J-POWER Group and the Environment

J-POWER Group Environmental Vision: Corporate Targets and 2020 Achievements

In fiscal 2020, we achieved all of the items covered by our Corporate Targets.

	Item	Target	Main Fiscal 2020 Initiatives	Status of Target Achievement
Addressing Global Environment Issues	Promotion of carbon reduction and technological development in power generation	Steadily implement the following measures aimed at realizing a low-carbon society as well as contribute to the stable supply of energy and reduction of CO_2 emissions in Japan and around the world by achieving the targets of the Electric Power Council for a Low Carbon Society's Action Plan for Achieving a Low-Carbon Society.		
		1. Expansion of renewable energy		
		• Advance the new installation, upgrading, and equipment replacement of hydroelectric power plants in order to expand the use of hydroelectric power.	In our expansion of hydroelectric power utilization, in February 2021 we increased the output of Ashoro Hydroelectric Power Station Unit No. 2 through comprehensive renewal of its primary facilities, and began operations at the station. However, we plan to transmit the increased output at a time when the available capacity of the grid can be used in the future. We also moved forward with construction on the Shinkatsurazawa Hydroelectric Power Plant Project.	
		• Work to significantly expand wind power facilities, including offshore wind power generation.	In onshore wind power, in December 2020 we started operations at the Kuzumaki No. 2 Wind Farm. We also moved forward with construction of Kaminokuni No. 2 Wind Farm, with the Tomamae and Shimamaki replacement projects, and with preparations for construction of the Minami Ehime No. 2 project. In offshore wind power, we are advancing business feasibility studies related to the Hibikinada. We also proceeded with development surveys for the Hiyama, Awara, and Saikai projects, and formed a consortium for the Akita Prefecture offshore area. In the overseas wind power business, in August 2018 we acquired a stake in the Triton Knoll Offshore Wind Power Project in the U.K. We moved forward with construction of this project, aiming to begin operations during fiscal 2021.	
		• Work to develop new geothermal power projects in Japan.	Looking at the development of new geothermal power projects in Japan, we started operations of the Wasabizawa Geothermal Power Plant in May 2019 and continued stable operation. We also started construction of the Appi Geothermal Power Plant in August 2019 and proceeded the construction. In addition, at the Takahinatayama site in Osaki City, Miyagi Prefecture, in July 2019 we began small caliber well drilling surveys aimed at future geothermal power plant development. Furthermore, having shut down the Onikobe Geothermal Power Plant's existing facilities in April 2017, we began the construction of facility replacement in April 2019.	○
		2. Strive toward carbon reduction and zero emissions in coal use		
		• Advance the development of high-efficiency integrated coal gasification combined cycle (IGCC) technology with the aim of bringing it to practical use. Advance research and development of CO_2 capture, utilization and storage (CCUS) technology.	At the Osaki CoolGen Project, we undertook demonstration tests of oxygen-blown IGCC with CO_2 separation and capture (Phase 2) from December 2019. We also started construction preparations for demonstration tests of oxygen-blown IGFC with CO_2 separation and capture (Phase 3) and for CO_2 liquefaction process demonstration.	
		• Work to replace aging coal-fired thermal power plants with the world's leading high-efficiency coal-fired thermal power plants.	In the Takehara Thermal Power Plant Replacement Project, we began commercial operation of Takehara Thermal Power Plant New Unit No. 1 in June 2020.	
		• Promote the mixed combustion of biomass fuels in coal-fired thermal power plants (effective exploitation of untapped resources).	At the Matsuura Thermal Power Plant, Takehara Thermal Power Plant, and Takasago Thermal Power Plant, we implemented mixed combustion using domestically-sourced biomass fuels (such as wood pellets and dried sewage sludge). Also, as preparation for large-scale mixed combustion of wood pellets at the Takehara Thermal Power Plant, we promoted initiatives to secure fuel such as unused offcuts from forested areas in Japan.	
		• Contribute to the reduction of global CO_2 emissions and the adoption of advanced technologies by expanding the coal-fired thermal power generation business using J-POWER's advanced, high-efficiency power generation technologies, especially in Asia.	In Indonesia, we started trial operation of the Central Java Project in preparation for starting operations.	
		3. Promotion of the Ohma Nuclear Power Plant Project, with safety as a major prerequisite		
		• Advance construction of the Ohma Nuclear Power Plant, giving highest priority to safety and working to ensure the trust of the local community.	For the Ohma Nuclear Power Plant Project, we carried out studies for safety enhancement measures and responded to the review of compliance with the new safety standards. We also implemented initiatives to gain the understanding and trust of local residents.	

	Item	Target	Fiscal 2019 Performance	Fiscal 2020 Performance	Fiscal 2020 Performance Evaluation	Status of Target Achievement
Addressing Global Environment Issues	Total thermal efficiency for thermal power generation (HHV, gross efficiency)	Maintain current level [about 40%]	40.8% (Reference: LHV = 41.9%)	40.9% (Reference: LHV = 41.9%)	The J-POWER Group met its target for total thermal efficiency for thermal power thanks to efforts at existing thermal power plants to maintain high-efficiency operations and to adopt high-efficiency technologies when renovating facilities.	○
	Reduction of sulfur hexafluoride (SF6) emissions (Improvement of recovery rate during inspection and retirement of equipment)	Inspection: at least 97% Retirement: at least 99%	Inspection: 99.9% Retirement: 99.3%	Inspection: 99.7% Retirement: 99.2%	The target was met, with a recovery rate of 99.7% during inspections and 99.2% at retirement, thanks to efforts to curb emissions during equipment inspection through sound recovery and reuse.	○
Addressing Local Environment Issues	Reduction of sulfur oxide (SOx) emissions (Reduction per unit of electric power generated by thermal power)	Maintain current level [about 0.2 g/kWh]	0.22 g/kWh	0.20 g/kWh	As a result of efforts including fuel management and the appropriate operation of flue gas desulfurization systems, we curbed our SOx emissions and achieved our target for emissions per unit of electric power generated.	○
	Reduction of nitrogen oxide (NOx) emissions (Reduction per unit of electric power generated by thermal power)	Maintain current level [about 0.5 g/kWh]	0.50 g/kWh	0.44 g/kWh	As a result of efforts including fuel management, combustion management and the appropriate operation of flue gas denitrification systems, we curbed our NOx emissions and achieved our target for emissions per unit of electric power generated.	○
	Increasing the recycling rate for industrial waste	Maintain current level [about 97%]	99.3%	99.2%	We achieved our targets through efforts to promote the recycling of coal ash and to reduce industrial waste generated by the maintenance and operation of power plants.	○
	Preservation of aquatic environments	Consider the protection of river and ocean environments in business activities	Practiced consideration for the protection of river and ocean environments	Practiced consideration for the protection of river and ocean environments	• At operating power generation facilities that are involved with rivers, we implemented measures for the protection of the river environment appropriate to the conditions at each location. These included the implementation of sedimentation disposal measures and measures to mitigate the long-term persistence of turbidity. • At operating power generation facilities that adjoin the ocean, we implemented precise control over effluent in compliance with environmental protection agreements and other such arrangements.	○
	Preservation of biodiversity	Consider the protection of biodiversity in business activities	Practiced consideration for biodiversity	Practiced consideration for biodiversity	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.	○
Ensuring Transparency and Reliability	Improvement of environment management level	Continual improvement of EMS	Consistently implemented the PDCA cycle	Consistently implemented the PDCA cycle	We implemented the PDCA cycle consistently and worked to raise the level of environmental management.	○