

World's Best Power Plants

After only 26 months of construction, the combined-cycle power plant Bugok II in South Korea was put online one month ahead of schedule.



The new SPPA-T3000 control system installed at Bugok II is connected to the Bugok I TELEPERM XP DCS System, which has vastly improved control capabilities for the operators.

ECO-FRIENDLY POWER — AHEAD OF SCHEDULE

SIEMENS ENERGY

After only 26 months of construction, Siemens Energy officially handed over the Bugok II Combined Cycle Power Plant to GS Electric Power and Services Co. Ltd. (GS EPS), Seoul, South Korea. Excellent global teamwork and a fruitful partnership with GS EPS, allowed the Bugok II Power Plant to be commissioned and put online approximately one month ahead of schedule, in March 2008. It was the first turnkey combined-cycle power plant project to be executed by a foreign company in Korea.

The Bugok I and II Power Plants are located in South Korea's Danjin Province, located 100 km south of its capital city, Seoul. The plant's efficiency of 58.6% and its environmental friendliness has already earned Bugok II the number-one ranking for combined-cycle power plants in South Korea by the Korean Ministry of Commerce, Industry and Energy. Since the plant started generating electricity, Bugok II has been operating more often as a base load unit than a part load/middle range unit. The power plant is also serving under "Frequency Control Mode."

The plant is equipped with two state-of-the-art SGT6-4000F gas turbines, which feature improvements over the turbines installed in the Bugok I CCPP, also built by Siemens Energy. In principle, they are the same heavy-duty type gas turbines, however, an improved burner and combustion system allows operation with high fuel gas preheating, combined

with higher mass flow from the improved compressor. This generates more stable combustion with higher output and higher efficiency, thus enabling the turbines to operate at much lower NO_x emissions.

The steam turbines also offer great advantages in terms of cost reductions and a smaller footprint. The SST6-5000 turbines can be housed in a smaller type of building than many other steam turbines. The reason is that the Siemens SST6-5000 turbine is a typical solution for combined-cycle power plants where the HP/IP turbine is housed in one common cylinder and the LP turbine is designed for low bay arrangement with two halves of the condenser on both sides of the LP turbine.

The new Siemens power plant control system SPPA-T3000 was also installed at Bugok II. It's connected to the Bugok I Siemens TELEPERM XP DCS System. This was also the first time both systems were arranged so that the common systems for both projects can be controlled by both DCS systems. This parallel linking of the control systems provides vastly improved control capabilities for the operators.

With a total installed capacity of 10 996 MW, Siemens has been a trusted power partner in South Korea for 20 years — providing an efficient, eco-friendly supply of electrical energy.