Technical Visit To Leader Solar Energy Solar Farm, Sungai Petani

By Ir. Wong Jian Choon

On 18th Aug 2023, IEM Penang Branch has organised a technical visit with 15 pax branch members to Leader Solar Energy Solar Farm located in Sg Petani, Kedah. The participant registration at Solar Farm started at 9.00am, IEM members had signed on the attendance and welcomed by Leader Solar Energy's plant manager, Mr. Mohamad Azri Aris.

Solar farm main entrance

Mr. Mohamad Azri continued with the briefing about the solar farm construction history, solar farm capacity and the daily operation in the solar farm. The solar plant occupies around 49 hectare of land and the construction was commenced in Sept 2017. After a year of construction period, the solar farm has start full commercial operation on 11th Oct 2018, making it one of the largest solar farms in Peninsular Malaysia at that time.

This solar farm's generation capacity is 29MWac (DC at 38MWp), which is comprised of around 71,000 pieces of 535W Canadian Solar PV modules in total. Then, around 30 pieces of solar PV modules has been looped as a string with DC (Direct Current) voltage up to around 1200Vdc and injected into the central inverter. The entire solar farm has been divided into 15 zones and each zone is equipped by a 2MW

central inverter and the oil type step-up power transformer. There are around 150 – 160 strings of solar PV modules connected into each central inverter.

The solar central inverters have converted the DC power from the Solar PV modules into 580V AC (Alternating Current) voltage as output power before entering the step-up power transformers. After that, power transformer then step-up the 580V AC voltage up to 33kV and channelled by the 33kV underground cable into the 33kV GIS type switchgear located at the consumer side switchgear room and then injected into TNB PMU Tikam Batu around 10km away from this solar farm. In the consumer side control station, there is the SCADA (Supervisory Control & Data Acquisition) system been installed to monitor the real-time solar generation. Also, there is a weather station which is used to collect the weather information such as wind speed, rain water capacity and solar irradiation.

The participants visited the display hall after a short break. At the display hall, solar farm staffs gave detail explanation about the operation of this solar farm. After the short break, Q&A session was held. Few questions about the daily operation and issued faced on solar farm have been asked by the participants, very comprehensive explanation was given by the host.

Afterwards, the participants visited the outdoor solar farm. The participants can personally observe the installed material like the solar PV module with the above ground mounting support bracket, cable trunking and all the AC & DC cable. The participants also visited the central inverters which function is used to convert DC current to AC current.

Outdoor solar farm

At 11.45am, all the participants have been gathered into the electrical switchgear room to have a clear picture on how the power distribution works. The switchgear room consist of the 33kV switchgears and also the remote control panel. The participants also visited the SCADA system, which is used to monitor the health status of the plant to ensure that it is operating at the optimum condition.

At the end of technical visit, IEM representative presented a token of appreciation from IEM to Mr. Mohamad Azri, and continued with group photo session. This was a very memorable technical visit and every participant felt very grateful for the hospitality and generosity shown by the host.

Group photo of IEM members and Solar Farm staffs

Solar Farm chargeman is giving an explanation for power distribution system

IEM representative presents an appreciation certificate to Mr. Mohamad Azri