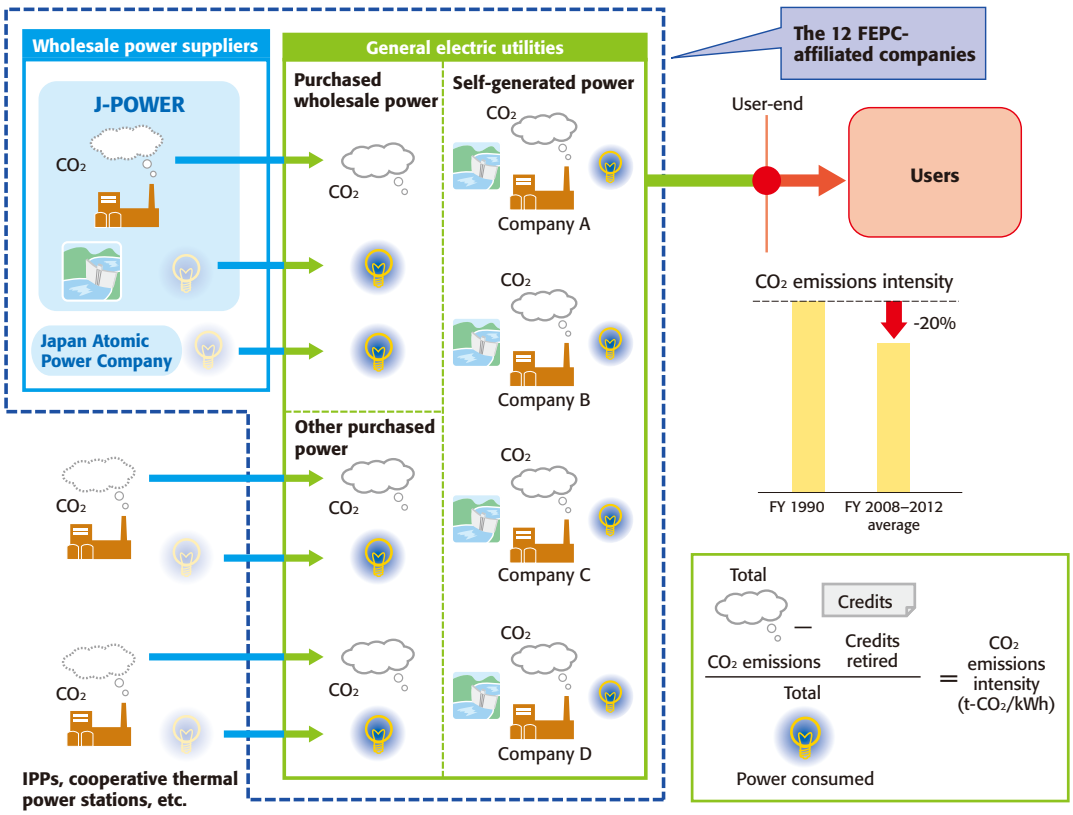
J-POWER, one of the 12 members of the Federation of Electric Power Companies of Japan (FEPC), is supporting the federation's program—the Environmental Action Plan by the Japanese Electric Utility Industry—to contribute to Japan's achievement of its Kyoto target.

The Japanese government adopted the Kyoto Protocol Target Achievement Plan, a program to provide a series of necessary measures for surely achieving the Kyoto target of the 6% reduction in greenhouse gas emissions from 1990 levels, in a Cabinet resolution on April 28, 2005 based on the Law concerning the Promotion of the Measures to Cope with Global Warming (Law No. 117, 1998). As part of the industrial sector's efforts, the Keidanren Voluntary Action Plan on the Environment of the Nippon Keidanren has been incorporated into the governmental program, and the FEPC's program, composing a part of Nippon Keidanren's program, has in turn been included in the governmental program. The FEPC's program has also been incorporated into the governmental program as part of the energy supply sector's efforts to reduce CO_2 emissions.

The FEPC's program, the Environmental Action Plan by the Japanese Electric Utility Industry, has set the following target: From fiscal 2008 to fiscal 2012, we aim to further reduce CO_2 emissions intensity (emissions per unit of user-end electricity) by an average of approximately 20% from the fiscal 1990 level, to about 0.34 kg-CO_2/kWh. To achieve this target, emission credits gained by electric utility companies through the Kyoto Mechanisms will be retired to offset CO_2 emissions. As seen in the figure below, J-POWER's emissions are calculated to be zero because J-POWER is a wholesale power supplier without consumption points.

Because J-POWER operates power stations according to the demand of general electric utilities, their actual operation is directly reflected in the volume of CO_2 emissions of the utilities that requested power. Therefore, J-POWER's efforts to reduce CO_2 emissions would be necessary in areas other than power station operation itself. For example, J-POWER is working to maintain and improve the generation efficiency of coal-fired power stations, to develop energy sources with low CO_2 emissions such as nuclear power, to research and develop the technologies associated with these efforts, and to utilize CDM and JI credits. Through these efforts, J-POWER continues to support the Environmental Action Plan by the Japanese Electric Utility Industry to jointly achieve the FEPC's target.

Note:
The 12 companies affiliated with the Federation of Electric Power Companies of Japan are the 10 FEPC member companies (Hokkaido Electric Power Co., Inc., Tohoku Electric Power Co., Inc., Tokyo Electric Power Co., Inc., Chubu Electric Power Co., Inc., Hokuriku Electric Power Co., Inc., Kansai Electric Power Co., Inc., Chugoku Electric Power Co., Inc., Shikoku Electric Power Co., Inc., Kyushu Electric Power Co., Inc., and Okinawa Electric Power Co., Inc.) plus J-POWER and Japan Atomic Power Company.



Environmental Action Plan by the Japanese Electric Utility Industry II

(Summarized from the Environmental Action Plan by the Japanese Electric Utility Industry, Federation of Electric Power Companies of Japan, September 2007)

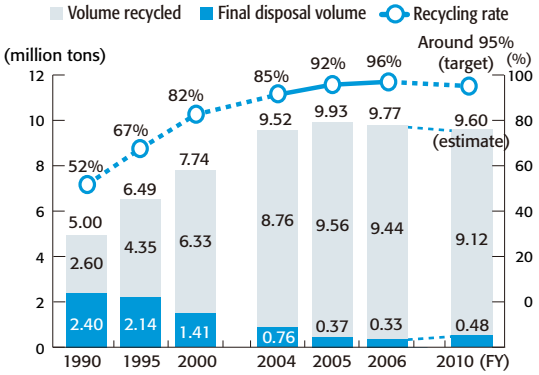
Measures for Waste Reduction and Recycling

● Waste Recycling Rate Targets

The electric utility industry has been working on waste reduction with an initial target of keeping final disposal amount less than 2.4 million tons, or fiscal 1990 levels. But, with the promotion of 3R activities, we reduced the target to 2.0 million tons, and then to 1.5 million tons. Also, since fiscal 2005 we have targeted at 90% recycling rate as an index which is not significantly influenced by fluctuations in electricity demand. Then in fiscal 2006, having revised the target value to 5 points higher, we aim to maintain our waste recycling rate for fiscal 2010 at around 95%.

Through fiscal 2010, we aim to maintain our waste recycling rate at around 95%.

■ **Electric Utility Industry's Waste Recycling Rate and Target**



Note: The place of disposal after final disposal (disposal in landfills) is utilized as land for power generation facility expansions or other industrial land uses. Some of the coal ash used there is counted from fiscal 2004 as recycled as land development material according to government interpretation.

■ **Trends in Reutilizing Major Types of Wastes and By-products**

Unit: 1,000 tons

Type			FY 1990	FY 2004	FY 2005	FY 2006
Waste	Combustion residue, soot and dust (coal ash)	Volume generated	3,470	6,970	7,240	7,050
		Volume recycled (Recycling rate)	1,370 (39%)	6,310 (91%)	6,970 (96%)	6,830 (97%)
	Construction waste material	Volume generated	400	360	360	420
		Volume recycled (Recycling rate)	210 (53%)	350 (98%)	350 (97%)	410 (97%)
	Scrap metal	Volume generated	140	170	190	200
		Volume recycled (Recycling rate)	130 (93%)	160 (98%)	180 (99%)	190 (98%)
By-products	Gypsum from desulfurization process	Volume generated	850	1,830	1,900	1,870
		Volume recycled (Recycling rate)	850 (100%)	1,830 (100%)	1,900 (100%)	1,870 (100%)

Notes: 1. Waste includes products of value.
2. FY 1990 figures for construction waste materials and scrap metal are estimates.
3. All gypsum from desulfurization process is sold.
4. Recycling rates are calculated on an actual volume basis. (Figures for volume generated and volume recycled are rounded to the nearest 1,000 tons.)

Number of Patent Rights Held by J-POWER (As of the end of March 2008)

	Global environment	Regional environment/recycling	Power generation/ transmission/ transformation	Civil engineering/ construction	Frontier technologies	Total
Independent application	1	24	10	8	0	43
Joint application	25	31	96	5	11	168
Total	26	55	106	13	11	211

Global environment-related research includes the following areas: high efficiency power generation using coal gasification technology, solid oxide fuel cells, and carbon dioxide capture and storage.

Glossary

(Page numbers indicate major citations.)

Advanced boiling water reactor (ABWR)
pp. 7, 8, 35
A nuclear reactor that incorporates all the latest BWR (boiling-water reactor) technologies, including use of steel reinforced concrete for the containment vessel and a self-contained reactor recirculation pump, resulting in significant improvements in terms of safety, reliability, and cost.

Annex I countries
p. 77
Countries, designated in Annex I of the United Nations Framework Convention on Climate Change, that have committed themselves to reducing emissions of greenhouse gases. Includes countries generally referred to as developed countries as well as those transitioning to market economies, such as former republics of the Soviet Union and Eastern European countries.

Biomass
pp. 17, 29, 35, 36, 39, 49, 50, 51, 52, 69, 70, 78
Renewable organic resources of plant and animal origin other than fossil fuels.

Carbon dioxide capture and storage (CCS)
pp. 14, 16, 37, 38, 68, 70, 80
A system for capturing CO_2 from factory and power plant emissions and transferring and storing the captured CO_2 to sequester it from the atmosphere over the long term. The two storage options are storage in geological formations and storage in the ocean.

Chemical oxygen demand (COD)
p. 30
The amount of oxygen required to oxidize the pollutants (primarily organic) in water. Used as an indicator to measure pollution of coastal waters and lakes.

Chlorofluorocarbon alternatives
pp. 41, 76, 77
Chemicals used in refrigerators and in the manufacture of semiconductors in place of chlorofluorocarbons, which destroy the ozone layer. Because their greenhouse effect is several thousands or even tens of thousands times that of CO_2, they were included among the gases targeted for reduction at COP3, held in Kyoto in December 1997.

Clean Development Mechanism (CDM)
pp. 17, 39, 40, 69, 70, 77, 79
A component of the Kyoto Mechanisms. Please refer to page 77.

Dioxins
pp. 45, 48
Generic name for polychlorinated dibenzo-p-dioxin (PCDD), polychlorinated dibenzofuran (PCDF), and coplanar polychlorinated biphenyl (coplanar-PCB). Toxic substances generally present in the environment in trace amounts and suspected of posing grave danger to human life and health. Under the Law Concerning Special Measures against Dioxins, which came into force in January 2000, dioxin emissions from waste incinerators and other sources are strictly regulated.

Eco-efficiency
pp. 25, 31, 32
A method for quantifying, comparing, and evaluating activities to reduce the amount of water, electricity, and raw materials used and to reduce the volume of waste, effluent, and exhaust gas generated in business operations, as well as efforts at legal compliance and control of environmental pollution.

Environmental accounting
pp. 31, 53
A mechanism for accurately determining and disclosing what a company invests and spends on environmental conservation and the effect of such spending—something not reflected in traditional financial analysis. Environmental accounting benefits companies by providing a quantitative assessment of their efforts to protect the environment so that they can improve the cost-effectiveness of their business activities with respect to environmental costs. It benefits stakeholders by making available corporate environmental accounting data in the form of environmental reports, etc., which can be used as yardsticks for measuring and comparing the environmental efforts of different companies.

Environmental Action Plan by the Japanese Electric Utility Industry
pp. 41, 78, 79, 80
Plan for positive, voluntary environmental action by electric utilities, compiled by 12 organizations affiliated with the Federation of Electric Power Companies of Japan. Establishes concrete goals and outlines active efforts to address global warming, build a recycling-based society, etc. To ensure transparency, progress under the plan is reviewed each year and the results are made available to the public.

Environmental management system (EMS)
pp. 27, 28, 47, 53, 54, 55, 74
A system by which organizations employ the PDCA management cycle to continuously improve the environment in an effort to comply with laws and regulations and take initiative in protecting the environment.

Environmental Priorities Index for Japan (JEPIX)
p. 32
A method for assessing the overall environmental impact of a company and expressing it by means of a single figure by assigning weights to 300 environmental pollutants in terms of their impact on water and air quality using a single index model called ecopoint.

Fuel cell
pp. 14, 15, 31, 37, 69, 80
A device that converts externally supplied hydrogen and oxygen into electricity through a chemical reaction. Because fuel cells can achieve high generating efficiency and the heat generated can also be utilized, they have a high net energy efficiency and offer an effective means of saving energy and reducing CO_2 emissions. Fuel cells are particularly friendly to the environment because they dispense with combustion, thus giving off few air pollutants, and because they generate electricity without using rotating parts they are relatively quiet.

Gas-turbine combined-cycle generation
p. 35
A power generation method combining gas turbines and steam turbines. The pressure of the exhaust gas created when the fuel is burned within compressed air drives the gas turbine, and the residual heat is used to run the steam turbine. Combining these two processes results in high generating efficiency.

Green purchasing
pp. 27, 28, 31, 49, 54, 74, 76
Placing priority on minimizing the environmental load in the purchase of goods and services by emphasizing the effect on the environment, as opposed to price, quality, convenience, or design.

Hydrofluorocarbons (HFCs)
pp. 41, 75, 76, 77
Chemicals used in refrigerators, car air conditioners, etc., beginning around 1991, after CFCs and HCFCs were subject to controls out of concerns that they destroy the ozone layer. HFCs are artificial greenhouse gases with a greenhouse effect ranging from 140 to 11,700 times that of CO_2.

Independent power producer (IPP)
pp. 1, 2, 78, 79
A business, other than a wholesale

power supplier, that supplies electricity to general electric utilities.

Industrial waste
pp. 27, 28, 30, 31, 48, 76
Wastes such as ash, sludge, waste oil, waste acid, waste alkali, and waste plastics generated in the course of business operations. The Waste Management and Public Cleansing Law calls for proper disposal and incineration of industrial waste.

Integrated coal gasification combined cycle system (IGCC)
pp. 14, 15, 16, 37, 38
A combined power generation system consisting of gas turbines that generate electricity by firing gas produced from coal and steam turbines that use the exhaust heat from the gas turbines.

Integrated coal gasification fuel cell combined cycle system (IGFC)
pp. 14, 15, 37, 38
A triple combined power generation system achieved by combining the fuel cell, gas turbine, and steam turbine; the ultimate coal-fired thermal power generation system.

IPCC (Intergovernmental Panel on Climate Change)
pp. 5, 14
The IPCC was established by the United Nations Environment Programme (UNEP) and the World Meteorological Organization (WMO) in 1988 as a forum for international deliberation on the issue of global warming. Participants include Japan, the United States, China, Russia, and numerous other developed and developing countries. The IPCC collects and assesses a wide range of research involving scientific knowledge on global warming, its impacts, and the measures to be taken, and publishes the results in assessment reports. As part of the IPCC Fourth Assessment Report (AR4), Working Group I, studying the physical science basis of climate change, released a report in February 2007. This report concluded that warming of the climate system is unequivocal and also stated with very high confidence that the increase in anthropogenic greenhouse gas emissions is the cause.

ISO 14001
pp. 53, 54, 55
An international standard specifying the requirements for an environmental management system; one of the ISO 14000 series of international standards for environmental management adopted by the International Standards Organization (ISO).

Japanese version of the SOX Act (J-SOX)
p. 19
A common name given to certain stipulations of the Financial Instruments and Exchange Law, generally referring to Article 24.4.4 and Article 193, which set forth matters relating to corporate governance. Preparations are now being made toward application of these stipulations based on the recommendation issued by the Financial Services Agency's Business Accounting Council titled "On the Setting of the Standards and Practice Standards for Management Assessment and Audit concerning Internal Control Over Financial Reporting (Council Opinions)." J-SOX was inspired by the enactment in the United States of the Public Company Accounting Reform and Investor Protection Act (commonly known as the Sarbanes-Oxley Act) in 2002. It requires applicable corporations and corporate groups to issue internal control reports evaluating the internal structures essential to ensuring validity of financial reports and other information and to be audited by certified public accountants or audit firms.

Joint Implementation (JI)
pp. 39, 40, 77, 79
A component of the Kyoto Mechanisms. Please refer to page 77.

Kyoto Mechanisms
pp. 6, 17, 25, 28, 33, 39, 40, 77, 79
Please refer to page 77.

Kyoto Protocol
pp. 5, 25, 39, 40, 41, 46, 77, 79
Please refer to page 77.

Life cycle impact assessment method based on endpoint modeling (LIME)
p. 32
A method for scientifically analyzing the contribution of substances such as CO_2 to various environmental problems, such as global warming and destruction of the ozone layer, and calculating the potential damage caused to various objects of protection, such as human health and ecosystems; weighting the relative importance of these objects; and integrating the information into an overall impact assessment.

Methane (CH_4)
pp. 39, 40, 41, 77
A main component of natural gas. Also produced through the decay or fermentation of organic matter. The second most common greenhouse gas, after carbon dioxide, with a greenhouse effect 21 times that of CO_2.

Mixed-oxide fuel (MOX fuel)
pp. 7, 8, 35
Mixed oxide fuel consisting of uranium mixed with plutonium recovered by reprocessing spent nuclear fuel. In Japan, light-water and other reactors that use MOX fuel to generate electricity are referred to as "pluthermal." While Japan's pluthermal plan originally called for use of a one-third MOX core for fuel, the "full MOX" plan calls for a 100% MOX core.

Nitrogen oxides (NOx)
pp. 27, 28, 30, 31, 42, 43, 44, 51, 55, 76
General term for compounds made up of nitrogen and oxygen. NOx is invariably produced during combustion as oxygen binds with nitrogen in the air and/or in the substance being burned. High-temperature combustion in the boilers of electric power plants or in automobile engines yields nitrogen monoxide, and this NO is further oxidized to form the stable compound nitrogen dioxide (NO_2), which is emitted into the atmosphere. Ultraviolet light from the sun reacts with nitrogen oxides in the atmosphere to create ozone and other photochemical oxidants.

Nitrous oxide (N_2O)
pp. 36, 41, 77
Also known as dinitrogen monoxide. A major greenhouse gas (along with carbon dioxide, methane, tropospheric ozone, and chlorofluorocarbons) with a greenhouse effect 310 times that of CO_2. Said to be generated by combustion and application of nitrogen fertilizer.

Non-industrial waste
pp. 28, 30, 49, 50
Defined as waste other than industrial waste under the Waste Management and Public Cleansing Law. Further divided into household waste, business waste (waste from offices, eating and drinking establishments, etc.), and excrement.

PDCA management cycle
p. 53
Management cycle, consisting of plan, do, check, and act, whose repetition provides the basis for continuous improvement in environmental management systems.

Perfluorocarbons (PFCs)
pp. 41, 77
Chemicals used for semiconductor manufacturing beginning in the 1980s. PFCs are artificial greenhouse gases with a greenhouse effect 6,500 to 9,200 times that of CO_2.

Glossary

(Page numbers indicate major citations.)

Pollutant Release and Transfer Register (PRTR)
p. 45
Please refer to page 45.

Polychlorinated biphenyl (PCB)
pp. 45, 53
An organic chlorinated compound first produced industrially in 1929 and thereafter used for a wide range of applications because of its stability, heat resistance, and performance as an insulator. In time it became clear that PCB, which takes a long time to break down, tends to accumulate in living tissue and cause long-term toxicity, and its manufacture, import, and use in new products was banned in 1974 under the Law Concerning the Examination and Regulation of Manufacture, etc., of Chemical Substances. In addition, the Law Concerning Special Measures Against PCB Waste, which came into force in July 2001, calls for detoxification treatment of PCB waste currently in storage by 2016.

Power producer and supplier (PPS)
pp. 1, 2
A business that provides electricity to meet a certain level of demand (in general, contract demand of at least 2,000 kW in a single service area served by extra-high voltage lines maintained by general electric utilities, excluding Okinawa Electric Power Co.; in the case of Okinawa Electric Power Co., contract demand of at least 20,000 kW in a single service area served by power lines carrying at least 60,000 volts), excluding the general electric utilities that maintain the transmission lines. A new category of business established under the revised Electricity Business Act of 1999.

Renewable energy
pp. 11, 13, 14, 32, 35, 39, 51, 52, 69, 78
Energy derived from such natural phenomena as sunlight, water, wind, waves, and biomass, as opposed to such fossil fuels as coal and oil that exist in the earth in limited quantities.

River maintenance flow
p. 47
A minimum river flow determined for each river by considering all the conditions needed to restore or create a sound river environment, as by restoring habitat for fish, improving the scenery, etc. Established with the goal of minimizing problems caused by low water around hydroelectric power stations, as a tool for improving the river environment and restoring clean water flow.

Solid oxide fuel cells (SOFC)
pp. 37, 67, 80
Please refer to page 37.

Soot and dust
pp. 30, 31, 43, 44, 76, 80
The Air Pollution Control Law classifies particles that remain suspended in the atmosphere according to source. Soot and dust is that generated when matter is burned, general dust is that generated or dispersed when matter is broken up by mechanical treatment or from deposition of resultant particles, and particulate matter is that generated by the operation of motor vehicles.

Specially controlled industrial waste
p. 30
Explosive, toxic, or infectious industrial waste requiring strict controls under the Waste Management and Public Cleansing Law. Includes waste oil with a low flash point, medical waste, PCBs, asbestos, and sludge containing high concentrations of heavy metals.

Sulfur hexafluoride (SF_6)
pp. 27, 28, 41, 75, 77
A compound of sulfur and fluorine produced industrially; SF6 does not exist in nature. Because it is chemically stable and an excellent insulator, it is widely used in the electric industry as a gas insulator in circuit breakers and other devices. Its greenhouse effect is 23,900 times that of CO_2.

Sulfur oxides (SOx)
pp. 27, 28, 30, 31, 42, 43, 44, 51, 52, 76
General term for compounds made up of sulfur and oxygen, including sulfur dioxide (SO_2), sulfur trioxide (SO_3), and sulfuric acid mist (H_2SO_4). Sulfur oxides are generated from the sulfur content in coal and heavy oil when they are fired as fuel in factories and thermal power stations and are released into the atmosphere in exhaust gases. As a substance responsible for acid rain, they are a source of atmospheric pollution.

Sustainability Reporting Guidelines
p. 3
Set of guidelines adopted by the Global Reporting Initiative (GRI; an international nongovernmental organization involving the UN Environmental Programme, environmental groups, institutional investors, accountants' associations, and corporations from various countries) to standardize sustainability reports, i.e., company reports that cover not only environmental but also social and economic aspects of business activity from the standpoint of sustainable development.

Sustainable development
pp. 3, 4, 5, 25, 32, 40, 51, 52, 56, 61, 77
The 1987 report of the World Commission on Environment and Development, Our Common Future, defines sustainable development as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs." The 1991 report Caring for the Earth, jointly compiled by the International Union for Conservation of Nature, the United Nations Environmental Programme, and the World Wide Fund for Nature, defines it as "improving the quality of people's lives while living within the carrying capacity of supporting ecosystems."

Thermal efficiency
pp. 14, 27, 28, 31, 32, 34, 37, 41, 75
For an electric power generating facility, the ratio of electric power generated (converted to thermal units) to heat energy input.

Thermal water discharge
p. 44
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 plants, 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.

Ultra super critical (USC)
pp. 14, 15, 28, 32, 34, 37
A steam turbine technology that makes use of advanced steam conditions, beyond those used in conventional super critical turbines (pressure 246 kg/cm^2; temperature 566°C), to improve the efficiency of thermal power stations.

Zero emissions
pp. 6, 14, 16, 24, 25, 26, 48, 68, 71
A concept developed by United Nations University in 1994 in response to the idea of sustainable development put forth at the 1992 Earth Summit. It aims to build a system of recycling-based industries in which one industry uses the waste of another to create a situation in which no net waste is generated. It involves a process of continuous improvement in the quest for that ideal. In Japan different entities are now approaching the goal of "no garbage" (as the concept is popularly known) in a variety of different ways.

J-POWER: Main Business Sites and Significant Consolidated Subsidiaries

J-POWER Business Sites (as of July 2008)

In Japan	Name	Location
Head Office		Chuo-ku, Tokyo
Hydropower & Transmission System Department		
	Hokkaido Regional Headquarters	Sapporo-shi, Hokkaido
	East Regional Headquarters	Kawagoe-shi, Saitama
	Chubu Regional Headquarters	Kasugai-shi, Aichi
	West Regional Headquarters	Osaka-shi, Osaka
	Ohma Main-Transmission Line Project Construction Office	Mutsu-shi, Aomori
	Nishi-Tokyo Main Transmission Line Construction Office	Kawagoe-shi, Saitama
Civil and Electrical Engineering Department		
	Ibigawa Hydro Project Survey Office	Ibi-gun, Gifu
	Kumagawa Hydro Project Survey Office	Hitoyoshi-shi, Kumamoto
Thermal Power Department		
	Isogo Thermal Power Station	Yokohama-shi, Kanagawa
	Takasago Thermal Power Station	Takasago-shi, Hyogo
	Takehara Thermal Power Station	Takehara-shi, Hiroshima
	Tachibanawan Thermal Power Station	Anan-shi, Tokushima
	Matsushima Thermal Power Station	Saikai-shi, Nagasaki
	Matsuura Thermal Power Station	Matsuura-shi, Nagasaki
	Ishikawa Coal Thermal Power Station	Uruma-shi, Okinawa
	Onikobe Geothermal Power Station	Osaki-shi, Miyagi
Thermal Power Engineering Department		
	Isogo Thermal Power Station No. 2 Unit Construction Office	Yokohama-shi, Kanagawa
Ohma General Management Department		
	Ohma Nuclear Power Construction Office	Shimokita-gun, Aomori
	Aomori Branch Office	Aomori-shi, Aomori

In Japan	Name	Location
Business Planning Department		
	Wakamatsu Operations & General Management Office	Kitakyushu-shi, Fukuoka
Corporate Planning & Administration Department		
	Sendai Office	Sendai-shi, Miyagi
	Takamatsu Office	Takamatsu-shi, Kagawa
	Fukuoka Office	Fukuoka-shi, Fukuoka
	Hokuriku Office	Toyama-shi, Toyama
	Chugoku Office	Hiroshima-shi, Hiroshima
Technology Development Center		
	Chigasaki Research Institute	Chigasaki-shi, Kanagawa
	Wakamatsu Research Institute	Kitakyushu-shi, Fukuoka

Overseas	Name
Washington Office (U.S.A.)	
Beijing Office (China)	
Hanoi Office (Vietnam)	
Upper Kotomale Hydropower Project Office (Sri Lanka)	

Significant Consolidated Subsidiaries (as of July 2008)

Company Name	Investment Rate (%)	Head Office
Bay Side Energy Co., Ltd.	100	Chuo-ku, Tokyo
Green Power Kuzumaki Co., Ltd.	100	Iwate-gun, Iwate
Green Power Setana Co., Ltd.	100	Kudo-gun, Hokkaido
Green Power Koriyama Nunobiki Co., Ltd.	100	Koriyama-shi, Fukushima
Dream-Up Tomamae Co., Ltd.	100	Tomamae-gun, Hokkaido
Green Power TOKIWA Co., Ltd.	95	Chuo-ku, Tokyo
Green Power Aso Co., Ltd.	81	Aso-gun, Kumamoto
ITOIGAWA POWER Inc.	80	Itoigawa-shi, Niigata
Nagasaki-Shikamachi Wind Power Co., Ltd.	70	Kitamatsuura-gun, Nagasaki
Nikaho-Kogen Wind Power Co., Ltd.	67	Nikaho-shi, Akita
J-Wind TAHARA Co., Ltd.	66	Tahara-shi, Aichi
Ichihara Power Co., Ltd.	60	Ichihara-shi, Chiba
J-Wind IROUZAKI Co., Ltd.	52	Chuo-ku, Tokyo
JPOWER GENEX CAPITAL Co., Ltd.	100	Chuo-ku, Tokyo
JPec Co., Ltd.	100	Chuo-ku, Tokyo
JPHYTEC Co., Ltd.	100	Chiyoda-ku, Tokyo
KEC Corporation	100	Bunkyo-ku, Tokyo
EPDC Coal Tech and Marine Co., Ltd.	100	Chuo-ku, Tokyo

Company Name	Investment Rate (%)	Head Office
KDC Engineering Co., Ltd.	100	Nakano-ku, Tokyo
J-POWER EnTech, Inc.	100	Minato-ku, Tokyo
J-POWER AUSTRALIA PTY. LTD.	100	Australia
JP Business Service Corporation	100	Koto-ku, Tokyo
J-Power Investment Netherlands B.V.	100	Netherlands
J-POWER INVESTMENT U.K. LIMITED *	100	U.K.
J-POWER North America Holdings Co., Ltd.	100	U.S.A.
J-POWER Holdings (Thailand) Co., Ltd.	100	Thailand
J-POWER Generation (Thailand) Co., Ltd.	100	Thailand
J-POWER USA Investment Co., Ltd.	100	U.S.A.
J-POWER USA Development Co., Ltd.	100	U.S.A.
Omuta Plant Services Co., Ltd.	100	Omuta-shi, Fukuoka
FWM Investment Co., Ltd.	51	Omuta-shi, Fukuoka
Fresh Water Miike Co., Ltd.	51	Omuta-shi, Fukuoka
Japan Network Engineering Co., Ltd.	100	Chuo-ku, Tokyo
KAIHATSU HIRYOU CO., Ltd.	100	Takehara-shi, Hiroshima

Note: A decision to dissolve J-POWER INVESTMENT U.K. LIMTED was made on January 15, 2008, and the company is now undergoing liquidation.

Electric Power Development Co., Ltd.

Environmental Management Promotion Board Office: Environment Management Group,
Corporate Planning and Administration Department

15-1, Ginza 6-chome, Chuo-ku, Tokyo 104-8165, JAPAN
Tel: +81-3-3546-2211 Fax: +81-3-3546-9531 http://www.jpower.co.jp

Published October 2008
Printed in Japan