

# Technical Visit to Serdang Power Station

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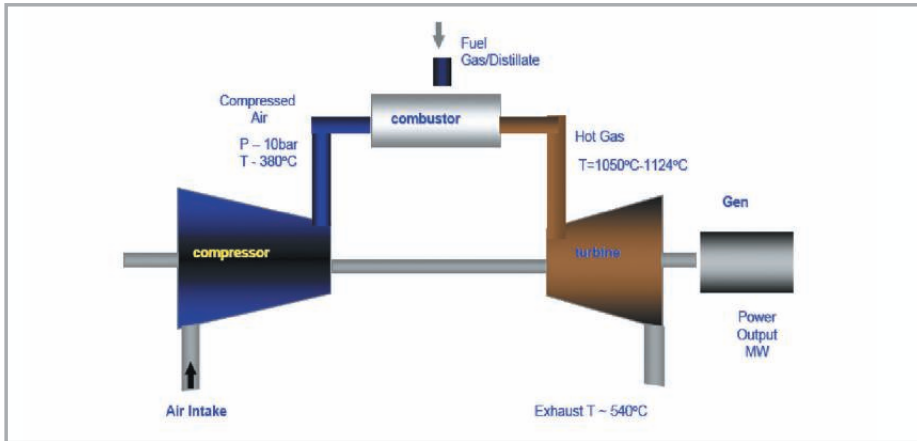


Figure 1: Schematic diagram of a Gas Turbine Generator

As one of our objectives to enhance the general knowledge of our members, the Mechanical Engineering Technical Division has organised a technical visit to Serdang

Power Station on 11 March 2006. The half-day trip was participated by more than 30 engineers, from various disciplines.

Strategically located within the Klang Valley load centre, Serdang Power Station is considered as one of the most important stations in terms of providing reliable power and maintaining system stability within the region. With the relocation of the new government administrative centre (Putrajaya) within the vicinity, the station has emerged as one of the most strategic power stations in the country with regard to the development of Putrajaya, said Ir. Zulkifli Md. Noor, the General Manager of the station. In fact, Serdang Power Station is playing an important role in ensuring uninterrupted and quality power supply to the nation's administrative capital, the General Manager further elaborated.

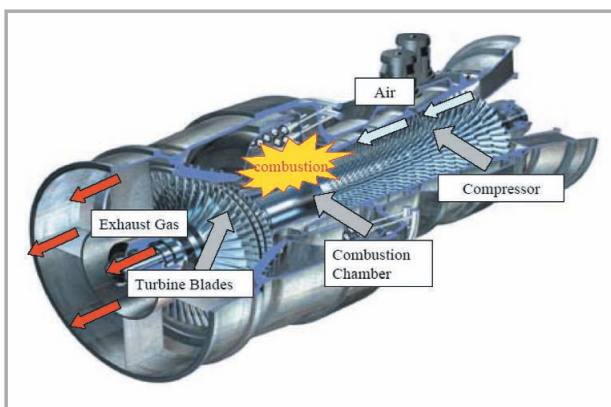


Figure 2: Illustration of the processes in a Gas-Turbine

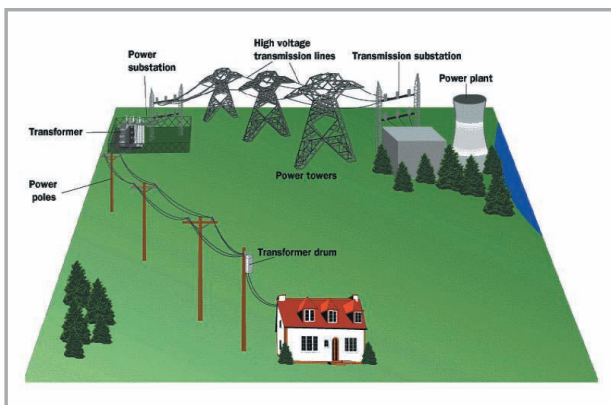


Figure 3: Power supply system in Malaysia

Built in 1993 with a total generating capacity of 625 MW, Serdang Power Station was part of Tenaga Nasional Berhad's plan to increase power generation capacity to meet the nation's rising electricity demand in the early 1990's. The station comprises 5 units of gas turbines, which are designed for open cycle operation, which means the exhaust gas from the turbine is directly released to the air through the exhaust stacks. The gas turbine is of dual firing type with natural gas as main fuel and distillate as standby fuel.

Each gas turbine generator unit consists of a turbine directly coupled to a 50 Hz 3 phase air-cooled generator operating at 3000 rpm. The power output from the generators are transmitted through the Generator Transformers which stepped up the generator output voltages from 10.5 kV (Siemens GT) and 15.0 kV (GE GT) to 275 kV and 132 kV respectively for transmission to the National Grid.

Serdang Power Station, due to its design is operated mostly during the "peak loading". There are generally 2 categories of power stations in the country, i.e. based load and peak load, explained Ir. Roslan Abd. Rahman, the Senior Manager (Operation) during the briefing. The peak load power stations will only be engaged and put into service during the high demand period, usually from 8.00 a.m to 5.00 p.m during the weekdays. This is the time when the national load rises beyond the average demand during the weekdays.

As one of the best managed stations in Malaysia, Serdang Power Station has embarked on various Total Quality Management programs, to continuously improve the operations of the station. Amongst others, the station has adopted the Quality Management Systems MS ISO 9001-2000, Environmental Management System ISO 14001 and Occupational, Health and Safety Management System OHSAS 18001 in their day-to-day business processes. As



Figure 4: Photo of the Delegation and the Management of the station

stated in the vision statement, Serdang Power Station is determined to achieve

the 'World Class Power Station' status by the year 2010.



Figure 5: View of Serdang Power Station

The delegation adjourned to the plant visit at 11.30 a.m. It is worth mentioned that during the visit, one of the gas turbine units is undergoing planned maintenance, and we have the opportunity to see the internal parts of the gas turbine.

Last but not least, we sincerely wish Serdang Power Station to continuously excel in the power industry, and to attain the World Class Power Station status by the year 2010! ■