

Environmental Initiatives

In addition to our CO₂ reduction initiatives aimed at achieving carbon neutrality, the J-POWER Group works to achieve global sustainable growth through efforts that include the reduction of environmentally harmful substances, creation of a recycling-oriented society, and conservation of the biodiversity.

Addressing Global Environment Issues

The J-POWER Group's main businesses are its domestic and overseas electric power generation businesses. Accordingly, we pursue to address global environment issues, especially climate change, which we view as materiality for the Group. The J-POWER Group aims to both achieve global economic development and address the climate change issue. To make it happen, we are implementing a variety of initiatives.

For information on specific initiatives, please refer to the following pages.

- ▶ J-POWER "BLUE MISSION 2050" p.22-p.29
- ▶ Medium-Term Management Plan p.30-p.39

Issuance of "J-POWER Green Bond"

In January 2021, the J-POWER Group issued the J-POWER Green Bond (72nd issuance of unsecured corporate bonds), J-POWER's first bond that allocates funds toward renewable energy and other businesses that contribute to addressing climate change. Proceeds from the bond issue were allocated to three renewable energy development projects. As of the end of March 2021, we have begun commercial operation of all of these projects, achieving effects in environmental improvement (i.e., reduction of CO₂ emissions).

Report on the allocation of funds (as of the end of March 2021)

Item	Amount
Amount raised (net amount)	¥19.9 billion
Amount allocated*	
Setana-Osato Wind Farm (Hokkaido)	¥9.9 billion
Nikaho No. 2 Wind Farm (Akita Prefecture)	¥8.0 billion
Kuzumaki No. 2 Wind Farm (Iwate Prefecture)	¥2.0 billion
Unallocated balance	¥0 billion

* The proceeds are being used in entirety for the refinancing of construction funds for onshore wind farms: the Setana-Osato Wind Farm, Nikaho No. 2 Wind Farm, and Kuzumaki No. 2 Wind Farm.

Environmental Improvement Effects

Period for calculation of environmental improvement effects: April 1, 2020–March 31, 2021

Type	Project	Generation Capacity	Environmental improvement effect (CO ₂ emissions reduction) ¹
Wind power	Setana-Osato Wind Farm	50MW	166,000 t-CO ₂ /year (FY2020 result)
	Nikaho No. 2 Wind Farm	41MW	
	Kuzumaki No. 2 Wind Farm ²	45MW	

1. Calculation method for environmental improvement effect: Electric power sales volume x carbon intensity (No. 2103002 Japan Electric Power Exchange)
 2. Result is for about four months of operation at the Kuzumaki No. 2 Wind Farm, which began operation in December 2020.

Addressing Local Environment Issues

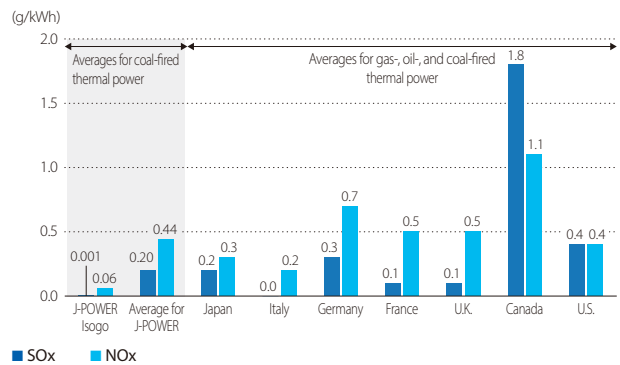
The J-POWER Group sets out environmental considerations for every stage of its businesses and engages in environmental conservation initiatives that draw on the latest technologies and knowledge.

Reducing Emissions of Environmentally Harmful Substances

To reduce emissions of environmentally harmful substances such as sulfur oxide (SO_x), nitrogen oxide (NO_x), and soot at thermal power plants and other facilities, we engage in high-efficiency control of emissions through improvement of combustion methods and through appropriate operation and management of desulfurization and denitrification systems, electrostatic precipitators, and other flue gas treatment equipment. This equipment operates automatically with the aid of measurement devices that continuously monitor the status of flue gas. We use 24-hour monitoring by human operators to confirm that emissions do not exceed benchmark values specified by the Air Pollution Control Act and environmental protection agreements, and have readied systems for swiftly responding to anomalies.

Emissions of SO_x and NO_x from thermal power plants that we operate are shown in the table below. The figures are quite low by international standards.

International Comparison of SO_x and NO_x Emissions Intensity for Thermal Generation



Notes: 1. Emissions: OECD StatExtracts
 Power generated: IEA "Energy Balances of OECD Countries 2019 Edition"
 2. J-POWER and Isogo figures are fiscal 2020 results.

Creation of a Recycling-Oriented Society

Maintaining and Improving the Industrial Waste Recycling Rate

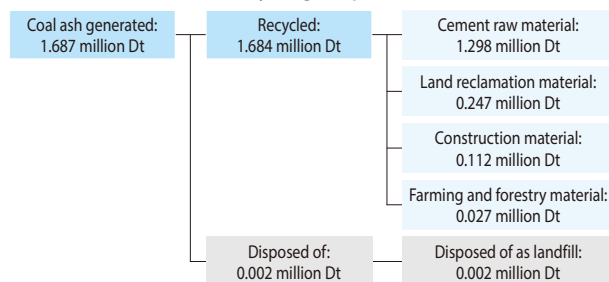
The J-POWER Group's target industrial waste recycling rate is 97%. The total amount of industrial waste we generated in fiscal 2020 was 2.05 million tons, with a recycling rate of 99.2%.

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.

We recycle 99.9% of coal ash produced in coal-fired thermal power generation, mainly as material for making cement and for land reclamation. We recycle 99.8% of the gypsum and 100% of sulfuric acid produced as byproducts of emissions desulfurization.

Breakdown of Coal Ash Recycling (displacement tons)



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

Environmental Impact Assessment

Before building or expanding power plants, we conduct environmental impact assessments in accordance with applicable laws and regulations and implement adequate environmental preservation measures, taking the opinions of local residents into consideration. After a power plant becomes operational, we carry out ongoing monitoring in accordance with environmental protection agreements entered into with relevant local governments to ensure that our environmental preservation measures are effective. Currently, 21 projects are in the process of environmental impact assessment (as of July, 2021).

Preservation of Aquatic Environments

The J-POWER Group has set the preservation of aquatic environments as a Corporate Target under the J-POWER Group Environmental Management Vision. In line with this, we engage in environmental preservation measures aimed at rivers and seas, based on the specific regional environments and characteristics of our business sites.

- Hydroelectric power stations: Measures concerning water quality and the accumulation of silt in dam lakes and downstream areas; etc.
- Thermal power stations: Management of effluent released into nearby seas in accordance with applicable laws and regulations; etc.

Preservation of Biodiversity

During the planning and design stages of power generation facilities, we incorporate environmental preservation measures to mitigate the impact on surrounding ecosystems and environments where plants and animals live and grow, based on the results of environmental impact assessments. We strive to preserve plants and animals that live and grow in the vicinity of operating power plants, particularly rare species and their habitats. These measures are tailored to local environments and characteristics. For example, every effort is made to avoid outdoor work during the nesting season of the Japanese golden eagle and other endangered birds that live in the vicinity of the Okutadami Dam and Otori Dam. Another example is the restoration, maintenance, and management of marshes that became landfill areas when the Okutadami Dam was expanded.

In addition to proper conservation of the forests we own near our hydroelectric power facilities throughout Japan, the J-POWER Group contributes to forest preservation and the

reduction of CO₂ emissions through efforts to combust coal together with biomass fuel pellets, made from forestry offcuts, at coal-fired thermal power stations.

Ensuring Transparency and Reliability

The J-POWER Group has introduced an environmental management system (EMS) based on the ISO 14001:2004 standard of the International Organization for Standardization and the JISQ 14001:2004 standard of the Japanese Industrial Standards, at all of our business sites for conducting environmental conservation activities based on the J-POWER Group's Environmental Vision. We are advancing efforts to improve the level of our environmental management and to strictly comply with laws and agreements.

We also actively engage in environmental communication activities with our local communities.

Improvement of Environmental Management Level

On the basis of the J-POWER Group Environmental Action Guidelines that are reviewed annually by J-POWER's management, we draw up Environmental Action Plans, periodically review and evaluate initiatives, and revise measures to be taken, following the PDCA cycle. In this way, we work to constantly enhance environmental management.

In addition, the J-POWER Group plans and implements environmental education, using such means as online classes and e-learning, to foster a deeper awareness of environment issues and sense of personal responsibility among employees.

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

In order to constrain the impact of our business activities on the surrounding environment, we take appropriate steps to comply with laws, regulations, agreements, and other rules applicable to our business activities, and work to make these widely known. We also engage 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, employing waste disposal consulting firms to directly confirm the status of waste disposal by local organizations.

Regarding the management of environmental incidents, based on our environmental management systems, we make every effort to prevent environmental incidents before they occur and to minimize harm if they do occur. We have in place a notification framework for the occurrence of environmental incidents, under which we notify local agencies concerned as well as the J-POWER Headquarters Emergency Response Team and related departments.

The J-POWER Headquarters Emergency Response Team promptly notifies top management and, in the interest of information disclosure, releases information on emergencies to the media and other relevant parties. We also devise measures to prevent recurrences. In fiscal 2020, there were two environmental incidents that were reported through the mass media.