



RENEWABLES FIRST

Pakistan's Power Market Insights

August 2025

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 energy mix. The goal is to help businesses and consumers understand how the power sector is evolving in the country on a monthly basis.

Key highlights



In Aug 25, electricity generation rose to 14.2 TWh (up 7.7% YoY) driven by higher temperatures increasing cooling demand.



Hydel generation fell 6% below projections due to flooding, with the shortfall compensated by RLNG (up 27%) and imported coal (nearly double projections).



Fuel costs (PKR 7.39 per kWh) rose 1.1% above reference (PKR 7.31 per kWh) due to lower than projected hydel contribution and higher than expected generation from imported coal and RLNG.

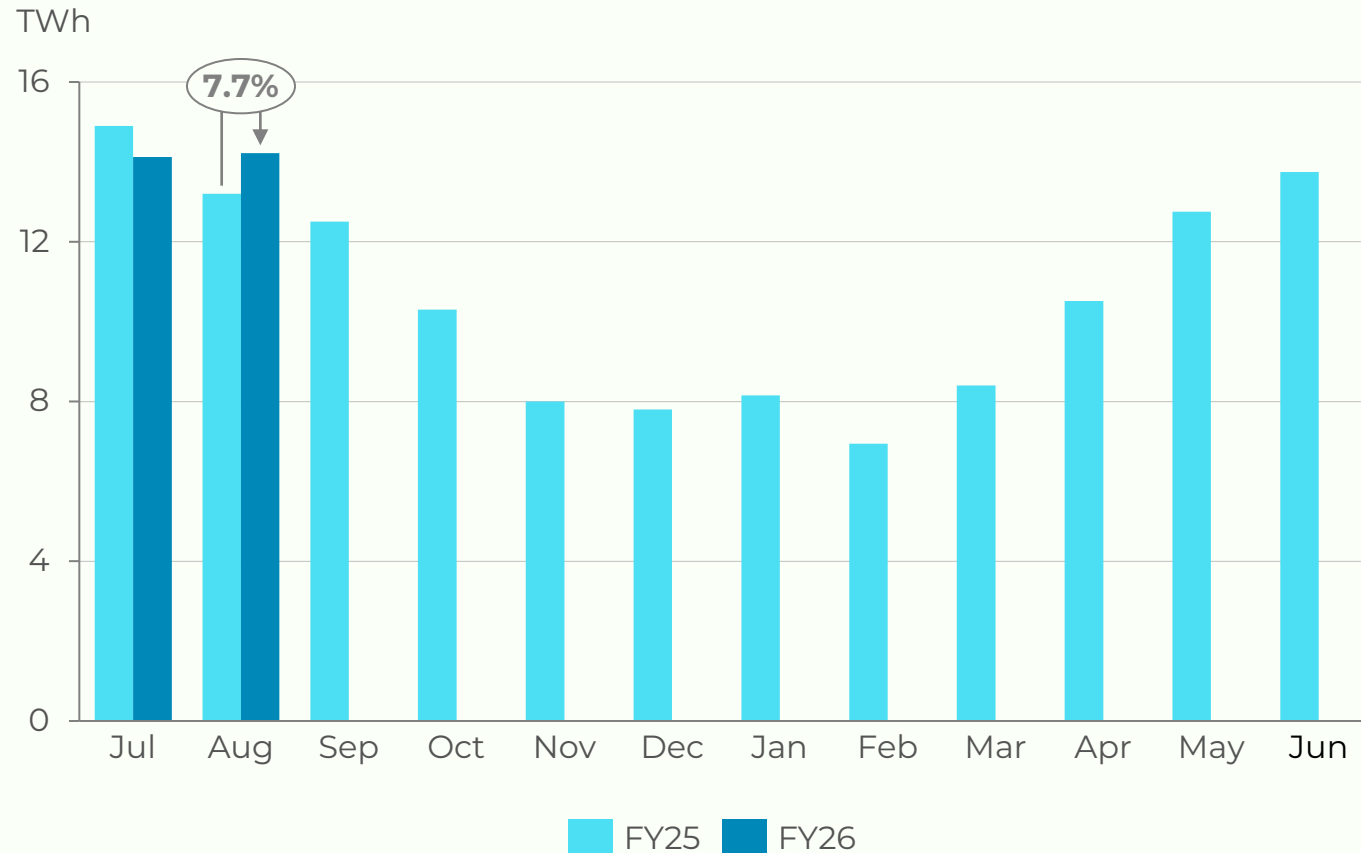


Resultantly, a positive fuel cost adjustment (FCA) of PKR 0.08 per kWh is to be applied in Oct 25 bills totaling PKR 1.09 billion (B).

#RFPowerMarketInsights

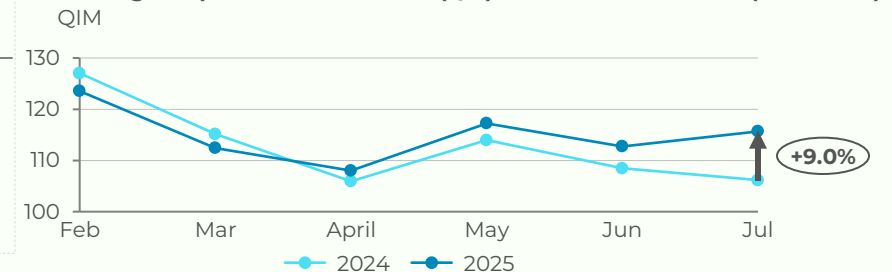
Electricity generation rose 7.7% YoY in Aug 25, driven by higher mean temperatures that increased demand compared to Aug 24

Month-wise electricity generation in FY25 vs FY26



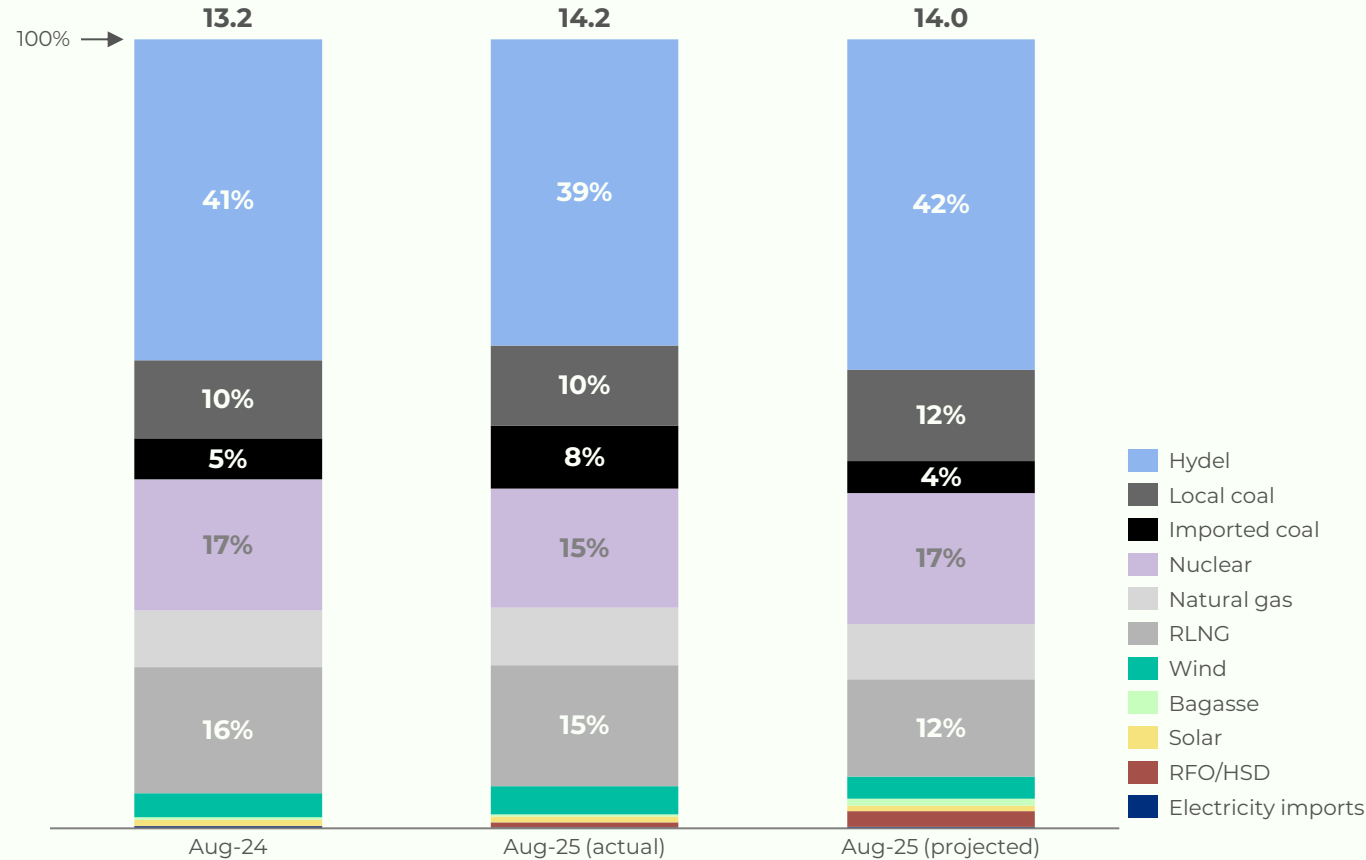
- In Aug 25, electricity generation was 14.2 TWh compared to 13.2 TWh in Aug 24, reflecting a 7.7% YoY increase.
- The mean monthly temperature in Aug 24 was 29.90°C which was lower than the country-average of 30.25 °C. On the other hand, Aug 25 had a national mean temperature of 30.64 °C which was slightly warmer than the country-average, leading to greater cooling demand.
- Electricity generation in Aug 25 may partly reflect higher industrial activity, given that large-scale manufacturing (LSM) has been on a sustained YoY upward trajectory since Apr 25*.

YoY change in quantum index series (QIS) of selected LSM Items (2024-2025)



Flood-driven hydel curtailments boosted reliance on RLNG and imported coal in Aug 25

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



- Hydel generation (5.5 TWh) was 7% below projections (5.9 TWh) due to flooding in Chenab and Sutlej, which led to reduced outflows from Tarbela and Mangla for better flood management.
- The shortfall was offset by higher RLNG and imported coal generation. RLNG contributed 2.2 TWh, about 29% above the projected 1.7 TWh, while generation from imported coal was 1.1 TWh, nearly twice the projected 0.6 TWh.
- Imported coal plants had a 35% average plant factor while local plants had an 80% average plant factor (despite Thar Coal Block-1 facing a forced outage during this month).
- Solar and wind contributed about 4.3% to total electricity generation in Aug 25, which reflects a 15% YoY increase.

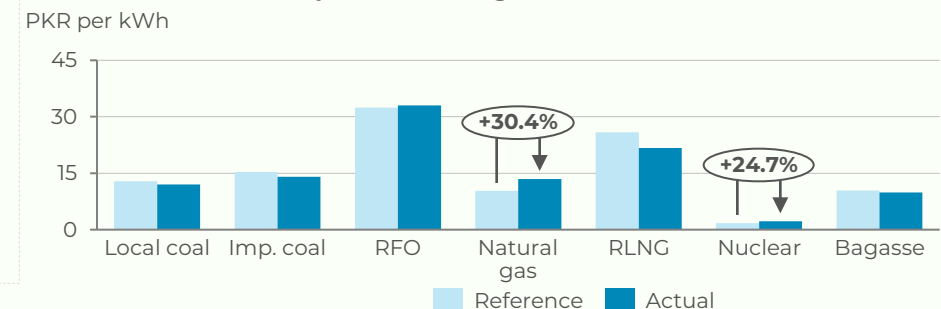
In Aug 25, fuel costs were 1.1% above reference, with a positive FCA of PKR 0.08 per kWh reflecting PKR 1.09 B in consumer bills

Fuel cost adjustments in FY26



- The actual cost for Aug 25 was PKR 7.39 per kWh, 1.1% higher than the reference cost of PKR 7.31 per kWh. NEPRA has set a positive fuel cost adjustment of PKR 0.08 per kWh, to be applied in Oct 25 bills for DISCOs and K-Electric consumers.
- The slightly positive FCA resulted from lower hydel generation increasing overall costs as well as higher per unit natural gas (actual PKR 13.4 vs. reference PKR 10.3 per kWh) and nuclear costs (actual PKR 2.2 vs. reference PKR 1.8 per kWh). Additionally, higher use of imported coal further increased costs, contributing to the positive adjustment.

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



Aug 25 transmission and transformation (T&T) losses spiked to 2.71%, exceeding threshold as hydel shortfall shifted grid dynamics

T&T losses in FY26

Losses (%)



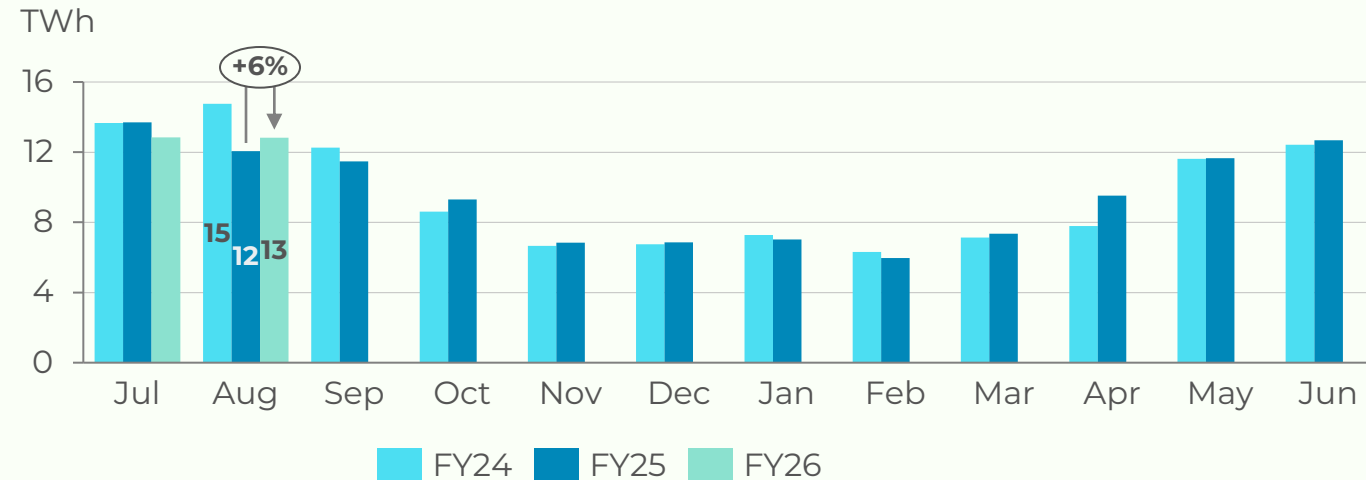
- T&T losses in 500 KV and 220 KV network in Aug 25 were 2.71%, slightly above the allowed threshold of 2.64%.

- Aug 25 T&T losses at 4.22 TWh exhibited an 11.35% MoM increase compared to 3.79 TWh in Jul 25 despite both being monsoon months when T&T losses typically stay below the allowed threshold.

- The increase can be attributed to lower-than-projected hydel generation which in turn led to imported coal and RLNG plants being utilized more thus turning central and northern regions into net load zones, and the southern region into the only generation surplus area.

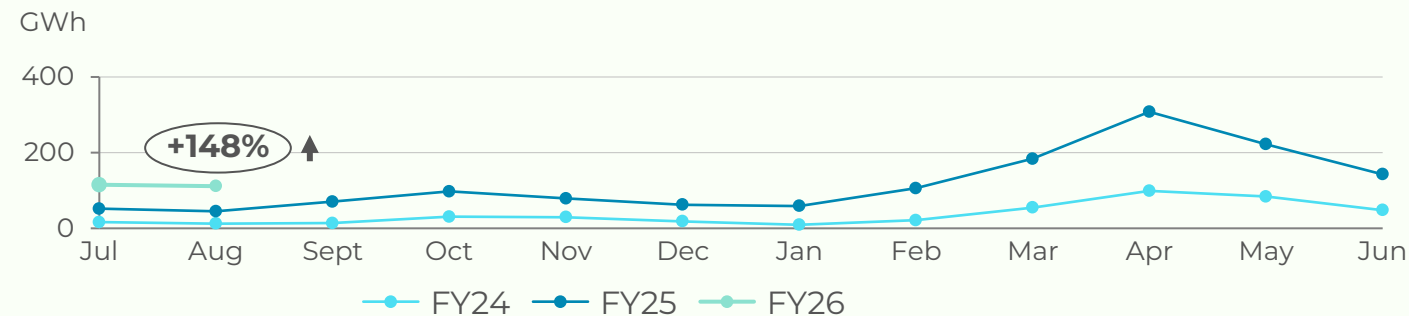
Net-metering saw a 148% YoY growth, yet remained under 1% of total procurement as untapped potential looms large

Total units procured by DISCOs, FY24, FY25, FY26



- DISCOs procured a total of 12.82 TWh in Aug 25, representing a 6% YoY increase.
- Net-metering units stood at 111.4 GWh, a 148% YoY increase showing the exponentially increasing solar adoption by consumers across the country.
- However, net-metering units made up only 0.87% of total procurement, revealing significant untapped potential for distributed renewable energy generation.

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



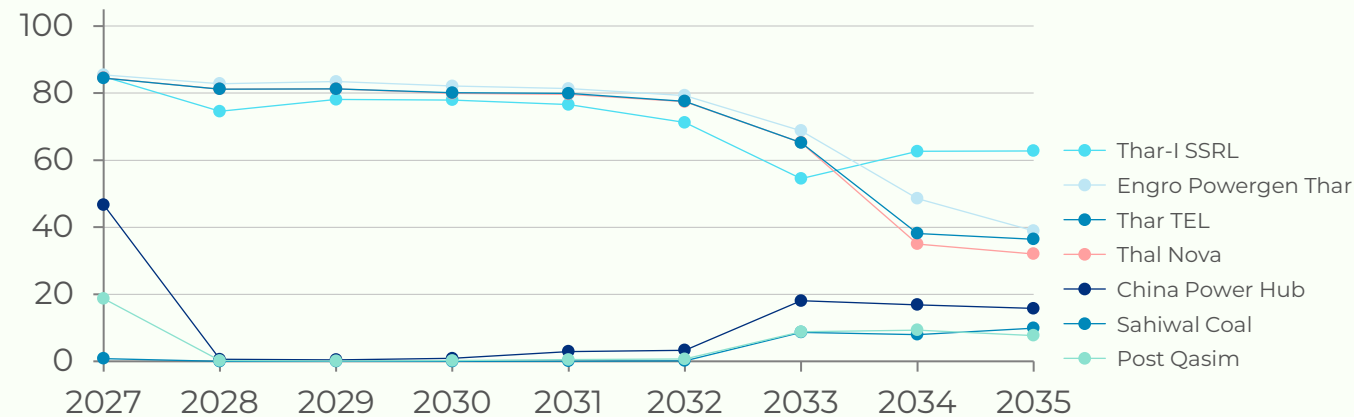
Special Insights:

China's evolving role in Pakistan's energy transition- From financing coal to clean-tech

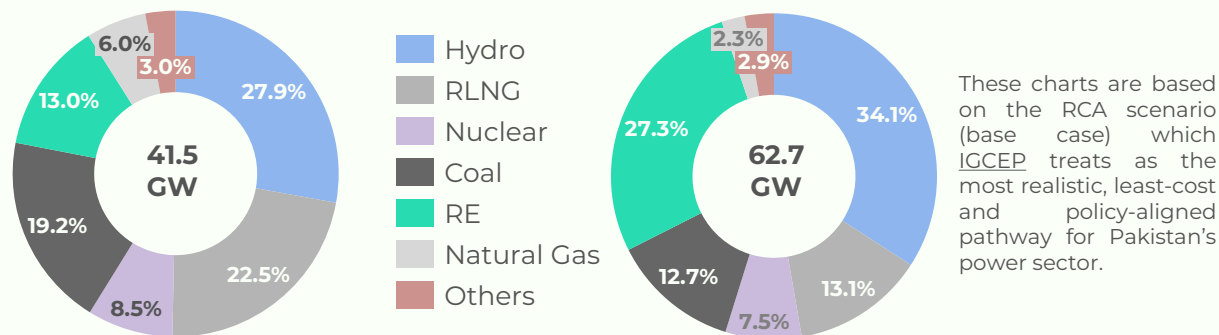
China's coal plants in Pakistan risk becoming stranded assets as projections forecast steep reduction in their capacity factors

Annual capacity factors (%) of CPEC coal plants (IGCEP Projections; 2027-2035)

Capacity factor(%)



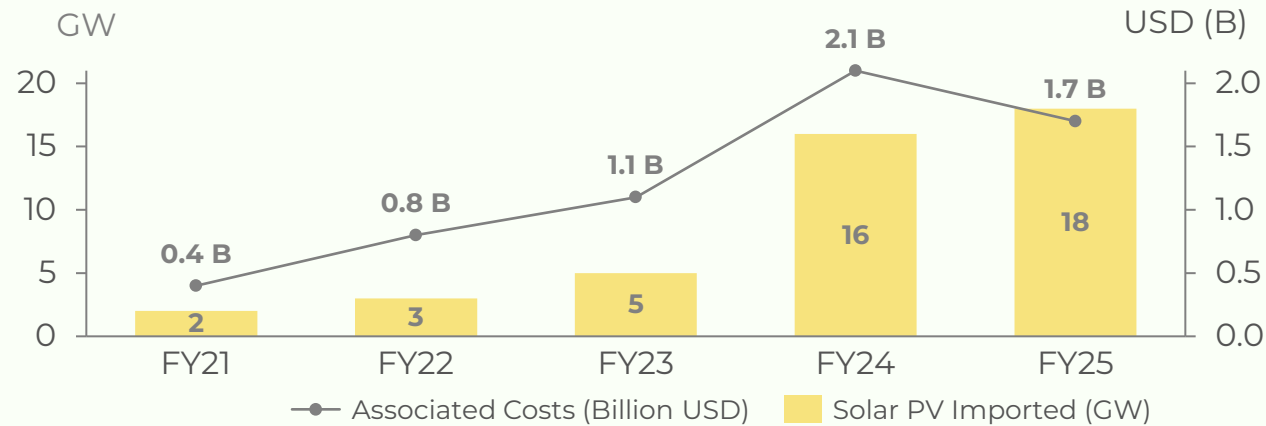
Fuel-wise net capacity: 2024 (left) and 2037 (right)



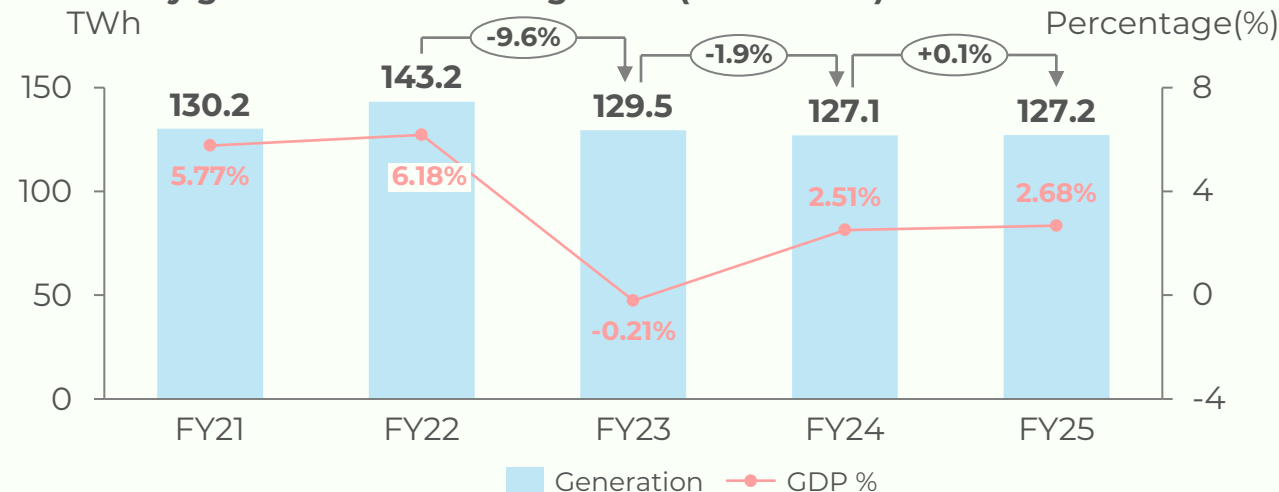
- China has invested heavily in coal infrastructure under the BRI since 2013, building 6.6 GW of capacity in Pakistan alone for a total investment of USD 9.64B.
- Under the latest IGCEP, major CPEC coal plants (Sahiwal, China Power Hub, Port Qasim) see capacity factors reduce from 80-85% in 2027 to 35-40% by 2035.
- The share of hydel, solar, wind and nuclear is projected to increase, displacing coal whose share shall decrease from 19% to 13% in the IGCEP base case (RCA) projections of net capacity.
- Many coal plants risk becoming stranded assets, as they are pushed into backup roles even as Pakistan continues paying capacity charges under dollar-indexed, take-or-pay offtake obligations.
- China's role as a coal financier is now shifting as it increasingly assumes a leadership position in the clean tech space such as solar PVs and lithium-ion batteries.

The scale of Chinese PV-driven grassroots solar rush in Pakistan is reshaping electricity demand

Solar PV imported by Pakistan from China and associated costs (FY21-FY25)

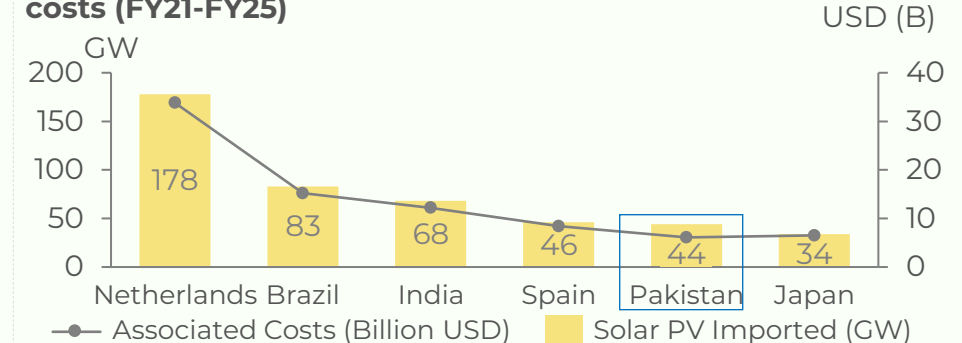


Electricity generation and GDP growth (FY21 - FY25)

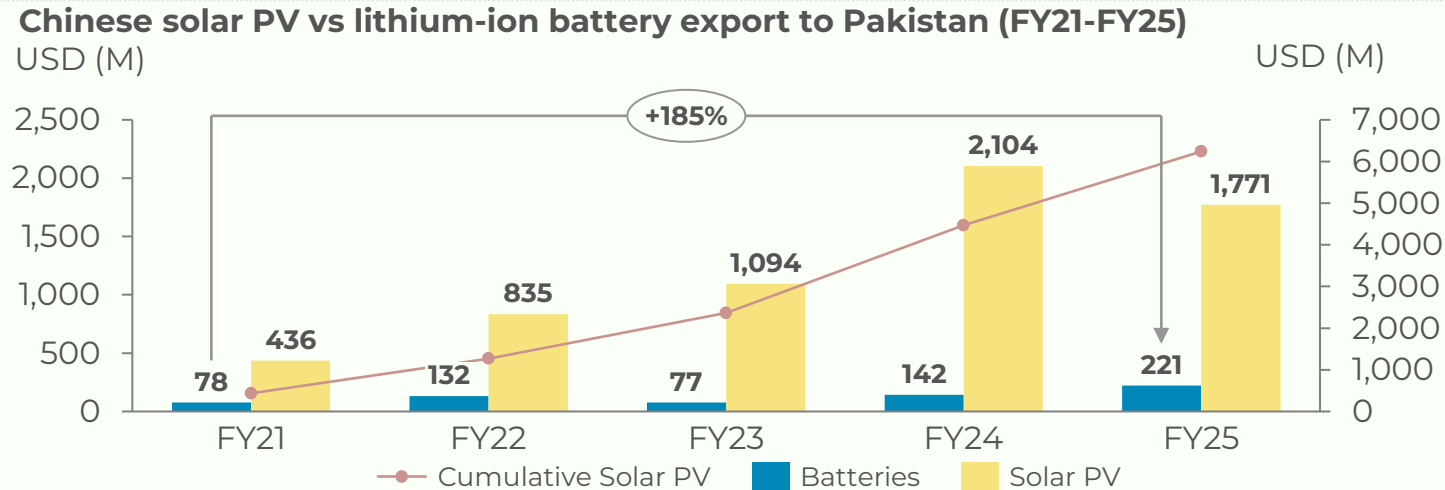


- Pakistan is currently experiencing a solar boom brought about by expensive electricity rates and decrease in the cost of solar PV panels. Consumers are opting for net-metering and off-grid solutions, which may potentially impact the grid as well.
- China supplies 80% of the solar panels globally and contributes significantly to Pakistan's solar growth.
- Solar PV imports from China surged from 2 GW in FY21 to 18 GW in FY25, as grid power generation slipped from 130 TWh to 127 TWh, despite GDP growth. Pakistan ranked 5th worldwide among Chinese PV importers during this period.

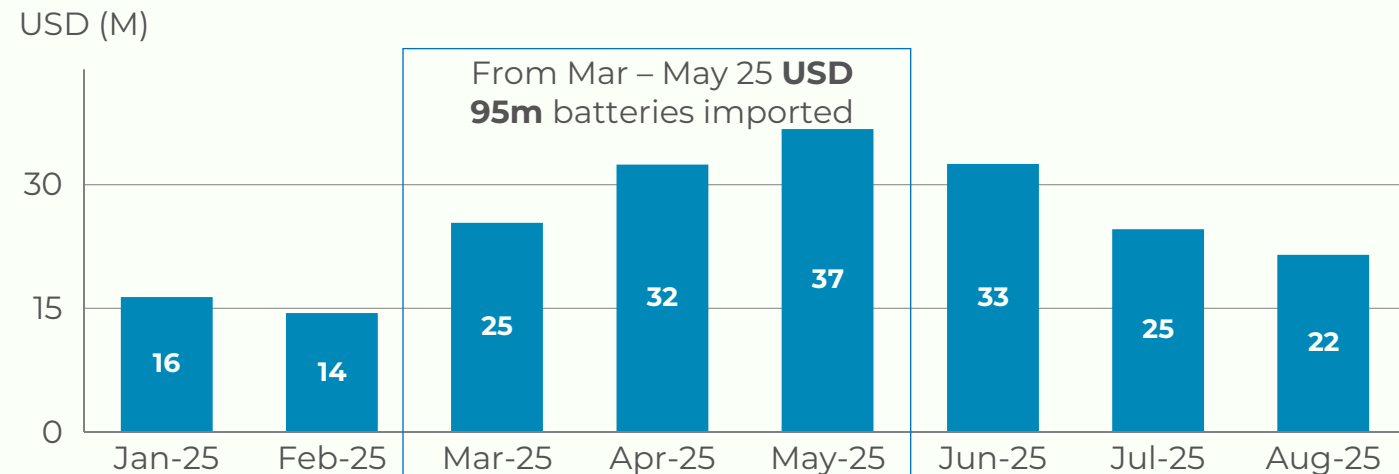
Top 6 countries importing solar PVs from China & associated costs (FY21-FY25)



The next wave: an incoming battery rush is likely to transform solar adoption, making Pakistan a test case for China's renewable energy leadership



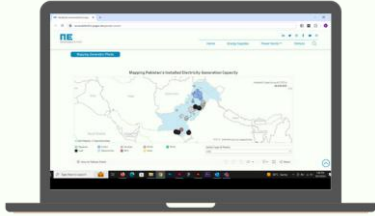
Chinese lithium-ion battery export to Pakistan, Jan25 – Aug25



- Pakistan's solar boom is on its way to be complemented by a battery rush as the price of lithium-ion batteries has reduced by 85% since 2022.
- China produces about 75% of batteries sold globally and has a significant role in Pakistan's battery boom as well. Lithium-ion battery imports from China have increased by 185% from USD 78m in FY21 to USD 221m in FY25.
- Resultantly, China's role is evolving from a coal financier to a leader in the clean tech space to support countries like Pakistan in accelerating their energy transition.
- This comes at a time when the US backtracks on its renewable energy targets and has included fossil fuels as part of trade deals with other countries, making China's future role in energy geopolitics even more pronounced.

For more power sector-related 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 primary data source.

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:

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 errors, please email:

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