

FEED Order for CO₂ Capture Plant from E.ON UK to MHI

Mitsubishi Heavy Industries, Ltd. (MHI), in consortium with Foster Wheeler Energy Limited of the UK, has received an order from E.ON UK plc, to support the front-end engineering design (FEED) for a post-combustion carbon dioxide (CO₂) capture plant proposed as part of E.ON's planned new supercritical coal-fired power station in Kent, England, UK. The order comes on the heels of the earlier pre-FEED phase awarded by E.ON UK in Jun. 2009. It follows the recent announcement by the UK Government's Department of Energy and Climate Change that E.ON has progressed to the next stage of its competition comprised of a FEED study. E.ON UK is one of two groups competing in the UK Government's competition to build one of the world's first industrial-scale carbon capture and storage demonstration plants.

E.ON plans to build a Carbon Capture and Storage (CCS) facility at its proposed new Kingsnorth Power Station in Kent. The planned new 1,600 MW supercritical coal-fired power generation plant will replace the existing coal-fired units. E.ON plans to separate, recover and compress the CO₂ from the coal-fired flue gas and to store it within a depleted gas reservoir in the North Sea.

For its participation in the CCS demonstration project calling for CO₂ recovery from the flue gas of a coal-fired generation plant, MHI looks to propose a reliable and economically viable technology that is applicable to large-scale CCS for coal-fired plants. Simultaneously it aims to vigorously pursue business expansion in this area while also contributing to global efforts to reduce greenhouse gases.

Dominion Virginia Power Selects Mitsubishi's US-APWR Reactor Design for Possible Expansion at North Anna Nuclear Plant — Third US-APWR Unit Selected in U.S. Market —

The US-APWR reactor design of MHI has been selected by U.S. utility Dominion Virginia Power as the prospective reactor for its potential third nuclear power generation unit at the North Anna Power Station in central Virginia in May, 2010.

MHI developed the US-APWR based on technologies for a 1,538 MW APWR intended for use at the Tsuruga Power Station (Units 3 and 4) of the Japan Atomic Power Company. A variety of modifications were added to meet the demands

of U.S. utility customers for enhanced performance, including the world's highest level of thermal efficiency, a 20% reduction in plant building volume, a 24-month fuel cycle, and greater economy through increased power generation capacity.

To date MHI has built 24 pressurized water reactors in Japan and has exported numerous components for nuclear power plants to U.S. utilities, including reactor vessel heads, control rod drive mechanisms and steam generators.



US-APWR (conceptual drawing)

2.5 MW Wind Turbine Technology to Chinese Company to be Provided by MHI

MHI and Ningxia Yinxing Energy Co., Ltd. (Yinxing Energy) of China signed an agreement on Sept. 14 under which MHI will license its manufacturing technology of MWT100/2.5 wind turbine, which has a rated power output of 2.5 MW, to the Chinese firm.

For the newly licensed MWT100/2.5, MHI enhanced power generation capacity of the 2.4 MW wind turbine, the company's leading machine, and made modifications to suit the Chinese market while retaining features of the base machine, including durability in operations under gusty wind conditions, measures against lightning strikes and easy-to-transport design.

Wind turbine installations are sharply increasing in

China to accommodate strong electricity demand and, at the same time, address environmental issues. In 2009 the country newly installed wind turbines equivalent to 14,000 MW, making China the world leader in new installations and placing it third worldwide in cumulative installations: 26,000 MW at the end of 2009. As the Chinese government is encouraging introduction of wind power and targets more than 100,000 MW wind power generation capacity by 2020, the nation is regarded to be one of the leading wind power markets in the world.

In response, going forward MHI will continue to conduct aggressive marketing activities of its wind turbines, including licensing, in China's buoyant market.



Wind Turbine (image)

Hitachi, Mitsubishi Electric and MHI Agree to Discuss Consolidation of Hydroelectric Power Generation System Business

On Jul. 5, 2010, Hitachi, Ltd., Mitsubishi Electric Corporation and MHI announced that they have reached a basic agreement calling for the three companies to initiate concrete discussions toward consolidation of their hydroelectric power generation system operations in a quest to strengthen and expand related business. Going forward the three companies look to jointly establish an operational company and build up a coherent business structure by integrating their various activities pertaining to hydroelectric power generation systems,

including marketing, servicing, engineering, development and design, in order to further develop the business aggressively.

In the coming years, hydroelectric power generation is expected to attract continuous demand as a clean renewable energy contributing toward the realization of a low-carbon society.

The three companies look to contribute further toward the realization of a low-carbon society and stable supply of electricity.

“ZGA2000” Large-size Gear Grinding Machine to be Marketed by MHI

On May 27 2010, MHI began full-scale marketing of the “ZGA2000,” a newly developed large-size gear grinding machine enabling, for the first time in Japan, the machining of external gears of workpieces up to 2 meters in diameter. Capable of the world’s top level of high-speed, high-precision machining, the ZGA2000 significantly reduces idle time and boosts operability, enabling gear manufacturers to increase their productivity.

Recently demand for high-precision, large-size gears has been increasing for applications in various machinery, including wind turbines, iron and steel production machinery, construction machinery and marine machinery. In tandem with this emerging demand, high-efficiency, high-precision and cost-effective heavy-duty gear machines are being sought globally – specifically, gear hobbing, gear shaping and gear grinding machines for processing gears with diameters larger than 1,000 mm. Responding to these

needs, MHI has launched the ZGA2000 on the heels of the “GEA1200” gear hobbing machine announced earlier in May, which is capable of machining workpieces with diameters up to 1,200 mm.

Going forward MHI aggressively explores demand for the new machine, including for use in producing large-size gears for wind turbines and iron and steel production machinery.

Spurred by the market launch of the ZGA2000 gear grinding machine and the GEA1200 gear hobbing machine, MHI now looks to introduce gear shaping machines that can accommodate up to 2,000 mm diameter workpieces. At the same time, plans call for the company to establish a new business model encompassing after-sale services, maintenance and tool supply, primarily for large-size gear machines, and to further strengthen its aggressive marketing activities in the global market.



“ZGA2000” Gear Grinding Machine

Subsidiary in Singapore Established by MHI to Strengthen Global Operating Structure of Machinery & Steel Structures Business

MHI established MHI Industrial Engineering & Services Private Ltd. (MIES) in Singapore effective Oct. 1, which handles the company’s machinery and steel structures business. MIES is aimed to function as a marketing and service base for environmental and chemical plant projects in the Southeast Asia and Middle East regions, where market expansion is expected over the long term. The new company also serves to execute part of EPC (engineering, procurement and construction) projects, such as procurement activities. Future plans call for MIES to broaden its business scope from environmental and chemical plants to other product areas and become a regional business base for other operations in machinery and steel structures.

The markets for environmental and chemical plants are basically in expansionary trends along with economic growth and population increases in the emerging countries. Competition in these markets is intensifying, however, due to the significant ascendancy of Korean companies – with Chinese companies expected to catch up in the future – and rivalry among engineering companies in Japan, Europe and the U.S. To respond to these market conditions, MHI has been faced with the urgent task of maintaining and enhancing its ability to deal promptly, dynamically and locally with customers in areas ranging from project development to construction and completion of plants. It was against this backdrop that MHI opted to establish the new company in Singapore.