Distributed Solar Power and Solar Water Heater

The state of Andhra Pradesh is among those few states which have issued a separate rooftop net metering policy. State policy emphasizes on development of distributed generation through solar rooftop systems in public buildings, domestic, commercial & industrial establishments on gross/net metering mode. This will help the power utilities in managing demand, reducing capital expenditure for network augmentation and improving performance. With development of smart cities and new state capital, penetration of solar rooftop plants is expected to increase significantly. Further, in-line with national target of 40 GW by 2022, MNRE has set a target of 2 GW of installed capacity of solar rooftop plants for the state.

Level 1

Level 1 assumes slow growth in rooftop sector due to various challenges related to grid integration, network constraints and lack of required policy support. MNRE target of 2 GW will be achieved only by 2030. The penetration rate of households will reach only up to 7% by 2050 leading to total installed capacity of 6 GW. Solar water heater installations will also be slow, reaching to 0.4 GW (equivalent to collector space of 1 sq.km) in 2050 from 0.1 GW in 2015.

Level 2

Level 2 assumes that a strong policy and regulatory support will increase the penetration rate from existing level of 0.02% to 10% by 2050. Measures like mandatory installation of solar rooftop plants in major cities will be in place. Smart grid systems will be adopted to overcome the challenges of grid integration. Penetration rate of households will reach 10% in 2050 leading to total installed capacity of 9 GW by 2050. Owing to strict mandates for installation of solar water heaters, total collector space would reaches 3.7 sq. km. in 2050 (~1.8 GW).

Level 3

Level 3 assumes slightly higher growth rate of solar rooftop systems, owing to fall in prices of solar modules and smart grid systems which will assist in overcoming the challenges of grid integration. MNRE target of 2 GW by 2022 will be achieved and thereafter the historical trend will continue which will increase the penetration rate to 15% by 2050 resulting in increase in installed capacity by up to 14 GW. Further, total collector space of solar water heater would also increase to 6.7 sq. km (~ 3.3 GW) by 2050, due to changing lifestyle and increased urbanization.

Level 4

Level 4 is a heroic scenario, which assumes that there will be no technical and regulatory constraints. Policies for mandatory installation of solar rooftop systems and solar water heaters in all cities will be in place which will be supported by decrease in prices of solar modules. The penetration rate of households will reach only up to 21% by 2050 leading to total installed capacity of 19 GW. This leads to increase in collector space to as high as 12 sq. km. (~6.2 GW) in 2050.