

July 29, 2010

Sendai Thermal Power Station Unit 4 Commences Full Operation

-Completion of the First Thermal Power Generation Unit Replacement Work-

Today, Tohoku Electric Power began full operation of Sendai Thermal Power Station Unit 4 (constructed in Shichigahama-machi, Miyagi-gun, Miyagi Pref. with an output of 446,000 kW).

Since Unit 1 first started commercial operation in October 1959, the Sendai Thermal Power Station has supplied electric power for over 40 years. During this period, the power station added Units 2 and 3.

Meanwhile, Tohoku Electric Power launched its first-ever project to decommission and disuse the outdated Units 1 to 3 and replace them with new Unit 4. The project's objectives are to realize a low-carbon society with lower carbon dioxide emissions and maintain the company's competitive edge by cutting power generation costs.

Unit 4, which started commercial operation today, is fired by natural gas with lower carbon dioxide emissions. For the power generation method, we adopted a combined-cycle system consisting of a gas turbine and steam turbine power generators. This Unit achieves the world's highest level of thermal efficiency of 58%* thanks to an improved gas turbine that can withstand highly heated combustion gas, and the installation of a fuel gas heating system for raising the fuel temperature.

With these measures, Sendai Thermal Power Station Unit 4 is expected to reduce carbon dioxide emissions to one-half that of the old coal-fired power-generating units.

The Sendai Thermal Power Station is located in a class 2 nature reserve zone of Matsushima, a specially designated national scenic spot. Therefore, the turbine building, boiler room, and other major structures at the power station were designed to harmonize with the natural environment of Matsushima. Specifically, these structures give the impression of a tile-roofed warehouse with white walls, a representative style of Japanese architecture.

Tohoku Electric Power will continue making efforts to supply electric power steadily and realize a low-carbon society while giving the highest priority to safety.

* Thermal efficiency is defined as the percentage of electric energy converted from thermal energy produced by burning fuel. The thermal efficiency of a gas turbine generally increases in proportion to the temperature of the combustion gas. Sendai Thermal Unit 4 demonstrates the world's highest level of thermal efficiency among combined-cycle systems running at a combustion gas temperature of 1,400°C thanks to an improved gas turbine designed to withstand highly heated combustion gas.