

Annual State of Renewable Energy 2026

The global renewable energy transition is entering a new phase. Solar PV and wind are now driving new electricity capacity, supported by falling technology costs, private investment and energy security concerns. The transition is also decentralising as households, businesses and industries invest in their own generation, and battery storage is emerging as its next frontier. For emerging economies, this offers a route to lower fossil fuel dependence, stronger energy security and contained electricity costs, while requiring reforms in infrastructure, regulation, markets and financing.

Pakistan is at a critical juncture in this transition. The [Economic Survey 2025–26](#) reports installed generation capacity of 49,651 MW by March 2026, up from 45,782 MW a year earlier. Renewable capacity reached 10,101 MW, or 20.3% of the total, including 7,319 MW under net metering. Yet renewables contributed only [4.5% of generation in July–March FY2026 \(4,160 GWh\), compared with 4.3% a year earlier](#). This gap underscores the importance of capacity utilisation, system integration and measuring electricity generated behind the meter.

The 2026 Middle East crisis demonstrated the strategic value of this transition. Qatar and the United Arab Emirates (UAE) supply about [99% of Pakistan's LNG](#), and deliveries collapsed after [QatarEnergy](#) declared force majeure in March 2026. Unlike in 2022, when [LNG shortages](#) brought widespread load-shedding, Pakistan largely maintained stable supply. Around [38 GW](#) of distributed solar installed since 2018 has cut daytime grid demand by an estimated 6–7 GW, and RLNG-based generation fell by about [4.6 TWh between FY2022 and FY2025](#). Solar is estimated to have helped avoid over [USD 12 billion](#) in oil and gas imports by February 2026.

The crisis also exposed the limits of solar alone. Evening peak demand forced Pakistan to buy seven spot LNG cargoes between April and July 2026, one at [USD 21.88/MMBtu](#), while the marginal cost of LNG-based power rose from [PKR 19/kWh to PKR 32/kWh](#). Solar has protected the daytime; storage is now needed to protect the evening.

Distributed solar is also reshaping power sector economics. [National Electric Power Regulatory Authority \(NEPRA\)'s State of Industry Report 2025](#) records net metering exports of 1,430.77 GWh in FY2024–25 and a 31.8% decline in grid sales to agriculture, as consumers respond to high prices, unreliable supply and cheap panels. Meanwhile, thermal utilisation was only 38.82% and capacity payments reached about PKR 1.81 trillion, so declining grid sales intensify pressure on fixed costs.

To address the evening peak and protect system stability, the solar boom is rapidly transitioning into a battery boom. [Cumulative lithium-ion battery imports](#) reached 7.6 GWh by end-2025—with 4.6 GWh imported in 2025 alone, followed by [another 2.08 GWh during January–May 2026](#). [Residential users account for nearly 58% of storage imports](#), driven by lower lithium iron phosphate (LFP) prices, high retail tariffs, and the [regulatory shift](#) from net metering to net billing. Without coordinated integration, behind-the-meter batteries risk deepening grid defection and exacerbating foreign exchange outflows, given that domestic value addition remains below 20%.

The next phase of Pakistan's transition requires modernising the grid and embedding flexibility across transmission and distribution. Utility scale battery storage, such as the Asian Development Bank-supported Grid-Integrated Battery Energy Storage System (BESS), must provide peak shaving, frequency regulation, and reserve margins. At the consumer level, gigawatt-hours of distributed storage must be aggregated into virtual resources via smart metering, advanced forecasting, and time-of-use (TOU) tariffs. Aligning the [Indicative Generation Capacity Expansion Plan \(IGCEP 2025–35\)](#) with behind-the-metre realities ensures that storage is planned as a least cost alternative to expensive peaking capacity and spot fuel imports.

Against this backdrop, the plenary will examine Pakistan's rapidly evolving solar, wind, and storage landscape and its broader macroeconomic implications. The session will bring together policymakers, regulators, financial institutions, development partners, industry leaders, and researchers to outline practical institutional priorities that advance renewable deployment while safeguarding grid reliability, consumer affordability, and utility solvency, drawing on regional experiences in investment, technology, manufacturing and electricity trade. The key objectives include to:

- Assess emerging global and regional renewable energy trends and their implications for Pakistan's energy transition, with a particular focus on solar PV, wind, battery storage, distributed generation, and their role in mitigating fossil fuel and LNG import vulnerabilities.
- Examine policy, regulatory, and market reforms required to integrate distributed solar and storage into the national electricity grid, including prosumer tariff designs, time-of-use pricing, net billing frameworks, and grid modernisation measures to ensure system reliability and financial sustainability.
- Explore innovative financing and investment pathways for utility scale and distributed renewable generation, battery storage systems, smart grid infrastructure, and grid flexibility, while identifying opportunities for private sector participation and domestic manufacturing.
- Develop a forward-looking policy agenda for Pakistan's energy system transformation, drawing on regional best practices and outlining actionable steps for public-private collaboration, technological adaptation, and institutional coordination.

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