



RENEWABLES FIRST

# Pakistan's Power Market Insights

Jul-Oct 2024 (4MFY25)



## Introduction

Shifts in the power sector, driven by demand fluctuations, fuel costs, and global energy supply changes, have a profound impact on the economy. The Power Market Insights Series examines these dynamics in Pakistan, focusing on long-term trends to identify key drivers and guide informed decision-making. This is the first episode of the series, and it offers a collective snapshot of power market trends for the first four months of Fiscal Year 2025 (FY25)

## Key Highlights

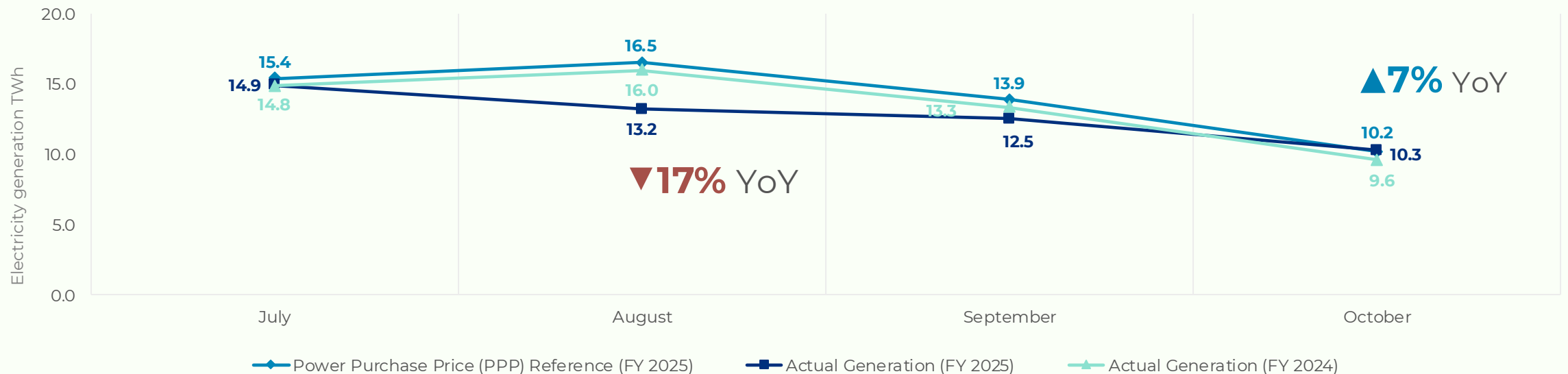
- In 4MFY25, cumulative electricity generation stood at 50.8 TWh, marking a decline of **▼5.4%** on year-on-year (YoY) basis.
- Generation from Renewable Energy (RE) sources (i.e. solar, wind & bagasse) saw a decline of **▼16%** YoY.
- DISCOs procured 265 GWh from net metering, up **▲262%** YoY from 73 GWh in 4MFY24.

# #RFPowerMarketInsights

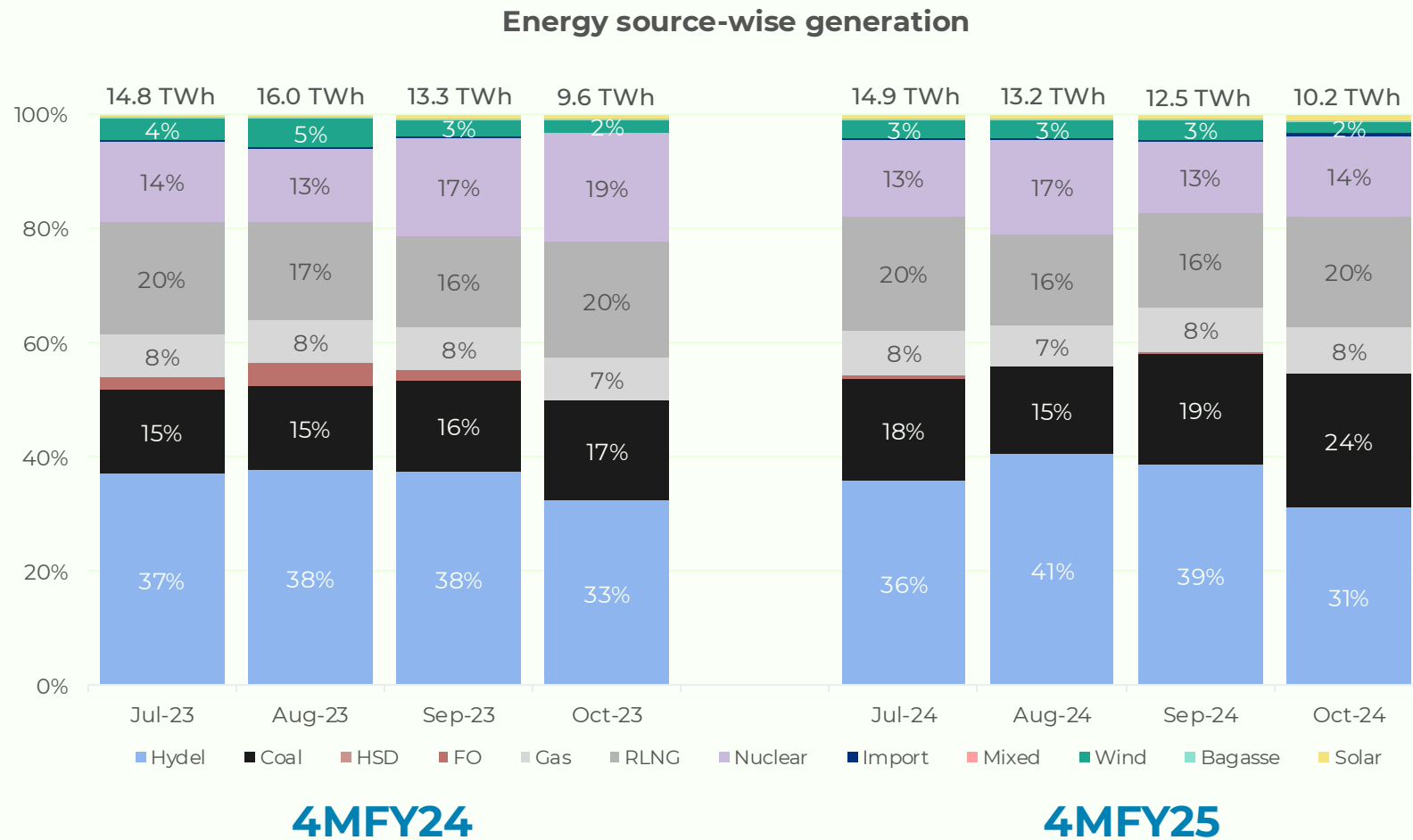
## Electricity generation drops to 50.8 TWh ▼5.4% YoY from 53.7 TWh in 4MFY24 due to increasing electricity tariffs along with rapidly growing adoption of distributed solar generation

- In Aug 2024, a ▼17% drop in YoY demand was seen due to higher rainfall and the end of the incremental consumption package that was in effect last year.
- In Oct 2024, demand rose by ▲7% YoY, driven by a longer-than-usual summer and modest growth in the Large-Scale Manufacturing (LSM) sector.

Electricity generation (TWh)



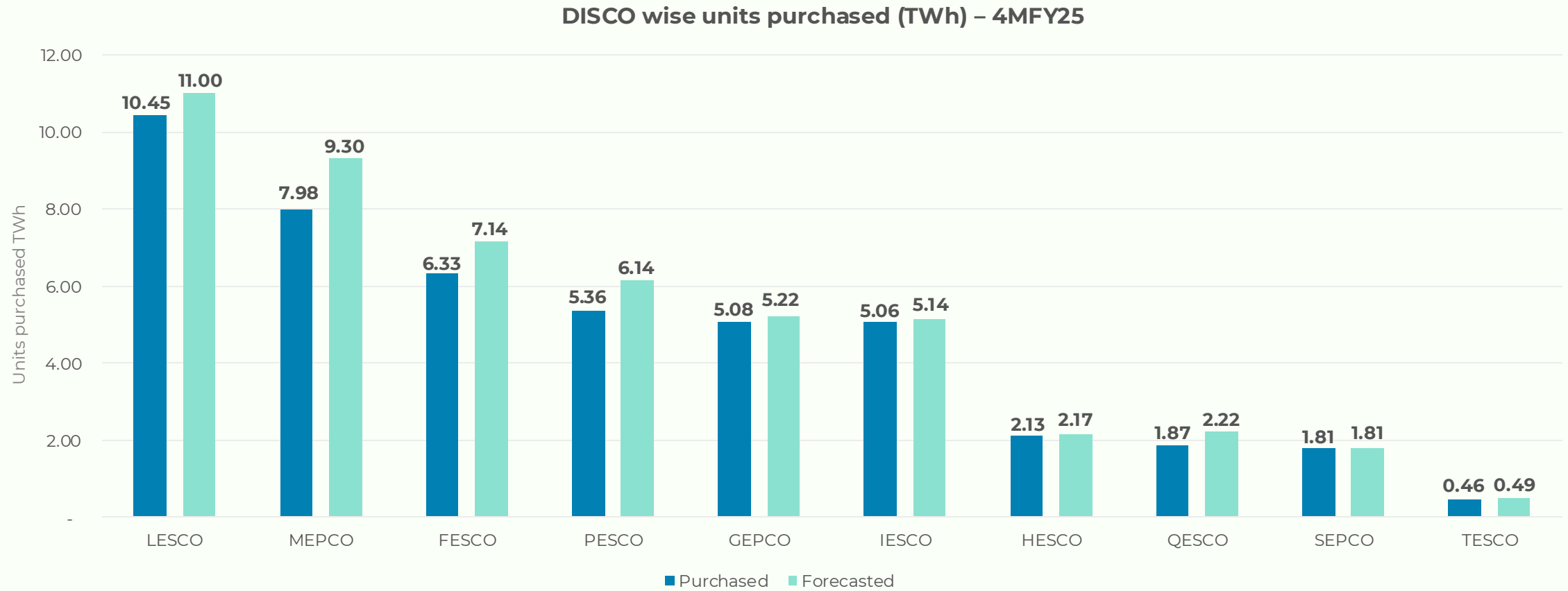
# Electricity generation in 4MFY25 was dominated by fossil fuels with a 59% share, while renewable generation dropped by **▼16% YoY**



- In 4MFY25, fossil fuels generated **59%** of the total 50.8 TWh, followed by hydropower at **37%**, and renewables at **4%** (3% wind and 1% solar).
- Solar generation increased by **▲31%** YoY (from 314 to 412 GWh) in 4MFY25, whereas wind generation declined **▼27%** YoY due to challenges pertaining to power evacuation, transmission system constraints, and demand decline, limiting cheaper electricity transfer to load centers.
- Reduced output from Guddu (gas plant, 747 MW), and outages at the Neelum Jhelum (hydel plant 969 MW), increased reliance on costlier plants in 4MFY25.
- Thermal plants with a 20,248 MW capacity ran at 41% utilization in Oct 2024, leading to higher per-unit electricity costs as consumers had to bear the cost of unutilized capacity due to the take-or-pay contracts.

## DISCOs purchased 46.5 TWh falling ▼8% short of the forecasted 50.6 TWh in 4MFY25

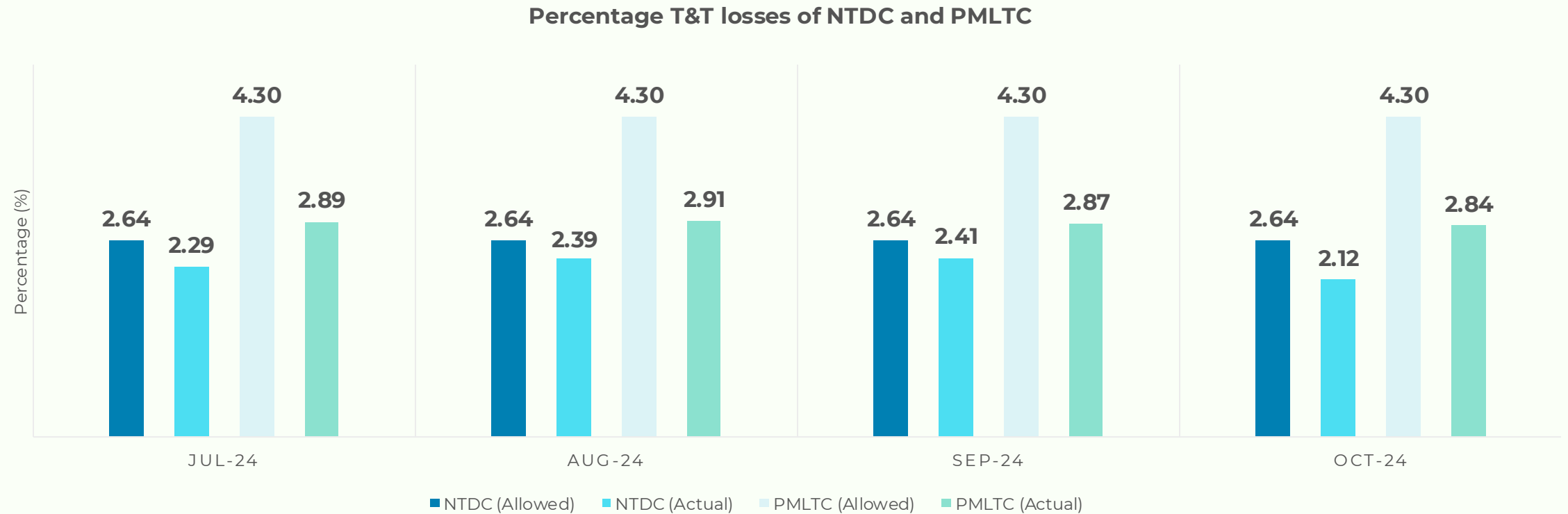
The highest shortfall occurred in MEPCO, where 7.98 TWh were purchased, compared to the forecasted 9.30 TWh, followed by FESCO. In FESCO, the demand drop was mainly due to reduced tube well electricity usage.



## Transmission system constraints led to a financial impact of PKR 7.9 billion during 4MFY25

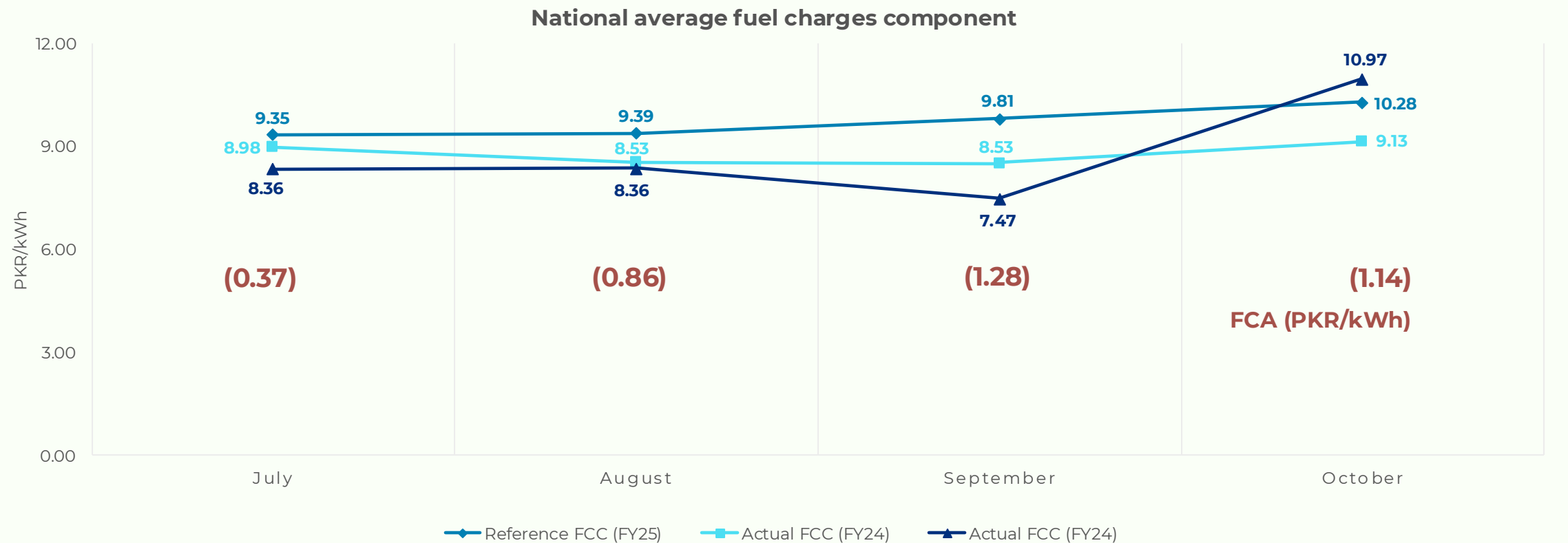
Inefficiencies in the transmission infrastructure and the underutilization of the HVDC line are burdening electricity consumers. In Oct 2024, the HVDC line's average utilization was only 27%, while consumers continued to pay for the full 100% capacity.

The Transmission and Transformation (T&T) Losses of both National Transmission & Despatch Company (NTDC) and Pak Matiari-Lahore Transmission Company (PMLTC) remained in the permissible limits.



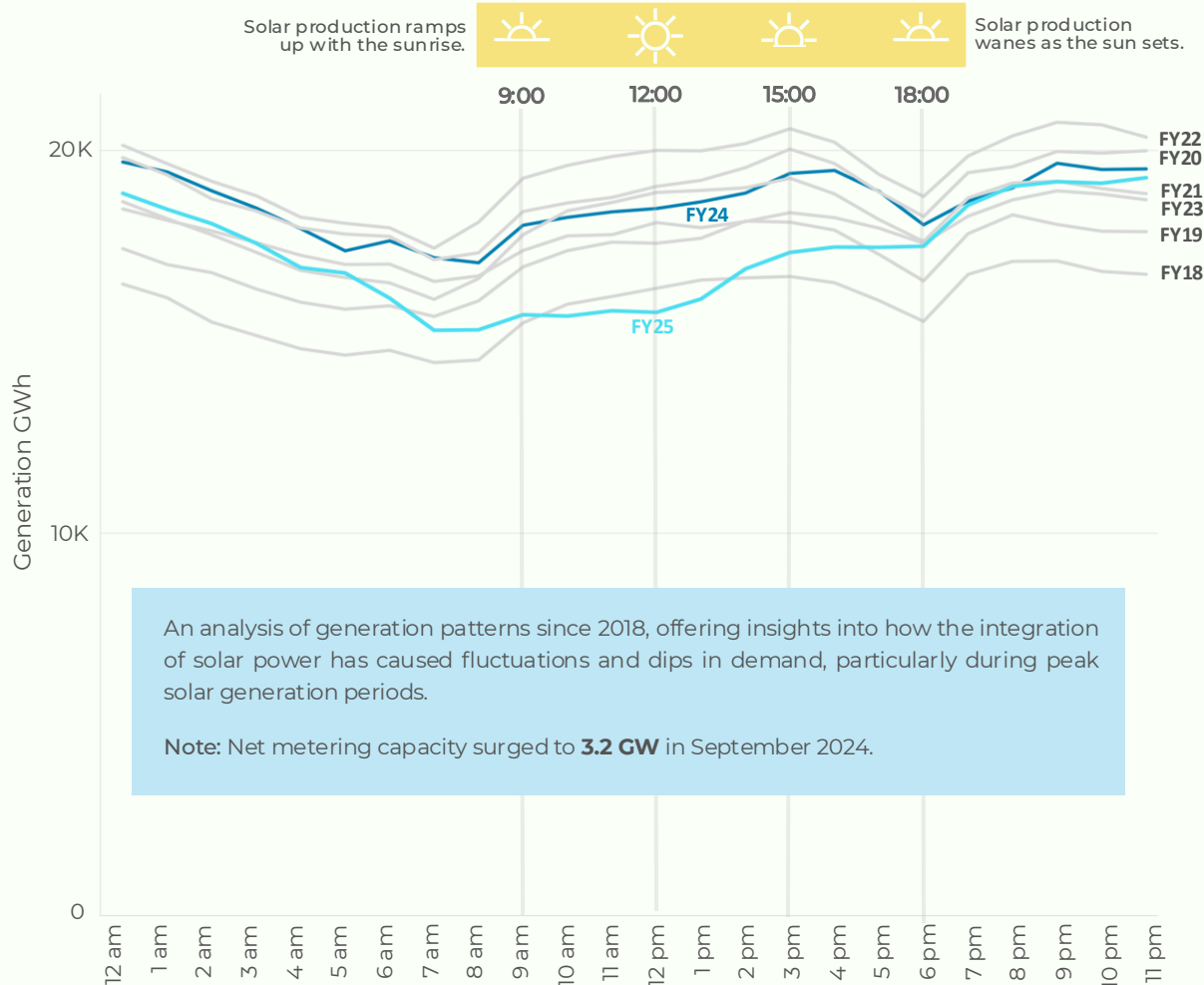
## The FY25 Power Purchase Price forecast projected 55.9 TWh for 4MFY25, but actual generation stood at 50.8 TWh, leading to negative price adjustments.

Negative Fuel Charges Adjustments (FCA) in 4MFY25 were driven by a drop in demand resulting in reduced utilization of lower-ranked, costly and less-efficient power plants in the merit order. Net previous adjustments also contributed to the FCA adjustments for the respective months during 4MFY25.



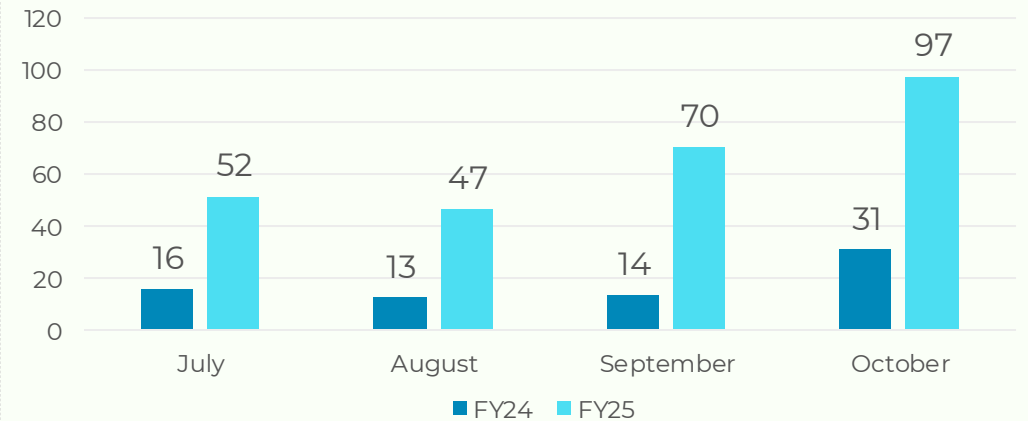
# A rapid surge in solar net metering is transforming power demand patterns in Pakistan

Avg. hourly generation profiles for the month of Sep, FY18 - FY25



- **Midday Demand Drop (9:00 to 12:00):** Consumers benefit from solar energy during peak sunlight hours.
- **Afternoon Demand Rise (12:00 to 15:00):** Grid demand increases as solar generation declines, with net-metered consumers switching back to grid power.
- **Evening Demand Surge (15:00 to 18:00):** A sharp rise in demand occurs, typical of solar-heavy grids, challenging the system operator to ramp up generation quickly.

Comparison of Net Metering units purchased by DISCOS in 4MFY25 vs 4MFY24 (GWh)





# “The Great Solar Rush in Pakistan” unpacks Pakistan’s solar revolution at the distributed scale

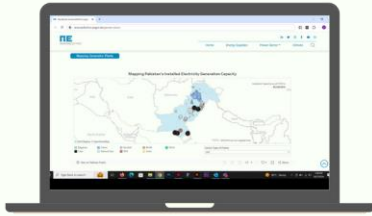
## Key Insights

- **Pakistan imported 15 GW of solar panels in 2024**, which is almost one-third of the country’s total installed generation capacity.
- **The electricity tariffs witnessed a 155% rise in the last three years**, encouraging solar adoption among high-consumption households and industries.
- **A 10.4% drop in the grid demand** highlights the need for updated demand projections and grid modernization to accommodate decentralized generation.
- **The falling battery prices** are expected to further drive solar adoption, highlighting the need for grid adaptation.
- **An urgent policy action for proactive planning** is necessary to support the transition to solar energy.
- **Pakistan’s solar growth serves as a lesson for developing nations**, offering key insights for the countries pursuing rapid renewable energy adoption.



For more power sector-related insights, visit:

## [Pakistan Energy and Climate Insights Dashboard](#)



[www.peci.renewablesfirst.org](http://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, PEGI improves accessibility and clarifies environmental impacts and emissions for stakeholder RF's collaboration with Herald Analytics led to the development of the PEGI Dashboard, which drives insights and offers robust analytics for energy data.

## [Pakistan Electricity Review 2024](#)



[https://uploads.renewablesfirst.org/Pakistan\\_Electricity\\_Review\\_2024\\_5\\_9c8be41fcc.pdf](https://uploads.renewablesfirst.org/Pakistan_Electricity_Review_2024_5_9c8be41fcc.pdf)

The Pakistan Electricity Review 2024 report aims to improve technical accessibility and awareness of critical aspects of power generation, transmission, and consumption. Focusing on the Fiscal Year 2022-23 (FY23), this thorough analysis also explores key aspects such as K-Electric (KE), Circular Debt, and China-Pakistan Economic Corridor (CPEC) projects. The report utilizes publicly available data for the power sector, with NEPRA's State of Industry Report (SIR) and Energy Yearbook serving as primary data sources.

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



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