Pakistan energy storage for load shifting

Investing in the grid and addressing inefficiencies in the power sector are necessary for greater renewable energy adoption

August 21, 2024 (IEEFA Asia): As solar panel prices in Pakistan hit an all-time low, the rapid increase in rooftop solarization has sparked debates over current energy policies. A new report from the Institute for Energy Economics and Financial Analysis (IEEFA) explores the potential impacts of different policy scenarios, identifying strategies that could benefit both energy consumers and power distribution companies (DISCOs).

"With rapidly decreasing solar panel costs and rising consumer electricity tariffs, distributed solar photovoltaic (PV) systems in Pakistan are becoming increasingly cost-effective," says Haneea Isaad, an Energy Finance Specialist at IEEFA.

However, the recent surge in net-metered rooftop solar PV capacity has raised concerns among DISCOs about system reliability and increased capacity payments for non-net-metered consumers.

The government is currently considering several changes, including reducing buyback rates, and transitioning from net metering to net billing. Other proposed measures include creating a separate tariff category for net-metered consumers and limiting their system size allowance.

"Our report shows that a moderate reduction in buyback rates could provide relief to DISCOs while still encouraging self-consumption," says Isaad. "The timing of these policy changes is crucial. While a revised policy with reduced incentives could be implemented immediately for new installers, a gradual phase-out of the current policy every quarter would offer a transitional period for both new and existing net metering beneficiaries."

"We recommend that consumers select the appropriate system size for their consumption needs, as this can significantly impact their return on investment. In addition, the government can optimize both the buyback rates and the grid system to promote further renewable energy adoption," says Syed Faizan Ali Shah, the report co-author and an energy expert.

Optimizing the net billing mechanism

Pakistan"s current net metering policy allows solar energy system owners to receive credit for the electricity they contribute to the grid, with a unit-for-unit adjustment during off-peak hours. However, a shift to net billing would remove this off-peak adjustment, introducing separate tariffs for electricity imports from and exports to the grid.

The country"s current Distributed Generation and Net Metering Regulations were first adopted by the National Electric Regulatory Authority (NEPRA) in September 2015. The regulations created the framework for the successful adoption of distributed renewable energy in the country, with approximately 2.2 gigawatts (GW) of net-metered rooftop solar PV capacity connected to the grid by June 2024.

Under the current net metering regulations, excess energy generated from net-metered solar systems can be sold back to the grid at the National Average Power Purchase Price (NAPPP), which reflects the average cost per unit of power purchased by the DISCOs.

"This report shows that lowering the buyback rate to PKR15/kWh would still offer reasonable payback periods, under five years, for most cases. It would only extend the payback period of consumers with 100% self-consumption by 6%," says Shah.

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