



J-POWER Group
SUSTAINABILITY REPORT

2015

Harmonizing energy supply
with the environment



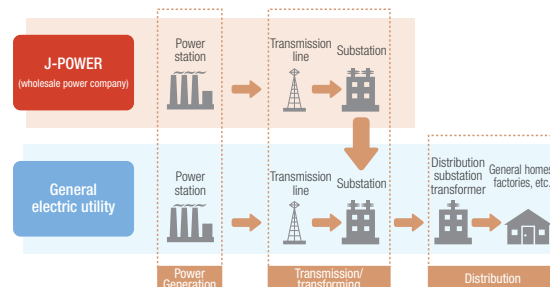
S U S T A I N A B I L I T Y R E P O R T

Harmonizing Energy Supply with the Environment

J-POWER Group Overview (As of the end of March 2015)

Company name	Electric Power Development Co., Ltd.
Communication name	J-POWER
Date of incorporation	September 16, 1952
Headquarters address	6-15-1 Ginza, Chuo-ku, Tokyo, 104-8165 JAPAN
President	Masayoshi Kitamura
Capital	¥180.502 billion
Employees	J-POWER: 2,366 J-POWER Group: 7,285
Business category	Electric Utility

How J-POWER Differs from General Electric Utilities



Overview of facilities (As of the end of July 2015)

Wholesale power supply

●Power generation facilities (output)

Hydroelectric power stations	60	8.57 GW
Thermal power stations (including 1 geothermal)	8	8.39 GW
Total	68	16.96 GW

●Transmission lines

	2,411 km
AC power transmission lines	2,144 km
DC power transmission lines	267 km
Substations (output)	4 4.30 million kVA
Frequency converter station (output)	1 0.3 GW
AC/DC converter stations (output)	4 2 GW

Other electricity businesses

(includes equity method affiliates, but percentage ownership is not taken into account.)

●Power generation facilities (output)

Wind farms	20	0.40 GW
Via independent power producers (IPP)	3	0.52 GW
Power generation for competitive market	2	0.21 GW
Total	25	1.13 GW



List of Main Group Companies/Other Companies (Percentage figures in parentheses are J-POWER equity shares)

Scope of environmental data:

J-POWER and 25 domestic consolidated subsidiaries

Scope of domestic and overseas CO₂ emissions volume data:

J-POWER, 11 domestic and 31 overseas electricity business companies



Electric power-related business

• JPec Co., Ltd.	(100%)
• JPHYTECH Co., Ltd.	(100%)
• JP Business Service Corporation	(100%)
• J-POWER RESOURCES Co., Ltd.	(100%)
• J-POWER EnTech Co., Inc.	(100%)
• Kaihatsu Denshi Gijutsu Co., Ltd.	(100%)
• J-Wind Service Co., Ltd.	(100%)
• Kaihatsu Sekkei Consultant Co., Ltd.	(100%)
• JP Enterprise Co., Ltd.	(100%)
• Miyazaki Wood Pellet Co., Ltd.	(98%)
• JM Activated Coke, Inc.	(90%)



Electricity business

• Bay Side Energy Co., Ltd.	(100%)
• Mihama Seaside Power Co., Ltd.	(100%)
• J-Wind Co., Ltd.	(100%)
• Japan Clean Energy Development Co., Ltd.	(100%)
• Minami Kyushu Wind Power Co., Ltd.	(99%)
• ITOIGAWA POWER Inc.	(80%)
• Nagasaki-Shikamachi Wind Power Co., Ltd.	(70%)
• Nikaho-Kogen Wind Power Co., Ltd.	(67%)
• Ichihara Power Co., Ltd.	(60%)
• TOSA POWER Inc.	(45%)
• GENEX COMPANY, LIMITED	(40%)



Other


• Kaihatsu Hiryo Co., Ltd.	(100%)
• Japan Network Engineering Co., Ltd.	(100%)
• OMUTA PLANT SERVICE Co., Ltd.	(100%)
• Ecogenomix Co., Ltd.	(100%)
• Biocoal Osaka-Hirano CO.,LTD.	(60%)



International business

• Gulf Cogeneration Co., Ltd.	• Elwood Energy, LLC	• Shoreham Energy, LLC	• Gulf JP NK2 Co., Ltd.
• Nong Khae Cogeneration Co., Ltd.	• Gulf Power Generation Co., Ltd.	• Orange Grove Energy, L.P.	• Gulf JP NS Co., Ltd.
• Samutprakarn Cogeneration Co., Ltd.	• Green Country Energy, LLC	• Gulf JP KP1 Co., Ltd.	• ROI-ET Green Co., Ltd
• EGCO Cogeneration Co., Ltd.	• Birchwood Power Partners, L.P.	• Gulf JP KP2 Co., Ltd.	• CBK Power Co., Ltd
• ShanXi TianShi Power Generation Co., Ltd.	• Pinelawn Power, LLC	• Gulf JP TLC Co., Ltd.	• Gulf Yala Green Co., Ltd.
• China Resources Power (HeZhou) Co., Ltd	• Equus Power I, LP	• Gulf JP NNK Co., Ltd.	• Shaanxi Hanjiang Investment & Development Co., Ltd
• Chiahui Power Corporation	• Tenaska Virginia Partners, L.P.	• Gulf JP NLL Co., Ltd.	• Zajackowo Windfarm Sp. z o.o.
• Tenaska Frontier Partners, Ltd.	• Edgewood Energy, LLC	• Gulf JP CRN Co., Ltd.	

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Editorial Policies

- The J-POWER Group operates under its corporate philosophy of playing our part for 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 the Group's corporate activities under the headings of Governance, Social Responsibilities, and Environment.
- This report includes all consolidated subsidiaries and is representative of the entire J-POWER Group.
- To ensure objective credibility, this report has been independently assured by Ernst & Young Sustainability Co., Ltd. Guaranteed data (Refer to the Websites indicated at the bottom right) calculated according to calculation standards* is indicated by a star (★). (For details, see p. 55)
- A questionnaire survey was conducted in order to gauge the opinions of readers concerning the FY 2014 Report. (A summary can be found on p. 56)
- The opinions of experts outside the company have been sought regarding issues and expectations in relation to the J-POWER Group. (See pp. 57-58)

Period covered:

April 2014 - March 2015

(January - December 2014 for those companies with a January - December fiscal year. Also, some articles may include content from April 2015 or thereafter.)

Scope:

J-POWER and the J-POWER Group companies (consolidated subsidiaries)

Note: If other than above, this is indicated in the appropriate place.

Guidelines referred to:

Ministry of the Environment, Environmental Reporting Guidelines: FY 2012 Version

Global Reporting Initiative (GRI), Sustainability Reporting Guidelines* Ver3.0

Report issued since: 1998

Published in: September 2015

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.

* Sustainability Reporting Guidelines

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.



This report is also available at the J-POWER's website as "J-POWER Group Sustainability Report 2015."

http://www.jpowers.co.jp/english/company_info/environment/index.html

With the aim of “harmonizing energy supply with the environment” by putting the corporate philosophy into practice, we constantly take up the challenge of developing new technologies and aim for sustained growth as a global electric power company that contributes to a sustainable society.

Energy policy in Japan has undergone major changes since the Great East Japan Earthquake including the adoption by the Cabinet in April 2014 of the Fourth Energy Basic Plan and the Adoption in July of this year of the Long-term Energy Supply and Demand Outlook that examines energy supply and demand structures through the 2030 fiscal year.

The Energy Basic Plan positions nuclear power and coal-fired power as key baseload power sources and sets forth fundamental policies regarding reconstruction of electric power supply. The Long-term Energy Supply and Demand Outlook indicates a power supply structure for the 2030 fiscal year that balances thermal, nuclear and renewable energy.

Under these circumstances, the J-POWER Group is pressing ahead to put into practice our corporate philosophy of “meeting people’s needs for energy without fail, and playing our part for the sustainable development of Japan and the rest of the world.” During a periodic inspection, however, a low-pressure turbine rotor at the Matsuura Thermal Power Station No. 2 Unit fell in March 2014. This accident has had a substantial impact on electric power supply, and I apologize to everyone for the inconvenience and concern that we have caused. Complete restoration of the unit was completed in June of this year, and we will return to the origins of our corporate philosophy of “meeting people’s needs for energy without fail” and make group-wide efforts to restore confidence in the J-POWER Group. (See p. 18 for a report on the accident.)

The J-POWER Group is committed to reinforcing the business foundations that will support further growth in the Japanese market, which will undergo deregulation in the future, and to continuously raising corporate value by making unceasing efforts to develop and carry out new projects.

With regard to the reinforcement of business foundations, we will redouble our efforts to enhance technological capabilities and human resources and to reinforce foundations with a focus on ensuring the reliability of our facilities while responding to changes in the domestic electricity business in conjunction with reform of electric power systems.

With regard to development of new projects, we are conducting active development in Japan to follow the Takehara Thermal Power Station New Unit No. 1, which is currently under construction, and the Ohma Nuclear Power Plant. We are also moving steadily forward with other development projects including the Takasago Thermal Power Station replacement plan. Overseas, we are putting additional efforts into developing and acquiring new projects to achieve growth in the future.

As we address these issues, we must not forget the concept of “harmonizing energy supply with the environment,” which is a subtitle of this report.

In the area of coal-fired power generation, we are spreading clean coal technologies at the world’s highest levels that we developed over many years to achieve reductions in environmental impact including global warming while maintaining

stable energy supplies. We are also constructing new higher-efficiency coal-fired power stations, replacing old plants, and developing technologies to reduce carbon emissions over the long term.

Measures to reduce carbon emissions include efforts to increase the introduction of renewable energy. We are also working to achieve both stable electric power supplies and lower CO₂ emissions by using diverse renewable energy sources including hydroelectric, wind and geothermal power.

Furthermore, we strive to contribute to the sustainable development of society by conducting business operations that fulfill our corporate social responsibility including enhancing corporate governance, conducting strict compliance, ensuring safety, reinforcing crisis management and accident responses, maintaining harmony with local communities and society and implementing environmental management.

The J-POWER Group will continue to carry out its missions of providing stable supplies of electricity and harmonizing energy supply with the environment on even higher levels than in the past and will address new challenges to contribute to the sustainable development of Japan and the world.

We thank everyone sincerely for their continuing support.

August 2015



President 北村雅良
Masayoshi Kitamura

J-POWER Group's Corporate Social Responsibility

In keeping with the J-POWER Group's corporate philosophy that "we will meet people's needs for energy without fail, and play our part for the sustainable development of Japan and the rest of the world," we are working to provide stable supply of electric power while preserving the environment.

It is this corporate philosophy that forms the basis of the J-POWER Group's social responsibility, and all Group members make every effort to conduct business based on this corporate philosophy while keeping it in mind at all times.

The J-POWER Corporate Conduct Rules set forth standards for carrying this out, and the J-POWER Group Environmental Management Vision Basic Policy is a statement of our action policies.

J-POWER Group Corporate Philosophy

(Established September 11, 1998)

Our Mission

We will meet people's needs for energy without fail, and play our part for the sustainable development of Japan and the rest of the world.

Our Credo

- We value integrity and pride, which drive everything we do.
- We pursue harmony with the environment, and thrive in the trust of communities where we live and work.
- We regard profits as the source of our growth, and share the fruits with the society.
- We refine our knowledge constantly, to be the pioneering leader in technologies and wisdom.
- We unite diverse personalities and passions as one, and dare create a better tomorrow.

J-POWER 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 conservation

Based on an awareness that our business operations are deeply linked with the environment, we will actively engage in environmental conservation 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 action against those responsible, including themselves.

Basic Policy

(Revised on July 1, 2011)

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 rest of 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, the J-POWER Group will strive to bring together its expertise and its technologies in the utilization of a wide variety of energy sources, including fossil fuels, nuclear power, and renewable energies, to ensure the efficient and uninterrupted supply of the power essential to human life and economic activity.

We will contribute to sustainable development in Japan and the rest of 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

Directing our most intensive efforts towards the provision of a stable energy supply, we will also steadily advance initiatives towards the realization of low carbon technologies both domestically and internationally, and will contribute to the reduction of CO₂ emissions on a global scale.

To that end, we will work from mid- and long-term perspectives with technology as our central focus to realize a stable supply of energy and reduce CO₂ emissions domestically and internationally through measures including reducing CO₂ emissions from coal-fired power, conducting research and development of next-generation low-carbon technologies, and expanding CO₂-free power generation facilities. Our ultimate aim will be the achievement of zero emissions by means of measures including CO₂ capture and storage.

Efforts Relating to Local Environmental Issues

In addition to adopting measures to reduce the environmental impact of our operations, we will seek to operate in harmony with the local environments in which our facilities are located by working to save, recycle and reuse resources in order to limit the amount of waste that we produce.

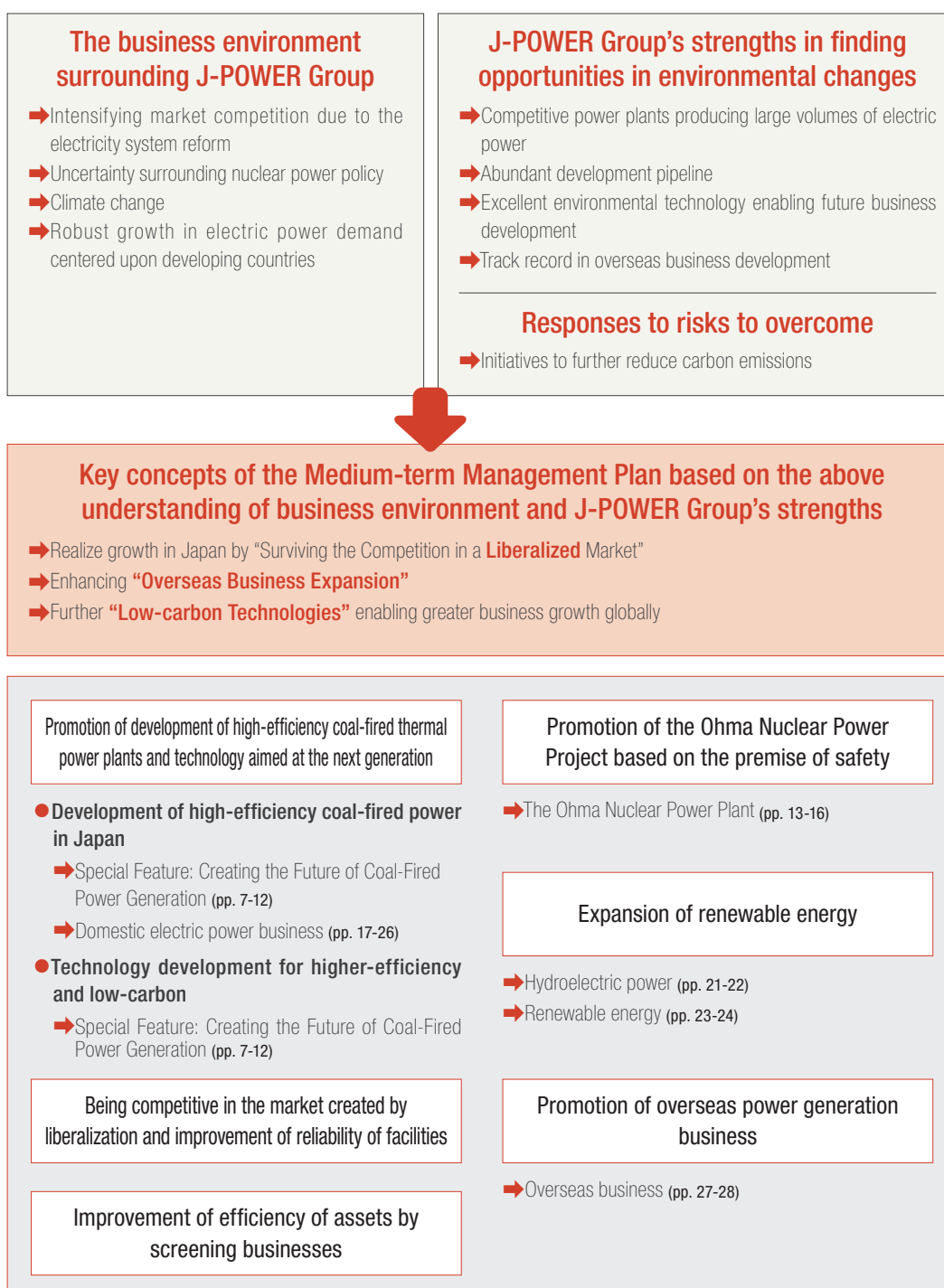
Ensuring Transparency and Reliability

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.

J-POWER Group's Medium-Term Management Plan

The Japanese energy industry has emerged from an extended period of uncertainty regarding energy policy following the March 2011 earthquake and is entering an era of new challenges. The Long-Term Energy Supply and Demand Outlook up to 2030, which was adopted in July 2015, indicates a composition of electrical sources that include renewable energy, nuclear power, coal-fired power and other forms of energy, and also sets new CO₂ reduction goals geared towards international society. With regard to the deregulation of the electric power business, the amended Electric Power Business Law, adopted in June 2015, will completely deregulate retail electricity and eliminate regulations on wholesale electricity in FY 2016, followed by the separation of the electric power generation and distribution businesses. In response to these developments, the J-POWER Group formulated a Medium-Term Management Plan for addressing the challenges of further growth in the coming 10 years.

The figure below shows the relationship between the J-POWER Group's measures outlined in the Medium-Term Management Plan and the content of this report.



Creating the Future of Coal-Fired Power Generation

Developing Clean Coal Technologies at the World's Highest Levels

Coal-fired power generation accounts for about 40% of electric power supplies worldwide and about 30% in Japan, and use of coal-fired power generation is expected to grow, particularly in Asia, where power demand is rising in conjunction with economic growth. In Japan, the Fourth Energy Basic Plan adopted by the Cabinet in April 2014 positions coal-fired power generation as an important baseload power source that offers stable supplies and outstanding economy. Replacement of existing facilities and construction of new power plants with state-of-the-art technologies as well as the development of new technologies for controlling CO₂ emissions are being promoted, and policies for the overseas development of cutting-edge higher-efficiency coal-fired power generation are being carried out.

The J-POWER Group has continuously developed, introduced, and operated clean coal technology for coal-fired power generation for a half century in Japan and is working to transfer cutting-edge technology and put it into widespread application overseas.

This feature presents information on our contributions to stable energy supplies through the introduction of ultra-supercritical (USC) technologies at the world's highest levels through replacement projects to create new higher-efficiency coal-fired power stations and the J-POWER Group's efforts to address the issue of global warming by reducing carbon with a focus on research and development of clean coal technologies.

The entire J-POWER Group is working together with the aim of creating clean coal technologies at the world's highest levels in order to make the concept of harmonizing energy supply with the environment a reality in Japan and around the world.



Managing executive officer

Hideki Tsukuda

- Advance Replacement Plan
- Maintain high operating efficiency and reduce CO₂ emissions at existing thermal power plants
- Transfer and promote the widespread application of clean coal technologies overseas

Reducing CO₂ emissions from coal-fired power (pp. 8-10)

Conducting research and development of next-generation low-carbon technologies (pp. 11-12)



- Implementation of the Osaki CoolGen Project
- Proceed with development of CCS (CO₂ capture and storage) technologies



Expanding CO₂-free power generation facilities



- Measures under the Ohma Nuclear Power Plant Plan (pp. 13-16)
- Expand use of renewable energies (pp. 21-24)

Making efforts to reduce CO₂ Emissions

Takehara Thermal Power Station Replacement Plan:

Pursuing the World's Highest Levels as USC Technology

The J-POWER Group is carrying out a plan to replace Takehara Thermal Power Station Units No. 1 (250 MW) and No. 2 (350 MW), which went into operation some 40 years ago, with a New Unit No. 1 (600 MW). The environmental assessment procedures have been completed, and construction began in March 2014, with operations scheduled to begin in 2020.

By introducing the latest power generation technologies and environmental pollution control equipment, we will create a coal-fired power station with the world's highest-level ultra-supercritical (USC) technologies.



Rendering of completed Takehara Thermal Power Station Replacement Project (Hiroshima Prefecture)

New Unit No. 1 Facilities

- 1 Boiler Building
- 2 Flue-gas denitrification system
- 3 Electrostatic precipitator
- 4 Flue-gas desulfurization system
- 5 Chimney stack
- 6 New indoor coal yard
- 7 Existing indoor coal yard
- 8 New Unit No. 1 and Unit No. 3 coal unloading and transport units

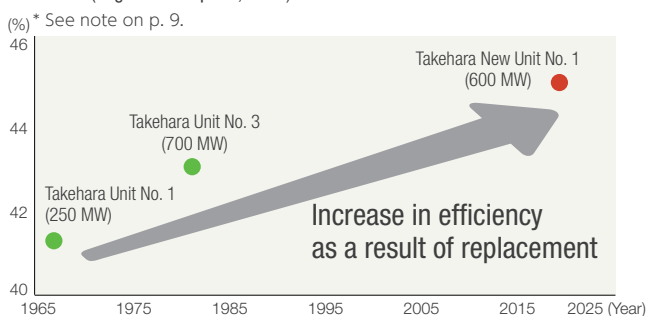
World's Most Efficient Power Generation Technologies

The new Unit No. 1 will produce steam conditions at the world's highest level and will be one of Japan's most efficient power stations. Raising power generation efficiency will reduce the consumption of coal, the station's energy source, making it possible to curtail CO₂ emissions and substantially reduce carbon.

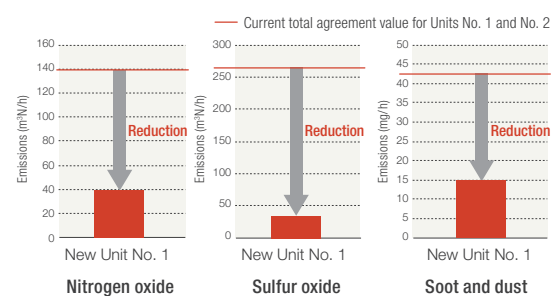
Clean Environmental Technology at the World's Highest Level

New Unit No. 1 will be equipped with the latest flue-gas denitrification system, flue-gas desulfurization system, and electrostatic precipitator, greatly reducing emissions of nitrogen oxides (NO_x), sulfur oxides (SO_x), soot and dust. The Isogo Thermal Power Station, which is already equipped with similar equipment, boasts emissions that are extremely low compared to other thermal power plants in Europe, the U.S., and Japan (see p. 9).

Comparison of Power Generation Efficiency after Replacement of the Takehara Station (at generation point, LHV*)



Comparison of Emissions Agreement Values of Current Takehara Units No. 1 and No. 2 and New Unit No. 1



Contribution to Stable Electric Power Supply

We are enhancing our role as a baseload power source that provides stable energy supplies through increases in energy efficiency achieved by replacing aging facilities with new facilities. To minimize the power supply suspension period resulting from the replacement construction, we introduced a build and scrap construction method whereby Units No. 1 and No. 2 will be removed after construction of New Unit No. 1.

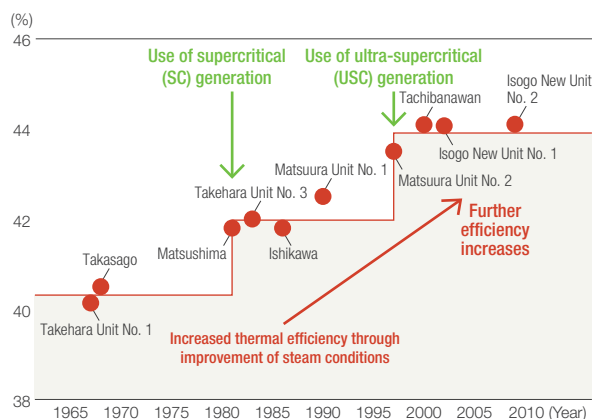
Main Construction Processes

	2014	2015	2016	2017	2018	2019	2020	2021	2022
New coal storage and transport facility construction									
Existing grid switchover construction									
Water intake and discharge facility construction									
Boiler, turbine generator, environmental pollution control equipment									
Civil engineering and building construction									
Equipment installation									
Test operation									
Chimney construction									
Removal of Units No. 1 and No. 2									

Cutting Carbon Emissions

Even since the J-POWER Group started operating the Matsushima Thermal Power Station using imported coal, a first in Japan, in 1981, we have developed a number of large-scale thermal power stations using imported coal while improving power generation efficiency and reducing carbon emissions by enhancing steam conditions and increasing station size.

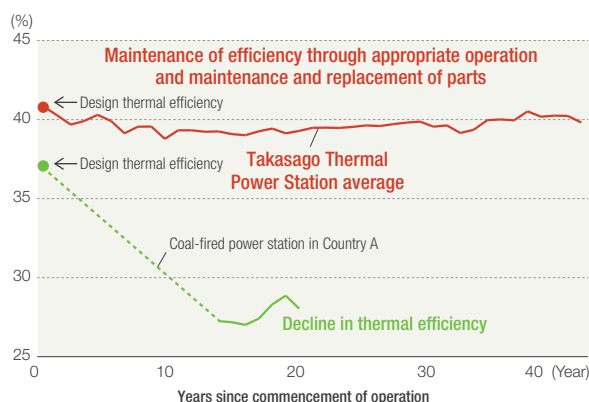
History of improvements in generating efficiency of J-POWER coal-fired power stations (at generation point, LHV*)



Maintaining High-Efficiency Operation

The J-POWER Group's coal-fired power stations play an important role as economical and stable baseload power supplies. Thermal efficiency declines as generating facilities age. Operating management and facility updates make it possible to continue operating with high levels of thermal efficiency. One example of this is the Takasago Thermal Power Station, which even now, maintains nearly the same power generation efficiency more than 40 years after it began operating.

Changes in thermal efficiency of Takasago Thermal Power Station (at generation point, LHV*)



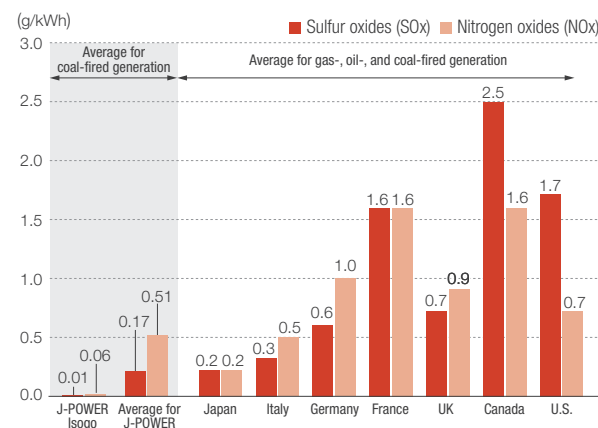
Implementation of Replacement Plans

The replacement of aging power stations leads to higher power generation efficiency and environmental preservation through the introduction of the latest technologies.

The Isogo Thermal Power Station, which underwent replacement, now has the latest ultra-supercritical (USC) generating technologies and boasts power generation efficiency at the world's highest levels. Sulfur oxide, nitrogen oxide, soot and dust have been reduced to levels far below those of thermal power stations in other leading developed countries, becoming the world's cleanest coal-fired power station.

Following the Isogo Thermal Power Station and the Takehara Thermal Power Station, the J-POWER Group is currently implementing a replacement plan for the Takasago Thermal Power Station. Currently, environmental impact evaluation procedures are under way.

International Comparison of SOx and NOx Emissions Intensity for Thermal Generation



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



Takasago Thermal Power Station (Hyogo Prefecture)

- * At generation point: the power generation efficiency calculated by using the amount of electric power at the point of generation (amount of electric power at the time of generation by the generator).
- * At transmission point: the power generation efficiency calculated by using the amount of electric power at the point of transmission (amount of electric power at point of generation minus internal power (power used in the generation process)).
- * The amount of generated heat calculated as the state of the water included in the combustion gases is referred to as the higher heating value (HHV), and the amount of generated heat calculated as the state of the steam that water evaporates into is referred to as the lower heating value (LHV). At the LHV, the heat to vaporize water is consumed, and therefore the amount of heat generated is lower than HHV by that amount.

Seeking Further Reductions in Carbon Emissions

In FY 2014, the J-POWER Group's electric power business in Japan produced approximately 46.49 million t-CO₂ (the domestic and overseas electric power business produced approximately 55.77 million t-CO₂), a year-on-year decrease of approximately 2.8%. The decrease was the result of a substantial decline in the operating rates of thermal power stations. Electric power sold fell, and as a result, CO₂ emissions per unit of electric power sold remained flat at 0.73 kg-CO₂/kWh (emissions in the domestic and overseas electric power business were 0.67 kg-CO₂/kWh).

In consideration of the importance of global environmental issues, the J-POWER Group is working to maintain and improve high operating

efficiency including the replacement of existing thermal power stations and is taking measures to introduce mixed combustion (combusting a different fuel with the coal boilers) at coal-fired power stations by using biomass fuels, a renewable energy source that has recently been attracting attention (see p.24).

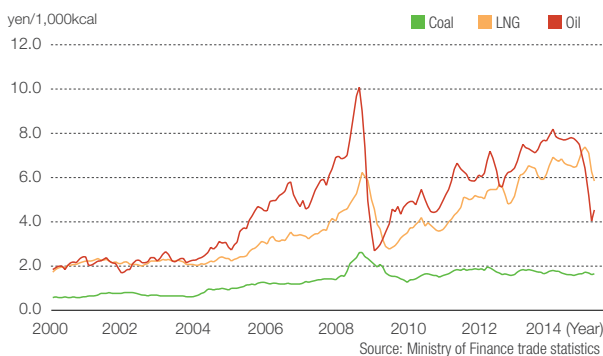
See pages 11 and 12 for further information on high-efficiency power generation such as advanced ultra-supercritical (A-USC) generation, integrated coal gasification combined-cycle (IGCC), integrated coal gasification fuel cell (IGFC), and other technologies and research and development of next-generation technologies such as CO₂ capture and storage (CCS), which is expected to greatly reduce CO₂ emissions.

Coal-Fired Power Generation and Clean Coal Technologies Needed Around the World

Coal-Fired Power Generation Used Globally

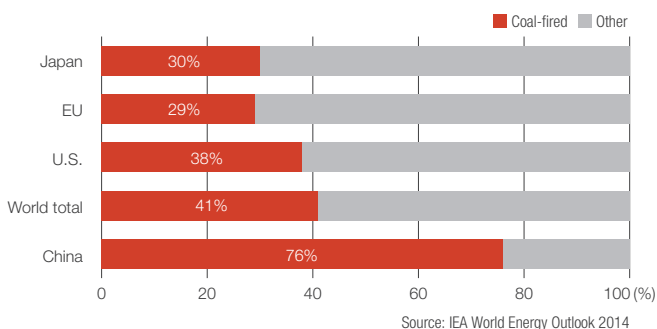
Compared to oil and natural gas, which are also fossil fuels, coal is lower in cost and economically more efficient; has more abundant reserves; and is distributed widely around the world, so that it is also superior in terms of energy security.

Trends in Fuel Prices



For these reasons, coal supports stable electric power supplies in many countries as a primary electric power generating fuel, and coal-fired power generation accounts for more than 40% of global electric power supplies.

Ratio of coal-fired generation in total power generation (2012)



Cutting CO₂ Emissions Using Clean Coal Technology

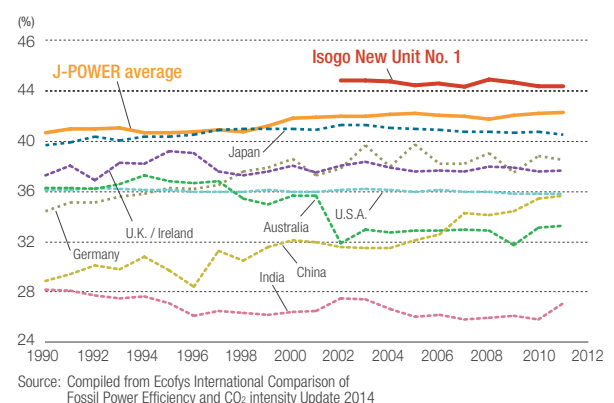
Global measures are needed to respond to the issue of global warming caused by CO₂ and other greenhouse gases generated from the combustion of coal and other fossil fuels.

Coal-fired power generation accounts for the majority of electric power supply in China, India, Indonesia, and other areas of Asia where demand for electric power is expected to remain robust in the future, and curtailing CO₂ emissions and coal consumption has become an important issue.

If the power generation efficiency of the Isogo Thermal Power Station, which is at the world's highest levels as shown below, were achieved at all coal-fired power stations in China, India, and the United States, which currently account for about 50% of global CO₂ emissions, we estimate that CO₂ emissions would be cut by approximately 1.52 billion t-CO₂, which is more than Japan's total annual emissions.

Transferring USC and other clean coal technologies that were developed and put into use in Japan to countries around the world and contributing to the reduction of global greenhouse gas emissions is positioned as a core policy in the Energy Basic Plan, and the J-POWER Group is taking active measures to support this policy.

Comparison of thermal efficiency of coal-fired power around the world (at generation point, LHV*)

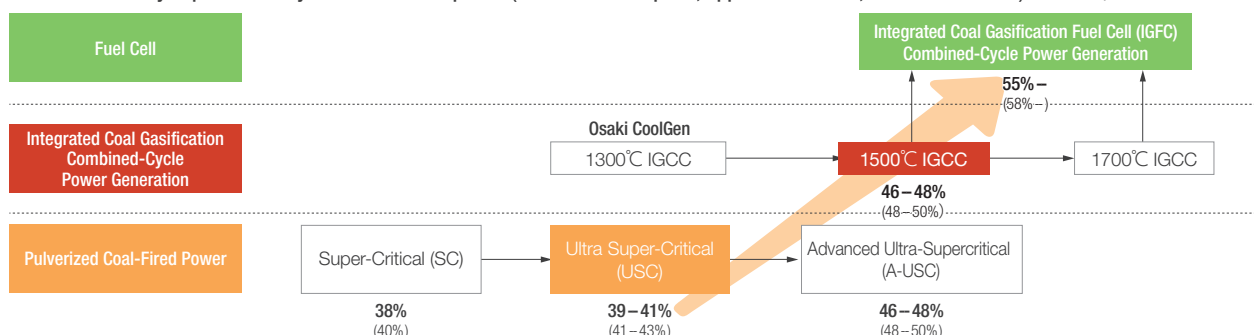


Research and Development of Next-Generation Low-Carbon Technologies:

For the Sake of the Earth's Future

The J-POWER Group is pursuing cutting-edge clean coal technologies and employing USC power generation at the world's highest levels, and by conducting further research and development, we are promoting additional reductions in carbon from coal-fired power. We are committed to continuing active research and development in Japan and overseas on next-generation, higher-efficiency coal-fired power generation that can reduce CO₂ emissions through even higher power generation efficiency, CCS to capture and store CO₂ produced by power generation so it is not released into the atmosphere, and other technologies.

Thermal Efficiency Improvement by Technical Development (At transmission point; upper row is HHV*, lower row is LHV*) * See note on p. 9.



Higher-Efficiency Coal-Fired Power Generation Technologies

The higher-efficiency coal-fired power generation technologies on which the J-POWER Group is conducting R&D include integrated coal gasification combined-cycle (IGCC) power generation, which combines conversion of coal into a flammable gas for combustion in a gas turbine with a steam turbine that uses the waste heat; integrated coal gasification fuel cell (IGFC) combined-cycle power generation, which adds triple-combined-cycle generation to fuel cell power generation using IGCC; and advanced ultra-supercritical power generation, which improves USC steam conditions even further.

With regard to IGCC, which has the closest affinity with CO₂ separation and recovery, trial operations at a pilot plant facility were conducted for more than 10 years starting in 2002 under the EAGLE Project in collaboration with the New Energy and Industrial Technology Development Organization (NEDO) (the project ended in June 2014). The knowledge and results obtained from the project will be used, and the technology is entering the testing phase under the Osaki CoolGen Project.



External view of EAGLE Pilot Plant test facility (Kitakyushu City)

The EAGLE Project tested a physical collection method and a chemical collection method for separating and collecting CO₂, and information was gained on the properties of each.

CO₂ Capture and Storage (CCS) Technology

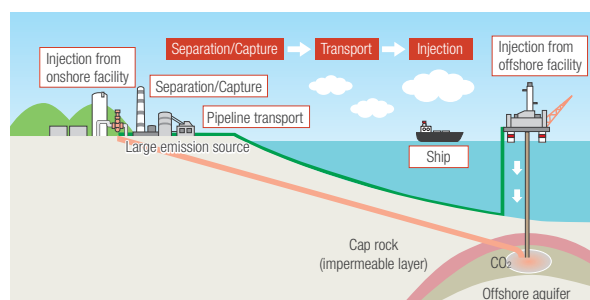
CO₂ capture and storage (CCS) separates and collects CO₂ produced from the combustion of coal and other fossil fuels without releasing it into the atmosphere and transports the CO₂ for storage deep in the earth. R&D on CCS is being conducted around the world as a promising technology for achieving substantial reductions in CO₂ emissions.

At this time, there are issues of lower power generation efficiency during the separation and collection phase as well as securing suitable sites and creating infrastructure and legal systems in the transport and storage phases, and as a result, CCS is not in practical use anywhere in the world.

The J-POWER Group is making preparations for a separation and collection technology demonstration as a part of the Osaki CoolGen Project based on the results from the EAGLE Project.

In addition, based on the oxyfuel combustion tests and the CO₂ storage tests conducted as part of the Callide Oxyfuel Combustion Project, a joint Japanese-Australian public and private sector initiative in which J-POWER participated, we are accumulating additional technologies and knowledge.

CCS Concept



Osaki CoolGen Project: Seeking IGCC at the World's Highest Levels

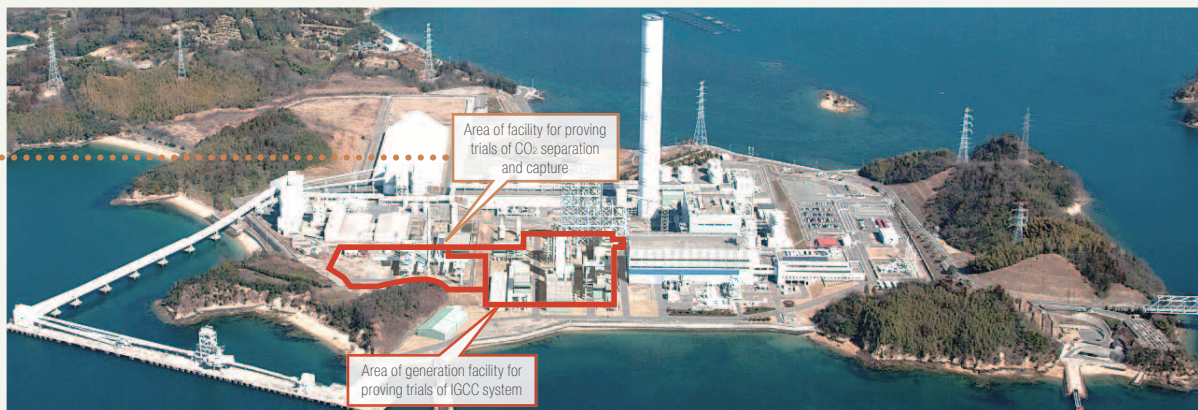
In order to curtail CO₂ emissions from coal-fired power generation beyond what is possible with current clean coal technologies, the Energy Basic Plan expresses expectations for development and application of next-generation, higher-efficiency coal-fired power generation technologies such as IGCC as well as research and development in the pursuit of application of CCS technologies.

The J-POWER Group is conducting the Osaki CoolGen Project in collaboration with Chugoku Electric Power Co., Inc. to test these advanced clean coal technologies. For the project, an oxygen-blown IGCC trial power station with output of 166 MW is being built at the Chugoku Electric Power Osaki Power Station, and tests will be conducted in three phases.

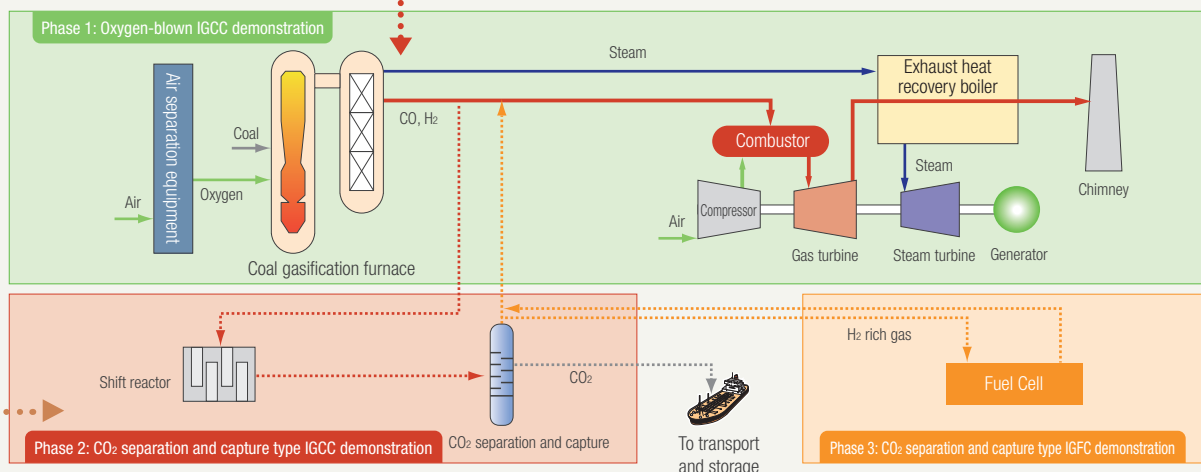
Osaki CoolGen Project Schedule

		2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Phase 1	Oxygen-blown IGCC demonstration	Design, manufacture, installation					Proving trials				
Phase 2	CO ₂ separation and capture type IGCC demonstration					Design, manufacture, installation		Proving trials			
Phase 3	CO ₂ separation and capture type IGFC demonstration							Design, manufacture, installation		Proving trials	

J-POWER and Chugoku Electric Power established Osaki CoolGen Corporation in 2009 to carry out the project. The "CoolGen" name is derived from the Cool Gen Plan proposed to carry out the Japanese government's Cool Earth-Innovative Energy Technology Program and was created from "cool" and "generation." Construction for the start of the first phase of testing in the 2016 fiscal year began in March 2013, and basic construction of the principal facilities has entered the busiest period.



Planned Completion of Testing Facilities (Osakamijima-cho, Hiroshima Prefecture)



The Ohma Nuclear Power Plant

Seeking Trusted Power Plants

Introduction

The J-POWER Group is engaged in construction of the Ohma Nuclear Power Plant in Ohma-machi, Shimokita-gun, Aomori Prefecture.

From the perspective of steady energy supply, nuclear power is an essential and indispensable source of energy for our island country with poor natural resources. It is also a source of energy that provides an effective countermeasure to global warming.

We consider it is necessary for nuclear power to continue fulfilling a constant role in Japan's electric power supply because nuclear power can be an effective source of energy with adequate safety management measures, needless to say, should be taken.

We have proceeded with the Ohma Nuclear Power Plant project in accordance with national government policy, with the understanding and cooperation of Aomori Prefecture and the local residents of Ohma-machi, Kazamaura-mura and Sai-mura, and with the necessary permits and approvals in hand. It is a key power plant that will perform crucial roles both in the stable provision of a highly safe and reliable supply of electric power achieved through the use of cutting-edge technology and the nuclear fuel cycle for reuse of plutonium and uranium obtained through reprocessing of spent fuel.

J-POWER has taken the lessons of the accident at the Fukushima Daiichi Nuclear Power Station to heart. We will proceed with steady implementation of safety measures and practices in light of the new safety standards, making the fullest use of the experiences and the latest technical findings. In this way, we will build power plant that earns the trust of local and regional communities.

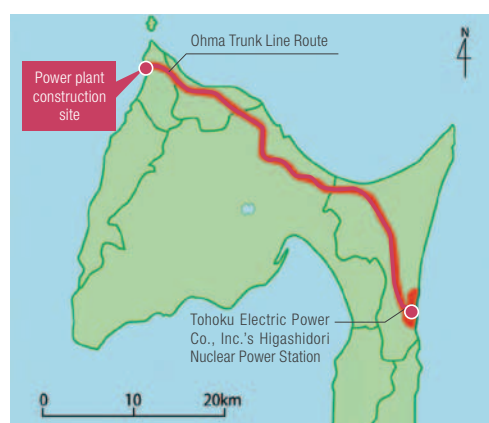
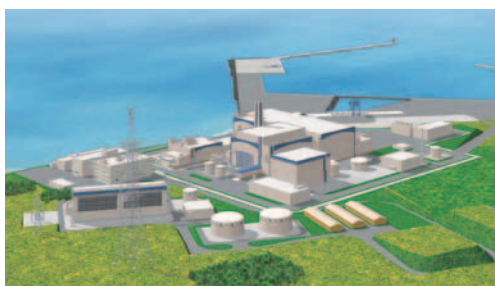


Diagram of Ohma Nuclear Power Plant location (Aomori Prefecture)



Panoramic view of construction work on Ohma Nuclear Power Plant (Aomori Prefecture)



Rendering of the completed power plant

Plan Overview

Location		Ohma-machi, Shimokita-gun, Aomori Prefecture
Construction begins		May 2008
Commercial operation begins		To be determined
Output		1,383 MW
Reactor	Type	Advanced boiling water reactor (ABWR)
	Fuel: Type	Enriched uranium and uranium-plutonium mixed oxide (MOX)
	Fuel assembly	872 elements

Pursuing Safety Improvements

We are reinforcing safety measures at the Ohma Nuclear Power Plant based on the latest knowledge including lessons learned from the accident at the Fukushima Daiichi Nuclear Power Station and the results of the geological investigations of the plant site and neighboring areas that have been conducted continuously since permission to build this nuclear reactor was obtained in April 2008.

We are strengthening earthquake and tsunami countermeasures and taking measures to prevent any damage to the reactor core and reactor vessel even in the case of a severe accident. We are also implementing all measures in current construction in anticipation of a terrorism incident

such as the intentional crash of an aircraft.

In addition, we are conducting programs to raise awareness of safety (activities to foster safety culture) with “raising awareness of each individual to consider safety” as their theme, including issuing messages from the president, holding presentations and discussions of best practices and providing opportunities for executives to exchange opinions.

Going forward, we will not allow ourselves to be satisfied with simply complying with regulatory requirements, but will undertake voluntary safety measures and strive tirelessly to enhance safety.

Application for Review of Compliance with New Safety Standards

J-POWER submitted an application for permission for alternation of reactor installment license and an application for construction plan approval to the Nuclear Regulatory Authority in December 2014 in order to undertake a review of compliance with the new safety standards at the Ohma Nuclear Power Plant by the Nuclear Regulatory Authority.

These applications are procedures pursuant to The Law on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors (Nuclear Reactor Regulation Law) and are part of the safety review process for the Ohma Nuclear Power Plant.

In the future, we will respond appropriately to the review by the Nuclear Regulatory Authority.

Harmony with the Local Community

We are pursuing a variety of initiatives at the Ohma Nuclear Power Plant construction site to deepen the understanding of the Ohma Nuclear Power Plant and energy and to foster a greater sense of familiarity with J-POWER by members of the local community.

We issue monthly newsletters to all households in the region, conveying information on local issues as well as the construction plan, status of construction and measures to reinforce safety. In addition, all plant personnel make individual visits to local residences twice each year. We sponsor science classes and cooperate with schools to conduct field trips of geology for elementary and junior high school students and conduct energy education for high school students, providing continuous support for education.

As a member of the local community, we participate in local festivals and other events and conduct programs such as cleanup campaigns in towns. Going forward, we will continue to engage in a wide range of activities while placing particular importance on our relationships with local residents.



Employees participate in a local cleanup program

Measures to Reinforce Safety for Ohma Nuclear Power Plant (Overview)

To confirm compliance with the new safety standards, in December 2014 J-POWER submitted an application for permission for alteration of reactor installment license and an application for construction plan approval to the Nuclear Regulatory Authority summarizing the details of measures to reinforce the safety of the Ohma Nuclear Power Plant.

We will implement all measures during construction to ensure that we build a safe power plant.

Measures to Reinforce Safety

1. Measures to Design Basis Accidents

Earthquake Proofing

We adopted a new standard seismic motion based on the latest findings and other factors. The adopted standard seismic motion is a maximum acceleration of 650 cm/s² (previously 450 cm/s²). Earthquake-proof designs for building and other structures were adopted based on this standard seismic motion.

Tsunami Countermeasures

We also adopted the following design basis tsunami based on the latest findings. We estimated that the maximum height of a tsunami at the site based on the following design basis tsunami is T.P. +6.3 m (previously +4.4 m), but the elevation of the power plant site is T.P. +12 m, and

consequently, there is no likelihood of a tsunami reaching and following into the site.

From the perspective of enhancing confidence even further, we will implement independent measures including construction of seawalls and installation of waterproof exterior doors and so on.

Measures to Prevent Damage from External Impact

- (1) We assessed the impact of natural phenomena (volcanic eruptions, tornados, external fires, etc.) on the nuclear power station.

Fire Protection

- (2) We will enhance fire protection measures including use of fire-resistant cables and construction of firewalls.

Internal Flooding Resistance Measures

- (3) We will reinforce resistance measures against leaks to protect facility functions in anticipation of damage to pipes within the facility.

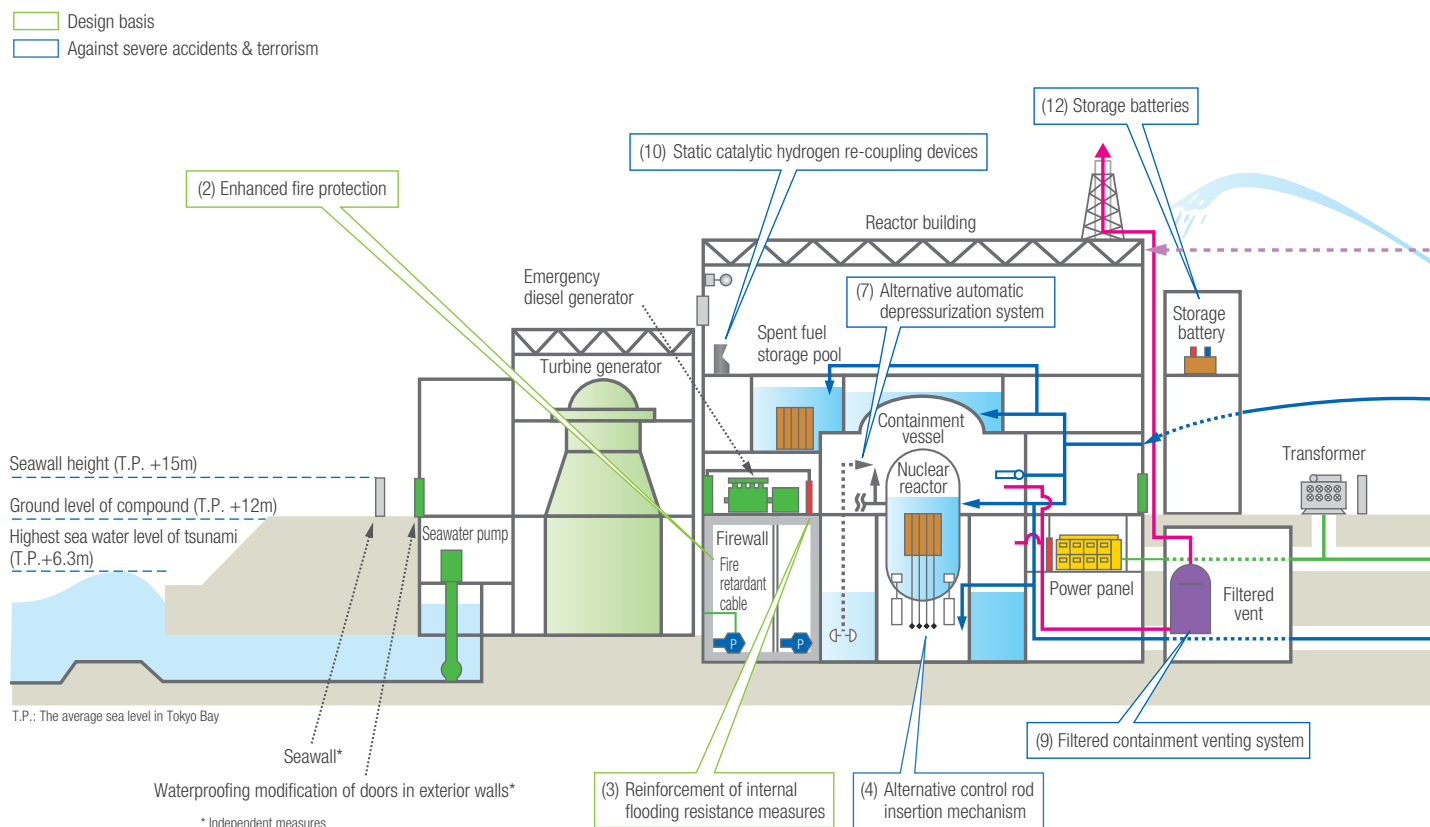
2. Against Severe Accidents & Terrorism

To prevent damage to the nuclear reactor and containment vessel, we will implement the following measures.

Measures to Prevent Core Damage and Containment Vessel Failure

- (4) Even in the case where nuclear reactor emergency shutdown equipment does not operate, an alternative control rod insertion

Image of Measures to Reinforce Safety at Ohma Nuclear Power Plant



mechanism that can be operated by separate circuits or manually will be installed to enable shutdown of the nuclear reactor.

- (5) Permanent alternative water injection facilities will be installed to cool the nuclear reactor, containment vessel, and spent fuel storage pool.
- (6) Mobile alternative water injection pumps will be available to cool the nuclear reactor, containment vessel, and spent fuel storage pool.
- (7) An alternative automatic depressurization system will be installed to reduce pressure in the nuclear reactor.
- (8) Heat exchanger units will be installed to release generated heat.
- (9) A filtered containment venting system*¹ will be installed to prevent damage from excess pressure in the containment vessel.
- (10) Static catalytic hydrogen re-coupling devices*² will be installed to prevent damage from hydrogen explosions in the reactor building.
- (11) Water spraying facilities will be installed to control the dispersion of radioactive material outside the power station.

Reinforcement of Power and Water Supplies

- (12) To ensure power supplies, air-cooled emergency generator and gas turbine generator will be installed, the capacity of existing storage batteries will be increased, additional batteries will be installed, and a power supply vehicle will be made available.
- (13) Water storage tanks will be installed to secure a water source necessary for resolution of severe accidents.

Insuring Support Functions of the Control Room

- (14) An emergency response office will be created to respond to severe accidents.
- (15) Communications facilities will be reinforced to ensure communications with necessary locations inside and outside the power station.
- (16) Mobile monitoring posts will be established to monitor, measure and record the concentration and radioactivity of radioactive material in the vicinity of the power station.

Countermeasures against Intentional Aircraft Crashes

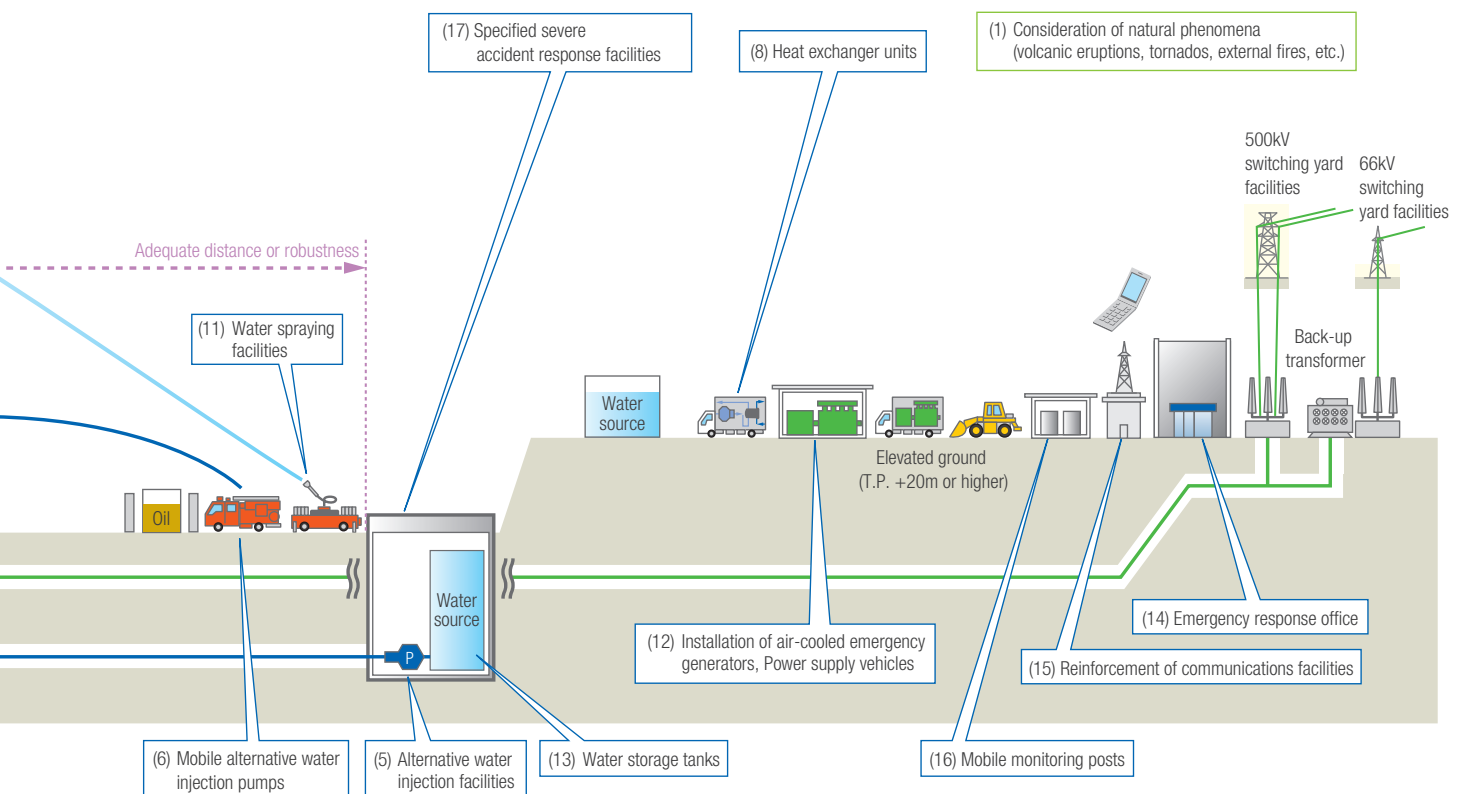
- (17) Specified severe accident response facilities will be established to control the abnormal external release of radioactive material in the event of the intentional crash of a large aircraft into the reactor buildings or other terrorist attacks.

*1. Filtered containment venting system:

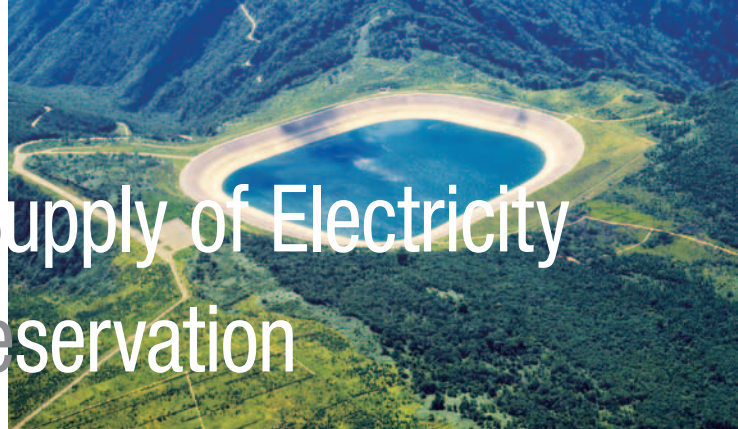
A system that controls the release of radioactive material and releases steam from the containment vessel into the atmosphere in order to prevent damage to the containment vessel in the event of an excessive increase in pressure inside the nuclear reactor containment vessel.

*2. Static catalytic hydrogen re-coupling devices:

A system that uses a catalyst to cause a chemical reaction between hydrogen molecules and oxygen molecules to generate water vapor in order to prevent an increase in hydrogen concentration that could result in a hydrogen explosion in the event that damage to the reactor core occurs, causing hydrogen to leak inside the reactor building and the concentration of hydrogen to increase.



Measures for Stable Supply of Electricity and Environmental Preservation



The J-POWER Group operates power stations that it owns in Japan, engages in long-term wholesale power supply to electric power companies (general electric utilities) in various regions of the country, engages in the wheeling business using its own power transmission and substation facilities, conducts independent power producer (IPP) business, and supplies wholesale power-to-power producers and suppliers (PPS).

Based on the principle of achieving harmony between energy and the environment, the entire Group takes action to contribute to the stable supply of electricity throughout Japan through these business activities and to preserve the natural environment by minimizing the impact of its business activities.

Outlook for Electric Power Industry in Japan

Wholesale Power Supply Business and Wheeling Business

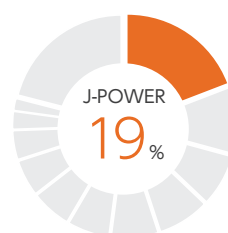
Thermal Power

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

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

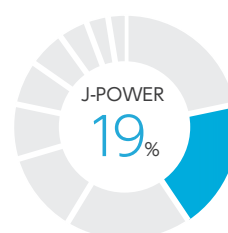
J-POWER's coal-fired power generating facilities are highly cost competitive compared to oil, LNG, and other fuels and are a key power supply for electricity demand baseload, and as a result are power supplies that offer high use rates and excellent economic efficiency.

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



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

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



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

Hydroelectric power

Essential Power Source for Meeting Peak Demand

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

J-POWER's hydroelectric power facilities are valuable CO₂-free power sources that can respond quickly to changes in electricity demand. In addition, the facility output of each power station is high, so hydroelectric power facilities are used primarily as peak power supplies to respond to daily and seasonal changes in electricity demand, contributing to the stability of electricity supply and the grid in regions throughout Japan.

Power Transmission, Substation (Wheeling), and Communications

Key Infrastructure Supporting Japan's Electric Power Grid

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

Other Electric Power Business

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

In the wholesale power supply business, J-POWER has three IPP facilities with total capacity of 520 MW located in different areas of Japan and two facilities with total capacity of 210 MW used in the

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

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

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

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

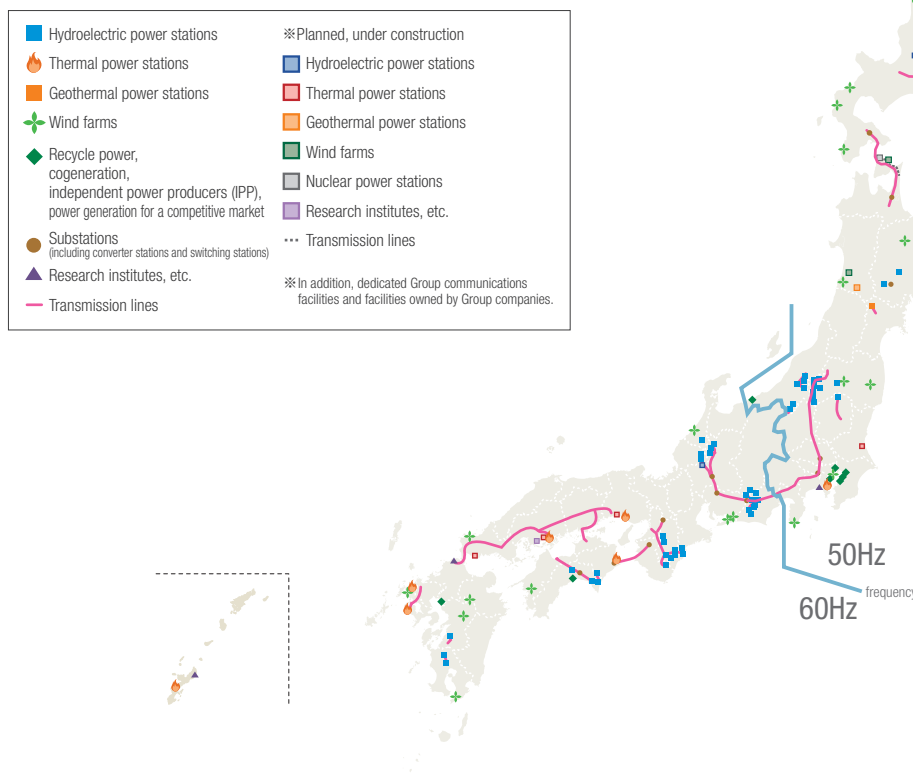
We proceeded with the manufacture of a new low-pressure turbine rotor in order to restore power generation at the earliest possible time and resumed operation under a partial load (with output of 425 MW) on August 6, 2014 in order to provisionally restore power supplies until a full restoration could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

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

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

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

Locations of main facilities





Thermal Power

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

Coal-Fired Power Generation Value Chain

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

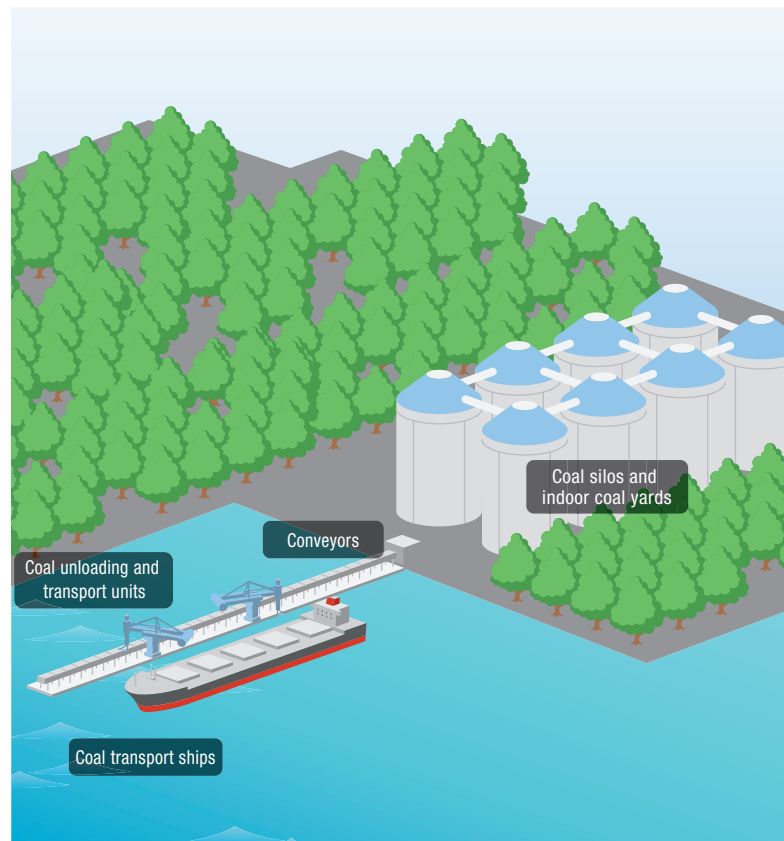
Procurement



Coal Mine Project in Australia

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

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



Transport



Stable Transport of Coal

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

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

Receiving



Management of Coal at Power Stations

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

Voice

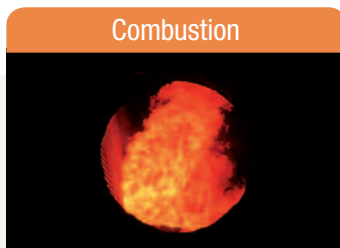
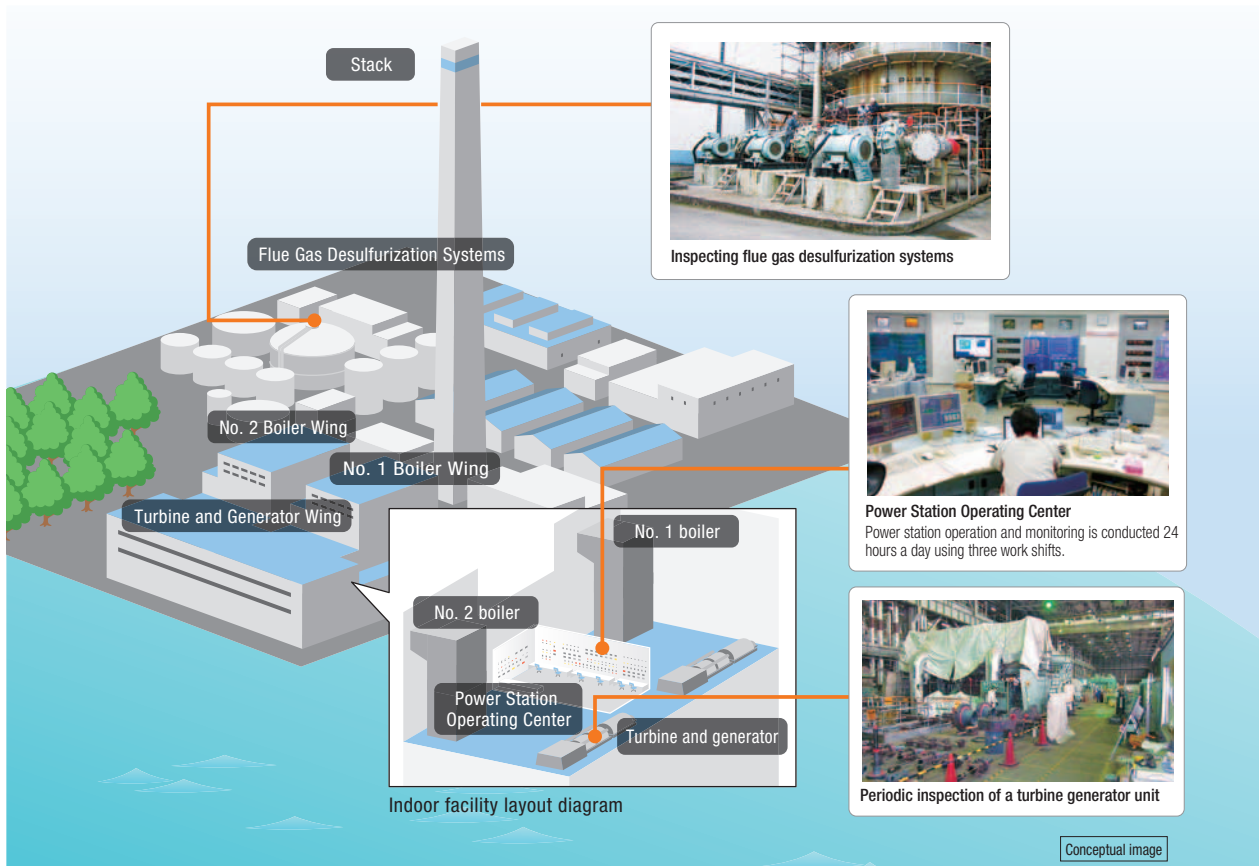
Employee Attitudes

I work on operating the Ishikawa Coal-fired Power Station (third shift). The power station operators conduct day-to-day operation and monitoring of the generating facilities and strive to maintain stable operation by quickly identifying any abnormalities in the equipment, taking responsive measures, and preventing shutdown of the power station by conducting on-site patrols. During the annual typhoon season (May to October) in particular, we work to ensure reliable operations and functioning as increases and decreases in output or even interruption of output can occur depending on the status of supply and demand in Okinawa Prefecture as a result of power

outages in multiple locations on the main Okinawa Island, depending on the route of the typhoon. We take measures such as reciting "worker knowledge" together with the aims of sharing information with the day shift and on-duty workers and raising awareness. In the future, we will continue to use methods such as pointing and calling to ensure reliable operations, maintain strict compliance with laws and regulations and contribute to stable electric power supplies.



Ishikawa Coal-fired Thermal Power Station
Generating Group
Seiki Takamine



Combustion

Creating Steam

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



Power generation

Generating Electricity

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



Environmental preservation

Effective Use of Ash

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

Voice

Story of Difficulties Relating to Operation of Power Stations

Many of the personnel who work at the Matsushima Thermal Power Station commute to work by municipal ferry, and vehicles that transport the goods needed at the power station travel by car ferry. When I was working in the water processing facility, I was quite worried about a sudden suspension of ferry services due to severe weather. It wouldn't be possible to obtain the chemicals necessary for operation of the wastewater treatment facility or to transport waste industrial sludge out, and I investigated its operations and coordinated communications with the related parties. I currently work on the third shift as an outdoor control room

(environmental preservation facility) operator, and when suspension of the municipal ferry service is forecast, I stay in a dorm the day before so I can report to work the following day. This is one of the difficulties unique to the Matsushima Thermal Power Station, but I am able to communicate with colleagues more than usual, so it is also somewhat pleasant. The Matsushima Thermal Power Station has been in operation for 34 years, and I hope to continue contributing to the stable supply of electric power.

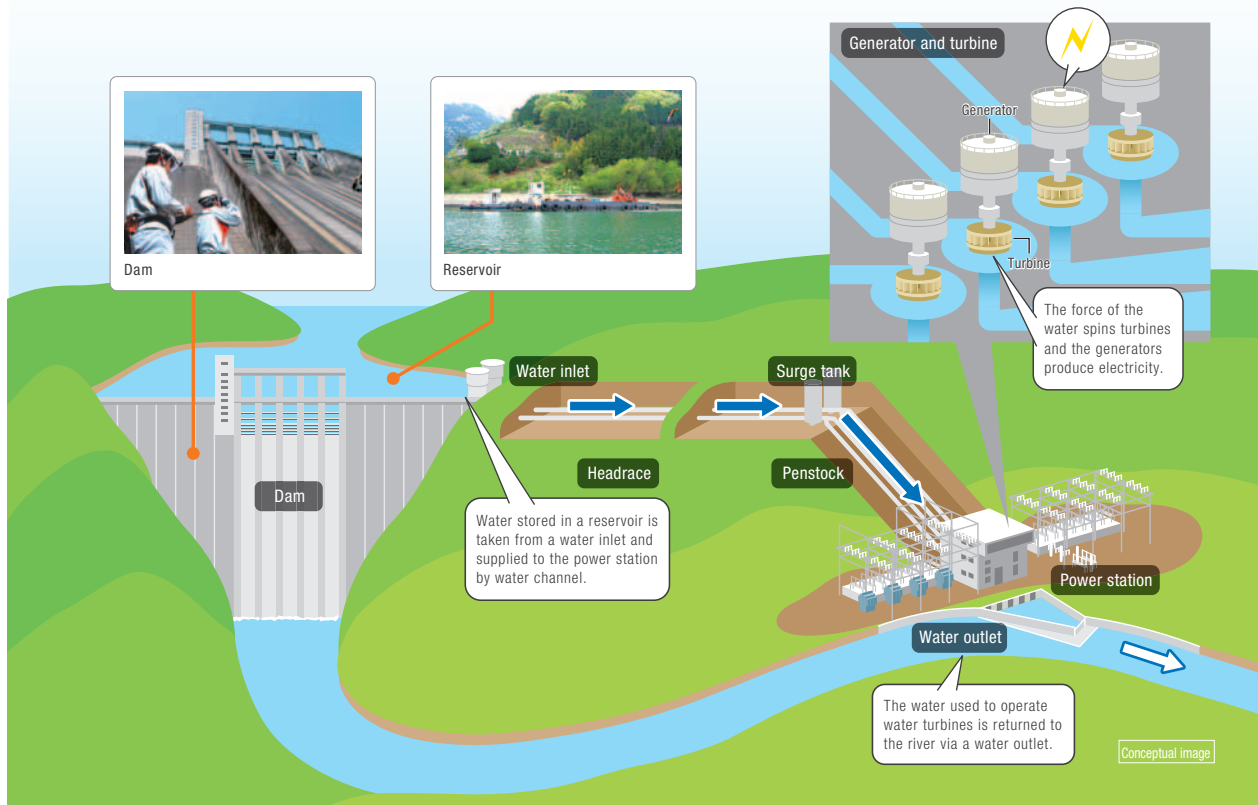


JPEC Co., Ltd.
Operations Group, Matsushima Company
Kiyoji Ishigaki



Hydroelectric power

J-POWER's hydroelectric power facilities are able to respond rapidly to changes in electricity demand and have high output per power station. For these reasons, they make significant contributions to electricity supplies in various regions around Japan as peak power supplies that can respond to daily and seasonal peak demand periods. In addition, hydroelectric power is a valuable, entirely domestic energy source and accounts for the J-POWER Group's largest renewable energy generation facilities, comprising 13% of Japan's total renewable energy capacity. As a result, hydroelectric power is a core presence for ensuring stable electricity supplies and reducing CO₂ emissions.



Voice

Collaboration between Power Generation and Facility Maintenance and Management

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

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

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

Takane Sato



Voice

Maintaining and Enhancing Reliability

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

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

Shigeru Nagaya



The J-POWER Group implements measures on a daily basis to increase the reliability and efficiency of its existing hydroelectric power facilities. To use hydroelectric resources, a CO₂-free, renewable energy source, we are actively developing small and medium-sized hydroelectric power stations, one of the policies set forth in Fourth Energy Basic Plan, and taking measures to increase generating capacity including installing new facilities and replacing facilities at existing dams to enhance use of facilities and resources.

Stable Operation of Hydroelectric power Facilities

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



North Regional Control Center (Hokkaido)

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

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



The Kuttari Power Station (Hokkaido)

Measures for New Hydroelectric power Facilities

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

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



A rendering on the Konokidani Power Station (Fukui Prefecture)

Renewable Energy

We are actively taking measures concerning renewable energy under the Energy Basic Plan, which positions renewable energy as a promising domestic energy source that contributes to ensuring energy security. The J-POWER Group's renewable energy initiatives are diverse and include contributing to stable electricity supplies through existing hydroelectric power, wind power, and geothermal power stations, for which we have the second-highest shares among each type of domestic generation facilities; developing new power sources such as wind and geothermal power; and conducting research and development on offshore wind power. Renewable energy is a CO₂-free energy source that does not produce greenhouse gases such as CO₂ at the time of generation. The J-POWER Group is moving forward with the Ohma Nuclear Power Plant plan and expanding the use of renewable energy with the aim of increasing CO₂-free energy sources.



Wind Power

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

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

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

* The New Energy and Industrial Technology Development Organization.



Kaminokuni Wind Farm (Hokkaido)



A turbine under construction



Maintenance work being performed on the nacelle of a wind turbine

Voice

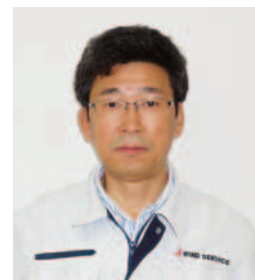
Working to Enhance Maintenance Skills at Wind Power Stations

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

A large turbine with individual generating capacity of 2.4 MW, a first for J-POWER, was installed at the

Kaminokuni Wind Farm, which went online in 2014. Responding to a breakdown required us to make repairs in locations where we had no experience, but the maintenance workers combined their knowledge to complete the repairs.

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



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

Koji Mima



Geothermal Power

Geothermal power is a CO₂-free power source that emits almost no CO₂ at the time of generation and is also a renewable energy source capable of providing a stable supply of electricity throughout the year without being affected by weather. For these reasons, there are high expectations for the future development of geothermal power.

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



Onikobe Geothermal Power Station (Miyagi Prefecture)



Promoting the Biomass Mixed Combustion

Forestry offcut and sewage sludge are carbon neutral biomass that absorb and release equal amounts of CO₂ over their life cycles, but in Japan, much of these resources remains unused.

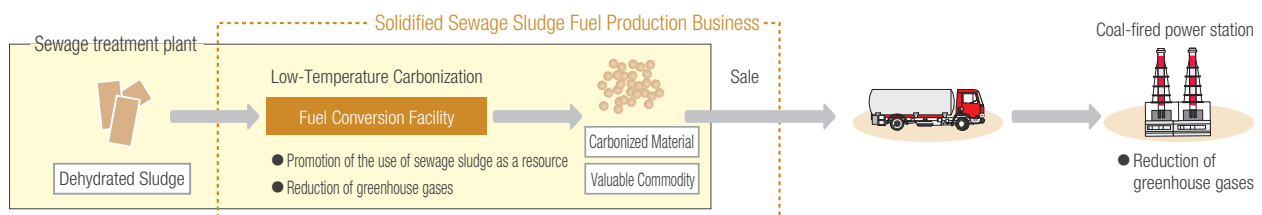
The J-POWER Group is reducing the carbon emissions of coal-fired power stations by utilizing unused biomass for mixed combustion at power stations.

Status of biomass mixed combustion initiatives

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

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

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





Power Transmission, Substation, and Communications Facilities

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

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



Honshu-Shikoku Interconnection (Okayama and Kagawa Prefectures)

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



Sakuma Frequency Converter Station (Shizuoka Prefecture)

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



Takatsue Radio Relay Station (Fukushima Prefecture)

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

Voice

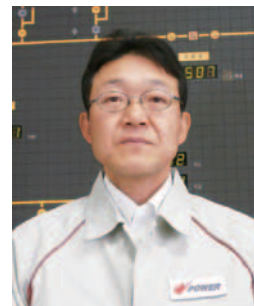
Overhauling Aging Facilities to Ensure the Stable Supply of Power

The Nishitokyo Substation is a large-scale transmission transformer station with 20 transmission lines and four key transformers (1,350 MVA) and plays a crucial role as a connection point in the power grid for the Tokyo metropolitan region. The substation began operating in 1956, and its facilities are aging, so we are performing a systematic overhaul. In FY2014, we began major construction to replace equipment for 154 kV (11 lines)

with gas-insulated switches and completed the work in June 2015. As a result, reliability is substantially higher, and we can expect continued operation of the substation in the future as a cornerstone for the stable supply of power.

East Japan Regional Headquarters
Manager, Nishitokyo Substation

Yoshihiro Suzuki



Voice

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

The area where the telecommunication engineering center conducts maintenance is a mountainous region with deep snow and contains hydroelectric power stations, control centers and other facilities linked by radio, and as a result, many of the facilities are located on mountains. Stable operation of these facilities can sometimes require performing inspections at locations reached after walking for several hours or where the snow is piled up as high as a person's waist. Some facility locations have been designated as forest

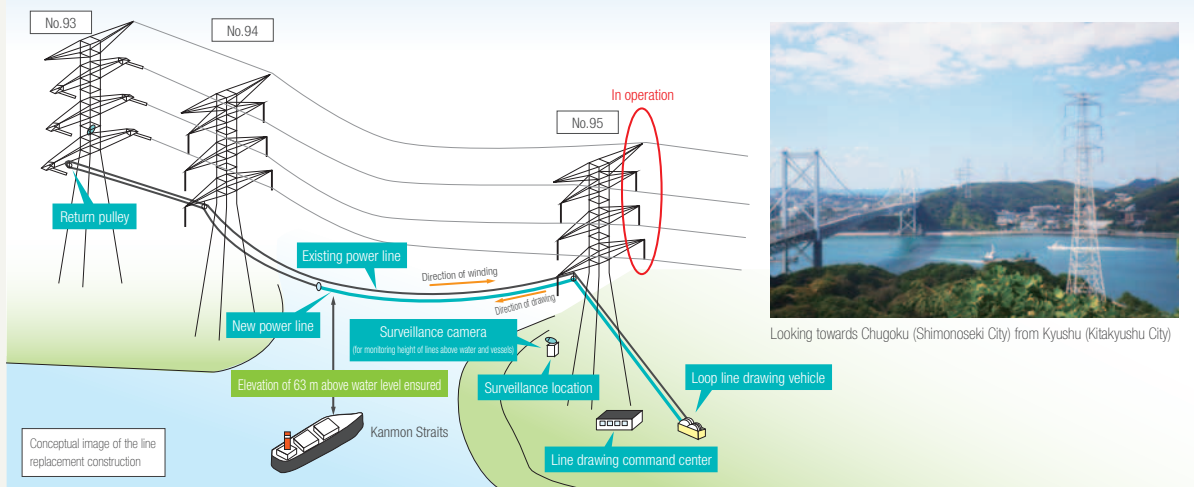
reserves to protect ecosystems, and when performing facility construction and operation and when passing through nearby areas, we perform the work with particular care for environmental preservation, including not entering areas where it is necessary in order to prevent harm to the wildlife.

East Japan Regional Headquarters,
Tohoku Telecommunication Engineering Center

Satoshi Toyosaki



Close Up Kanmon Interconnection (Strait) Line Replacement Construction



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

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

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

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

The construction method had two unique features. First, since the work was performed above a strait, prior consultations were conducted with the Maritime Safety Agency and other authorities involved in port management. Also, the line control height was set at a level so that the height of the lines above the water level would never fall below the height of transmission lines running parallel to the girders of the Kanmon Bridge to ensure there would be no impact on vessels passing through the strait. To carry out this height control, a vessel surveillance

station was created to monitor both the lines being drawn across the strait and vessels in the waterway and rigorous visual monitoring was conducted. In addition, data from surveillance cameras and tensile force sensors was gathered at a line drawing command center, and the construction work was carefully conducted while confirming this data with the aim of maintaining optimal conditions.

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

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

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

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

Voice

Cooperation of Related Parties Essential for Transmission Line Facility Maintenance

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

into consideration the surrounding environment.

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



West Japan Regional Headquarters
Fukuoka Transmission Station
Mitsuharu Karimata



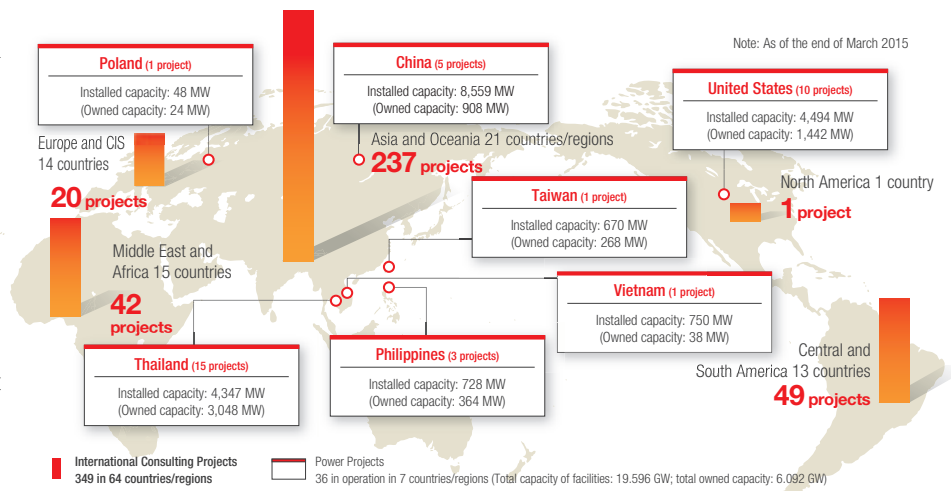
Overseas Business

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

Overseas Business Initiatives

The purpose of J-POWER's overseas consulting business is to provide cooperation on electric power generation technology to emerging countries and so contribute to the international community. Since implementing our first project in 1962, we have been involved in 349 projects in 64 countries (as of the end of March 2015). In the overseas power generation business, we have 36 electric power generation facilities in seven countries and regions with a total output of 19,596 GW. Our owned share of this output amounts to 6,092 GW (as of the end of March 2015).

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



Topics Consulting on Expansion of Thac Mo Hydropower Station in Vietnam

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



Foundation excavation work for the Thac Mo power station

Voice

Expectations for a Safe and Secure Society

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

outages and contribute to the development of a regional society where everyone can live with a sense of safety and security.

International Marketing Division Project Development Office, Assigned to Vietnam

Gaku Matsuoka



Close Up J-POWER Electric Power Generation Business in Thailand



U-Thai IPP

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

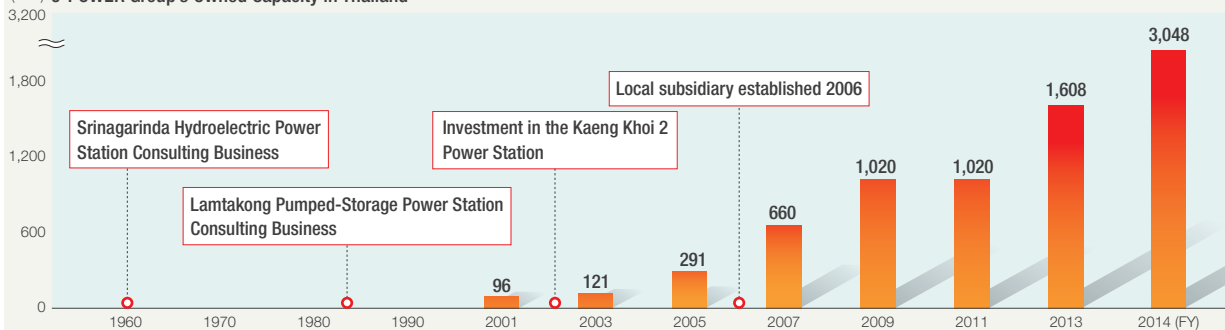
Seven 100 MW-class SPP projects that went online in 2013 was supplemented by an IPP project (Nong Saeng IPP, with capacity of 1.6 GW) in 2014, and an additional IPP project (U-Thai IPP; also with a capacity of 1.6 GW) is scheduled to go online in 2015. When combined with existing facilities in Thailand,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

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

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

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

(MW) J-POWER Group's Owned Capacity in Thailand



Voice

Working Together to Contribute to Electric Power Supply in Thailand

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

working together. I hope to increase this type of business opportunity in the future and to contribute to the supply of electric power to people.

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

Kayoko Kurisaki



Environmental Preservation

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

Environmental Measures at Coal-Fired Power

Measures to Control Noise and Vibration

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

Measures to Control Coal Dust

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

Measures to Control Thermal Water Discharge

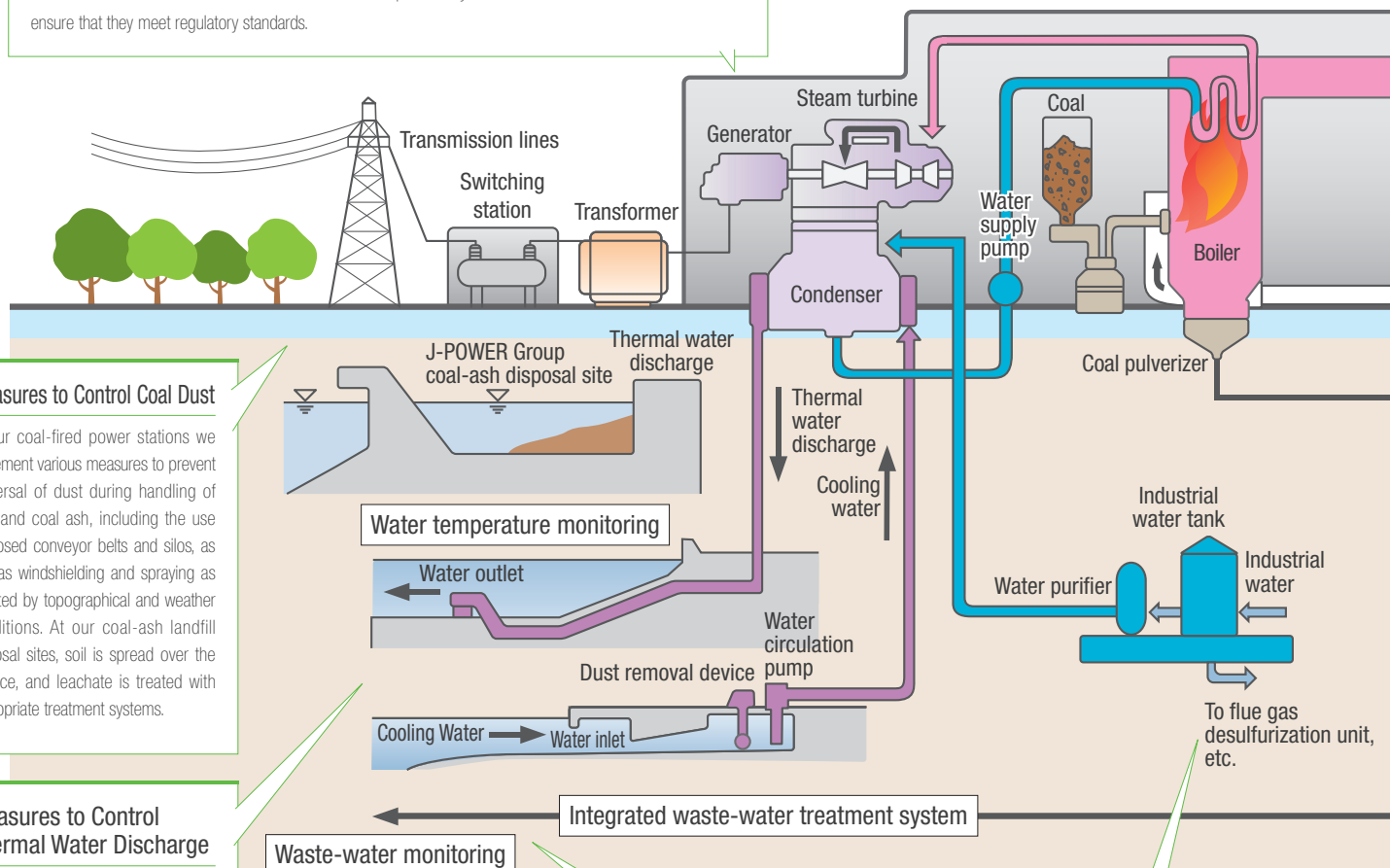
Seawater taken in to cool the steam used in power generation is released as thermal water discharge*. We control intake and discharge properly to reduce their impact on marine life in the vicinity, and monitor the temperature of thermal water discharge on a 24-hour basis to ensure that it remains at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

Measures to Prevent Water Pollution

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

Cutting Back on Industrial Water Use

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



* Thermal water discharge:

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

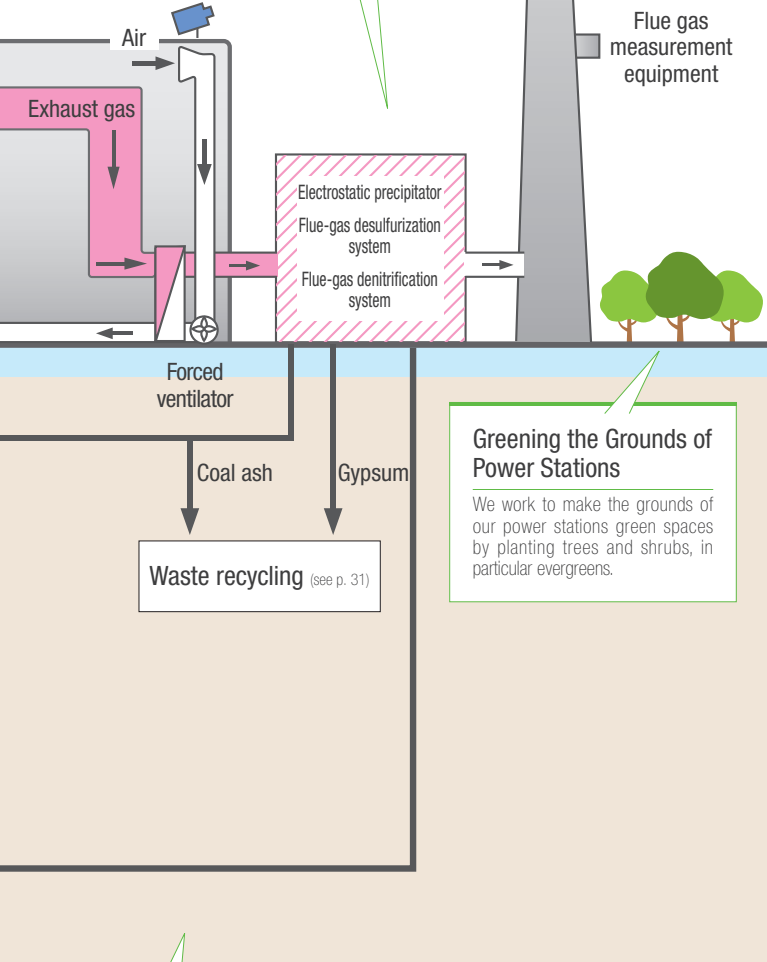
Measures to Control Odors

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

Flue gas monitoring television

High chimney stack

Flue gas measurement equipment



Greening the Grounds of Power Stations

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

Measures to Prevent Soil Pollution

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

Measures to Prevent Oil Leaks

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

Measures to Prevent Air Pollution

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

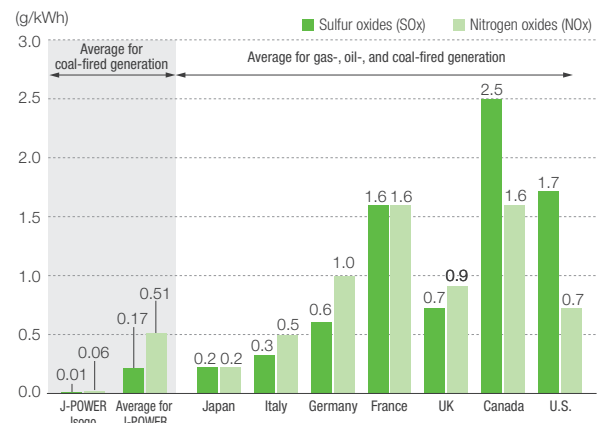
Flue-gas Emissions, FY 2014 ★

Substance	Emissions	Emissions intensity
SO _x	9,800 tons	0.17g/kWh
NO _x	29,100 tons	0.51g/kWh
Soot and dust	800 tons	0.01g/kWh

Notes:

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

International Comparison of SO_x and NO_x Emissions Intensity for Thermal Generation



Overseas: Emissions volume: OECD StatExtracts Complete Databases Available Via OECD's Library

Volume of power generated: IEA Energy Balances of OECD Countries (2012)

Japan: Materials published by The Federation of Electric Power Companies of Japan (10 electric power company and J-POWER)

Figures for Isogo and J-POWER are formulated from results for 2014

Proper Management and Disposal of Waste Material and Chemical Substances

Waste

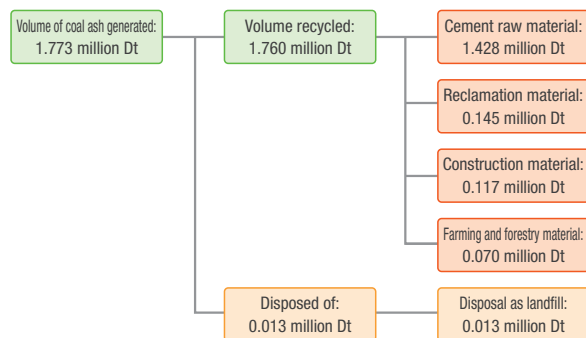
Reduction and Effective Utilization of Waste

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

Making Effective Use of Coal Ash and Gypsum

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

Breakdown of the Coal Ash Recycle (displacement tons)



Information on Maintenance and Management of Industrial Waste Final Disposal Sites

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

Chemical Substances

Management of Chemical Substances

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

PRTR Substance Release and Transfer Volumes (FY 2014) ★

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

Note:

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

Voice

Beach Winds at a Coal-Fired Power Station

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



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

Preservation of the Natural Environment

Environmental Impact Assessment

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

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

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

Preservation of the Water Environment

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

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

Forest Conservation

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

Japan's forests are falling into ruin because of inadequate management caused by slumping forestry markets, but the J-POWER Group is contributing to forest conservation and reduction of CO₂ emissions through efforts to burn biomass fuel pellets made from forestry offcuts and other materials in coal-fired power stations along with coal (see p. 24).

Preserving Biodiversity

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

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

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



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

Business Operations That Fulfill Social Responsibility



The J-POWER Group undertakes business operations that fulfill our corporate social responsibility (CSR) by continuously reinforcing the foundations of business operations including management and human resources and efforts to achieve mutual benefit with local communities and society as well as environmental management in accordance with our corporate principle of contributing to the sustainable development of Japan and the rest of the world in response to changes in social conditions and the business environment.

Foundations of Business Operations

Corporate Governance

Officers and Management Council System

At J-POWER, members of the board focus on supervisory functions while executive directors, executive managing officers, and executive officers perform executive functions. In addition, an independent director participates in management decision-making from outside directors based on specialized knowledge and experience. Under the Management Council System, J-POWER established an Executive Committee, which deliberates on matters that are of importance to the company as a whole, and a Management Executing Committee, which handles important matters relating to specific aspects of business execution. The system facilitates appropriate and timely decision-making and efficient corporate operations.

System of Audits and Supervision

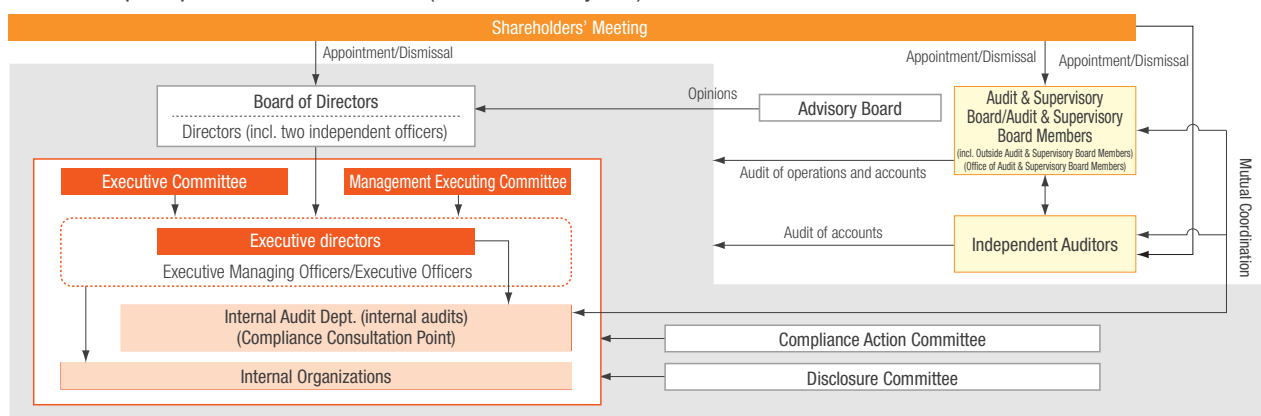
J-POWER's Audit & Supervisory Board comprises five Audit & Supervisory Board Members, of which three are Outside Audit &

Supervisory Board Members including one fulltime member, enhancing the oversight functions of the Audit & Supervisory Board. Separate from the audits conducted by the corporate auditors, the Internal Audit Department, which is independent from J-POWER's other internal organizations, conducts internal audits, and individual organizations also perform periodic voluntary audits.

Group Internal Controls

To implement internal controls in accordance with the Financial Instruments and Exchange Act, J-POWER creates internal regulations to ensure the reliability of financial reporting and operates internal control systems. In FY 2014, we confirmed the status of development of internal control systems and their operational status, determined that they are effective, and reported the results to the Prime Minister in the form of an internal control report.

J-POWER Group's Corporate Governance Framework (as of the end of July 2015)



Information Disclosures

With regard to the outside disclosure of information, the Disclosure Committee chaired by the president makes active, fair, and transparent disclosures of corporate information.

The J-POWER Advisory Board was established in September 2008 to receive advice and proposals concerning corporate management from outside experts in a wide range of fields.

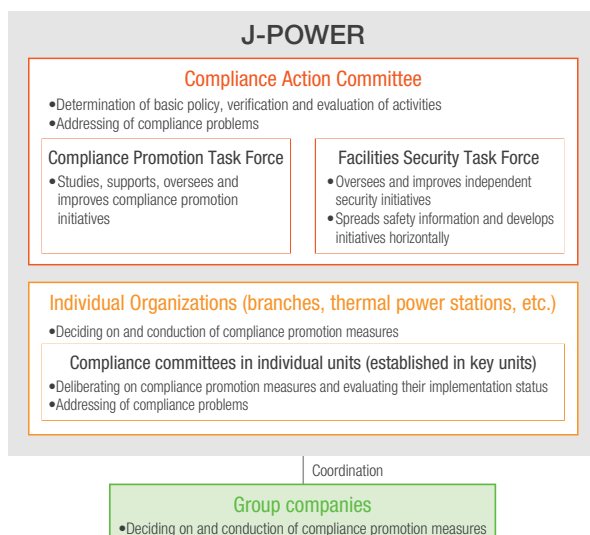
Compliance Initiatives

Implementation Measures

In accordance with its corporate philosophy, J-POWER adopted Corporate Conduct Rules and a Compliance Code. To ensure compliance, J-POWER established the Compliance Action Committee and other organizations shown below and takes Group-wide action with the participation of Group companies.

We also established compliance consultation hotlines staffed by internal and external experts to prevent and quickly identify violations of laws and regulations and breaches of corporate ethics. To raise awareness of compliance, we conduct training and hold lectures on compliance topics, create opportunities for officers and employees to exchange views and for personnel responsible for compliance matters to exchange information, and conduct compliance-related questionnaires, e-learning, and other programs.

J-POWER Group Compliance Promotion Structures



Information Security

Basic Policy

As advanced computerization and the use of information technology by businesses advances, instances of cyber terrorism and attacks targeting specific companies have increased, making information security more important than ever. The J-POWER Group, a key infrastructure business responsible for stable electric supplies and construction of nuclear power plants in Japan and other countries, must ensure higher levels of information security.

J-POWER adopted a Basic Policy on Information Security and publicizes Group-wide information security measures on its website.

Specific Measures

Each year, we formulate and implement an annual plan setting forth specific information security measures based on the status of activities in the preceding year. The main measures are described on the J-POWER website.

To rapidly and appropriately respond to IT harm to important systems relating to electric power operations, we are reinforcing collaborative systems with relevant government ministries and agencies and the electric power industry as a whole and contributing to the IT aspects of stable electric power supplies. With regard to construction of the Ohma Nuclear Power Plant, IT divisions are working with nuclear power divisions to implement robust security measures.



Basic Policy on Information Security

http://www.jpowers.co.jp/english/privacy/privacy_003_e.html



Information Security Countermeasures

http://www.jpowers.co.jp/english/privacy/privacy_004_e.html

Emergency Management

Crisis Management Measures

The J-POWER Group recognizes a variety of events as emergencies, and as an electricity wholesaler, the greatest emergency would be an impairment to the production and distribution of electricity, our product, that prevented the supply of electric power.

We take the following measures to prevent such an occurrence.

- (1) Installation of appropriate facilities and development of disaster recovery systems in preparation for natural disasters including earthquakes, typhoons, lightning strikes, and tsunami.
- (2) Enhanced security to prevent malicious and violent conduct.
- (3) Ongoing enhancement of facility inspections to prevent major impediments to electric power supply and appropriate repairs and upgrades in response to deterioration, decline of function, and breakdowns.
- (4) Preparation of action plans for responding to pandemics and other events that could have a major impact on business operations.

The J-POWER Group has established the following systems to accurately forecast and prevent accidents, facility incidents, and other crisis events and to respond promptly and appropriately if such events occur and manage them.

Emergency Management Systems

(1) Emergency Response Team

A permanent organization at the J-POWER Headquarters. The Team oversees immediate responses and emergency management operations in the event that an emergency occurs.

(2) Emergency managers and emergency duty personnel

Emergency managers and personnel are appointed at the Headquarters and Regional Headquarters with relevant local units to take first-response action and report information.

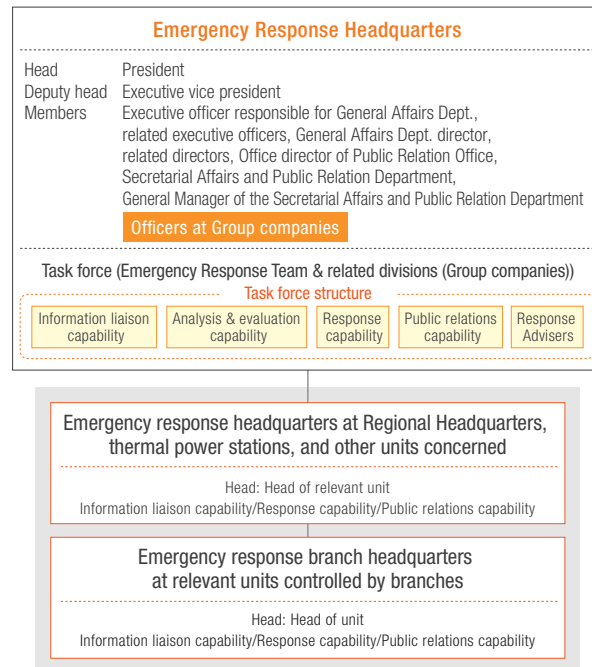
(3) Emergency Response Headquarters and branches

When an emergency is predicted to occur or occurs and the seriousness warrants emergency countermeasures, the Emergency Response Headquarters (and branches) are established.



A group discussion during disaster preparedness training

Emergency Countermeasures (after establishing Emergency Response Headquarters)



Disaster Response and Business Continuity Measures

As an electric power supplier with responsibility for vital lifelines, J-POWER has been designated a designated public institution under the Disaster Countermeasures Basic Act.

To carry this out, we actively implement physical measures in anticipation of a large-scale natural disaster as well as non-physical measures including the formulation of various rules relating to the occurrence of accidents and establishing systematic disaster response systems that cover the entire organization from the head office to local bodies. We are also reinforcing disaster response systems to ensure business continuity even in the event of damage that exceeds expectations.

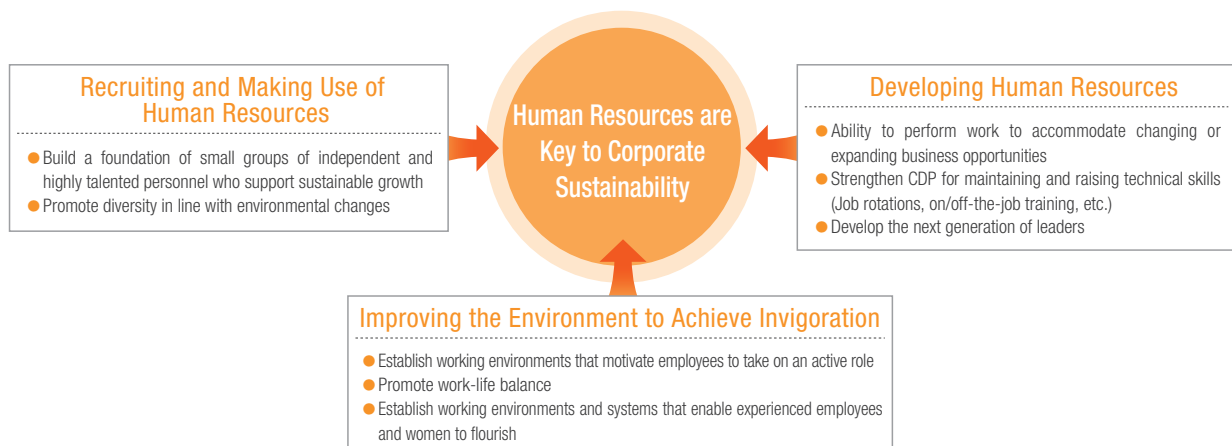
With regard to business continuity, considering the importance of immediately shifting to an emergency structure following the occurrence of an emergency and undertaking recovery operations, we have determined the minimum necessary actions to maintain business during an emergency. We periodically conduct disaster response training and confirm the effectiveness of manuals and the status of emergency stores. In accordance with Tokyo Metropolitan ordinances, the J-POWER Headquarters is preparing for a Tokyo Inland Earthquake by increasing its stores of emergency foodstuffs and taking other measures.

Recruiting and Developing Human Resources and Creating Dynamic Workplaces

The J-POWER Group strives to provide safe, comfortable working environments for every one of our employees. We consider human resources to be valuable assets upholding our fundamental sustainability as a corporation. At the same time, we endeavor to create a corporate culture that respects the character and individuality of our employees and makes them feel it worthwhile to constantly take on new challenges.

The J-POWER Group positions human resource recruitment and development as crucial policy measures for the company's sustainable growth. We are reinforcing the foundation for career development, with a focus on CDP (the Career Development Program), establishing workplace environments and systems that make advantageous use of diversity, and promoting work-life balance in order to improve individual skills and workforce productivity.

Developing Group Human Resources and Creating Dynamic Workplaces



Recruiting and Making Use of Human Resources

The J-POWER Group's Conceptual Approach to Human Resource Recruitment

The J-POWER Group approach is to conduct stable hiring in the interest of sustainable growth, and also to seek human resources from people in a wide range of fields and age groups to whom we provide opportunities to take an active part.

With regard to personnel hiring and utilization, the J-POWER Compliance Code stipulates respect for individuality and human rights and prohibits discrimination. We are also conducting awareness-raising on these matters in human rights training. We are currently creating systems and working environments that enable our diverse personnel to fully demonstrate their capabilities, without regard for gender, age or other such distinctions.

Employment of New Graduates (J-POWER)

	FY 2013	FY 2014	FY 2015
Men	67	59	60
Women	9	5	2
Total	76	64	62

Measures to Promote Diversity

As a measure to further increase the hiring of elderly people, we have reviewed the continuing employment system, which is a system for employment of people who have reached retirement age, to bring it in line with the amendment of the Law for the Stabilization of Employment of the Aged in April 2013. In combination with the personnel registration system, which introduces job opportunities in the Group, we will harness the experience, technology, and motivation to work possessed by older people

in the Group and make use of it for the sustained growth of our business. As of the end of March 2015, 93 employees (J-POWER) had taken advantage of the continuing employment system and related programs.

The employment rate for persons with disabilities was 2.21%, which is higher than the statutory employment rate, as of June 1, 2015. A "consultation desk to provide employment assistance and information on working environments to employees with disabilities" having been established, we will continue to take measures to enhance working environments and promote understanding through such initiatives as making office buildings barrier-free. In the future, we will continue striving to raise the employment ratio.

Voice

Aiming to Build a Workplace Where Diverse Human Resources Can Take Continuously Active Parts

The J-POWER Group operates in a changing business environment, and in order to make maximum use of the human resources in future business operations to create new corporate value and grow, we are striving to create workplaces and an organizational atmosphere where a diverse workforce that includes recently hired employees to veterans with various individual attributes can work with enthusiasm and display their skills as a single team.

To support worksite on-the-job training, which is the key to human resource development, we are working to enhance training for leaders while pursuing effective collaboration between on-the-job and off-the-job training including updating training programs based on changes in the workforce age composition and work styles.



Human Resource Development Office,
Personnel and Employee Relations
Department

Yuichirou Horiike

Human Resources Development

Human Resource Development Programs

Our aim in the J-POWER Group is to develop all our employees into independent, talented, professional human resources who contribute to the organization with a multiplicity of specialized knowledge and a broad perspective. We are adopting the Career Development Program (CDP) as a measure to achieve that aim.

CDP Overview



Evaluation and Assessment System

The J-POWER Group established an evaluation system in 2004 that is based upon a goal management system. Through initiatives aimed at achievement of specific goals, the system encourages every employee to perform work autonomously, heighten his or her achievement motivation, and improve his or her work performance. We also seek to realize our organizational strategies by having employees engage in mutual collaborative action that is based upon organizational goals.

Various Training Programs

The J-POWER Group is conducting various kinds of training as Off-JT, including level-specific training, career training, objective-specific training, and divisional training. These programs are conducted to develop human resources in line with CDP. We have also established training facilities for the technical divisions (civil engineering and architectural engineering divisions; hydroelectric power, transmission and substation, and telecommunications divisions; and thermal power divisions). Systematic development for engineers is conducted at these facilities.

Helping Employees Voluntarily Develop Their Careers and Abilities

J-POWER is introducing a self-assessment system for employees to convey their career planning hopes and intentions to the company once a year and discuss them with their immediate superiors. We are also introducing a voluntary training incentive program and an academic training program to support employees developing their abilities on their own initiative.



A level-specific training session for employees in their fifth year

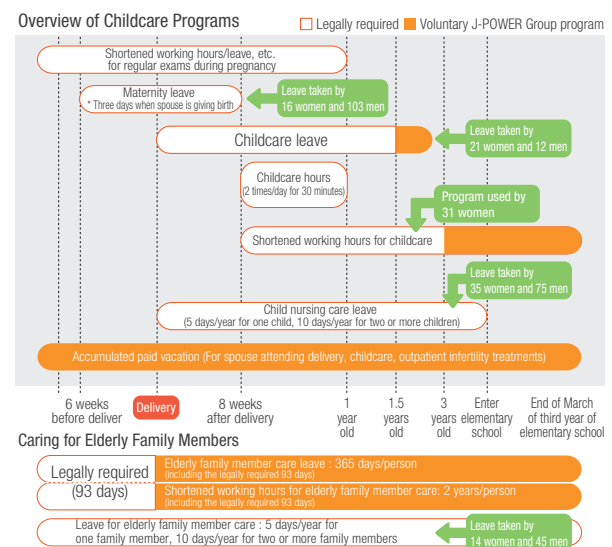
Developing Environments to Create Dynamic Workplaces

Toward Realization of a Work-Life Balance

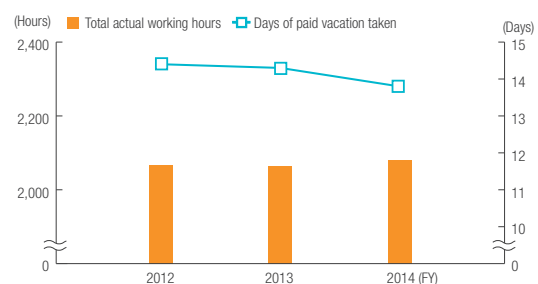
We are actively developing working environments and cultures that enable every employee to autonomously enhance their work and personal life and focus on highly creative work.

We are taking measures to help employees achieve a good work-life balance including enhancement of childcare and nursing care support programs, encouraging their use and normalizing working hours.

Overview of the Childcare and Nursing Care Support Programs and Results in FY 2014 (J-POWER Group)



Change in Total Actual Working Hours and Paid Vacation Taken (J-POWER)



"Kurumin" Mark of Next-Generation Certification

Following certification in 2010 as a corporation that actively supports measures for developing the next generation, J-POWER again received the Kurumin mark of certification in 2013.

We will continue our efforts to establish even better working environments that enable each employee to maintain a balance between their work and private life and to provide meaningful and fulfilling work.



Consultation Desk

We are working to build a work-friendly environment in the workplace by establishing a consultation desk where employees can discuss working hours, the workplace environment, sexual harassment, and power harassment.

We have also developed in-house regulations, manuals, and other such resources related to harassment, and we are implementing education for increased awareness in level-specific training courses, posters, and other such measures to resolve problems as well as to prevent them.

Our goal is a working environment where human rights and individuality are respected and where diverse personnel are completely at ease in going about their work.

Voice

Childcare Support Program Users

We took childcare leave in order to give birth to and take care of our children.

During the leave, we were able to observe our children's growth while maintaining close and frequent contact with them, making the most of every day.

We planned to return to work, so even during the leave, we heard about goings-on at the workplace from colleagues and received advice from workers who had previously taken childcare leave about preparations for placing our children in childcare and maintaining a balance between work, housework, and childcare after returning to work. Thanks to the support, we were able to easily adjust to the workplace after resuming work.

Even now, we make use of the reduced working hours tailored to our individual working styles and are able to maintain a balance between work and life.

JP Business Service Corporation
JP Business Promotion Office

Miyuki Fukunaga (right)
Erika Furushima (left)



Safety and Health Management

J-POWER Group's Health and Safety Measures

The J-POWER Group's health and safety measures are intended to create safe and healthy workplaces that provide meaningful work as the foundation of our business activities. J-POWER and Group companies each have roles and responsibilities and collaborate on implementing health and safety management to prevent workplace accidents and maintain and improve the health of our employees.

Measures Pursuant to the Group Occupational Safety and Health Plan

The J-POWER Group established a Group Occupational Safety and Health Plan that organizes common issues that the Group needs to address and set subsequent priority topics. Based on the plan, individual Group companies formulate their own occupational health and safety plans and take measures in cooperation with the Group.

Safety Priorities

- (1) Promoted Communications through Collaboration among Personnel at Different Worksites and Offices
- (2) Prevention of occupational accidents
- (3) Prevent traffic accidents resulting in injury or death and other commuting-related accidents

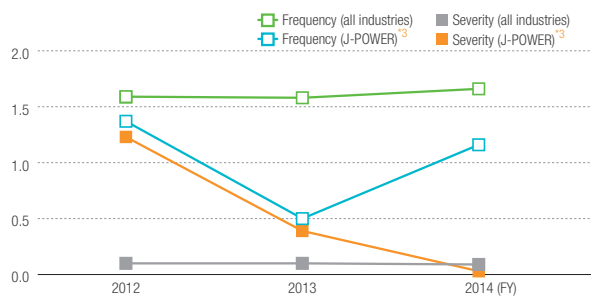
Health Issues

- (1) Promote mental and physical health

Initiatives for the Prevention of Workplace Accidents

In recent years, many occupational accidents have been work accidents relating to construction and other work, and consequently, it is important to conduct unified safety activities that include cooperating companies. As a result, we are taking measures to invigorate communications throughout the workplace and raise safety awareness while taking ongoing measures to prevent the occurrence of all types of occupational accidents and traffic accidents including repetitive-pattern accidents.

Accident Frequency^{*1} and Severity^{*2}



*1 Frequency:

Index of the frequency of accident occurrence. (Number of deaths or injuries caused by occupational accidents per one million working hours. Covers accidents causing loss of one day or more of work. Does not include accidents of employees on temporary transfer.)

*2 Severity:

Index of accident severity. (Number of days of work lost per 1,000 working hours. Does not include accidents of employees on temporary transfer.)

*3 Accidents involving J-POWER employees and accidents involving contractors (principal contractors and subcontractors) doing construction and other work ordered by J-POWER

Incidence of workplace accidents^{*3} ★

	FY2012	FY2013	FY2014
Deaths	3	1	—
Serious Injury	13	2	9
Minor Injury	8	7	12

Maintaining the Health of Employees and Their Families

To maintain and improve the health of employees and their families, we encourage them to receive health checks, health maintenance guidance, and infectious disease prevention measures. In addition, we place priority on the prevention of lifestyle-related disease and mental health disorders and conduct special health checks and designated health guidance as well as THP activities* to support good physical and mental health.

* THP Activities:

Activities aimed at total health, both physical and mental, based on Ministry of Health, Labour and Welfare guidelines on Total Health Promotion Plans.

Coexistence with the Community and Society

The J-POWER Group rolls out business based on harmonious coexistence with local communities and society as an electric power company with power generation and power transmission and substation facilities throughout Japan and overseas. Going forward, we will perform business that centers on “Communication with society” and “Contribution to society” as advocated in the J-POWER Corporate Conduct Rules as a means to drive advancement in local communities and society.

Communication with Society

The J-POWER Group implements fair and transparent public relations (PR) activities and information disclosure in order to secure good lines of communication with many stakeholders in different communities and in society. We are committed to making pinpoint response when it comes to PR in light of the characteristics of the stakeholders and our relationship with them, including local residents, shareholders, investors and society at large. We also promote stakeholder dialog, cognizant of the importance of two-way communication. In terms of information disclosure, we distribute information through our PR activities and respond to inquiries while also disclosing IR information via the Disclosure Committee.

PR and IR Activities

PR Activities

PR activities aim to enhance awareness of J-POWER as widely as possible, beginning with people in local communities. With this in mind, our basic policy is to distribute corporate information accurately and in a timely manner through all of our business activities and respond to inquiries concerning J-POWER sincerely and respectfully.

With regard to reporting, we strive to distribute appropriate information at appropriate timing, including through press releases and notifications. We also utilize TV commercials and magazines for advertising and do our best to gain broad understanding of our business.

J-POWER provides the opportunity for face-to-face contact with stakeholders as well as through events that include tours of power stations by each business unit, so that stakeholders can track our business activities with peace of mind.

IR Activities for Investors and Individual Shareholders

For institutional investors, we hold presentation briefings related to management plans and financial results around twice a year and actively convene meetings in Japan and overseas as the need arises. For individual investors, we hold corporate presentation briefings several times a year and provide opportunities for them to talk directly with J-POWER members, including management.

For individual shareholders, we issue a biannual shareholder newsletter (Kabunushi Tsushin) and actively disclose information on management activities and the overall condition of the company by giving tours of our power stations and other facilities twice a year.

We're working to enhance information disclosures through these

types of communications activities on our website and by publishing annual reports and other documents. We also use communications tools such as Navi-Map and dam cards to conduct public relations in an accessible and user-friendly manner.

Information Disclosure

J-POWER endeavors to disseminate appropriate information on its PR and IR activities in a timely manner to stakeholders through press releases and notifications on its website.

In particular, we comply with all pertinent laws and regulations such as the Financial Instruments and Exchange Act and securities listing regulations for information related to the J-POWER Group business, operations or results that may have a significant impact on the investment decisions of stakeholders. We also formulated internal disclosure regulations for IR information and instituted a basic policy to actively disclose information in a fair and transparent manner based on the intentions of the Corporate Governance Code.

J-POWER established the Disclosure Committee, chaired by the president, to investigate and set up a system for disclosing IR information and also to examine and make judgments on information that ought to be disclosed with the aim of establishing a reputation in the market and gaining the trust of society.

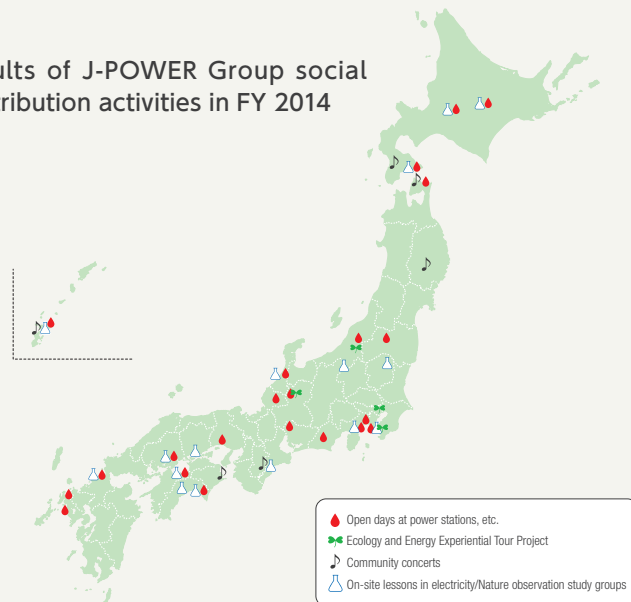
Contribution to the Community and Society

J-POWER Group Approach to Social Contribution Activities

"We pursue harmony with the environment, and thrive in the trust of communities where we live and work. We regard profits as the source of our growth, and share the fruits with the society." Under this corporate philosophy, the J-POWER Group has long engaged in social contribution activities as a member of society to help society develop soundly and sustainably. Our activities largely fall into two categories: community involvement and harmonizing energy supply with the environment.

The J-POWER Group places high value on open communication with local community members and people working to harmonize energy supply with the environment and on sharing knowledge and learning with one another. We will steadily engage in activities on this basis as well as support the volunteer activities of our employees.

Results of J-POWER Group social contribution activities in FY 2014



Okinawa

Power Station Tours

In the J-POWER Group Ishikawa district, power station tours are conducted at the Ishikawa Coal Thermal Power Station and the Okinawa Yanbaru Seawater Pumped Storage Power Station in conjunction with Science and Technology Week. By conducting facility tours at these and other power stations, we are deepening understanding of the J-POWER Group's business and enhancing our social presence as a member of the community through contact between station employees and local residents.



A J-POWER employee explains the roles of the central control room

Aichi

Local Cleanup Program

An ongoing local cleanup program is conducted in the J-POWER Group Kasugai district. J-POWER employees meticulously pick up even small items of rubbish that have been discarded along the roads in the vicinity of the Nagoya Power Administration Office.

Similar cleanup activities are conducted at many other power stations and business sites with a sense of gratitude, maintaining programs that can be conducted as a member of the local community.



Employees carefully sort collected waste while encouraging one another

Nara

Community concerts

We hold concerts, primarily of classical music, performed by professional musicians around Japan, to convey our constant appreciation to everyone who lives in the areas where our power plants are located. More than 100 such concerts have been held since they began in 1992. In recent years, we have been holding many mini-concerts at schools and social welfare institutions.



A community concert performance

Community Involvement

The corporate activities of the J-POWER Group are supported by power station personnel and other members of local communities. Business sites in each region strive to be good corporate citizens and a useful presence in the community and society so that each employee can be a valued resident of their community.

By conducting activities that are trusted and familiar to local residents, the J-POWER Group seeks to live in harmony with communities and grow with society.

Hokkaido

“Water Circulation” Power Station Tours

The Katsurazawa Power Station in Hokkaido conducts “water circulation” power station tours of facilities related to local water sources. The tours are a popular annual event. There are few opportunities for contact with local residents, but these tours are used to maximum effect with the aim of increasing understanding of the J-POWER Group's mission.



A J-POWER employee provides a detailed explanation to tour participants

Kanagawa

Kanagawa Marathon Water Distribution Volunteers

The Kanagawa Marathon consists of a half-marathon and a 10 kilometers race in the Isogo Ward of Yokohama City. Businesses in the ward sponsor the start and finish lines and provide volunteers who distribute water to the runners. The Isogo Thermal Power Station is located on the course of the half-marathon, in which some 7,500 runners competed. The power station cooperated with the race in various ways including having station personnel distribute water to runners and cheer them on, and some employees even competed in the race.



Volunteers loosened the caps on as many of the 1,800 water bottles as possible

Harmonizing Energy Supply with the Environment

In order for people to lead enriching lives, both energy, which supports enriching lives, and a better environment are needed. Leveraging environmental knowledge acquired through our business activities to date, we partner with people seeking to harmonize energy supply with the environment and conduct activities to raise awareness and develop technologies for energy and the environment in an effort to facilitate the sustainable development of Japan and the rest of the world.

Public Relation Department

Ecology and Energy Café

The Ecology and Energy Café provides opportunities to consider how energy and the environment concern oneself in a casual but serious manner based on topics proposed by guests. It provides a forum to learn about ecology and energy related topics and to consider what needs to be done in the future and what individuals can do.



Discussions are conducted based on respect for the opinions of all individuals who participate in the café

For the Benefit of Broader Society

The J-POWER Group undertakes social contribution initiatives not just for the benefit of local communities, but also for the benefit of broader society and each region of the world where it operates.

Described below are some of the measures taken to support the future generations that will create the society of tomorrow. In addition to these programs, we will continue cooperating with volunteer activities targeting disaster areas including areas struck by the Great East Japan Earthquake as well as children suffering from malnutrition in various parts of the world, providing work training at power plants in Asia and support to persons affected by flooding.

Personnel Office

Internships

J-POWER, JPHYTEC Co., Ltd., and Jpec Co., Ltd. offered summer internships to science students in graduate school, university, or technical college. The internships provide experience in certain operations at power stations and other facilities with the aim of helping the interns' studies and support them in making future occupation choices. In FY 2014, 31 interns from various areas of Japan took up the challenge of practical training in the maintenance and operation of electric power facilities.



On the final day, presentations were given at the J-POWER Headquarters regarding the results of training in each region

Public Relation Department

Experimental Learning Project for Ecology and Energy: Review Committee Incentive Prize Won

The Experimental Learning Project for Ecology and Energy won the review committee incentive prize of the 2014 Youth Hands-On Activity Promotion Corporate Awards sponsored by the Ministry of Education, Culture, Sports, Science and Technology. The award was received for a J-POWER Group program that targets elementary, junior high, and high school students from among the Experimental Learning Project for Ecology and Energy that seek to achieve harmony between energy and the environment.

The educational effects of hands-on activities are significant, and they are gathering attention as a means for providing training on ways for society to survive. We hope to continue learning about energy and the environment with the younger generation by making use of corporate assets towards the creation of a sustainable society.



Voice

We Participated in the Experimental Learning Project for Ecology and Energy!

Ruika Suzuki developed a new awareness by participating in the hands-on project: "I participated in the hydropower version, and discovered new things about the connections between energy and the environment by conducting experiments." Tsuyoshi Noguchi said, "I had the opportunity to talk with various participants, J-POWER employees and staff members of cooperating organizations, broadening my perspectives," and also gained new awareness through these interactions. Fumimasa Suetsugu commented, "I gained new motivation learning that even students have high levels of interest in the environment and energy." Kozue Ashida, who is studying the environment education at university, said, "I was inspired by this program, which makes us aware that energy is something that concerns us." Liao Yi-chi said, "Thanks to this workshop, I was able to gather information on J-POWER's social contributions for my master's thesis."

All of the participants made worthwhile observations. The J-POWER Group will continue to conduct these types of programs in the future.



From the left: Kozue Ashida, Azabu University; Tsuyoshi Noguchi, Shibaura Institute of Technology; Ruika Suzuki, Waseda University; Fumimasa Suetsugu, Yokohama National University; Liao Yi-chi, Rikkyo University

* The participants wearing white coats are Public Relation Department staff members

Environmental Management

Based on its corporate principle of achieving harmony between energy and the environment, the J-POWER Group undertakes environmental a sustainable society. To carry this out, we undertake various measures pursuant to the J-POWER Group Environmental Management Vision, a statement management levels while maintaining strict compliance with laws, regulations, and agreements from the perspective of ensuring transparency and trust.

Corporate Target and FY 2014 Results

The Action Programs for the J-POWER Group Environmental Management Vision define Corporate Targets*, which are mid-term targets that the Group

* In addition to Group-wide Corporate Targets, business divisions and affiliates formulate their own targets tailored to their operations.

	Item	Target			
Efforts Relating to Global Environmental Issues	Reducing CO ₂ Emissions from Power Generation and Promoting Technological Development	As an electric utility, in addition to continuing to contribute to the Environmental Action Plan by the Japanese Electric Utility Industry, looking towards 2020 we are working to provide a stable supply of energy and reduce CO ₂ emissions in Japan and overseas by promoting the following measures.			
		● Work to replace aging coal-fired power stations with new facilities with higher efficiency at the world's highest levels.			
		● Promote mixed combustion of biomass fuels in coal-fired power stations (Effective exploitation of untapped resources).			
		● Contribute to the reduction of CO ₂ emissions and technology transfer on a global scale by promoting the overseas expansion of coal-fired power using J-POWER's advanced, high-efficiency power generation technologies, in particular in the Asian region.			
		● Promote the development of higher-efficiency oxygen-blown integrated coal gasification combined-cycle (IGCC) technology through the realization of the Osaki CoolGen Project.			
		● Advance research and development in the area of CO ₂ capture and storage (CCS) technologies through the implementation of the EAGLE Project, the Osaki CoolGen Project, and the Callide Oxyfuel Combustion Project in Australia.			
		● In relation to the Ohma Nuclear Power Plant Plan, do our utmost to ensure the construction of a safe and trusted nuclear facility, always appropriately incorporating the necessary measures for the realization of enhanced safety based on serious consideration of the accident at the Fukushima Daiichi Nuclear Power Station and following government and other guidelines, at the same time maintaining the approval of residents of the region in which the station is located.			
		● Build new hydroelectric power facilities, expand, upgrade and replace existing facilities, and expand the use of hydroelectric power.			
		● Significantly expand domestic wind power facilities and advance research and development towards the realization of ocean-based wind power generation technologies.			
		● Work to develop new geothermal power sites in Japan.			
Efforts Relating to Local Environmental Issues	Item	Target	Target base-year performance, etc.	FY 2013 performance	
	● Maintain/improve thermal efficiency of thermal power stations [HHV (higher heating value)]	Maintain current level [about 40%] (FY 2008 and each FY thereafter)	FY 2008 40.1% (Reference: LHV*=41.1%)	40.3% (Reference: LHV = 41.4%)	
	● Reduce SF ₆ emissions; increase recovery rate during inspection and retirement of equipment	Inspection: at least 97%; Retirement: at least 99% (FY 2008 and each FY thereafter)	FY 2008 Inspection: 99% Retirement: 99%	Inspection: 99% Retirement: 99%	
Ensuring Transparency and Reliability	● Reduce SO _x emissions per unit of electric power generated (point of generation, thermal power stations)	Maintain current level [about 0.2 g/kWh] (FY 2008 and each FY thereafter)	FY 2008 0.20g/kWh	0.18 g/kWh	
	● Reduce NO _x emissions per unit of electric power generated (point of generation, thermal power stations)	Maintain current level [about 0.5 g/kWh] (FY 2008 and each FY thereafter)	FY 2008 0.50g/kWh	0.52 g/kWh	
	● Increase recycling rate for industrial waste	Maintain current level [about 97%] (FY 2011 and each FY thereafter)	—	98%	
	● Protection of the Water Environment	Consider protection of river and ocean environments in business activities (FY 2013 and each FY thereafter)	—	Practices of consideration for protection of river and ocean environments	
	● Protect biological diversity	Consider the protection of biological diversity in relation to business activities (FY 2011 and each FY thereafter)	—	Efforts to Preserve Biodiversity	
Ensuring Transparency and Reliability	● Improvement of Environmental Management Level	Continuous improvement of EMSs (FY 2008 and each FY thereafter)	—	Consistent use of PDCA cycle	



management intended to achieve improvements in both environmental considerations and economic value so that it can contribute to the development of internal and external Group initiatives, and strive to enhance the disclosure of information relating to environmental programs and environmental

as a whole is expected to work towards. As shown below, all of the items included in the Corporate Targets for FY 2014 were achieved.

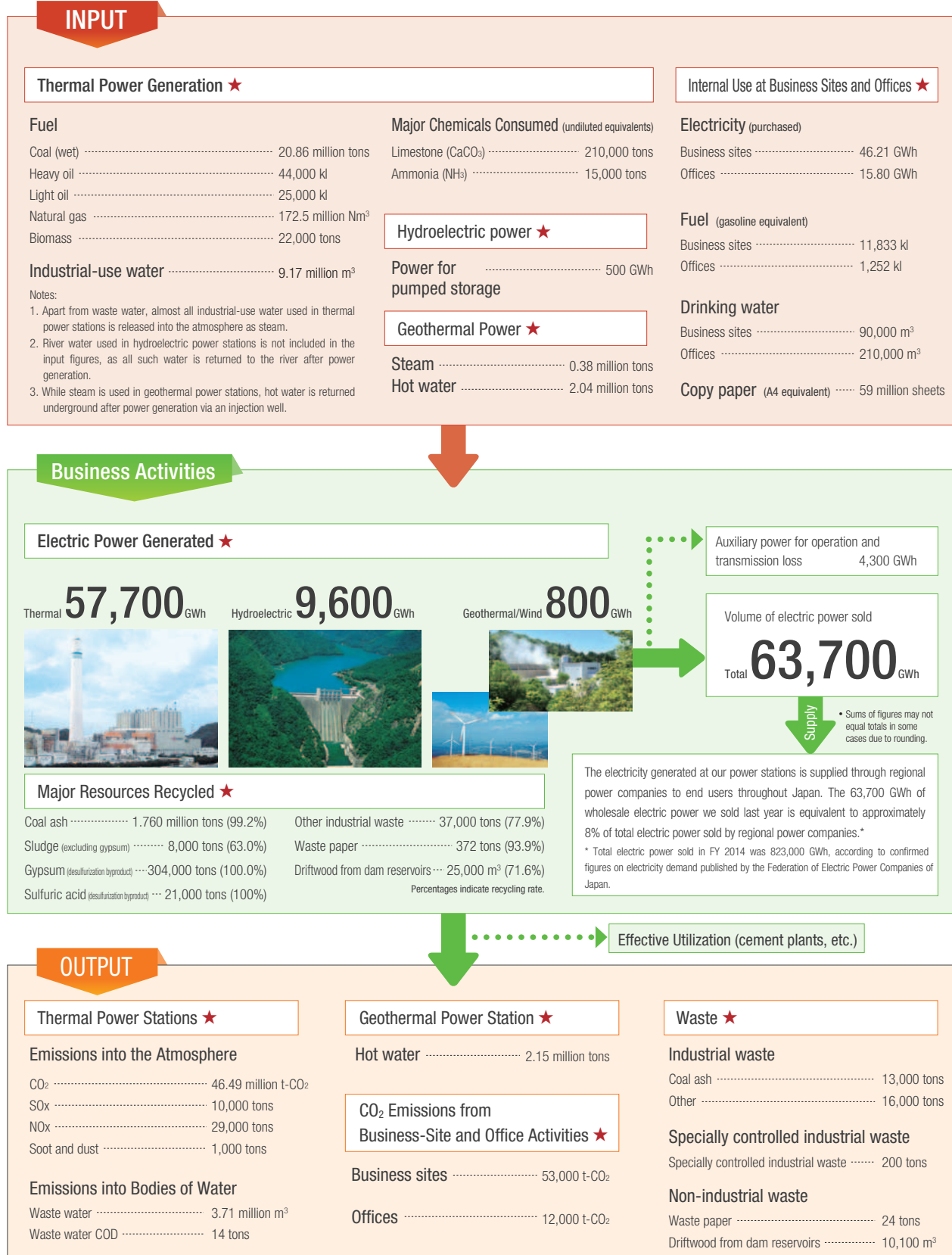
Main results for FY 2014			
	<ul style="list-style-type: none"> Construction work proceeded under the Takehara Thermal Power Station Replacement Project. Environmental impact assessment procedures for the Takasago Thermal Power Station Replacement Project were started. Mixed combustion according to target fuels was conducted at the Matsuura Thermal Power Station, Takehara Thermal Power Station and Takasago Thermal Power Station. 		
	<ul style="list-style-type: none"> Preparatory measures for construction work conducted for the Central Java Project in Indonesia. 		
	<ul style="list-style-type: none"> With regard to IGCC and CCS technology research and development, pre-combustion CO₂ separation and recovery technology trials were conducted under the EAGLE Project and power plant construction was conducted to perform trials of the Osaki CoolGen Project. In addition, oxygen combustion tests and CO₂ storage tests were conducted under the Callide Oxyfuel Combustion Project in Australia. 		
	<ul style="list-style-type: none"> Measures to enhance safety were investigated under the Ohma Nuclear Power Plant Plan, an application for review of compliance with the new regulatory standards was submitted, and efforts were made to obtain the understanding and trust of local residents. 		
	<ul style="list-style-type: none"> To expand the use of hydroelectric power, operation of the Isawa No. 1 Power Station was started. In addition, construction of the Kuttari Power Station continued and construction of the new Konokidani Power Station began. 		
	<ul style="list-style-type: none"> With regard to land-based wind power, construction in the Ohma region was started. Also, trials of offshore wind power were conducted near Kitakyushu (a joint project with NEDO) and other activities were conducted. 		
	<ul style="list-style-type: none"> Environmental impact assessment procedures regarding the Wasabizawa Geothermal Power Station were completed and other measures were taken towards the start of construction for development of a new domestic geothermal power plant site. 		
	FY 2014 performance	Fiscal 2014 Evaluation and Next Steps	Page Reference
	★ 40.2% (Reference: LHV = 41.3%)	<ul style="list-style-type: none"> The J-POWER Group met its target, realizing a total thermal efficiency of 40.2% (HHV) for thermal power generation thanks to efforts to maintain high-efficiency operation in existing thermal power stations and to adopt high-efficiency technologies when upgrading facilities. We will continue working to maintain and improve energy efficiency in our thermal power stations. 	P52
	★ Inspection: 99% Retirement: 99%	<ul style="list-style-type: none"> The FY 2014 target was met, with a recovery rate of 99% during inspections and 99% at retirement, thanks to efforts to curb emissions during equipment inspection through careful and consistent recovery and reuse. We will continue to stress careful and consistent recovery and reuse to curb atmospheric emissions of SF₆ from gas insulation equipment. 	P51
	★ 0.17g/kWh	<ul style="list-style-type: none"> Efforts including the application of fuel control and the appropriate operation of flue gas desulfurization systems saw us curb our SO_x emissions and achieve our target for emissions per unit of power generated. We will continue our efforts to curb emissions through good management practices. 	P30
	★ 0.51g/kWh	<ul style="list-style-type: none"> Efforts including the application of fuel control and the appropriate operation of flue gas denitrification systems saw us curb our NO_x emissions and realize our emissions target per unit of power generated. We will continue our efforts to curb emissions through good management practices. 	P30
	★ 99%	<ul style="list-style-type: none"> We achieved our targets for the fiscal year through efforts to promote the recycling of coal ash and to reduce industrial waste generated by the maintenance and operation of power stations. We will go on working to maintain this level. 	P52
	Practices of consideration for protection of river and ocean environments	<ul style="list-style-type: none"> When operating power generation facilities that involve rivers, we implemented measures for protection of the river environment according to the conditions at each location, sedimentation control measures and measures to mitigate the long-term persistence of turbidity. When operating power generation facilities adjacent to the ocean, we exercised precise control over the discharge of wastewater in compliance with environmental protection agreements and other such arrangements. 	P32
	Efforts to Preserve Biodiversity	<ul style="list-style-type: none"> We showed consideration for the protection of ecosystems and the diversity of species in conducting our business activities and worked to protect rare animal and plant species and their habitats. 	P32
	Consistent use of PDCA cycle	<ul style="list-style-type: none"> Efforts were made to raise the level of environmental management through consistent implementation of the PDCA cycle. We will remain diligent in striving for continual improvement. 	P47

*: 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 (FY 2004 edition).

Business Activities and the Environment

The charts below detail the resource consumption and environmental load of the FY 2014 J-POWER Group operations within Japan.

Note: The scope of applicability will include J-POWER and its 25 consolidated domestic subsidiaries, such as electric power businesses and ancillary businesses related to electric power. The amounts attributed to consolidated subsidiaries are based on percentages corresponding to J-POWER's equity share.



Environmental Accounting/Eco-Efficiency

Environmental Accounting

To calculate the costs and benefits of the J-POWER Group's environmental conservation activities in FY 2014 in keeping with the nature of our business, we referred to the Environmental Accounting Guidelines 2005 issued by the Ministry of the Environment.

Environmental Conservation Cost and Benefit

Total costs for FY 2014 were approximately 40.9 billion yen, with pollution control costs for preventing contamination of the air, water, etc., accounting for about 37% of the total.

Category	Main measures and efforts	Cost
Pollution control	Air pollution control (desulfurization/denitrification, soot and dust treatment), water pollution control (wastewater treatment), etc.	15.3
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)	2.0
Resource recycling	Waste reduction through reuse and recycling; treatment and disposal of waste	17.2
Management activities	Monitoring and measurement of environmental load, labor costs for environmental conservation organizations, costs for environmental education, etc.	1.6
Research and development	High-efficiency power generation, use of fuel cells, CO ₂ capture and fixation, recycling of coal ash and gypsum, etc.	0.9
Social activities	Tree-planting, environmental advertising, environmental beautification, membership in environmental groups, preparation of sustainability report, etc.	1.5
International projects	Overseas cooperation projects for environmental conservation technologies	1.0
Other	Pollution load levy	1.4
Total		40.9

Note: Sums of figures may not equal totals in some cases due to rounding.

Environmental conservation benefit

Environmental conservation benefit	FY 2014
SOx emissions intensity (g/kWh)	0.17
NOx emissions intensity (g/kWh)	0.51
Soot and dust emissions intensity (g/kWh)	0.01
CO ₂ emissions intensity (kg-CO ₂ /kWh)	0.73
Average coal-fired power efficiency (%)	40.2
Coal ash recycling rate (%)	99.2
Industrial waste recycling rate (%)	99
Gypsum recycling rate (%)	100
Volume of driftwood recycled (1,000 m ³)	25
Employees completing internal environmental auditor training	109
Sustainability report (copies published)	12,300
Overseas consulting projects (cumulative total)	349

Note: For detailed data, see pp. 51-52, Environment-Related Data.

When considering 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 rate.

Economic Benefit

Efforts contributing to earnings and cost reductions were calculated to have had an economic benefit of approximately 11.7 billion yen.

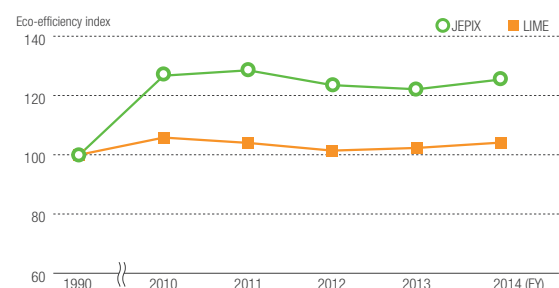
Economic Benefits

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 power efficiency (introduction of USC)	3.6
	Reduction in disposal costs due to coal ash, gypsum, and sulfuric acid recycling	7.6
Total		11.7

Eco-Efficiency

J-POWER initiatives to date have been evaluated by the JEPIX^{*1} and LIME^{*2} methods. These two approaches assign different coefficients to environmental loads (coal, CO₂, SOx, NOx, coal ash), and the resulting recent trends in eco-efficiency are as shown in the graph below.

Integrated Index of Eco-Efficiency (electric power sold per environmental load)



• Note: Eco-efficiency: 100 = FY 1990 integrated index (electric power sold per environmental load).

*1 JEPIX (Japan Environmental Policy Index)

An index that calculates a single score for overall environmental impact using the Ecopoints system, which assigns weights to more than 300 environmental pollutants according to their impact on water and air quality.

*2 LIME (Life-cycle Impact assessment Method based on Endpoint modeling)

An integrated environmental impact assessment method that assigns weights to potentially harmful substances by scientifically analyzing their contribution to such environmental problems as global warming and destruction of the ozone layer and calculating their damage to human health, ecosystems, etc.

Ensuring Transparency and Reliability

Continual Improvement in Environmental Management

The J-POWER Group conducts environmental preservation activities in accordance with corporate principles, and the introduction of environmental management systems (EMS) at all J-POWER business sites was completed in 2002. The introduction of EMS at J-POWER subsidiaries and affiliates and at subsequently established business sites is also proceeding, and we are continuing our efforts to enhance environmental preservation measures.

Improvement of Environmental Management Level

On the basis of the J-POWER Group Environmental Action Guidelines, reviewed annually by management, each J-POWER Group draws up its own Environmental Action Plan. They periodically review and evaluate their initiatives and revise the measures to be taken, following the PDCA cycle.

Raising Employee Awareness of Environmental Problems

The J-POWER Group puts efforts into environmental training for employees to deepen their awareness of environmental issues and instill a sense of personal responsibility.

In-House Environmental Training, FY 2014

Media	Type	Training category	Results	Main content for ensuring strict compliance with environmental laws and regulations
General	Environmental management in general	Environmental management briefing	Approximately 650 persons	Information regarding group environmental management initiatives and amendment of environmental laws and regulations
		Lecture presentations on the environment	Approximately 100 persons	An outside lecturer was invited to talk on the topic of "oceans"
	E-learning	E-learning on environmental laws and regulations	88.6%	Explanation of environmental laws and regulations that affect business
Advanced and specialized training	EMS implementation	Internal environmental auditor training	64 persons	Intended to foster auditors with the knowledge necessary to conduct internal audits under the EMS
		Follow-up training for internal environmental auditors	45 persons	Intended to foster human resources who can oversee audit teams conducting internal audits under the EMS
	Environmental laws and regulations	Skill enhancement training for waste-processing operations	65 persons	Explanation of the key points of the Waste Disposal Law
		Waste-processing risk assessment	Five locations	Checking provisions of agreements and manifests specified by law
		Training on environmental laws and regulations	171 persons	Explanation of environmental laws and regulations
	E-learning	EMS course	Continuously conducted	Basic knowledge on the EMS

Full Compliance with Laws, Regulations, Agreements, and other Rules

In order to reduce the impact on the surrounding environment due to business activities, we take appropriate steps to implement the laws, regulations, agreements, and other such rules applicable to our business activities and make them widely known. We are also engaged in ongoing efforts to improve our facilities and operations.

In order to dispose of waste properly, we take measures to maintain and improve the disposal capabilities of waste disposal operators and other personnel involved, and we employ waste disposal consulting firms to directly confirm the status of waste disposal by local organizations.

Responding to Environmental Problems

We make every effort to prevent environmental problems before they occur. When problems arise that require emergency handling, however, we promptly take whatever measures are required to contain the damage and we notify the local agencies concerned as well as the J-POWER Headquarters Emergency Response Team and departments.

The J-POWER Headquarters Emergency Response Team promptly notifies top management and, in the interest of information disclosure, provides information on the emergency to the media and other interested parties for publication. We also devise measures to prevent recurrence of the problem.

Of the incidents impacting the environment that occurred within the J-POWER Group in FY 2014, one incident was reported by the mass media.

Status of Environmental Incidents

Location	Situation and Countermeasures
Konokidani River (a river that flows into the Kuzuryu Dam reservoir) Right Bank Woodland Path (Fukui Prefecture)	<p>Hydraulic oil leaked from heavy equipment during snow removal operations on the right bank woodland path of the Konokidani River, which flows into the Kuzuryu Dam reservoir, and an oil film was observed on the river.</p> <p>An oil fence was deployed on the river to prevent spread of the oil, snow contaminated with oil was collected, and absorbent mats were used to recover the oil.</p> <p>The leak occurred as a result of the breakage of a bolt that holds a hydraulic component on the heavy machinery. The breakage was not noticed and snow was removed into the river.</p> <p>To prevent recurrence of similar incidents, hydraulic mechanisms of heavy machinery are inspected before the start of work and heavy machinery guides carefully monitor the equipment.</p>

Corporate Targets for FY 2015

Efforts Relating to Global Environmental Issues

Item	Target
<ul style="list-style-type: none"> Reducing CO₂ Emissions from Power Generation and Promoting Technological Development 	<p>As an electric utility, in addition to continuing to contribute to the Environmental Action Plan by the Japanese Electric Utility Industry, looking towards 2020 we are working to provide a stable supply of energy and reduce CO₂ emissions in Japan and overseas by promoting the following measures.</p> <ul style="list-style-type: none"> We will replace aging coal-fired power stations with new facilities with higher efficiency at the world's highest levels. Promote mixed combustion of biomass fuels in coal-fired power stations (Effective exploitation of untapped resources). Contribute to the reduction of CO₂ emissions and technology transfer on a global scale by promoting the overseas expansion of coal-fired power using J-POWER's advanced, high-efficiency power generation technologies, in particular in the Asian region. Promote the development of higher-efficiency oxygen-blown integrated coal gasification combined-cycle (IGCC) technology through the implementation of the Osaki CoolGen Project. In addition, advance research and development regarding CO₂ capture and storage (CCS) technologies based on the result of the trial of the EAGLE Project and the Callide Oxyfuel Combustion Project in Australia. In relation to the Ohma Nuclear Power Plant Plan, respond appropriately to the review of compliance with the new regulatory standards, an application for which was submitted in December 2014. Do our utmost to ensure the construction of a safe and trusted nuclear facility, taking voluntary safety measures based on serious consideration of the accident at the Fukushima Daiichi Nuclear Power Station and obtaining the understanding of residents near the plant site. Build new hydroelectric power facilities, expand, upgrade and replace existing facilities, and expand the use of hydroelectric power. Significantly expand domestic wind power facilities and advance research and development towards the realization of ocean-based wind power generation technologies. Work to develop new geothermal power sites in Japan.
<ul style="list-style-type: none"> Maintain/improve thermal efficiency of thermal power stations [HHV (higher heating value)] 	Maintain current level [about 40%] (FY 2008 and each FY thereafter)
<ul style="list-style-type: none"> Reduce SF₆ emissions; increase recovery rate during inspection and retirement of equipment 	Inspection: at least 97%; Retirement: at least 99% (FY 2008 and each FY thereafter)

Efforts Relating to Local Environmental Issues

Item	Target
<ul style="list-style-type: none"> Reduce SO_x emissions per unit of electric power generated (point of generation, thermal power stations) 	Maintain current level [about 0.2 g/kWh] (FY 2008 and each FY thereafter)
<ul style="list-style-type: none"> Reduce NO_x emissions per unit of electric power generated (point of generation, thermal power stations) 	Maintain current level [about 0.5 g/kWh] (FY 2008 and each FY thereafter)
<ul style="list-style-type: none"> Increase recycling rate for industrial waste 	Maintain current level [about 97%] (FY 2011 and each FY thereafter)
<ul style="list-style-type: none"> Protect the water environment 	Consider the protection of the river and ocean environment in business activities (FY 2013 and each FY thereafter)
<ul style="list-style-type: none"> Protect biological diversity 	Consider the protection of biological diversity in relation to business activities (FY 2011 and each FY thereafter)

Ensuring Transparency and Reliability

Item	Target
<ul style="list-style-type: none"> Improvement of Environmental Management Level 	Continuous improvement of EMSs (FY 2008 and each FY thereafter)

FY 2015 J-POWER Group Environmental Action Guidelines

1 Efforts Relating to Global Environmental Issues

Reducing CO₂ Emissions from Coal-fired Power

- Maintain high-efficiency operation at existing thermal power stations
- Promote biomass mixed combustion in existing thermal power stations
- Implementation of replacement plans for existing thermal power stations
 - The Takehara Thermal Power Station Units No. 1 and 2 and the Takasago Thermal Power Station Units No. 1 and 2 will be replaced with the newest USC plants, greatly increasing efficiency.
- Transfer high-efficiency coal-fired power generation technologies overseas and promote their diffusion
 - Contribute to the reduction of CO₂ emissions and technology transfer on a global scale by promoting the overseas expansion of coal-fired power using J-POWER's advanced, high-efficiency power generation technologies, in particular in the Asian region

Conducting Research and Development of Next-generation Low-carbon Technologies

- Proceed with large-scale proving trials of oxygen-blown integrated coal gasification combined-cycle (IGCC)
 - Proceed with the Osaki CoolGen Project to develop high-efficiency IGCC generation technologies.
- Proceed with development of CO₂ capture and storage (CCS) technologies
 - Proceed with preparations for the second phase of the Osaki CoolGen Project in order to reflect the results of pre-combustion CO₂ capture technology from the Eagle Project.
 - Accumulate further technology and knowledge based on the oxygen combustion tests and CO₂ storage tests conducted under the Callide Oxyfuel Combustion Project in Australia.
- Proceed with research and development of ocean-based wind power generation technologies
 - We will promote proving trials of maritime wind power generation systems (in joint research with NEDO) in waters off Kitakyushu City.

Expanding CO₂-free Power Generation Facilities

- Work to realize the Ohma Nuclear Power Plant Plan, with safety as the top priority
 - In relation to the Ohma Nuclear Power Plant Plan, respond appropriately to the review of compliance with the new regulatory standards, an application for which was submitted in December 2014. Do our utmost to ensure the construction of a safe and trusted nuclear facility, taking voluntary safety measures based on serious consideration of the accident at the Fukushima Daiichi Nuclear Power Station and obtaining the understanding of residents near the plant site.
- Expand use of renewable energies
 - Maintain stable operation of existing hydroelectric, geothermal, wind power and recycle power stations.
 - Increase efficiency through upgrades of existing hydroelectric power facilities.
 - Proceed with new hydroelectric, geothermal and wind power developments. Proceed with development towards the significant expansion of power stations, particularly in the case of wind power.
 - Conduct development and support of renewable energy in emerging-market countries.

Other

- Promote energy saving
 - Promote reduction of internal consumption rate at power stations.
 - Take the initiative in energy conservation in the offices throughout the Group in view of the current state of the power supply and demand situation.
 - Promote energy conservation measures in offices with consideration of criteria for judgment stipulated for businesses by the Energy Use Law.
 - Work to conserve energy at our Headquarters towards compliance with the Tokyo Metropolitan Ordinance on Environmental Protection.
 - Reduce environmental load by promoting increased efficiency when transporting raw materials, etc.
 - Reduce environmental load through measures including use of public transportation, increased operation efficiency of company vehicles, and promotion of eco driving.
 - Promote energy and resource-conserving measures in employees' households, such as use of the Household Eco-Account Book.
 - Support measures to promote the spread of energy conservation.
- Utilization and promotion of the offset credit mechanism
- Control release of GHGs other than CO₂
 - Curtail emissions of greenhouse gases other than CO₂ such of SF₆ (sulfur hexafluoride), CFCs (chlorofluorocarbons), HCFCs (hydrochlorofluorocarbons), HFCs (hydrofluorocarbons) and N₂O (nitrous oxide).

2 Efforts Relating to Local Environmental Issues

Reduction of Environmental Load

- Continue to reduce emissions
 - Properly manage waste incineration and environmental equipment in order to control emissions of SO_x, NO_x, and soot.
 - Properly manage wastewater treatment facilities to control discharges of substances causing water pollution.
 - Properly manage facilities to prevent noise, vibration and odors.
 - Properly manage facilities to prevent pollution of soil and groundwater.
- Strengthen measures to prevent oil spills from equipment, etc. and be prepared so that emergencies can be dealt with in an appropriate and timely manner
- Design and introduce efficient and environmentally friendly station and equipment when constructing or renovating facilities

Promotion of the 3Rs (Reduce, Reuse, and Recycle waste) and Proper Disposal of Waste

- Recycle and reuse recyclable resources and make efforts toward zero emission production
 - Promote reduction of waste from construction, upgrading and demolition work, and reuse and recycling of materials and equipment.
 - Work to reduce quantities used of water, chemicals, lubricating oil, etc.
 - Work to curb volume of office waste (copy paper, etc.) and promote reuse.
 - Rigorously collect and separate paper, bottles, cans, plastic and other waste, and promote reuse and recycling.
- Maintain and continue green purchasing efforts in line with the J-POWER Group Green Purchasing Guidelines
 - Maintain and continue green purchasing of office goods.
 - Maintain and continue the use low-pollution vehicles, etc.
- Properly maintain and manage landfill sites and implement closing procedures

Management of Chemicals

- Fully comply with the Act on Confirmation, etc. of Release Amounts of Specific Chemical Substances in the Environment and Promotion of Improvements to the Management Thereof (PRTR Law)
 - Survey and manage the amounts of chemical substances subject to the PRTR Law that are emitted and transported, notify the appropriate authorities and publish this information.
- Take appropriate measures to deal with dioxins
 - Appropriately manage waste incinerators, and survey and report on exhaust gases and ash in accord with the Act on Special Measures concerning Countermeasures against Dioxin.
 - Observe the stipulations of the Waste Disposal and Public Cleansing Act and the Act on Special Measures concerning Countermeasures against Dioxin when waste incinerators are scrapped.
- Properly manage and dispose PCBs
 - Appropriately store and manage substances based on the stipulations of the Waste Disposal and Public Cleansing Act, the Law concerning Special Measures for Promotion of Proper Treatment of PCB Wastes, the Electricity Business Act, and the Fire Service Act.
 - Progressively treat waste products containing high concentrations of PCBs in accord with the J-POWER Group's Basic Policy for the Treatment of PCBs (based on the government's PCB Wide Area Treatment Plan).
 - Appropriately manage and store waste products containing trace amounts of PCBs, including wiping cloths, tools, etc. with PCBs adhering, until a scheme for the effective and rational treatment of such waste products comes into effect. (Appropriately manage and reduce the risk of PCB leakage in the case of devices still in use containing trace amounts of PCBs.)

- Strive to reduce volumes of hazardous chemicals handled
- Respond appropriately to asbestos-related issues
 - Adopt appropriate measures to prevent the dispersal of asbestos based on the J-POWER Group's Basic Policy concerning Asbestos, while systematically removing asbestos and replacing it with alternative substances.

Measures to Protect the Natural Environment

- Take the natural environment and biodiversity into account in the various stages of business
 - Recognizing that the blessings of the natural environment support a rich and secure lifestyle, conduct surveys, measurements and assessments as necessary of the effect of business activities on the natural environment, and work to protect the natural environment and biological diversity at each stage of the business process, including the planning, design, construction and operation of power stations.
- Consideration for Aquatic Environments
 - In operating power generation facilities that are involved with rivers, we will steadily promote measures for protection of the river environment. These include the implementation of sedimentation control measures according to the conditions at each location and measures to mitigate long-term persistence of turbidity.
 - In operating power generation facilities that adjoin the ocean, we will implement precise control over the discharge of wastewater in compliance with environmental protection agreements and other such arrangements.
- Showing Consideration for Biodiversity
 - We will show consideration for the protection of ecosystems and the diversity of species in conducting our business activities, and we will strive to protect rare animal and plant species and their habitats.
- Implement forest conservation initiatives
 - Institute appropriate protections for company-owned forests based on the J-POWER Group Forest Protection Guidelines.
 - Promote the use of unexploited offcuts in forests.

Environmental Conservation Initiatives in Overseas Projects

- Promote overseas transfer of environmental protection technologies
 - Promote transfer of environmental technologies for thermal and hydroelectric power stations.
- Incorporate environmentally friendly initiatives when formulating development plans and considering investment in projects, and ensure that those initiatives are carried out

Implementation of Accurate Environmental Impact Assessments

- Conduct surveys, measurements and assessments of environmental impact of business activities on the basis of the applicable laws and regulations, reflect the results in the details of business activities, and consider environmental protection.

3 Ensuring Transparency and Reliability

1.Continual Improvement of Environmental Management (Greater Reliability)

Improvement of Environmental Management Level

- Continue to enhance operation of the environmental management system (EMS) at all J-POWER Group companies
 - Assess the actual status of environmental burden and set targets and formulate plans for the protection of the environment.
 - Systematically conduct internal environmental audits and periodically evaluate and improve details of environmental activities in order to meet targets.
 - Take measures to enhance check functions with the aim of maintaining and improving internal environmental audits.
 - Make improvements at business sites that have acquired ISO 14001 certification through their activities.
- Raise employee awareness of environmental issues
 - Systematically conduct education and training programs regarding environmental laws and regulations applicable to business activities.
 - Promote environmental education using e-learning, etc.
- Utilize environmental accounting and eco-efficiency indicators
- Request cooperation of business partners in environmental activities
- Strengthen risk management
 - Work to implement measures to prevent environmentally harmful incidents and ensure essential communication and appropriate responses in an emergency.

Full Compliance with Laws, Regulations, Agreements, and other Rules

- Identify applicable laws, regulations, agreements, and other rules, and work to raise awareness and ensure compliance
 - Accurately identify laws and regulations, agreements, etc. applicable to business activities, and work to respond effectively, educate employees, and ensure appropriate operation and verification.
- Fully comply with environment-related laws, regulations, agreements, and other rules
 - Make precise improvements to equipment and operations in order to prevent pollution of the surrounding environment.
 - Conduct risk diagnoses in relation to waste products and education programs for employees responsible for waste disposal in order to ensure appropriate disposal of waste. In addition, apply the J-POWER Group Guidelines for the Selection of Industrial Waste Disposal Contractors and expand use of electronic manifests.

2.Communication with Society (Greater Transparency)

Publication of Environmental Information

- Formulate environmental reports
 - Report on environmental measures taking into consideration such social requirements as environmental reporting guidelines for Sustainability Reports.
 - Work to increase reliability and transparency by having environmental data published in Sustainability Reports checked by third parties.

Increased Engagement in Environmental Communication

- Carry out environmental communication
 - Conduct publicity programs via website, internal Group publications, etc.
 - Conduct publicity programs targeting visitors to offices, PR centers, etc.
 - Communicate with experts and other third parties.
 - Receive external assessments such as environmental ratings.
 - Conduct environment-related social contribution activities such as providing support for environmental education.
- Carry out regional environmental conservation activities
 - Independently implement regional environmental protection activities.
 - Participate in clean-up events, beautification activities, tree planting events and similar activities organized by small cities, towns and villages, neighborhoods, etc.

Environment-Related Data

The following data represent annual values or year-end values in each fiscal year. Unless specifically noted, includes data for Group companies^{*1}.

^{*1} J-POWER and its 25 consolidated domestic subsidiaries, such as electric power businesses and ancillary businesses related to electric power. The amounts attributed to consolidated subsidiaries are based on percentages corresponding to J-POWER's equity share. For information on companies included in the statistics, see the list of main Group companies on page 1. Figures may not add up to totals because of rounding.

Power Facilities (maximum output)

	Unit	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014
Hydroelectric	GW	8.56	8.56	8.56	8.56	8.56	8.57
Thermal	GW	8.79	8.79	8.79	8.79	8.85	8.27
Coal-fired	GW	8.55	8.55	8.55	8.55	8.51	7.93
Natural gas	GW	0.22	0.22	0.22	0.22	0.32	0.32
Geothermal	GW	0.02	0.02	0.02	0.02	0.02	0.02
Wind power	GW	0.27	0.35	0.35	0.35	0.38	0.40
Total	GW	17.61	17.69	17.69	17.69	17.78	17.24

Electricity Output

	Unit	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014 ★
Hydroelectric	GWh	10,004	11,301	11,557	10,330	9,708	9,628
Thermal	GWh	50,742	58,511	58,522	59,303	59,456	57,706
Coal-fired	GWh	50,224	58,084	57,624	58,377	58,423	56,701
Natural gas	GWh	415	355	862	898	1,007	977
Geothermal	GWh	103	72	36	29	25	28
Wind power	GWh	393	458	590	620	638	733
Total	GWh	61,140	70,271	70,669	70,253	69,801	68,067

Electric Power Sold

	Unit	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014 ★
Hydroelectric (excluding pumped storage)	GWh	9,214	10,267	10,318	9,033	8,760	9,029
Thermal	GWh	47,364	54,786	54,777	55,577	55,697	53,992
Coal-fired	GWh	46,887	54,388	53,946	54,722	54,730	53,058
Natural gas	GWh	383	327	803	836	952	916
Geothermal	GWh	94	71	28	19	15	18
Wind power	GWh	379	442	562	596	614	706
Total	GWh	56,957	65,495	65,657	65,206	65,071	63,726

Fuel Consumption

	Unit	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014 ★
Coal (dry coal 28 MJ/kg equivalent)	million t	16.09	18.51	18.04	18.49	18.61	18.10
Use intensity (coal-fired)	t/GWh	343	340	338	338	340	341
Natural gas	million m ³ N	71	60	142	148	172	173
Heavy oil	million kl	0.04	0.04	0.04	0.05	0.06	0.04
Diesel	million kl	0.05	0.03	0.03	0.02	0.02	0.02

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

Greenhouse Gas Emissions^{*2}

	Unit	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014 ★
CO ₂ emissions (domestic and overseas power generation) ^{*3}	million t-CO ₂	46.52	52.54	52.24	54.09	56.33	55.77
CO ₂ emission intensity	kg-CO ₂ /kWh	0.66	0.67	0.67	0.67	0.68	0.67
CO ₂ emissions (domestic power generation)	million t-CO ₂	40.88	47.01	46.77	47.56	47.84	46.49
CO ₂ emission intensity	kg-CO ₂ /kWh	0.72	0.72	0.71	0.73	0.74	0.73
SF ₆ emissions	t	0.0	0.1	0.1	0.1	0.0	0.0
Handled	t	5.9	12.0	11.1	6.5	7.7	7.5
Recovery rate	%	99	99	99	99	99	99
HFC emissions ^{*4}	t	0.2	0.1	0.1	0.2	0.2	0.1
N ₂ O emissions	t	1,610	1,650	1,660	1,362	1,553	1,576

^{*2}: CO₂ is calculated based on fuel combusted in conjunction with electric power generation.

Other greenhouse gases (PFC, CH₄, and NF₃) are effectively not emitted. Calculation of CO₂ emissions is performed in accordance with the Act on Promotion of Global Warming Countermeasures for both Japan and overseas.

^{*3}: This covers J-POWER and consolidated subsidiaries, such as electric power businesses and overseas businesses, as well as equity method affiliates (11 domestic and 31 overseas companies).

The portions attributed to consolidated subsidiaries and equity method affiliates are based on the percentage of J-POWER's equity share. For information on companies included in the statistics, see the list of main Group companies on page 1.

^{*4}: The same tabulation as for Usage of Specific CFCs was used.

Note: Denominators for emission intensity represent electric power sold.

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

	Unit	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014 ★
Average thermal efficiency (at generation point) based on HHV	%	40.3	40.5	40.6	40.5	40.3	40.2

Usage of Specified CFCs

		Unit	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014 ★
Specified CFCs	Stocked	t	1.0	1.0	1.0	1.0	1.0	1.0
	Consumed	t	0.0	0.0	0.0	0.0	0.0	0.0
Halons	Stocked	t	4.6	4.6	4.6	4.6	4.6	4.6
	Consumed	t	0.0	0.0	0.0	0.0	0.0	0.0
Other CFCs	Stocked	t	12.6	11.9	11.4	10.8	10.8	10.4
	Consumed	t	0.1	0.2	0.2	0.1	0.1	0.1
HFCs (CFC alternatives)	Stocked	t	11.3	12.0	12.0	12.9	13.3	14.4
	Consumed	t	0.2	0.1	0.1	0.2	0.2	0.1

SOx, NOx, and Soot and Dust Emissions

	Unit	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014 ★
SOx emissions	1,000 t	8.1	10.1	12.1	12.3	10.7	9.8
Intensity (thermal)	g/kWh	0.16	0.17	0.21	0.21	0.18	0.17
NOx emissions	1,000 t	22.3	28.0	28.5	30.3	31.1	29.1
Intensity (thermal)	g/kWh	0.44	0.48	0.48	0.51	0.52	0.51
Soot and dust emissions	1,000 t	0.6	0.8	0.7	0.8	0.8	0.8
Intensity (thermal)	g/kWh	0.01	0.01	0.01	0.01	0.01	0.01

• Soot and dust emissions are calculated from monthly measurements.

• Denominators for emissions represent the electricity output of thermal power stations (excluding geothermal stations).

Industrial Waste Recycling

	Unit	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014 ★
Volume generated	million t	2.00	2.34	2.38	2.30	2.32	2.14
Volume recycled	million t	1.96	2.26	2.33	2.26	2.27	2.11
Recycle rate	%	98	97	98	98	98	99

Coal-Ash and Gypsum Recycling

	Unit	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014 ★
Coal-ash created	1,000 t	1,669	1,936	1,957	1,900	1,928	1,773
Volume recycled	1,000 t	1,660	1,900	1,939	1,882	1,906	1,760
Recycle rate	%	99.4	98.1	99.0	99.0	98.9	99.2
Gypsum created	1,000 t	263	320	362	352	322	304
Recycle rate	%	100	100	99.8	99.9	100	100

Office Power Consumption

	Unit	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014 ★
Power consumed by offices (company total)	GWh	21.06	21.39	19.40	19.48	19.04	19.51
Head office ^{*5} power consumption	GWh	8.53	8.22	7.31	6.99	6.94	6.39
Lighting/power sockets	GWh	1.71	1.65	1.25	1.33	1.29	1.26

*5: J-POWER head office building

• Figures have been adjusted in accordance with the expansion/contraction of the range of data available for compilation.

Fuel Consumption in Offices (Gasoline Equivalent)

	Unit	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014 ★
Consumption	kl	1,345	1,289	1,299	1,290	1,293	1,252

• Corrected for expansion, contraction, etc. of the range of data available for compilation.

Rate of Procurement of Recycled Copy Paper

	Unit	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014 ★
Copy paper ^{*6} purchased	million sheets	57.17	56.77	58.77	61.50	61.79	58.53
Recycled copy paper ^{*6} purchased	million sheets	56.79	56.38	58.14	61.25	61.45	57.85
Recycled copy paper ^{*6} purchase rate	%	99	99	99	99	99	99

*6: A4 paper-size equivalent

Reference: Measures Addressing Global Climate Issues in the Electric Power Business

(Excerpted from a July 17, 2015 Federation of Electric Power Companies of Japan press release.)

Establishment of an Action Plan for the Electricity Business for Achieving a Low-Carbon Society

The ten member companies of FEPC, together with J-Power, JAPC and 23 power producers and suppliers (PPSs) (hereinafter referred to as "the participating companies" have established a new voluntary framework for achieving a low-carbon society, and formulated the Action Plan for the Electricity Business for Achieving a Low-Carbon Society.

The participating companies have all positioned global warming as an important business challenge, and have been working on both the supply and demand sides of electricity, based on their own action plans for achieving a Low-Carbon Society.

Meanwhile, for the electricity industry to orchestrate collective action for achieving a low-carbon society and jointly tackle the expected changes in environment, the participating companies set up a study group in March 2015, and have considered specific plans.

With the announcement of the government's energy supply-demand outlook for FY 2030 and the draft GHG reduction target, the participating companies together decided to set a new target based on their integrated action plans, as described below.

Action Plan for the Electricity Industry to Achieve a Low-Carbon Society

- Reduce the user-end emission intensity to approximately 0.37 kg-CO₂/kWh.
- Utilize the best available technology (BAT) affordable in new thermal power plants to secure a maximum reduction potential of approx. 11 million t-CO₂.

Going forward, the participating companies will enhance their efforts to achieve a low-carbon society by steadily taking actions to achieve these targets, and following up on the progress each year.

Outline of the Voluntary Framework

The ten member companies of FEPC, J-Power, The Japan Atomic Power Company (JAPC) and 23 power producers and suppliers (PPSs) have set up a voluntary framework, as described below, to take substantial corporate action based on the philosophy of the Keidanren's "Action Plan for Achieving a Low-Carbon Society" and the actions for reducing GHG emissions.

- As of the time of this announcement, the framework consists of the ten FEPC member companies, J-Power, JAPC and the 23 PPSs that have volunteered (together accounting for over 99% of all electricity sales). The framework will be open to companies that wish to join in the future.
- The target is to achieve the level (the emission intensity for FY 2030) required to fulfill the long-term energy supply-demand outlook indicated by the government.
- Efforts such as the utilization of BAT in new thermal power stations will be assessed quantitatively.
- The electricity industry will work collectively to achieve the target. The progress will be monitored each year, and reflected in the efforts the following year and beyond (promotion of the PDCA cycle), to increase the likelihood of meeting the target.
- The participating companies will continue to hold discussions to improve the effectiveness of the mechanism for achieving the goal.

Action Plan for the Electricity Industry for Achieving a Low-Carbon Society

		Description
1. Targets of Domestic Corporate Activities for 2030	Target Action Plan	<p>To achieve an optimum energy mix which is in line with the S + 3E principle that seeks to achieve Energy security, Economic efficiency and Environmental conservation premised on Safety, the participating companies will continue their efforts to achieve a low-carbon society by working on both the supply and demand sides of electricity.</p> <p>In accordance with the government's long-term energy supply-demand outlook for FY 2030, the target was set to achieve a nationwide user-end emission intensity of approx. 0.37 kg-CO₂/kWh in 2030.^{*1, *2}</p> <p>For newly constructed thermal power plants, the best available technology (BAT) affordable to match the scale of the plant will be used to secure a maximum reduction potential of approx. 11 million t-CO₂.^{*2, *3}</p> <p>^{*1.} The Target and Action Plan are based on the generation mix and electricity demand indicated in the long-term energy supply-demand outlook of the government, and assume that the outlook will be achieved by 2030 through the joint efforts of the government, the power companies, and the public.</p> <p>^{*2.} The Target and Action Plan will be revised as needed based on changes in the energy and environmental policies as well as technological development in Japan and other countries as the PDCA cycle advances.</p> <p>^{*3.} The maximum reduction potential representing the effect of introducing BAT in major power source developments from FY 2013 onwards compared to conventional technologies.</p>
	Grounds for the Target	<p>The efforts of the participating companies that are based on their respective forms of business will be orchestrated to achieve a low-carbon society.</p> <ul style="list-style-type: none"> ● Utilizing nuclear power premised on safety <ul style="list-style-type: none"> • Implementing thorough safety measures based on the lessons learned and knowledge obtained from the Fukushima Daiichi accident, while improving safety voluntarily and continuously beyond the requirements of the regulation standards • Providing detailed explanations to the hosting communities and the people of Japan to gain their understanding, and operating the plants safely and stably once their safety has been confirmed and they have been restarted ● Utilizing renewable energies <ul style="list-style-type: none"> • Utilizing hydropower, geothermal power, solar PV, wind and biomass • Developing technologies for addressing output fluctuations of renewable energies <ul style="list-style-type: none"> — Studying measures to address output fluctuations of solar PV — Considering enhanced introduction of wind power using inter-area connection lines ● Improving the efficiency of thermal power <ul style="list-style-type: none"> • In developing thermal power, using the best available technology (BAT) affordable based on the scale of the plants • Maintaining and managing the thermal efficiency of existing plants at an appropriate level ● Providing energy-saving and CO₂-reducing services to customers to contribute to a low-carbon society <ul style="list-style-type: none"> • Providing energy-saving and CO₂-reducing services in the electricity retail area needed by customers in a low-carbon society
2. Enhancing Alliances between Entities (Efforts through the expanded use of low-carbon products and services and employee training, and the reduction potential in 2030)		<p>Believing that CO₂ reduction and improvement of emission intensity in the electricity department cannot be achieved without the government's involvement in the energy policies, including nuclear and renewable energy policies, as well as a joint effort involving the power generation, transmission & distribution and the retail departments and the customers who use electricity, the alliances between entities will be strengthened together with the efforts of the power companies themselves.</p> <ul style="list-style-type: none"> ● Contributing to CO₂ reduction by customers by promoting high-efficiency electric appliances and energy-saving and CO₂-reduction activities, to enable customers to use electricity efficiently ● Completing the introduction of smart meters as part of improving the environment for customers to use electricity more efficiently
3. Promoting International Contribution (Efforts through the expansion of energy-saving technologies overseas for 2030, and the reduction potential overseas)		<p>Contributing to CO₂ reduction in other countries by expanding overseas the technologies and know-how of the power companies developed in Japan</p> <ul style="list-style-type: none"> ● Transferring and providing the electricity technologies of Japan to help decarbonize developing countries, through activities such as the diagnosis of coal thermal facilities and CO₂ emission reduction activities through the GSEP (Global Superior Energy Performance Partnership) activities ● Advancing decarbonization on a global scale by developing and introducing advanced and feasible electricity technologies, taking into account the developments in international systems such as the Joint Crediting Mechanism (JCM) <p>(Reference) The CO₂ reduction potential for coal thermal in the OECD countries and developing countries of Asia achieved by introducing high-efficiency plants and improvements in O&M is a maximum of 900 million t-CO₂/year.</p>
4. Development of Innovative Technologies (Medium- to long-term efforts)		<p>Continuously developing technologies that contribute to preserving the environment for both the supply and demand of electricity</p> <ul style="list-style-type: none"> ● Developing technologies for utilizing nuclear power ● Thermal technologies such as A-USC, IGCC and CCS for reducing environmental burden ● Responding to the introduction of large volumes of renewable energies (improving the load followability of thermal power plants, stabilizing the transmission and distribution systems, and introducing more biomass and geothermal power) ● Developing technologies for the efficient use of energy

External Evaluation and Outside Opinions

The Accuracy of This Report

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 2015, the sustainability information herein has been independently reviewed and certified by Ernst & Young Sustainability Co., Ltd. in accord with the sustainability report review and registration system of the Japanese Association of Assurance Organizations for Sustainability Information (J-SUS). As a result of this review, an “Independent Assurance Report” has been received. Guaranteed data calculated according to calculation standards* is indicated by a star (★). 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.



* List of calculation standards

http://www.jpowers.co.jp/english/company_info/environment/index.html



Translation

The following is an English translation of an independent assurance report prepared in Japanese and is for information and reference purposes only. In the event of a discrepancy between the Japanese and English versions, the Japanese version will prevail.

Independent Assurance Report

Mr. Masayoshi Kitamura
President
Electric Power Development Co., Ltd.

August 3, 2015

Kenji Sawami
Representative Director
Ernst & Young Sustainability Co., Ltd.
Tokyo

We, Ernst & Young Sustainability Co., Ltd., have been commissioned by Electric Power Development Co., Ltd. (hereafter the “Company”) to provide limited assurance on the Key Sustainability Performance Indicators (hereafter the “Indicators”) of the Company and its major subsidiaries for the year ended March 31, 2015 included in the Company’s Sustainability Report 2015 (hereafter the “Report”). The scope of our work was limited to assurance over the information marked with the symbol “★” in the Report.

1. The Company’s Responsibilities

The Company is responsible for preparing the Indicators in accordance with the Company’s own criteria determined in consideration of Japanese Environmental Laws. The criteria represent the Company Information, Environmental Activities, Calculation Standards (http://www.jpowers.co.jp/english/company_info/environment/2015index.html) of the Report. Greenhouse gas (GHG) emissions are estimated by using emission factors, which are uncertain because the scientific ground of the factors are not established and different instruments for measuring GHG emissions have different characteristics in terms of functions and presumed parameters.

2. Our Independence and Quality Control

We have complied with the independence requirement defined in the Code of Ethics for Professional Accountants issued by the International Ethics Standards Board for Accountants in March 2013, which is based on the fundamental principles of integrity, objectiveness, professional competence and due care, confidentiality, and professional behavior. In addition, as a member of Ernst & Young ShinNihon LLC, our parent company, we maintain a comprehensive quality control system, including documented policies and procedures for compliance with ethical rules, professional standards, and applicable laws and regulations in accordance with the International Standard on Quality Control 1 issued by the International Auditing and Assurance Standards Board in April 2009.

3. Our responsibilities

Our responsibility is to express a limited assurance conclusion on the Indicators included in the Report based on the procedures we have performed and the evidence we have obtained. We conducted our limited assurance engagement in accordance with the International Standard on Assurance Engagements (ISAE) 3000 (Revised) - Assurance Engagements Other than Audits or Reviews of Historical Financial Information, issued by the International Auditing and Assurance Standards Board in December 2003, Practical Guidelines for the Assurance of Sustainability Information, revised in December 2014 by the Japanese Association of Assurance Organizations for Sustainability Information and, in respect of GHG emissions, the International Standard on Assurance Engagements (ISAE) 3410, Assurance Engagements on Greenhouse Gas Statements, issued by the International Auditing and Assurance Standards Board in June 2012.

The procedures, which we have performed according to professional judgment, include inquiries, observing processes, inspecting documents, analytical procedures, agreeing with records of basic information on the Indicators, as well as the following:

- Inquiries about the Company’s own criteria determined in consideration of Japanese Environmental Laws and evaluating their appropriateness;
- Inspecting relevant documents with regard to the design of the Company’s internal controls of the Indicators and inquiring of personal responsible thereof at the headquarters and sites visited (2 sites);
- Performing analytical procedures on the Indicators at the headquarters and sites visited (2 sites); and
- Agreeing to supporting documents and re-calculating with part of the Indicators at the headquarters and sites (2 sites) visited on a test basis.

The procedures performed in a limited assurance engagement are more limited in nature, timing or extent than a reasonable assurance engagement.

As a result, the level of assurance obtained in a limited assurance engagement is not as that obtained if we had performed a reasonable assurance engagement.

4. Conclusion

Based on the procedures we have performed and the evidence we have obtained, nothing has come to our attention that caused us to believe that the Indicators included in the Report have not been measured and reported in accordance with the Company’s own criteria determined in consideration of Japanese Environmental Laws.

Independent third-party certification of J-POWER Group Sustainability Report 2015



Review being conducted (Kiwa Power Substation, Wakayama Prefecture)



Review being conducted (Ishikawa Coal-fired Power Station, Okinawa Prefecture)



Review being conducted (J-POWER Headquarters)

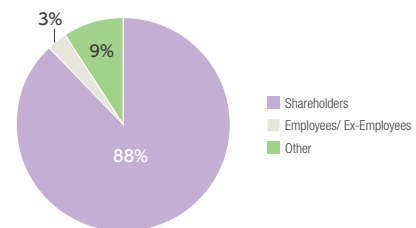
External Evaluation and Outside Opinions

The J-POWER Group strives to incorporate third-party evaluations and recommendations, as heard in Sustainability Report questionnaires, reviews, and so on, into our activities. 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 business activities. We also enhance our transparency and reliability by making such comments public.

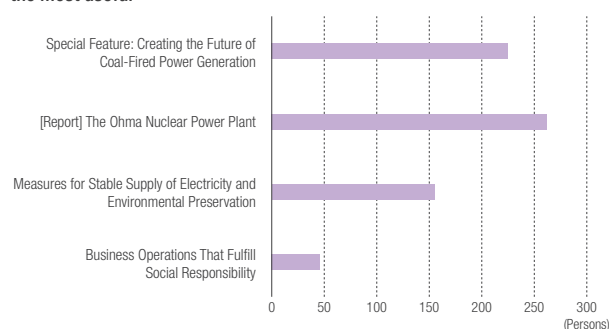
Readers' Opinions

We received many comments from readers in response to the J-POWER Group Sustainability Report 2014 (published July 2014) (575 respondents). We consider these valuable comments to be important guidelines for compiling subsequent reports and for the future initiatives of the J-POWER Group, and intend to put their lessons to use in our corporate activities.

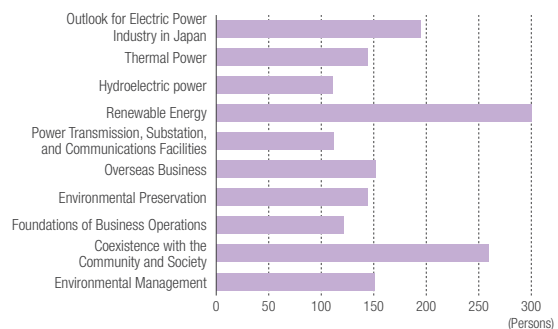
Breakdown of survey respondents



Articles in the 2014 report that created the strongest impression or were the most useful



Articles whose content should be expanded (multiple responses possible)



Expectations for the J-POWER Group

Typical Comments	Typical Comments
I would like J-POWER, an operator of coal-fired power stations, to explain in an easy-to-understand manner the status of its initiatives to reduce carbon including technology development.	This report presents information on a variety of measures to reduce carbon including features on the J-POWER Group's new plans and technology development relating to coal-fired power generation. Please refer to the special feature entitled "Creating the Future of Coal-Fired Power Generation" on pp. 7-12 of this report.
Information relating to the Ohma Nuclear Power Plant is not adequate. It would be desirable for the company to fulfill its responsibilities to stakeholders to provide more detailed explanations regarding safety and risks.	With regard to the Ohma Nuclear Power Plant, we have steadily implemented safety measures based on the new regulatory standards of the Nuclear Regulatory Authority in an effort to create a power station that is trusted by local residents. Information is disclosed in this report and on our website, so please refer to the website as well. Please refer to the information on "the Ohma Nuclear Power Plant" on pp. 13-16 of this report.
J-POWER is undertaking various earnest initiatives with an attitude of listening to the opinions of multiple outside experts as well as the opinions of third parties.	The J-POWER Group has long sought the opinions of experts in various fields regarding our business activities. We will continue to create opportunities to obtain opinions from outside experts. Please refer to the "Third-Party Opinion" on pp. 57-58 of this report.
I would like the specialized jargon to be deleted from the report so it is easier for general readers to understand. The "Voice" comments that provide perspectives from the front lines of work sites are particularly interesting.	This report contains numerous graphs and diagrams to make it easy to understand by general readers. We have also included many "Voice" comments from personnel at work sites. We will continue to make efforts to prepare reports from the perspective of their readers.

Third-Party Opinion

To help us meet society's expectations regarding our corporate social responsibility (CSR) and play our part in the sustainable development of Japan and the world, in June 2015, the J-POWER Group asked outside experts who specialize in energy, the environment, and CSR to give their opinions concerning the Group's business efforts and the disclosure of information through this sustainability report from the perspective of achieving harmony between energy and the environment.



Chuo University
Faculty of Science and Engineering, Department of
Integrated Science and Engineering for Sustainable
Society
Laboratory of conservation ecology, professor and
doctor of science

Izumi Washitani

Concern regarding global warming is rising, and there are various opinions regarding coal-fired thermal power, but coal has long constituted a major portion of electric power supply, so it will be necessary to continue efforts to reduce carbon.

One such means is mixed biomass combustion, but long-term stable supply of large volumes of fuel will be needed, and therefore, in addition to using current materials, it will be necessary to build new systems to supply biomass fuel near demand regions without substantial burden or cost. If it were possible to repeatedly harvest perennial grasses growing in marshes near thermal power stations and convert it to fuel, this would be a significant

undertaking from the perspectives of producing fuel where the demand is without the need for long-distance transport and preservation and restoration of biodiversity in marshes. In addition, there are various kinds of biomass fuel, and it is necessary to broadly investigate fuels other than those currently under consideration. Diversifying fuels will also require setting targets such as developing technology for devices that are compatible with various fuels.

It is necessary that we continually undertake technological measures to improve the thermal efficiency of power stations, but if we look at things from a slightly different perspective, perhaps we should also focus on the effective utilization of heat generated by power stations. For example, waste heat from power stations could be used at spa facilities used by local senior citizens. If not just businesses, but also local residents are able to enjoy benefits from power stations, it will be possible to go beyond social contribution and local production of energy for local consumption to position coal-fired power stations as one part of a system that produces compound benefits. I believe that this would have value also as a measure for achieving harmony between energy and the environment.



Director and Certified Public
Accountant PricewaterhouseCoopers
Sustainability Co., Ltd.

Ryoji Terada

In Europe, the importance of non-financial matters is increasing, such as the imposition of a duty to disclose CSR information imposed on companies over a certain size, and the Fifth Assessment Report released last year by the IPCC* makes it clear that we are facing a crisis that threatens the very existence of humankind as a result of climate change. It goes without saying that this issue is a major topic in the J-POWER Sustainability Report, along with the Ohma Nuclear Power Plant.

J-POWER's coal-fired generating efficiency and clean coal technologies, which are at the world's highest levels, are worthy of considerable praise, and CCS will be essential for the continued combustion of coal in order to achieve the 40 to 70% reduction in carbon dioxide emissions by 2050 necessary for attaining the IPCC's 2°C scenario. J-POWER has already disclosed information relating to its CCS research, and in the future, interest will likely shift to more specific details such as issues arising in conjunction

with implementation and implementation plans.

With regard to renewable energy, the report presents information on wind and geothermal energy, but renewable energy accounts for only a small percentage of all generating capacity, and it would be desirable to set more specific installation targets and disclose information on progress.

The Ohma Nuclear Power Plant is a center of attention, and information on the status of compliance with new regulatory standards and safety measures are explained clearly using diagrams and tables. Even so, concerns in society regarding the world's first full MOX generation, the existence of an active fault, and contradictions among systems regarding evacuation regions remain high, and responding sincerely to these concerns is one of the important roles of a sustainability report.

No substantial improvement was seen, however, in the disclosure of financial information relating to important topics, an issue that has been present for some time. This is an excellent report with exhaustive coverage, and it may be difficult to raise the level even higher as a part of voluntary measures, but I look forward to active measures and information disclosures for future generations. In particular, I would like to see J-POWER strive to undertake initiatives addressing climate change on a global level as an electric power business, a key party.

* Intergovernmental Panel on Climate Change



Associate Professor and Doctor of Engineering
Graduate Course of Technology
Management for Innovation, School of
Engineering, The University of Tokyo

Gento Mogi

The upcoming deregulation of retail electric power presents an opportunity for the use of J-POWER's extensive infrastructure. This Sustainability Report does not discuss specific circumstances following deregulation, but I believe that indicating with some specificity the type of company that J-POWER seeks to be in the future will lead to increases in the value of its facilities and bargaining power.

I also felt that with regard to renewable energy, there is little discussion of existing hydroelectric facilities. In addition to the wind, geothermal, and biomass power currently under development, if the existing hydroelectric business is developed as a part of the environmental business of supplying

clean power, this too will likely lead to an increase in value. In any case, it is necessary to convey the message that renewable energy has the potential to substantially change the future of electric power in Japan.

When considering the future of a company, diversification of human resources can lead to the development of new business. In general, 80% of a company's human resources are needed to maintain current conditions, and the remaining 20% are expected to serve as the driving force for the development of new business. I feel that the content of the current sustainability report will have only a somewhat weak impact on human resources (students) with this type of enthusiasm, and it is necessary to include content that will enable them to form a concrete image of a future vision after joining J-POWER.

I feel that J-POWER currently has many reliable employees, but there is a very high likelihood that the business and social environments will change in the future, and the company will need a diverse workforce that can adapt flexibly to changes.



Journalist, Environmental Counselor
NPO Genki Net for Creating a Sustainable Society
Director

Yuko Sakita

Almost all nuclear power stations were shut down after the earthquake, and we have somehow been able to get through this thanks to the adequate thermal power generation facilities of electric power companies.

Responses to the issues of global warming are of course needed, and I believe that we now need to undertake comprehensive measures to reduce greenhouse gas emissions such as overhauling old facilities and introducing the highest-level technologies as we make the transition to a society that emits only extremely small amounts of CO₂.

Increased introduction of renewable energy is crucial from the perspectives of raising the energy self-sufficiency range and cutting CO₂, but

I think we should introduce such energy while achieving an overall balance in the composition of power supply based on level-headed discussion. The fixed-price purchase system, which supports the introduction of renewable energy, is supported at the expense of the public, and it is necessary to introduce renewable energy in a manner that is convincing to the public.

Power companies will of course take adequate measures to enhance safety with regard to nuclear power, but I feel strongly that it is necessary for power companies to adopt a stance of engaging in dialogue with local communities regarding risk countermeasures and learning along with the public.

It is said that a hydrogen-based society is about to be created, but honestly speaking, hydrogen is still something that is far removed from members of the general public. Even if technological development advances under these conditions, it is possible that differences in social understanding and degrees of enthusiasm will impede widespread adoption, and therefore I believe it is necessary to actively disseminate information and work towards raising public awareness in order to gain understanding with regard to changes in people's lives from the introduction of hydrogen.

A Response to Opinions

I would like to thank everyone for their valuable opinions regarding the environmental management of the J-POWER Group.

As everyone indicated, ensuring the stable supply of energy while working to steadily reduce carbon is one of the top management priorities of the J-POWER Group. As discussed in this report, we will steadily take various actions in Japan and overseas with a focus on technology.

We will also disclose information through means such as this report and improve communication with all concerned parties in order to increase transparency and raise confidence with regard to the Group's business activities.

Each member of the J-POWER Group is committed to raising awareness regarding the increasing importance of environmental preservation as well as the diversifying and deepening responsibility of companies expected from society, and to directly addressing the issues that we are confronting one by one.

I request your continued guidance and support.



Chairman of J-POWER Group
Environmental Management
Promotion Board

Toshifumi Watanabe



Electric Power Development Co.,Ltd.

**Environmental Management Promotion Board Office:
Business Research Office,
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

E-mail: kikaku@jpower.co.jp <http://www.jpower.co.jp/english>

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