

Electrical Blog No. 37 – PV System

Photovoltaic (PV) System

Photovoltaic (PV) System is one of the renewable energy systems which produces clean electric power by using solar cells to convert energy from sunlight into electricity. The generation process uses inexhaustible energy sources to replace conventional fossil fuels. Pollutants or greenhouse gases that cause air pollution and environmental degradation will not be generated during the process. According to Marketbuzz, the world solar PV System installations were 2.826 GW peak in 2007, and 5.95 GW in 2008, a 110% increase. The two leading countries are Spain and Germany representing nearly 82% of the total worldwide PV system installed capacity. In terms of solar cell supply, China and Taiwan continued to increase their share of production, rising from 35% in 2007 to 44% in 2008.

In Hong Kong, Technical Guidelines on grid connection of renewable energy systems with rated capacity upto 1 MW in a safe and secure manner are available from the Electrical and Mechanical Services Department. The guidelines cover four major technical aspects; safety, equipment protection, reliability and power quality. Since PV System modules have no moving parts, the maintenance requirement is minimal. Routine inspection or repair works upon failure of components is carried out on a needed basis.

Nowadays, installation of building-integrated PV systems are encouraged in new buildings as a supplementary source of electrical power and showcase as one of the environmental conversation features of the building. In transport sector, PV System is rarely used to provide motive power in transport applications. However, it is being used increasingly to provide auxiliary power in vessels and vehicles.

Policies that specifically support of renewable energy are essential to the wide spread of the related technologies. Setting up of a renewable energy funds could also be another means to provide incentives for smart incorporation of renewable energy systems in our new and existing buildings.

The Electrical Blog is contributed by the Electrical Division. If you would like to know more about this topic, please contact the Division Hon Secretary, Ir K.M. LEUNG at 'kmleung@emsd.gov.hk'