RENEWABLES FIRST

Pakistan's Power Market Insights

Mar 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.

Key Highlights

In Mar 25, electricity generation stood at 8.4 TWh, marking an increase of 5% year-on-year (YoY) basis.

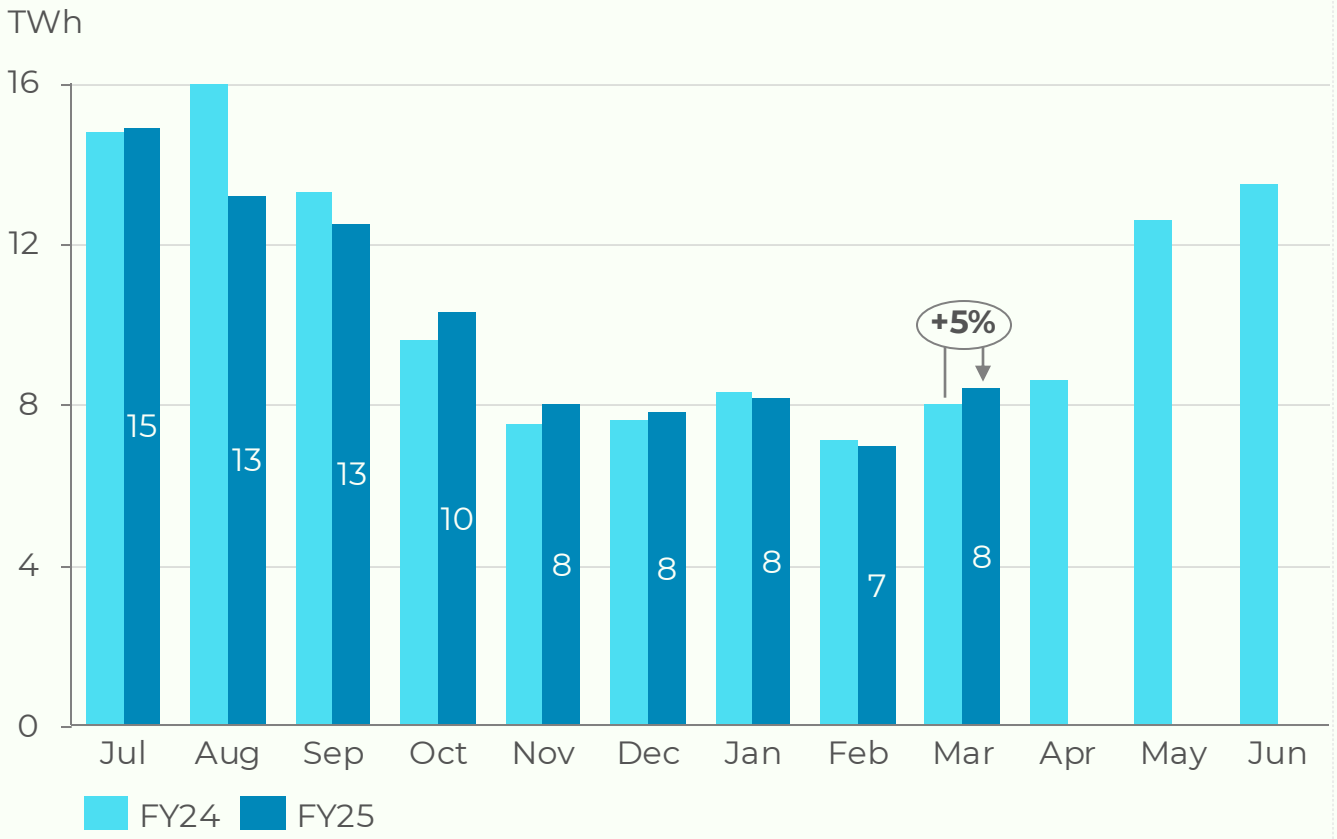
Hydel generation dropped by 41% YoY, with 1.3 TWh generated in Mar 25.

EV charging station’s base tariff slashed by 48%, with profit margins deregulated to encourage investment.

#RFPowerMarketInsights

Mar 25 saw a 5% YoY increase in generation, driven by increased demand due to warm weather and Ramazan routines.

Month-wise electricity generation in FY24 vs FY25

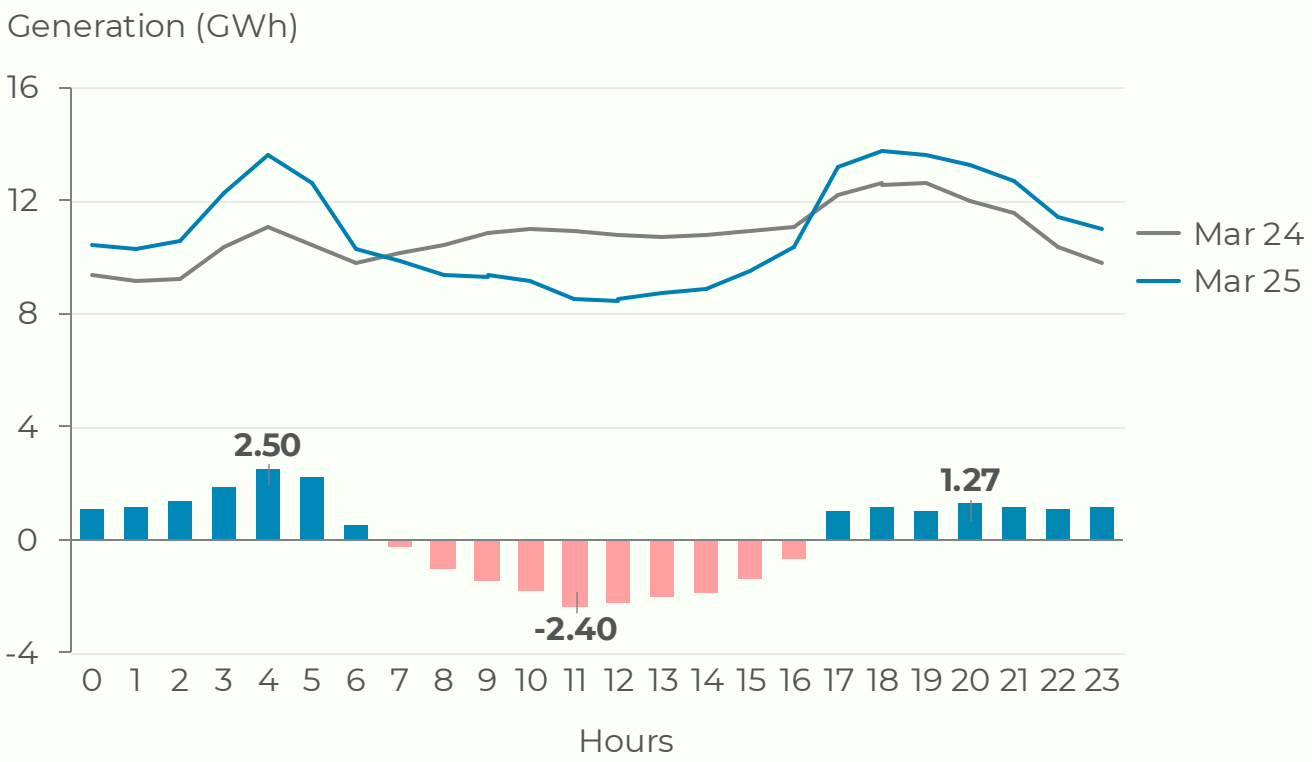


- Electricity generation in Mar 25 totalled 8.4 TWh, reflecting an increased consumption, partly driven by warmer weather, with the country's national mean temperature recorded at 20.36°C i.e., 1.50°C above the average.
- Over the first 9M-FY25, total electricity generation was 7% lower than the reference projection. This decline reflects overall reduced demand against the projected growth of 3% for FY25.

Data Source: NEPRA , Pakistan Meteorological Department & Renewables First Calculations

In Mar 25, a maximum decrease of 2.4 GWh in electricity generation was recorded during daylight hours.

Avg. monthly hourly generation profiles for the month Mar 24 vs Mar 25

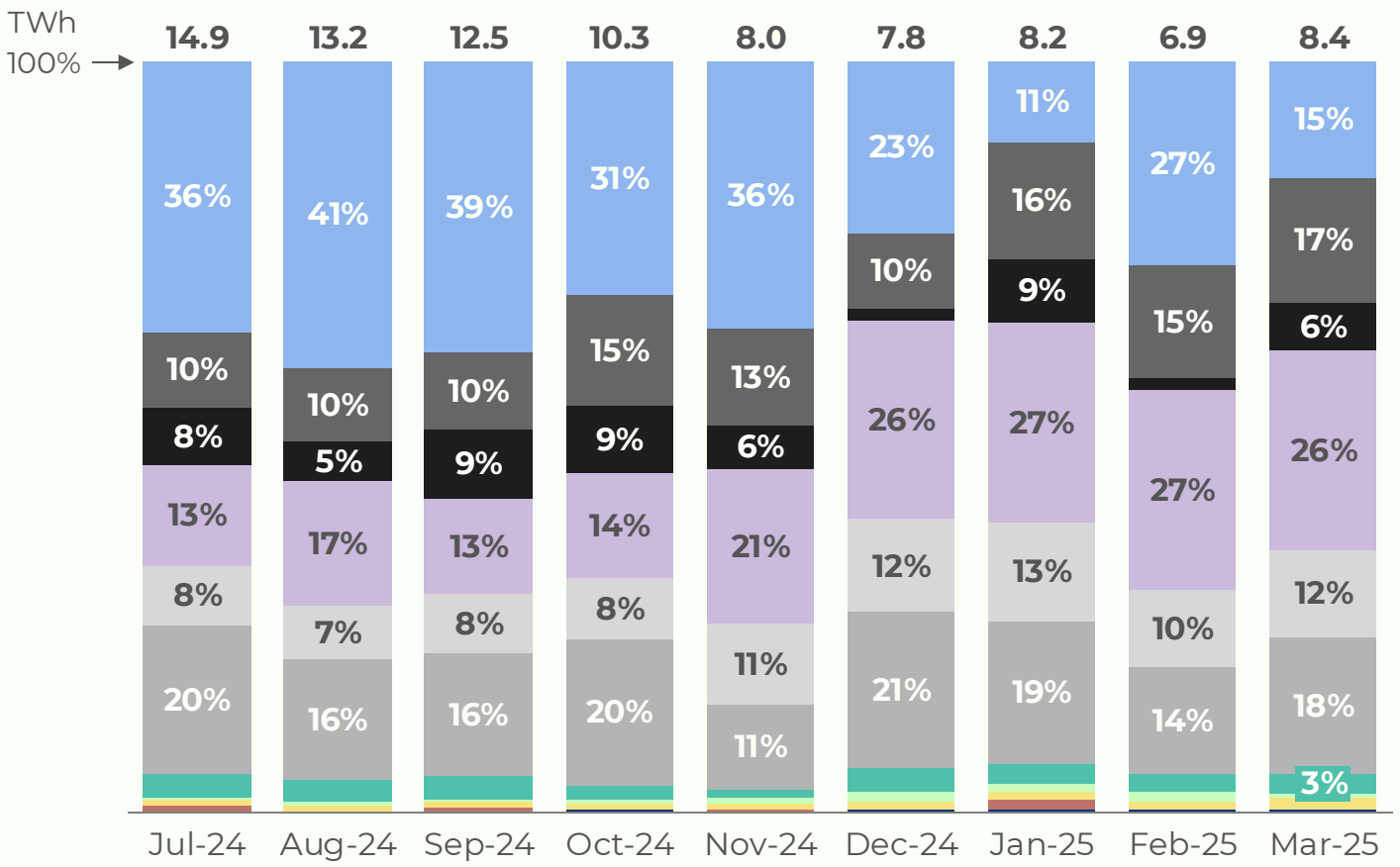


- Notable variances in energy generation profiles were observed during the early morning and evening hours in Mar 24 compared to Mar 25, highlighting shifts in consumption patterns.
- A maximum decline of 2.4 GWh during daylight hours suggests a shift towards solar energy usage, both through net-metered and non-net-metered grid installations.

Data Source: NEPRA & Renewables First Calculations

Mar 25 recorded a 41% YoY decline in hydel generation due to reduced hydrological inflows.

Energy source-wise generation share in 9M-FY25

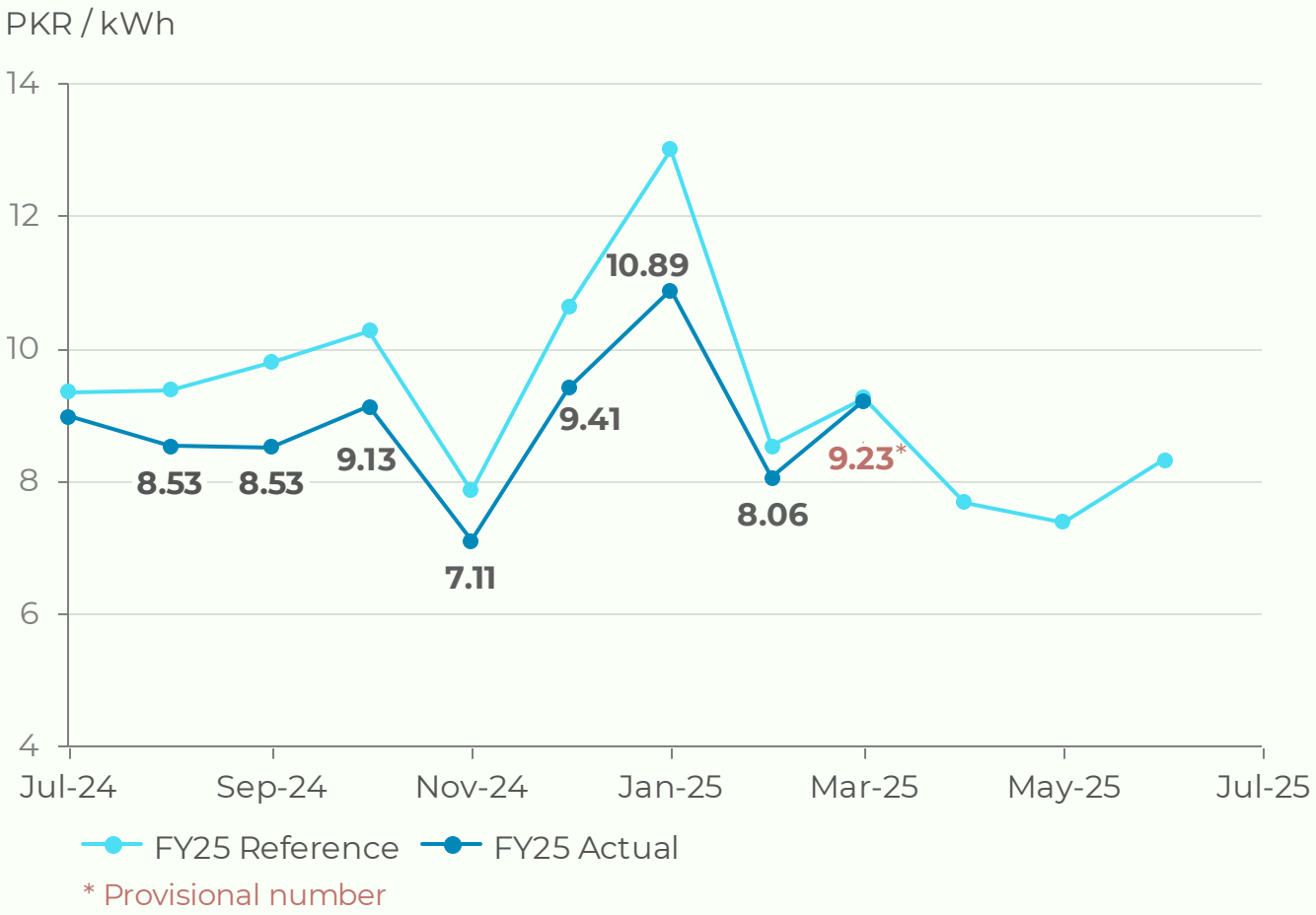


- Hydel generation decreased from 2.2 TWh in Mar 24 to 1.3 TWh in Mar 25, highlighting the effect of lower hydrological inflows.
- On a month-on-month (MoM) basis, the share of imported coal rose from 0.1 TWh in Feb 25 to 0.5 TWh in Mar 25, driven by higher electricity demand in Mar 25.

Hydel
Local Coal
Imported Coal
Nuclear
Natural Gas
RLNG
Wind
Bagasse
Solar
RFO/HSD
Electricity Import

FY25 experiences negative fuel cost adjustment (FCA) for the ninth month in a row

Fuel price adjustments in 9M-FY25

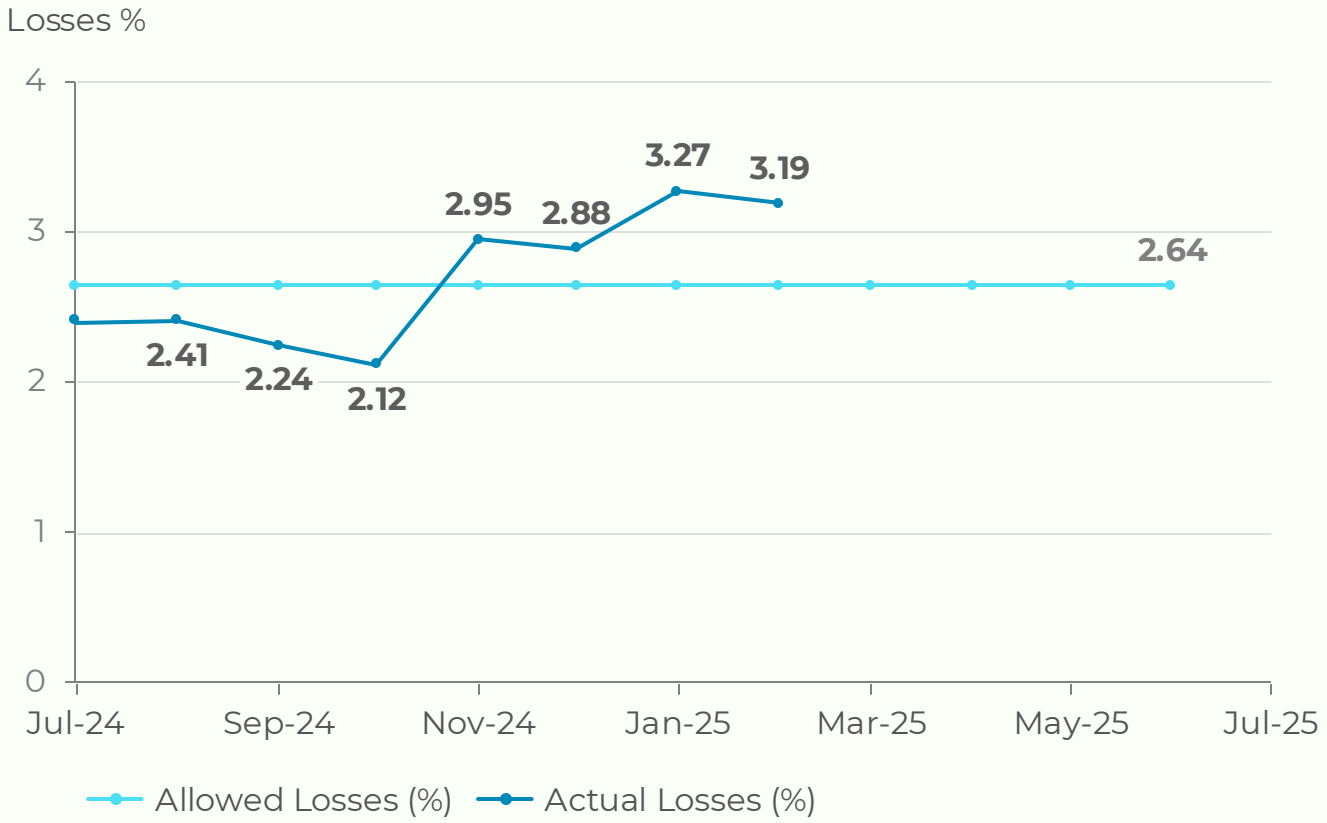


- RLNG and imported coal prices are sensitive to global market trends, which can potentially cause fluctuations in the FCA.
- In 9M-FY25, the fuel costs of RLNG and imported coal remained below the reference fuel costs, contributing to a negative FCA adjustment in FY25 so far.
- RFO remains the most expensive fuel, with fuel cost of PKR 29.5 per kWh. However, its share in the generation mix remained negligible, having a limited impact on the overall generation cost.

Data Source: NEPRA & Renewables First Calculations

From Nov 24 to Feb 25, transmission & transformation (T&T) losses exceeded allowed limits, driven by seasonal power shifts

T&T losses in 8M-FY25



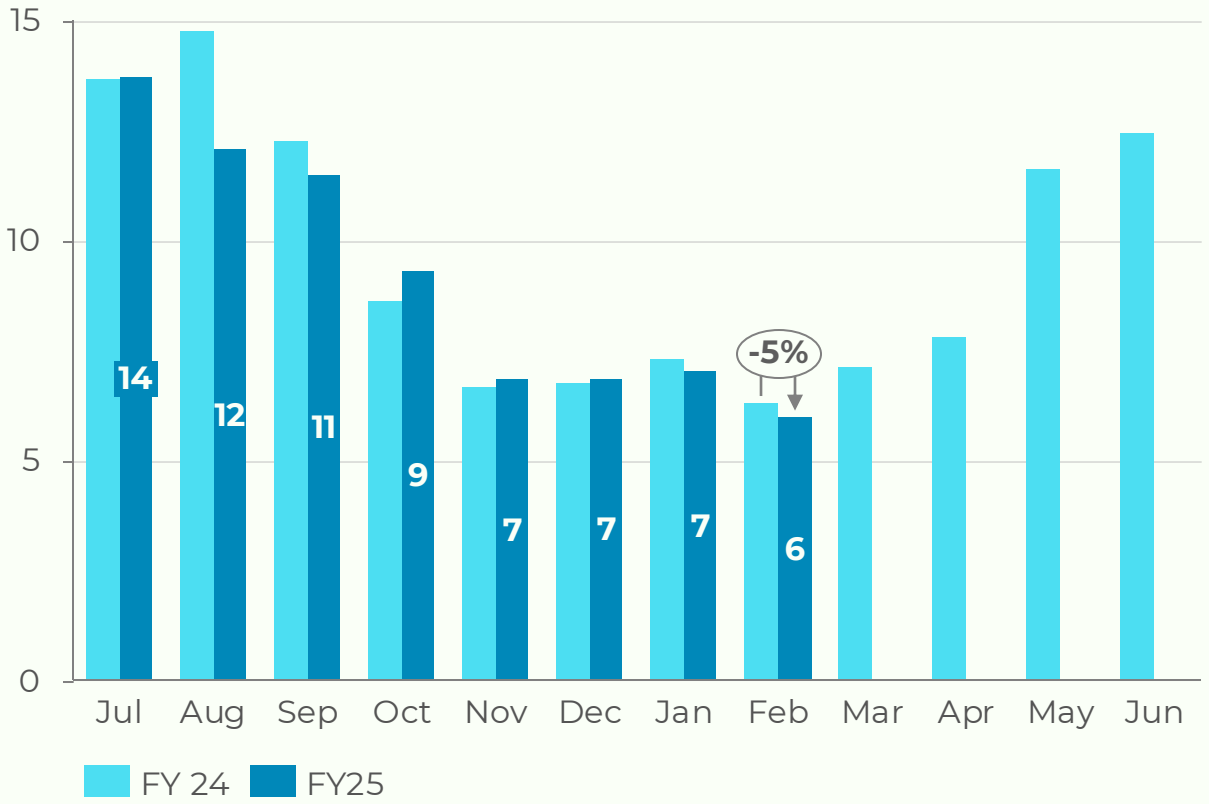
Note: For Mar 25, NEPRA has yet to report the T&T losses

- In winter, reduced hydel generation in the north leads to increased reliance on southern thermal plants to meet the electricity demand of load centres in the north of the country, resulting in higher transmission losses.
- Improved hydel generation in Feb 25, contributed to reduced T&T losses, marking an improvement to 3.19% compared to Jan 25.

Data Source: NEPRA & Renewables First Calculations

DISCOs procured 73 TWh of electricity in 8M-FY25, recording a 4% drop YoY

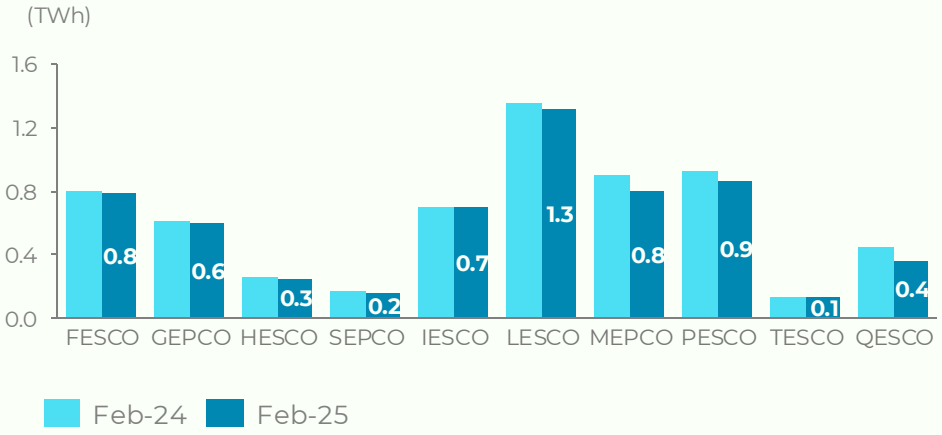
Units procured by DISCOs in FY24 vs. FY25



Note: NEPRA has yet to report the procurement by DISCOs for Mar 25.

- Power procurement by DISCOs declined noticeably in Feb 25 on a YoY basis. MEPCO reported the largest drop of 112 GWh, followed by QESCO with 85 GWh and PESCO with 59 GWh, compared to Feb 2024.

Units procured by DISCOs in Feb24 vs. Feb25

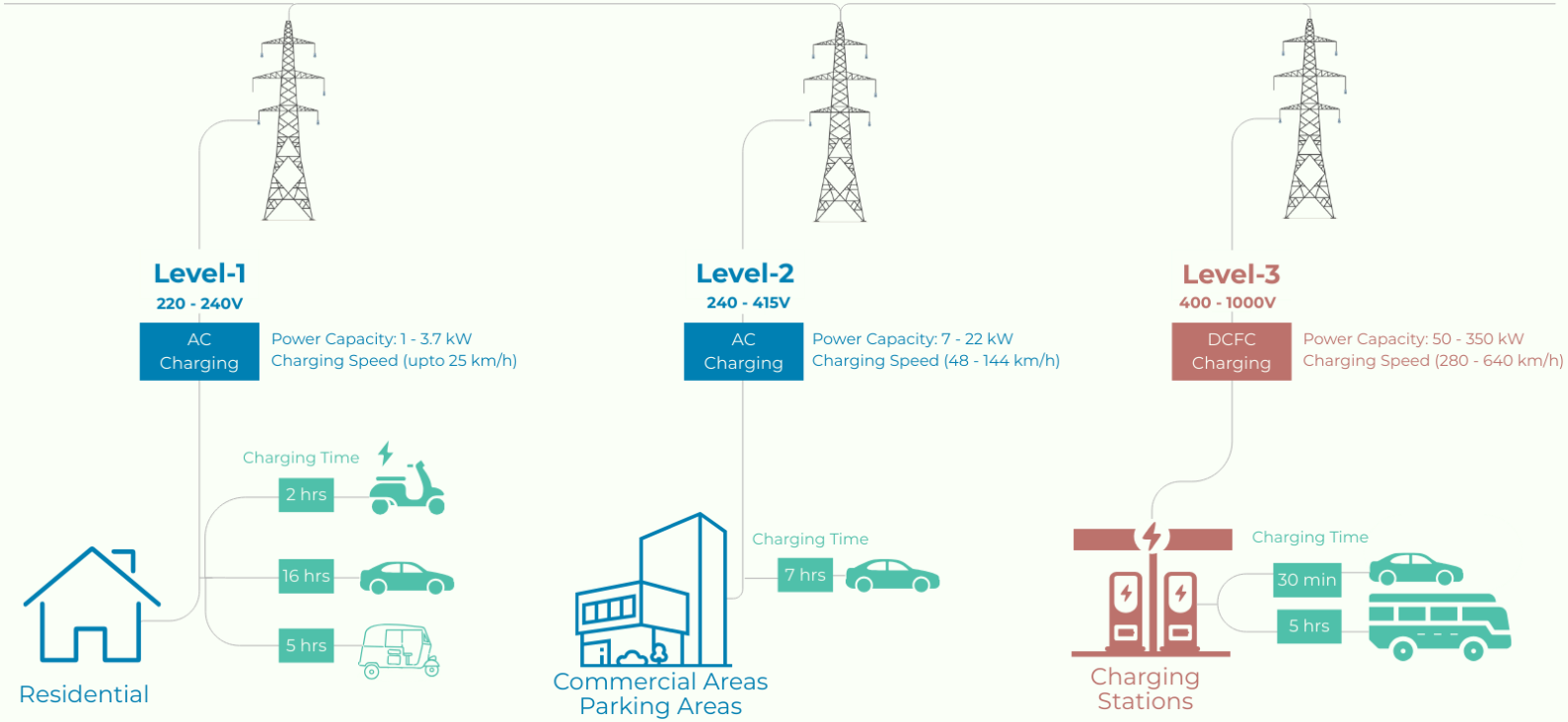


Data Source: NEPRA & Renewables First Calculations

Tariff cuts for EV charging stations

The government's tariff reduction for EV charging stations (EVCS) aims to attract investment and accelerate EVCS infrastructure development

Levels of EVCS



- The EV charging station market in Pakistan is still underdeveloped, with very limited EVCS and BSS available across the country.
- For EVCS tariff determination purposes, different levels are defined based on power capacity usage & specific utility function of a public charging station.
- With the revised base tariff and deregulated profit margins, EVCS are projected to generate incremental sales of 814 GWh.
- These additional sales will not only boost electricity demand but are anticipated to support capacity payments—sharing the burden of capacity charges and ultimately lowering consumer end tariffs.

Data Source: NEPRA & Renewables First Calculations

Base tariff for EVCS reduced by 48% bringing base tariff down to PKR 23.57 per KWh

EVCS tariff and financial viability, first 9M of FY25

Sensitivity Analysis (Existing)	Level 3	Level 2	Swapping Station 2 Wheeler	Swapping Station 3 Wheeler
CAPEX (M PKR)	19	0.6	2.7	7.6
OPEX (M PKR/Year)	8.1	2.7	2.8	4
Base Rate (PKR) + (QTA + DSS)	45.55 + 3.23	45.55 + 3.23	45.55 + 3.23	45.55 + 3.23
Taxes	43%	43%	43%	43%
Electricity price for station	70	70	70	70
Margin (PKR/kWh)	24	24	24	24
Electricity price for consumer (PKR/kWh)	94	94	94	94
Discounted Payback (Years)	8.3	-	-	-
IRR (%)	2%	Negative	Negative	Negative

Revised tariff

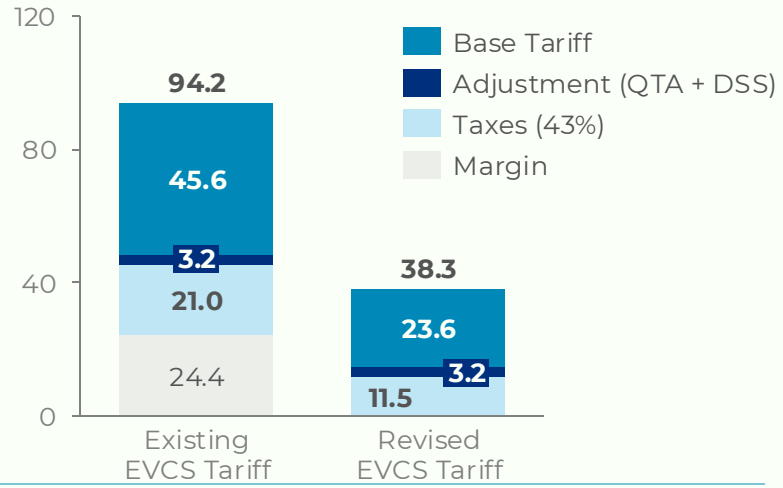
Revised EVCS tariff and financial viability, last 3M of FY25

Sensitivity Analysis (Proposed)	Level 3	Level 2	Swapping Station 2 Wheeler	Swapping Station 3 Wheeler
CAPEX (M PKR)	19	0.6	2.7	7.6
OPEX (M PKR/Year)	5.9	1.8	2	2.6
Base Rate (PKR) + (QTA + DSS)	23.57 + 3.23	23.57 + 3.23	23.57 + 3.23	23.57 + 3.23
Taxes	43%	43%	43%	43%
Electricity price for station	38.2	38.2	38.2	38.2
Margin (PKR/kWh)	39	29	74	94
Electricity price for consumer (PKR/kWh)	78	68	113	133
Discounted Payback (Years)	3.8	4.5	3.9	3.2
IRR (%)	22%	22%	21%	21%

QTA: Quarterly tariff adjustment DSS: Debt servicing surcharge

- The base tariff of PKR 45.55 per kWh, combined with a capped margin of PKR 24 per kWh, limits investor returns, making the EVCS business model unsustainable.
- The base tariff is now reduced to PKR 23.57 per kWh, managed via a cross-subsidy mechanism, while the margin cap is eliminated, allowing market forces to set the margin for EVCS operators.

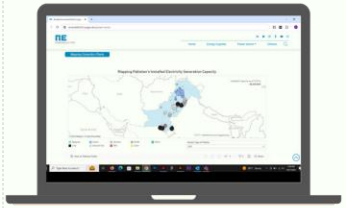
Existing & revised EVCS tariff
PKR per kWh



Data Source: NEPRA & Renewables First Calculations

For more power sector-related insights, visit:

Pakistan Energy and Climate Insights Dashboard



Pakistan Energy & Climate Insights

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 stakeholder 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 2024

#Pakistan Electricity Review 2024

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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