

Toshiba Corporation to build pilot plant for carbon dioxide capture technology

Accelerating R&D towards commercialization through validation of 10 tons- CO₂-a- day scale plant

3 Dec, 2008

TOKYO-- Toshiba Corporation (Tokyo: 6502) today announced that it will accelerate development of its carbon capture technology by installing a pilot plant at Sigma Power Ariake Co. Ltd.'s Mikawa Power Plant, in Omuta City, Fukuoka Prefecture. Construction of the plant is scheduled to start in spring 2009, and the commissioning and validation testing is expected to begin in August.

CO₂ separation and capture is an integral part of carbon capture and storage (CCS) system, along with subsequent storage of the gas. At the Mikawa pilot plant, Toshiba will deploy and validate its latest advances in separation and capture technology.

An effective separation and capture system must operate stably while minimizing the economic impact on the plant's operation costs. Toshiba has succeeded in developing an amine solvent that consumes minimal energy during CO₂ separation and capture, and has confirmed on a bench-scale test that it matches industry leading standards.

The Mikawa pilot plant is designed to capture 10 tons of CO₂ a day from the boiler flue gas of the coal fired thermal power plant. Beyond proving system performance, plant verification will encompass a wide range of tests aimed to accumulate know-how required for the design of utility-scale power plant application. These include the effects of the thermal power plant flue gas contents, such as SO_x (sulfur oxide), on the operation of the system when integrated with other power plant equipment, such as turbines and boilers.

Toshiba is targeting installation of its system in demonstration plants in Japan and overseas in parallel with the validation tests at the Mikawa pilot plant. Toshiba's goal is to meet emerging needs for commercial scale CCS systems for thermal power plants, an area where demand is expected to grow from around 2015. Toshiba will accelerate its research and development efforts to support early establishment of this business.

Background of installation of the pilot plant

Thermal power accounts for two thirds of worldwide power generation and is a central pillar of stable energy supply. However, more than half of all thermal power plants are coal fired, and these plants release more CO₂ for the same amount of electricity than plants that run on other fossil fuels, such as natural gas. Measures to reduce CO₂ emissions from thermal plants are seen as an urgent requirement for the environment, and new plants are considered as subjects for CO₂ emission regulation, especially in Europe. Given this, demand for CCS system is expected to grow, in parallel with new plant construction.

Research and development toward realizing CCS is going on worldwide, and Toshiba has undertaken fundamental research and development in this area. On October 1, Toshiba established a new CCS development and promotion organization, and will seek to further accelerate commercialization through the Mikawa pilot plant.

Outline of the pilot plant

Location: 1-46, Shinminato-cho, Omuta city, Fukuokaprefecture,Japan
(within Sigma Power Ariake Co., Ltd's Mikawa Power Plant)

Installed system: System for CO₂ separation and capture of boiler flue gas

Capacity: 10 tons of CO₂ a day

Carbon Capture Type: Post-Combustion; Chemical Absorption

Outline of Sigma Power Ariake Co. Ltd., Mikawa Power plant

Plant type: Coal-fired thermal power plant

Plant Output: 47,500 kW

Outline of Sigma Power Ariake

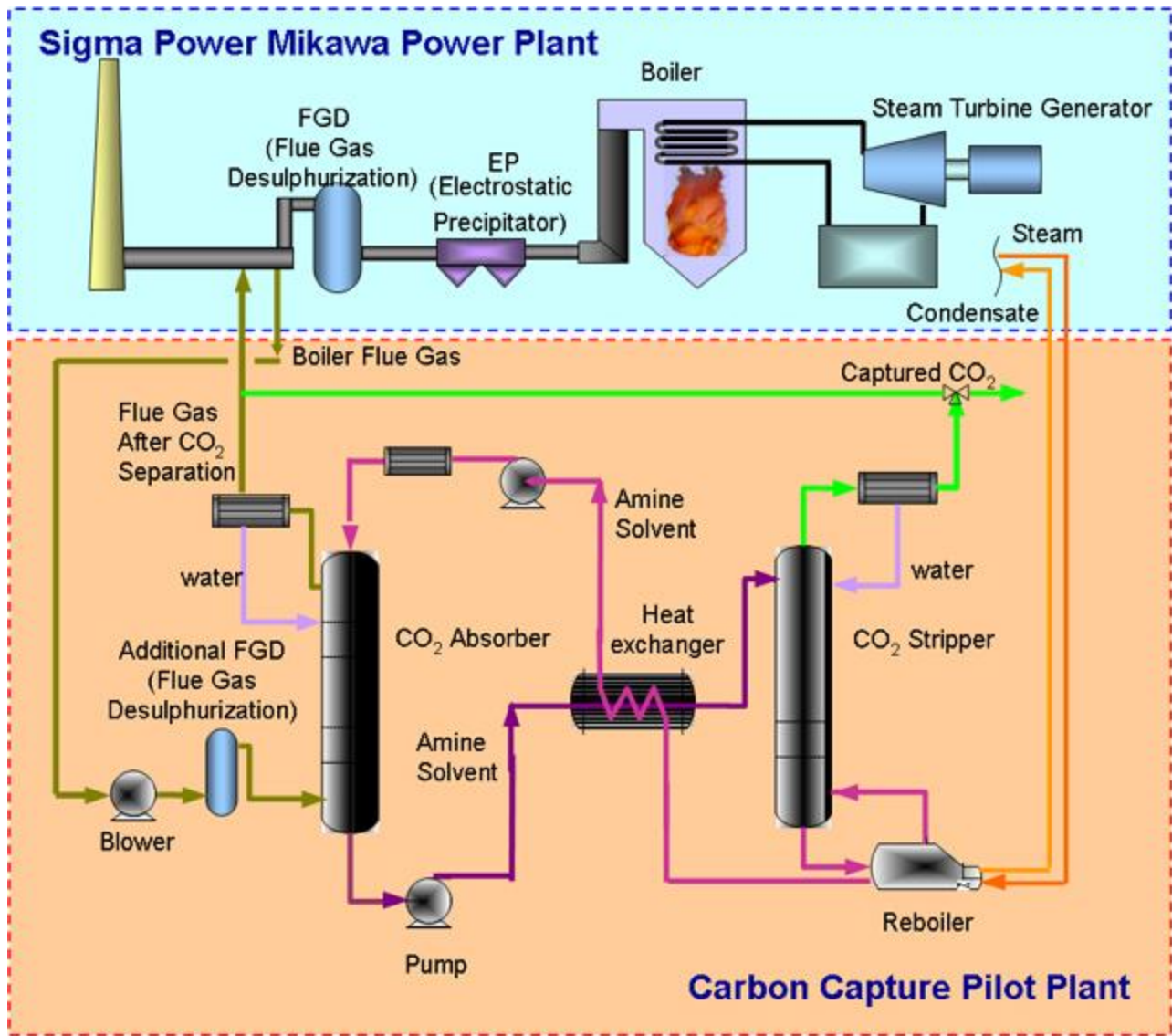
Established: April 1st, 2005

Headquarters: 1-1-1, Shibaura, Minato-ku, Tokyo

Representative: Shinichiro Nagao

Capitalization: 425 million yen

Toshiba's stake: 81.3%



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