RENEWABLES FIRST

Pakistan's Power Market Insights

October 2025

Author:

Nabiya Imran | Renewables First

Acknowledgement:

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Designer:

Talha Ahmad | Renewables First

Disclaimer:

All the information and analysis provided in this document are accurate and to the best of our knowledge and understanding. In case you identify any error, feel free to reach out to us at: info@renewablesfirst.org

Introduction

Our power market insights highlight important trends shaping Pakistan's power sector. This document focuses on long-term changes, such as the effects of fuel cost variations and shifts in the generation mix. The goal is to provide businesses and consumers with a monthly overview of how the country's power sector is evolving.

Key highlights

Power generation fell to 9.9 TWh in Oct 25 (-21% MoM; -4% YoY) as milder weather cut cooling demand.

Hydel contributed the most to power generation at 27% of the mix, while coal and nuclear underperformed due to outages pushing RFO use up 24× YoY and lifting RLNG generation to 1.95 TWh (+6.6% vs projections).

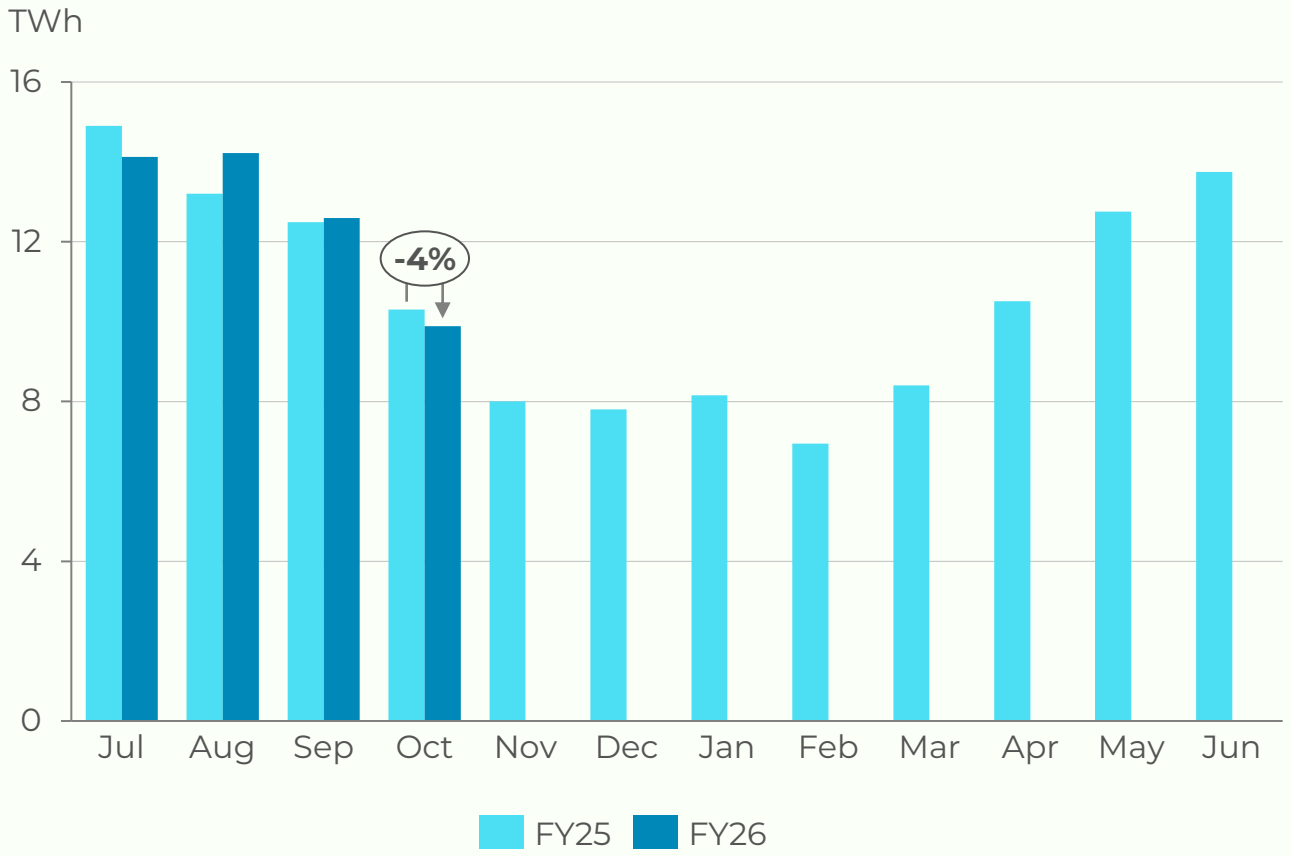
Fuel costs fell to PKR 8.49 per kWh, supported by higher hydel, lower RLNG and imported fuels cost, along with rising "zero-cost" net-metered solar; NEPRA has approved a -PKR 0.88 per kWh FCA for Dec bills.

Net-metering reached 204.5 GWh (+43% MoM; +110% YoY) in Oct 25, deepening the midday dip and widening the duck curve as consumer solar rapidly expands.

#RFPowerMarketInsights

Despite higher industrial use, milder weather cut overall demand, pushing Oct 25 generation down 21% MoM

Month-wise electricity generation in FY25 & FY26

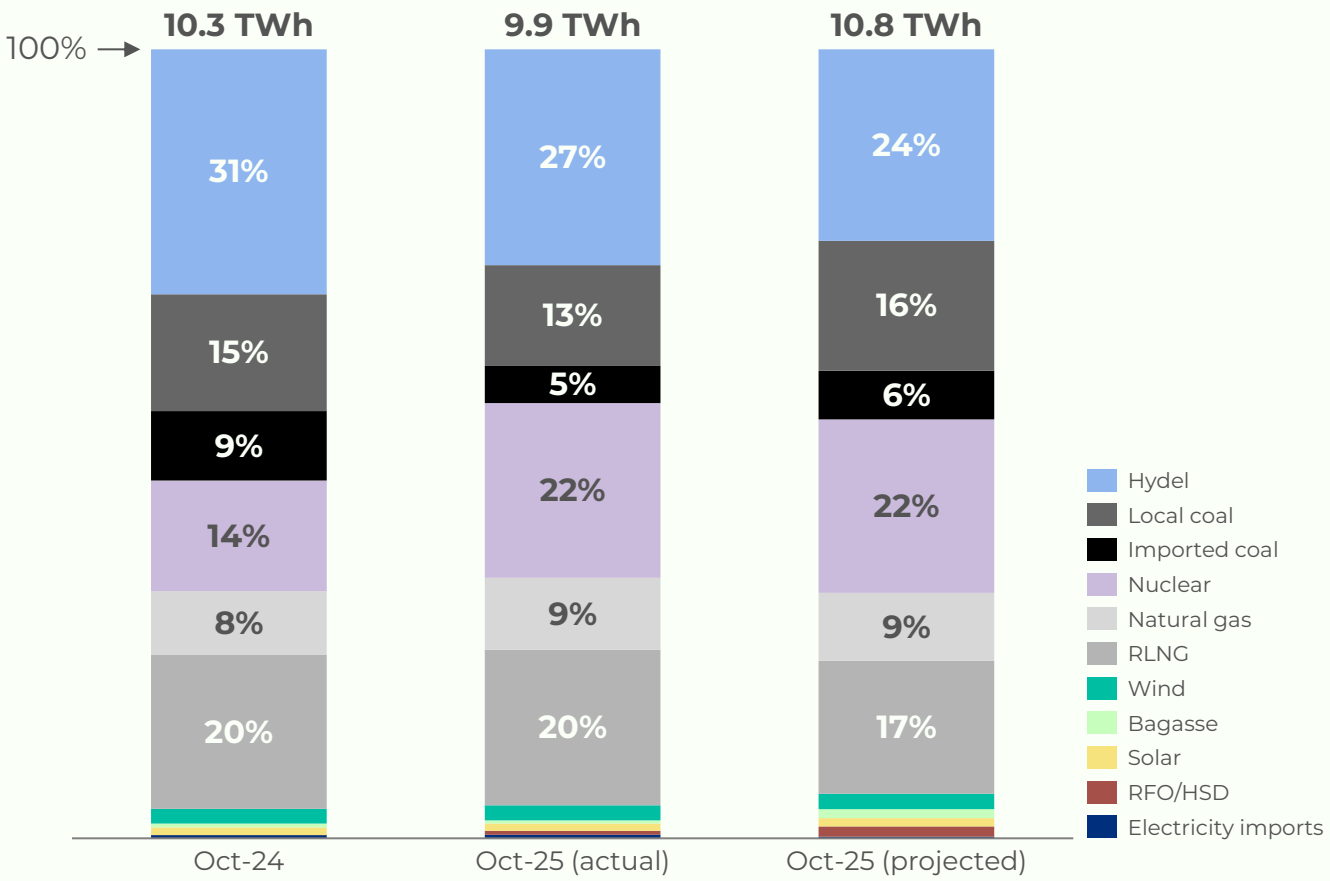


- Electricity generation fell 21% MoM to 9.9 TWh in Oct 25 as milder weather reduced cooling demand.
- CCPA-G reported a 20% YoY rise in industrial consumption in Oct 25, but overall generation still fell 4% YoY as milder temperatures and higher rainfall reduced demand in other sectors, offsetting the industrial increase.
- National mean temperature in Oct 25 dropped to 24.43°C, much lower than 26.07°C in Oct 24, which had driven unusually high cooling loads.
- Higher rainfall in Oct 25 (+53% anomaly) further eased heat stress, lowering electricity consumption compared to the hotter, drier conditions of Oct 24 (-8% anomaly).

Data Source: NEPRA & Renewables First's calculations

Supply gaps led to reliance on costlier fuels as coal and nuclear underperformed in Oct 25

Energy source-wise generation mix , Oct 24 vs Oct 25 (actual) vs Oct 25 (projected)



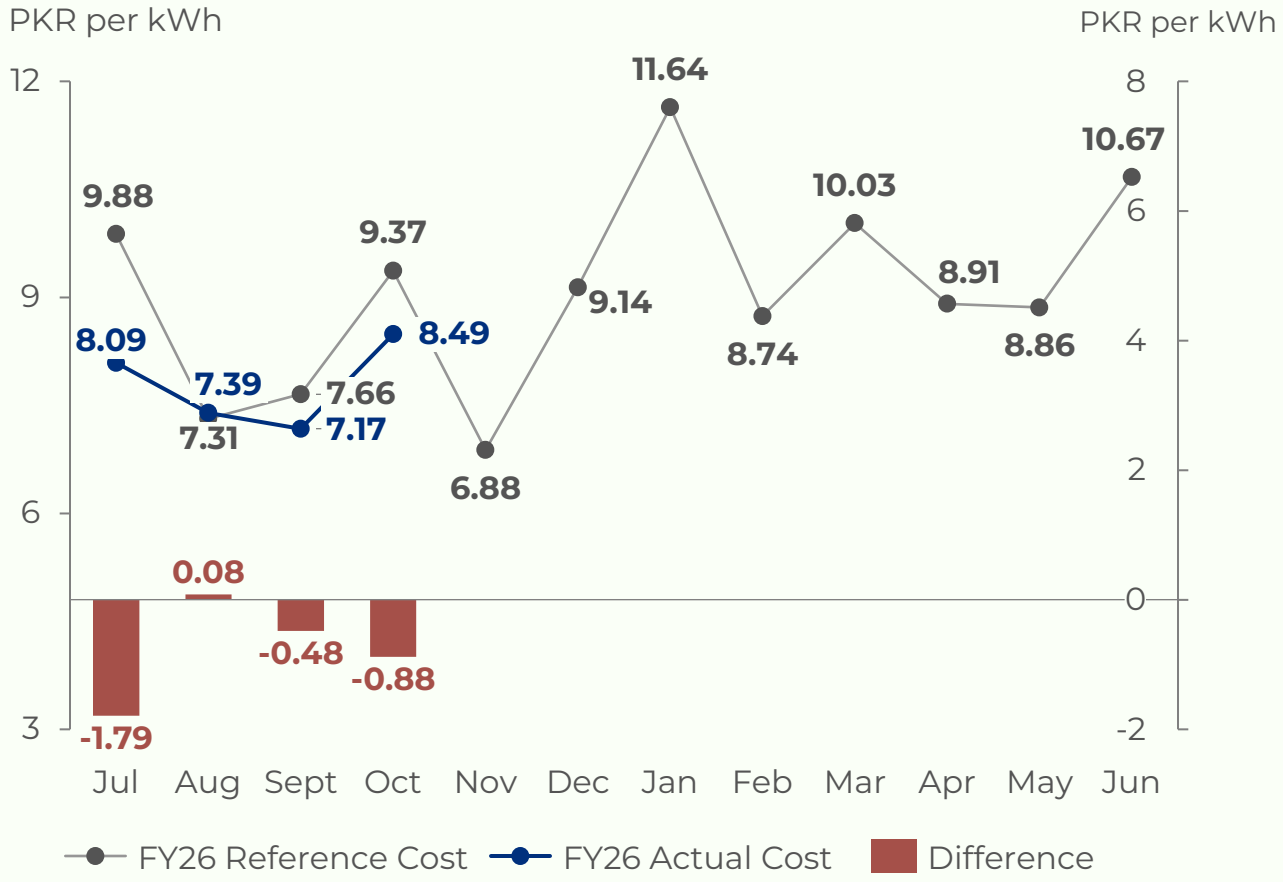
- Hydel generation reached 2.7 TWh in Oct 25, making up 27% of total output, higher than the projected 24% share.
- Local coal output was 29% below projections (1.26 TWh vs. 1.78 TWh), while imported coal was 31% lower (0.46 TWh vs. 0.67 TWh) due in part to Sahiwal plant outages.
- The much higher plant factors for local coal (73%) compared to imported coal (14%) show that dispatch favored local coal over imported coal.
- Nuclear generation came in 8% below projections (2.2 TWh vs. 2.4 TWh), reflecting refueling at C-II and outages at C-I and K-2*.
- Outages at imported coal and nuclear plants along with lower Mangla/Tarbela output, created a shortfall that pushed RFO use up 24× YoY and raised RLNG generation to 1.95 TWh (6.6% above projections).
- Solar and wind contributed 2.84% to the generation mix, staying almost unchanged YoY.

Data Source: NEPRA & Renewables First's calculations

*C-I: Chashma nuclear plant unit-1
C-II: Chashma nuclear plant unit-2
K-2: Karachi nuclear power plant unit-2

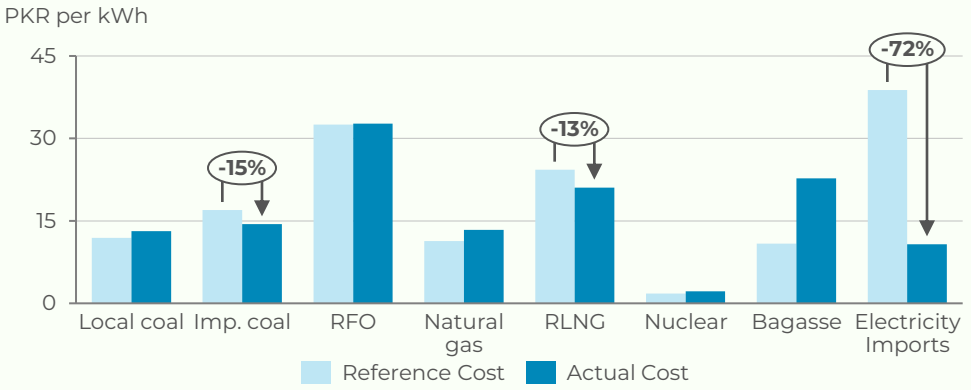
Fuel costs in Oct 25 were 9% below reference, with a negative adjustment of PKR 0.88 per kWh providing PKR 8.5 billion (B) in consumer relief

Fuel cost adjustments in FY26



- The actual fuel cost for Oct 25 was PKR 8.49 compared to the reference cost of PKR 9.37 per kWh. NEPRA has approved a negative FCA of PKR 0.88 per kWh, to be applied in Dec 25 bills for DISCOs and K-Electric consumers.·
- Electricity generation in Oct 25 was overall 8.3% lower than projected hence the lower total cost.
- A higher hydel share (27% vs. 24%), and lower per unit electricity import (-72%), RLNG (-13%), and imported coal (-15%) costs compared to the reference values along with high "zero cost" net-metered solar also contributed to the negative FCA.

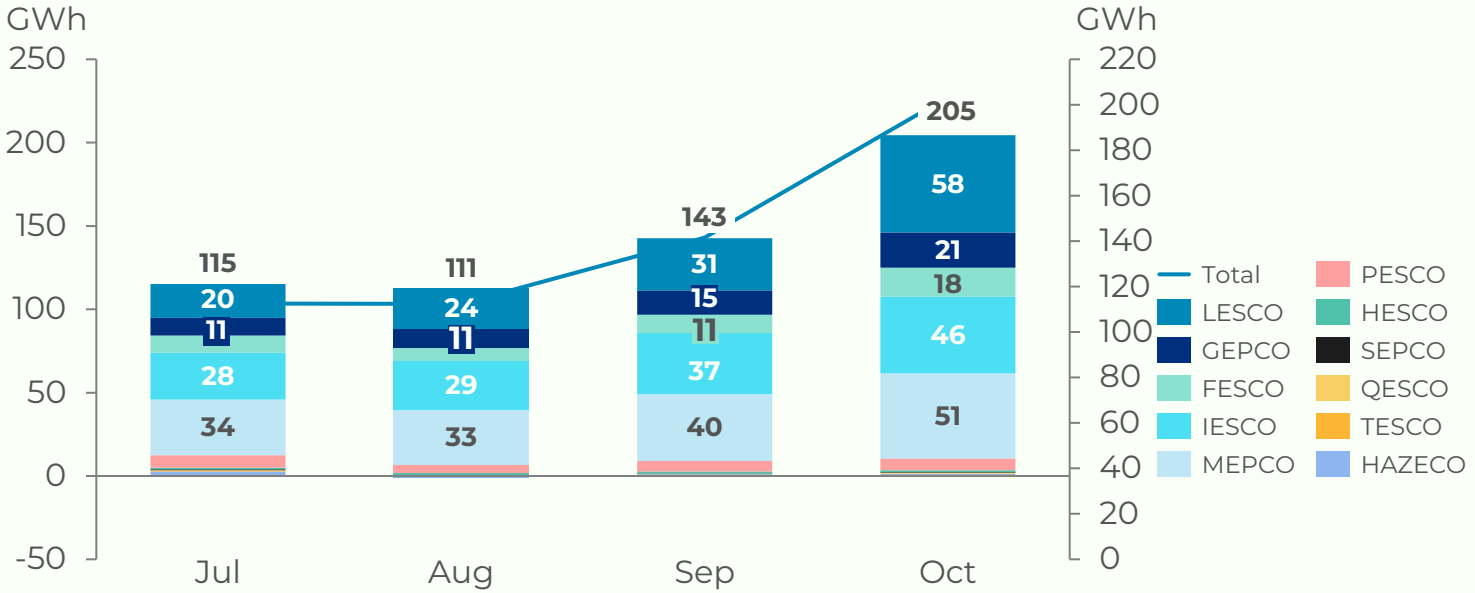
Per unit fuel cost comparison for Oct 25, reference vs actual



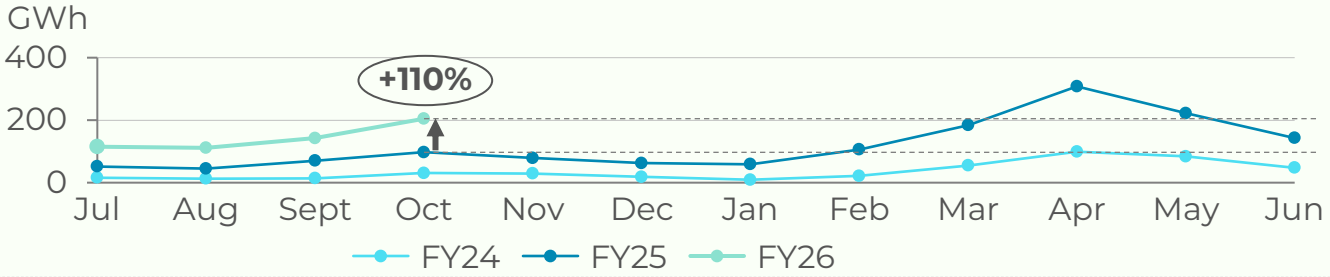
Data Source: NEPRA & Renewables First's calculations

Net-metering surged in Oct 25, doubling YoY to 204.5 GWh and easing FCA pressures

Net-metering units purchased by DISCOs (GWh): Jul – Oct 25



Comparison of DISCOs' net-metering units procured, FY24, FY25. FY26

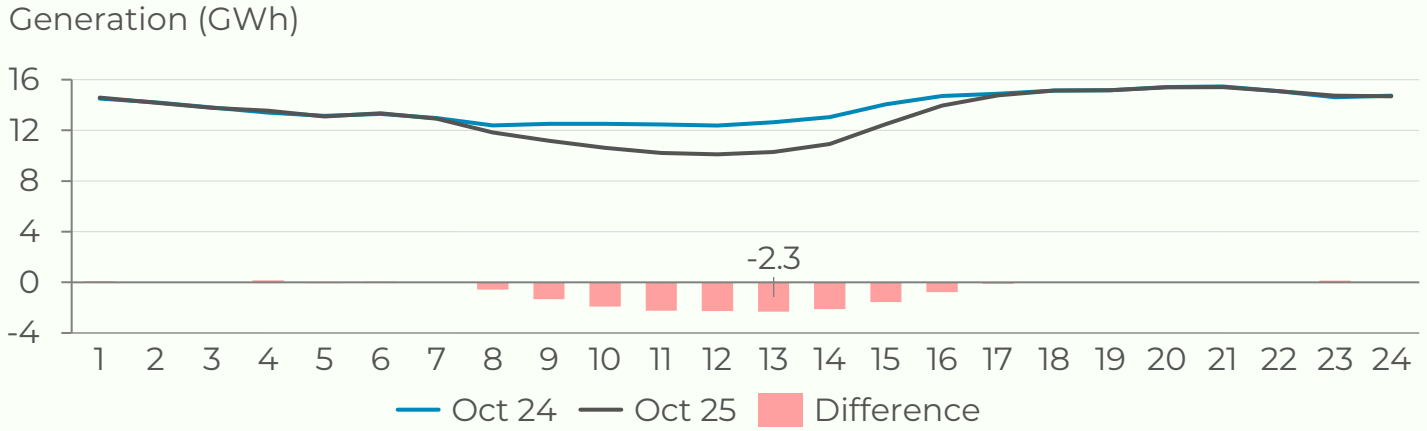


- Net-metering units in Oct 25 totaled 204.5 GWh representing a 43% MoM and 110% YoY increase.
- LESCO, MEPCO and IESCO led net-metering procurement in Oct 25 at 58.3 GWh, 51 GWh and 45.9 GWh respectively.
- Since net-metered solar has zero fuel cost, it displaces high-cost thermal generation and overall has a negative effect on the FCA of the respective month, including Oct 25.

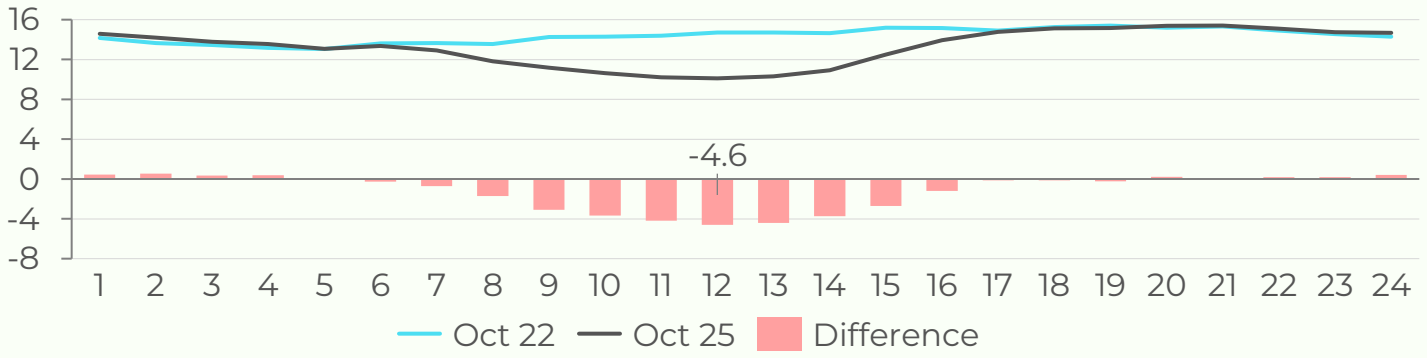
Data Source: NEPRA & Renewables First's calculations

Oct 25 shows a widening duck curve as net-metered and off-grid solar surge

Avg. hourly generation profiles, Oct 24 vs Oct 25



Avg. hourly generation profiles, Oct 22 vs Oct 25



- The gap between maximum (15.4 GWh) and minimum (10.1 GWh) average hourly generation in Oct 25 was 5.3 GWh.
- Compared to Oct 24, the midday dip in generation deepened by 2.3 GWh. A comparison of Oct 22 and Oct 25 shows this dip at a difference of 4.6 GWh, indicating a widening duck curve driven by rising solar output, including net-metered, off-grid, and behind-the-meter generation.
- This growing adoption of consumer-owned energy resources highlights the need for greater investment in grid flexibility and enhancement.

Data Source: Independent System and Market Operator (ISMO) & Renewables First's calculations

Special Insights

Rethinking PPP CY 2026: Overestimated demand, rising solar, and the tariff burden

This insight is an update to our earlier analysis, *Decoding the Power Purchase Price (PPP) FY26*, and highlights new developments following NEPRA's latest proceedings.

NEPRA is revising the Power Purchase Price (PPP) forecasts for CY2026 to be followed by consumer-end tariff rebasing. The public hearing was held on 18 Nov 2025, and the decision is awaited.

The issue? The demand growth assumptions underpinning the PPP forecast do not align with market realities. Overly optimistic projections will increase variance with actual costs and will flow through Fuel Charges Adjustments (FCAs) and Quarterly Tariff Adjustments (QTAs) ultimately increasing the burden on consumers rather than improving affordability and predictability of tariffs.

PPP FY2026 and CY2026 forecast assumptions

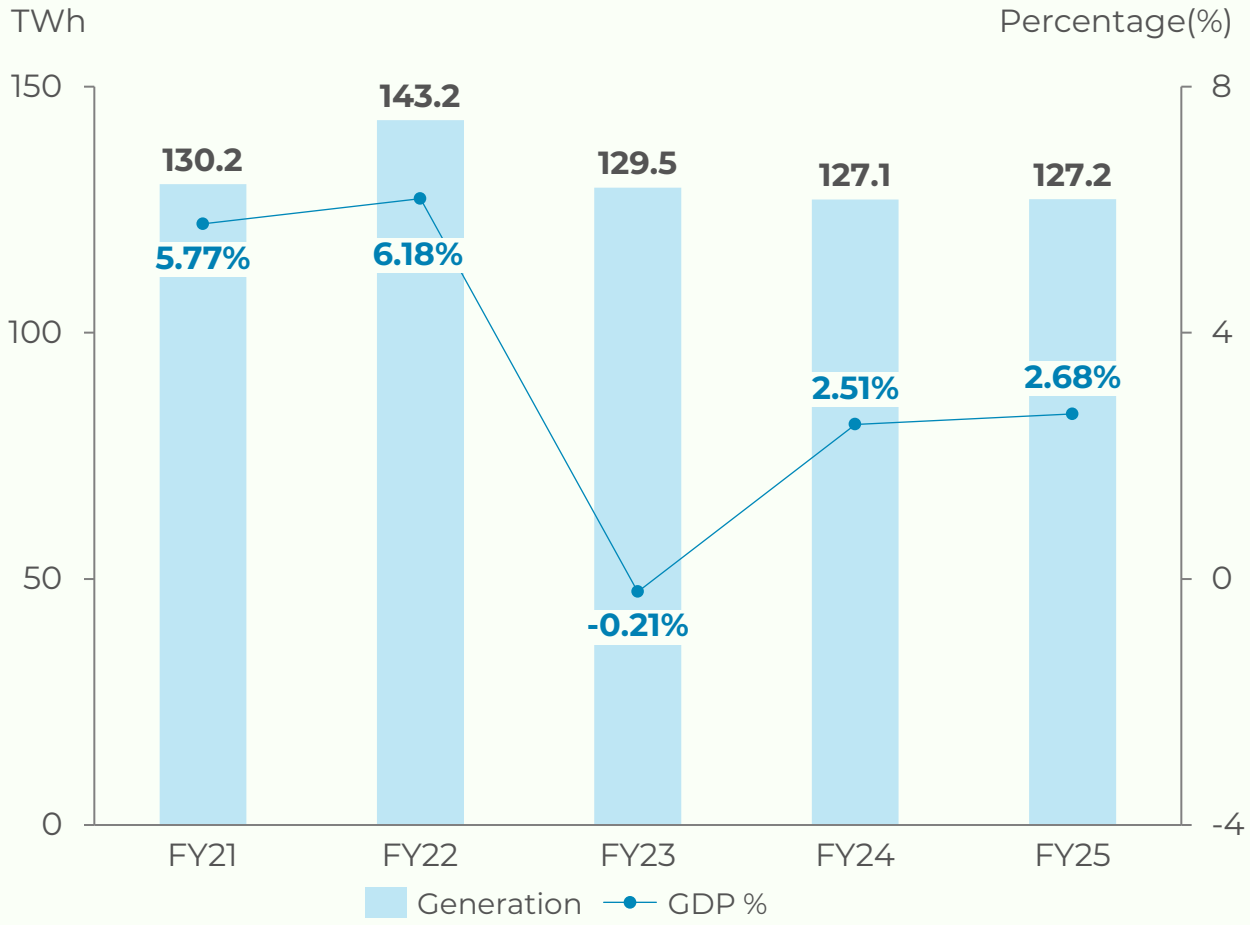
Assumptions	PPP FY2026	PPP CY2026
Electricity demand growth	**2.8%**	**1-2.5%**
Exchange rate (USD/PKR)	**PKR 290**	**PKR 290-310**
US inflation	**2%**	**2.3%**
Pak inflation	**8.65%**	**7.74%**
KIBOR	**11%**	**11%**
SOFR	**4.07%**	**4.47%**
Power purchase price	**PKR 25.98**	**PKR 25.69-26.53**

Source: NEPRA

FY2026: July 2025 - June 2026 | CY2026: Jan 2026 - Dec 2026

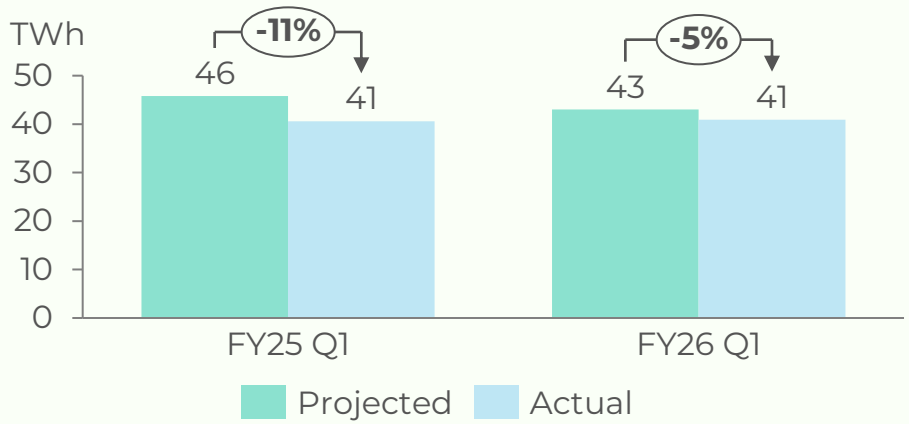
Electricity demand stalls despite GDP recovery, challenging PPP assumptions

Electricity generation and GDP growth (FY21 - FY25)



- Pakistan's electricity demand has been declining since FY22, even as GDP began recovering in FY23.
- In Q1 FY26, actual generation came in 5% below NEPRA's own projections, reinforcing the shift in consumption patterns and raising concerns about the reliability of current demand forecasting.
- This risk was identified in our detailed analysis of the PPP FY26 as well.

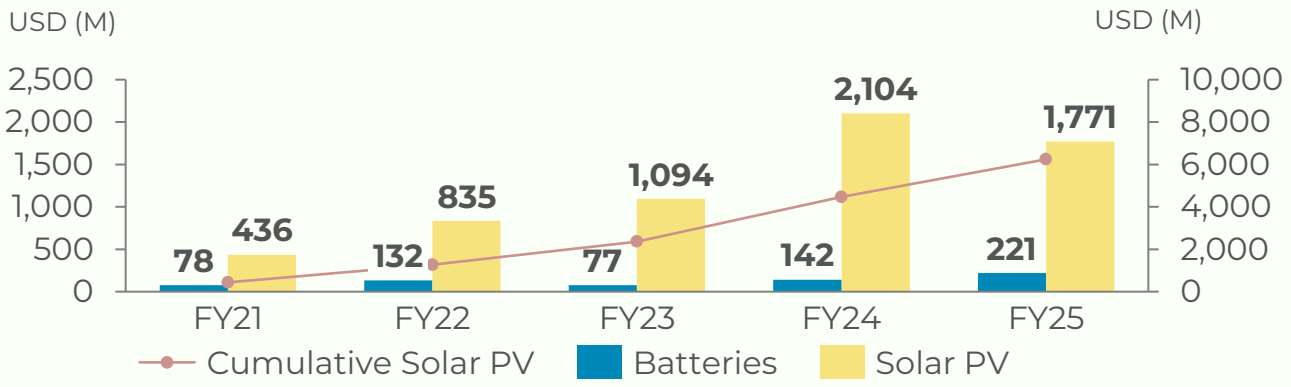
Electricity demand in Q1 FY25 and Q1 FY26: projected vs. actual



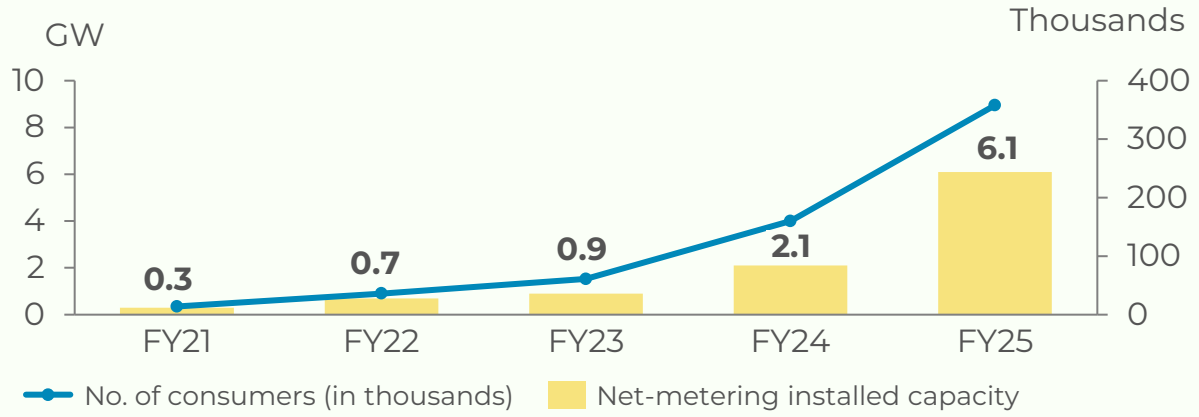
Data Source: NEPRA and Renewables First's calculations

Distributed solar emerges as a forecasting blind-spot for tariff setting

Chinese solar PV vs lithium-ion battery exports to Pakistan (FY21- FY25)



Net-metering installed capacity and consumers growth (FY21- FY25)

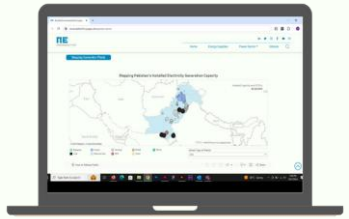


- Pakistan has imported over 50 GW of solar PV since 2017, with total installed capacity now estimated at ~30 GW (including 6 GW of net-metering and extensive BTM/off-grid adoption).
- This rapid solar uptake, and an incoming battery rush, are altering the demand profile, increasing year-round variability while the government has not taken solar into account when devising CY2026 forecast scenarios.
- By excluding distributed solar and relying on outdated, supply-centric assumptions, PPP forecasts become distorted shifting the financial burden onto consumers and exposing the short-sightedness of current planning.
- Unless PPP forecasts reflect on-ground market realities, consumers will keep paying for planning shortcomings they did not create.

Data Source: NEPRA, Chinese customs, Ember and Renewables First's calculations

For more insights, visit:

Pakistan Energy and Climate Insights Dashboard



www.peci.renewablesfirst.org

PECI, an initiative of Renewables First, is an innovative platform that consolidates fragmented energy data from various agencies, supporting informed decision-making across Pakistan's energy sector. By centralizing critical energy and climate data, PECI improves accessibility and clarifies environmental impacts and emissions for stakeholders. RF's collaboration with Herald Analytics led to the development of the PECI Dashboard, which drives insights and offers robust analytics for energy data.

Pakistan Electricity Review 2025

https://uploads.renewablesfirst.org/Pakistan_Electricity_Review_2025_80753f62aa.pdf

The Pakistan Electricity Review 2025 report aims to improve technical accessibility and awareness of critical aspects of power generation, transmission, and consumption. It presents a comprehensive analysis of key trends and challenges that shaped Pakistan's power sector during the fiscal year 2024 (FY24). The report utilizes publicly available data for the power sector, with NEPRA's state of industry report (SIR) serving as the primary data source.

Pakistan Energy Market Review 2025

https://uploads.renewablesfirst.org/Pakistan%20Energy%20Market%20Review%202025.pdf

The Pakistan Energy Market Review 2025 offers a concise overview of Pakistan's energy sector in FY24, drawing on the HDIP Energy Yearbook and OGRA's calculations. It highlights key trends in primary energy supplies showing how increasing solarization, LNG contract dilemma, gas circular debt and shifting consumption patterns are reshaping the country's energy market.

Renewables First (RF) is a think and do tank for energy and environment. Our work addresses critical energy and natural resource issues with the aim to make energy and climate transitions fair and inclusive.

Disclaimer:
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DataTeam@renewablesfirst.org

RENEWABLES FIRST

10 - 11, 3rd Floor, Executive Complex,
G-8 Markaz, Islamabad
+92 51 - 8773676
info@renewablesfirst.org