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TNB Prai plant 'most efficient in SE Asia'

Utility giant says power plant has efficiency rating of over 60%, running on dual-fuel engine

by P PREM KUMAR

TENAGA Nasional Bhd's (TNB) Prai combined-cycle power plant has started commercial operations in February this year, powered by two Siemens SGT5-8000H highly efficient gas turbines.

Siemens director of gas turbine product management Willibald Fischer told *The Malaysian Reserve* that with a generating capacity of about one gigawatt and an efficiency rating of over 60%, the power plant will be the most powerful and efficient gas-fired power plant in the South-East Asian region.

The gas turbines installed in Prai is running on a dual-fuel engine. It is the first one to have been sold in Asia by Siemens, he said in a recent interview.

He said the SGT5-8000H turbines capability had been proven extensively after clocking more than 200,000 hours of operation since it was first introduced in 2010.

As of April 2016, Siemens sold 78 H-Class turbines worldwide, with 22 turbines already in commercial operations, said Fischer.

At the combined-cycle power plant in Irsching, Germany, the SGT5-8000H had set a world record in 2011

with an efficiency rating of 60.75%, generating a capacity of 578MW.

Fischer said the TNB Prai power plant will help contribute towards the generation, transmission and distribution of electricity within the areas

of Peninsular Malaysia, namely the Klang Valley and Greater Kuala Lumpur areas.

As of March 2016, Peninsular Malaysia's current total installed capacity stood at 22,200MW with TNB owning 11,818MW.

The installation of SGT5-8000H gas turbines in the Prai power plant has fulfilled part of the order placed by Samsung Engineering & Construction (M) Sdn Bhd in 2013.

Siemens has also entered into a long-term maintenance contract for the gas turbines with a term length of 14 years. Total order was valued at RM685.7 million in 2013.

Fischer said in January 2016, Siemens registered three world records in a combined-cycle power plant belonging to utility company Stadtwerke Düsseldorf AG.

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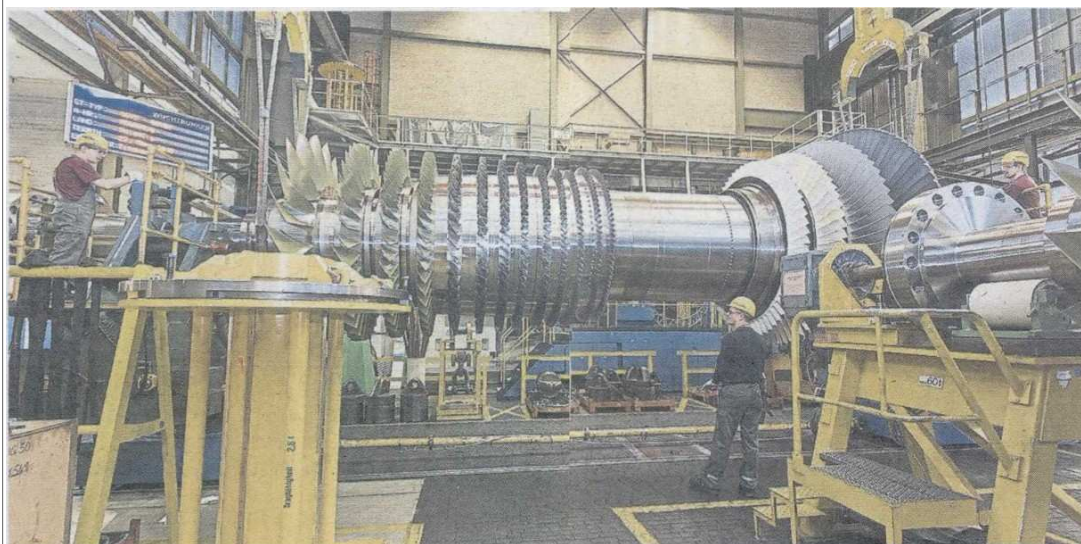
electrical output of 603.8MW, which was a new record for a combined-cycle plant of this type.

A new world record of around 61.5% for net power-generating efficiency was also achieved, enabling Siemens to surpass its own efficiency record of 60.75% set in May 2011 in the Irsching power plant.

Fortuna also could deliver up to around 300MW thermal for the district heating system in the city of Düsseldorf, Germany — a further international peak value for a power plant equipped with only one gas and steam turbine.

According to Fischer, in terms of the average emissions of power generation for all coal-fired power plants throughout the European Union, a natural-gas-fired combined-cycle power plant with an electrical efficiency of 61.5% theoretically saves approximately 2.5 million tonnes of carbon dioxide (CO₂) annually.

This corresponds to the amount of CO₂ emitted by 1.25 million passenger cars, each driving 15,000km a year. Cleansing this amount of CO₂ from the atmosphere would require a forest with an area of 250,000ha, he added.



During the test run before acceptance, the Siemens SGT5-8000H code-named Fortuna achieved a maximum electrical output of 603.8MW, which was a new record for a combined-cycle plant of this type