

The Flue Gas Cleaning System applied in Hitachinaka Power Plant

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Abstract

Since its establishment in 1951, Tokyo Electric Power Company (TEPCO) has provided stable supplies high-quality electric power, principally to the Tokyo metropolitan area, which is the political, economic, and cultural heartland of Japan. Through the years of expansion in electric power demand during Japan's era of rapid economic growth, the two oil crises, the collapse of the bubble economy, and other developments, TEPCO has provided essential support for social change and development.

TEPCO service area, The Tokyo metropolitan area, account for approximately 10% of the landmass of Japan, and, as home to more than 40 million people, accounts for about a third of Japan's total population. Also, with a gross regional product of ¥181 trillion annually, the area represents approximately 40% of Japan's total GDP.

In fiscal 2003, TEPCO sold a total of 281.9 billion kWh of electric power, a volume that makes the Country the number one supplier in Japan and exceeds the power supplied and consumed by the entire country of Italy.

TEPCO's power stations are working to develop the "best mix" power generation, a balanced mix of thermal (coal, oil, LNG), nuclear and hydroelectric power generation, in order to provide a long-term stable supply of power, whilst considering economical efficiency and effects imposed upon the environment.

Coal was once a leading fuel for thermal power generation, but widespread of the fuels such as petroleum and LNG led TEPCO to stop using coal for some time after 1973. The fuel diversification trend from the oil crises on however, urged us to return to coal fired thermal power plant.

Recent technological developments have given coal-fired thermal power plant an image quite different from that we conventionally had. First, the high-temperature and -pressure steam condition has improved thermal efficiency to approximately 43%(HHV). Second, we are taking sophisticated antipollution measures by developing the flue gas cleaning system, which is composed of denitrification, desulfurization, and dust removal devices. These developments have enabled highly efficient and clean coal-fired thermal power plant that meets very strict environmental standard of today.

This paper introduces the flue gas cleaning system applied in coal fired thermal power plant, Hitachinaka, 1000MW that has commissioned in Dec. 2003.