A Brief History of Solar PV Market in Pakistan

By Engr. Faiz Bhutta
Solar PV Expert (Consultant and Trainer)

The method used to convert solar irradiance (light energy) into electricity is called solar PV (Photovoltaic). Solar PV systems are a kind of solar energy that are used to electrify residential, commercial, and industrial buildings. Additionally, solar electricity is utilized for irrigation, telecommunication, and security purposes.

Solar PV officially began in Pakistan in 2008, however there were already one or two businesses selling solar house kits, solar lights, and solar cookers before then. The solar business officially began in 2008, and customers primarily discussed battery-based home systems to supply them with solar power during the day and act as a backup in case the grid goes down or is shut off. In Pakistan, there was no such thing as Tier-1, Quality, Standards, or EPC. The quality and standards were nonexistent, the skill level was quite low, and the solar module was polycrystalline and had 50Wp and 100Wp outputs. Solar panels cost US$ 3 per watt, whereas solar PV systems cost around Rs. 400 per watt of PV module, with an efficiency of 14%.

China invented the monocrystalline module, which had an efficiency of 16%, and there was a lot of discussion on the market concerning

polycrystalline and monocrystalline modules, with people trying to decide which one was superior. Up until 2014, the solar industry developed gradually, and the solar PV module size increased to 330W with a 17% efficiency. The quality of solar technology increased from 2008 to 2014, and skilled labour and EPC businesses entered the market. Hybrid technology started to wane as a result of Net Metering SRO 892/2015, and the Net Metering era began with the adoption of NEPRA Net metering SRO 892/2015.

Tier-1 Modules also gained popularity in the market, and high-quality PV module manufacturers like LONGi, Jinko, Trina, JA Solar, and Canadian Solar gained recognition in the Tier-1 category. BNEF (Bloomberg New Energy Finance) began publishing a list of Tier-1 manufacturers on a quarterly basis, and PVEL then came up with the concept of a scorecard.

The installation of Net Metered Based Solar PV Systems, the growth of the On-Grid Inverter market, and the PERC (Passivated Emitter Rear Contact) technology all contributed to the solar industry's explosive growth in 2016. These factors helped achieve module efficiencies of more than 20% with wattages of Module Size above 500Wp. Further aiding in the reduction of losses and improvement of wattage and efficiency were the Multi-bus bars (MBB), Half, and one third Cut technologies. The era of more powerful PV modules has begun. High-quality on-grid inverters entered the market, and companies like Huawei and Sungrow are now the industry leaders in solar PV systems for industrial and commercial applications. Companies like Goodwe, Sofar, Solis, and Growatt also gained notoriety in the domestic and commercial markets.

The new solar PV module technologies TopCon, HJT, and IBC provided a further push in 2022 and beyond, enabling modules with wattages of 600Wp and higher to achieve efficiencies of more than 23%. The solar PV market is growing, and market penetration has reached 3 GW installations. Good firms have developed that have experience and experienced labour for design, supply, installation, operation, and after-sale services.

“Solar energy is bound to be in our future. There is a kind of inevitability about it. Even if we did not have greenhouse gases, we are going to have to move away from fossil fuels, as we are going to run out. They are finite, whereas solar and wind are infinite.”

Author is pioneer in Solar and running two companies www.etrc.org.pk and www.techfaconsulting.com and has trained more than 4000 persons in Pakistan in Solar and can be reached at faiz.bhutta@gmail.com