News & topics

Wind turbine manufacturing plant to be built by MHI in Arkansas, USA — Production slated to begin in second half of 2011 —

Mitsubishi Heavy Industries, Ltd. (MHI) has decided to build a wind turbine manufacturing plant in the US state of Arkansas. The new plant, which will fabricate nacelles, a core component of wind turbines, is slated to begin operation in the second half of 2011 with an initial annual production capacity of 600 MW (megawatts). MHI looks to expand its share in the North American market, which is now in a recovery trend. The new plant will be the company's first nacelle production plant located outside of Japan.

The new facility is to be built in Fort Smith, the second-largest city in Arkansas. It will be operated and managed by Mitsubishi Power Systems Americas, Inc. (MPSA), MHI's power systems business base in Florida.

The initial manufacturing target will be near 250 units of 2.4 MW wind turbines per year, with scale to be expanded incrementally thereafter. MHI will also consider launching longer-blade type turbines for low wind-speed applications.

The nacelle, which is located at the top of the wind turbine tower and functions to convert wind energy to electric power, consists of the wind turbine rotor axis, generator, multiplying gearbox, control system and electrical equipment.

Since delivering its first unit in 1980, MHI has engaged in the development, manufacture and marketing of wind turbines for three decades, and in the process it has established its position as Japan's largest wind turbine manufacturer. Installation of the company's first wind turbine in the US took place in 1987, and to date MHI has delivered more than 3,500 units to the US market.

The US wind turbine market slowed after the global financial crisis but is now in a recovery trend and expected to mark strong growth. MHI already has a turbine blade manufacturing plant serving the US market: VienTek, LLC, located in Mexico. By localizing nacelle production through the establishment of a plant in Fort Smith, going forward MHI will further enhance its ability to respond to and satisfy growing demand throughout North America.

Geothermal energy opportunities worldwide to be developed: MHI to collaborate with Reykjavik Energy of Iceland

MHI and Reykjavik Energy (Orkuveita Reykjavikur: OR), a geothermal electricity producer and multi-utility provider in Iceland, have agreed on joining forces in the development of geothermal energy opportunities globally and signed a memorandum of understanding (MOU) in Tokyo on Apr. 15, 2010.

OR, one of the world's leading geothermal power generation companies, is looking to promote geothermal energy use globally and has already begun development activities in Africa and elsewhere. With conclusion of the MOU, MHI, the world's foremost manufacturer of geothermal power generation equipment, will now participate in OR's initiative and jointly explore geothermal power generation projects worldwide. Specifically the two companies will collaborate in activities involving identification and verification of geothermal power generation potential, project launch support, development and supply of major equipment, preparation of power plant operation and management guidelines, etc.

The two companies also agreed to collaborate in green energy projects within Iceland, including production of synthetic fuel as a clean alternative fuel for transportation such as ships, and the establishment of an infrastructure for verification testing of electric vehicles (EV). These projects are part of Iceland's various undertakings to realize a zero emissions society, i.e. 0% hydrocarbon fuel emissions, by 2050.

MHI decided to contribute to Iceland's clean energy policy and, together with Mitsubishi Corporation, signed an MOU with the Icelandic government in Sept. 2008. Since then MHI has cooperated in studies of dimethyl ether (DME) production as carbon neutral fuel with geothermal and hydro power and the establishment of an EV verification testing infrastructure. The latest MOU on collaboration will further accelerate these initiatives.

Going forward the two companies will further strengthen their activities to promote utilization of geothermal energy by combining their technologies and know-how.

Geothermal power plant

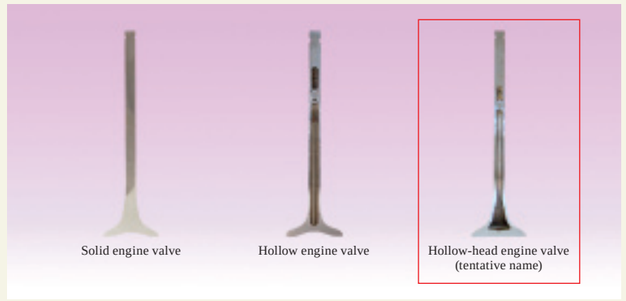
Proprietary integrated forging technology leveraged by MHI to achieve low-cost mass production of hollow-head engine valves

MHI has completed a mass production system for lightweight, high-strength "hollow-head" engine valves employing proprietary forging technology that enables hole-forming from the valve stem to head in one process. The new forging technology was achieved based on the company's unique production know-how in hollow valves for aircraft engines. With hollow valve heads, overall valve weight can be reduced by up to 20% compared with solid valves. The technology has also cut hollow-head valve production costs significantly. MHI expects demand for this valve type to increase going forward, and is targeting shipments of 1.5 million units in 2014, mainly for the automobile industry as a key measure to improve fuel efficiency as CO_2 emission controls become increasingly tighter worldwide. With MHI's hollow-head valve production technology (patents pending in Japan and abroad), the hollow is formed during the forging process; no equipment is required other than the forging press.

MHI's Machine Tool Division has already established a production structure capable of producing 25,000 hollow-head valves per month. It has also started shipments of samples mainly to automobile manufacturers, and launched development of customized products reflecting the diversified needs of users and the results of their evaluation testing.

As a measure to combat global warming, CO_2 emission controls, especially for automobiles, are becoming more stringent. In response, automobile manufacturers around the world are fiercely competing to develop more fuel-efficient cars and electric vehicles. In parallel with these initiatives, stepped-up efforts are being made to reduce auto engine weight further, lower friction loss and enhance combustion efficiency.

MHI views hollow-head valves as a differentiated product that can contribute largely to enhancement of automobile engine efficiency. Going forward the company will aggressively conduct marketing activities of the new valves by offering a lineup of metals — ranging from heat-resistant steel to nickel alloy — for not only the automobile industry but other potential users as well.



Representative office established by MHI in Abu Dhabi

MHI has established a Representative Office in Abu Dhabi, the capital of the United Arab Emirates (UAE). The launch of the Abu Dhabi Representative Office, which began operations on Apr. 1, aimed at increasing the company's business opportunities in Abu Dhabi, which is currently promoting large-scale renewable energy development projects and an environmentally-conscious social infrastructure leveraging its revenues from petroleum resources. In the near term, MHI will mainly target projects involving carbon capture and storage (CCS) coupled with enhanced oil recovery (EOR) and next-generation transportation systems. The new office functions as a base for dynamic, locally tailored information gathering and business development activities. This is MHI's second representative office in the Persian Gulf region, joining the Middle East Office in Dubai.

MHI established the Strategic Business Development Office for the UAE at its main office in Tokyo in Oct. 2009 in a quest to strengthen its UAE market development activities, especially in the Emirate of Abu Dhabi. Since taking this move the company has been pursuing increased opportunities to contribute to Abu Dhabi's development and to expand its own business in the region, including projects like the Masdar Initiative, a strategic economic development program with environmental and sustainability priorities that Abu Dhabi is vigorously promoting, and urban infrastructure development projects designed to attract the headquarters of the International Renewable Energy Agency (IRENA)* to Abu Dhabi.

To smoothly and effectively implement the company's initiatives relating to such projects, MHI opted to conduct locally based activities from the early stages. With establishment of its new office, the company has enhanced its capability to promptly grasp the local situation and local needs and respond accordingly to customers such as the Abu Dhabi government and public organizations, while also boosting the company's presence in Abu Dhabi.

Notes:
*The International Renewable Energy Agency (IRENA) was officially established in Bonn in Jan 2009 as an international body to promote the widespread and increased adoption and sustainable use of renewable energy At a meeting Jul 2009, Abu Dhabi was designated as the organization's interim headquarters Today more than 140 member states have become signatories to IRENA's Statute

Crane and heavy-duty material handling equipment technology licensed by MHI to Anupam Industries of India

MHI agreed on Apr. 12, 2010 to license its crane and material handling equipment technology for large-scale ports, including container cranes, to Anupam Industries Limited (ANUPAM), India's largest overhead crane builder. The two companies signed a licensing agreement in India. Through licensing MHI aims to capture India's rapidly expanding market and also seeks to develop markets in Asia, the Middle East and Africa. With establishment of a joint venture in India also in its sights, MHI looks to accelerate business expansion in these regions in a quest to boost its overall ratio of overseas sales.

Under the agreement, initially the licensed products will be sold in India's domestic market only. Specifically MHI will provide ANUPAM with technology licensing for quayside cranes such as container cranes and transfer cranes, material handling systems such as loaders and unloaders, and steel plant logistics systems. MHI and ANUPAM are already collaborating in several business negotiations within India. MHI is also considering strengthening the two companies' collaborative relationship through establishment of a joint venture company in India. The geographical areas of collaboration will be progressively expanded to the entire Asian region, the Middle East and Africa.

MHI's material handling sector, which includes cranes, has recently been recording annual sales near 20 billion yen, of which overseas sales account for less than 10%. Through collaboration with ANUPAM, MHI looks to increase sales initially in the rapidly growing Indian market and in future the entire Asian, Middle East and African regions. The company is also mulling the establishment of a production base in India to accommodate demand if business expands as expected, and to expand sales channels for these regions. In tandem with these initiatives, MHI will further strengthen its aggressive marketing activities, aiming to lift its overseas sales ratio of cranes to near 50%.

New subsidiary established by MHI to oversee all business in China

MHI has newly established Mitsubishi Heavy Industries (China) Co., Ltd. (MHIC) in Beijing to serve as a regional headquarters overseeing all company business in China. With the establishment of MHIC, MHI aims to increase new business opportunities in the rapidly growing Chinese market by establishing a structure enabling it to leverage its comprehensive company-wide capabilities. At the same time, with this initiative MHI also looks to further enhance local corporate management and administrative functions and further solidify its base of business operations in China by strengthening managerial support and corporate governance to its group companies. MHIC initially started with 14 employees, including office staff assigned to a Shanghai branch opening in Feb.

MHI began its full-fledged entrance into the Chinese market in the 1980's. By establishing MHIC as a company charged with overseeing all business conducted in China, MHI now expects to further enhance its presence in this country destined to mark sustained high growth, and also looks to continue contributing to the realization of an affluent society in China through its local business activities.

MHI completes production facilities dedicated to rotors and forged blades for large-size Nuclear Power Plant turbines

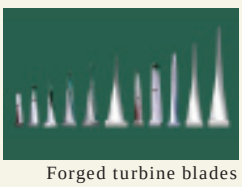
MHI completed the construction and commenced operation of new manufacturing facilities at its Takasago Machinery Works dedicated to production of key components for Nuclear Power Plant (NPP) turbines in Sept. 2009 and Jan. 2010 respectively.

NPP turbine – a rotating body – is composed mainly of forged blades and a rotor that functions as the turbine shaft or axis into which the blades are set.

The new accommodate to the trend of larger facilities electricity output of NPP and also realize higher quality and productivity by integrally performing all processes required for manufacturing NPP turbines.

With these new facilities, MHI has firmly established the capability to products large number of turbines, including supersized 70-inch class turbines for US-APWR and EU-APWR NPPs, the world's largest 1,700 MWe (megawatt electric) class advanced pressurized water reactors (APWR) for the US and EU markets respectively.

The NPP turbine (rotor) plant constructed at the Takasago Machinery Works


Forged turbine blades


Turbines