SECTOR STUDY | 4 MARCH, 2026

Together. Creating Value.

DISTRIBUTION | ELECTRICITY

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Distribution | Electricity

Distribution | Electricity

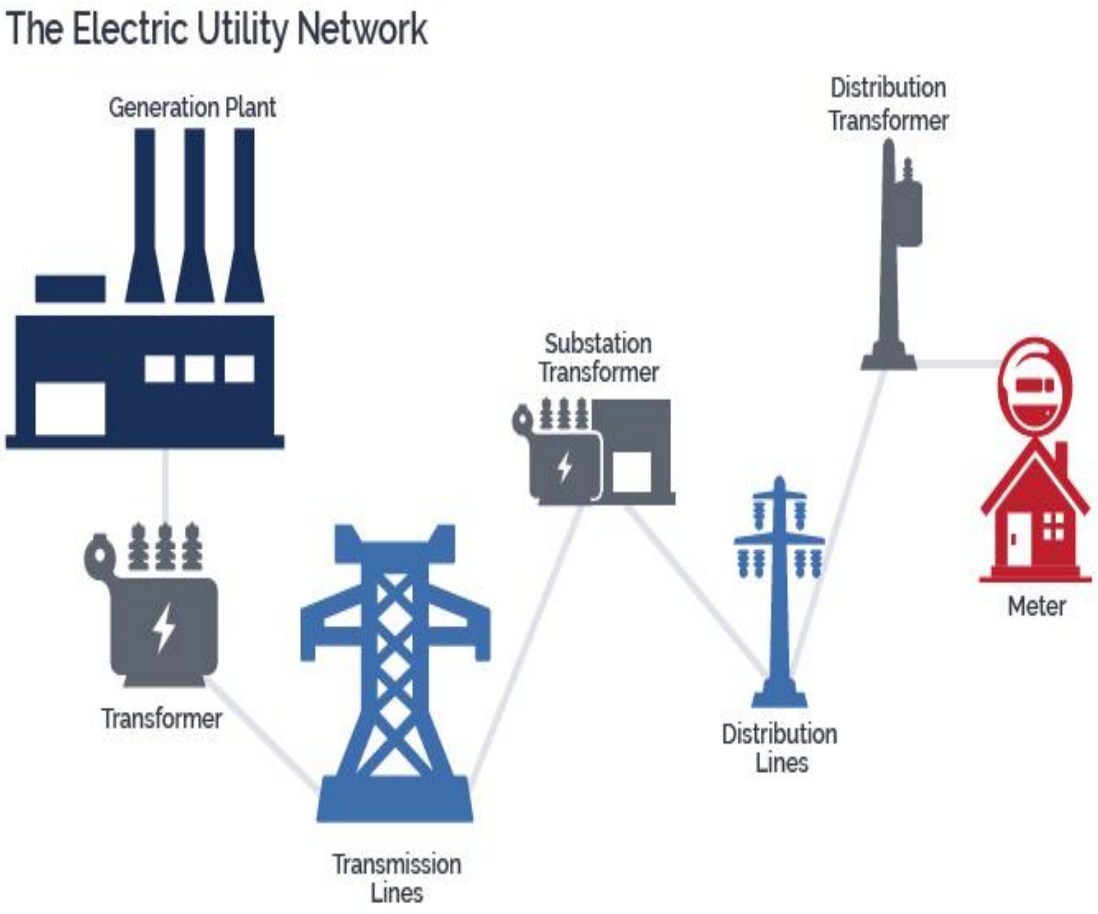
Power | An Overview

- Based on derivation, energy sources can be bifurcated into Primary and Secondary sources. Electricity, a subset of Power, is a secondary energy source, meaning thereby that it is produced through conversion of other energy sources such as coal, natural gas, oil, nuclear etc. These are known as primary energy sources. Primary energy sources are renewable or non-renewable energy.

- Since the 1660s, scientists and inventors, including the likes of Benjamin Franklin, Thomas Edison and Nikola Tesla, have contributed significantly in shaping up our understanding and use of electricity.

- In the late 1800s, Nikola Tesla pioneered the generation, transmission, and use of alternating current (AC) electricity, which reduced the cost of transmitting electricity over long distances.

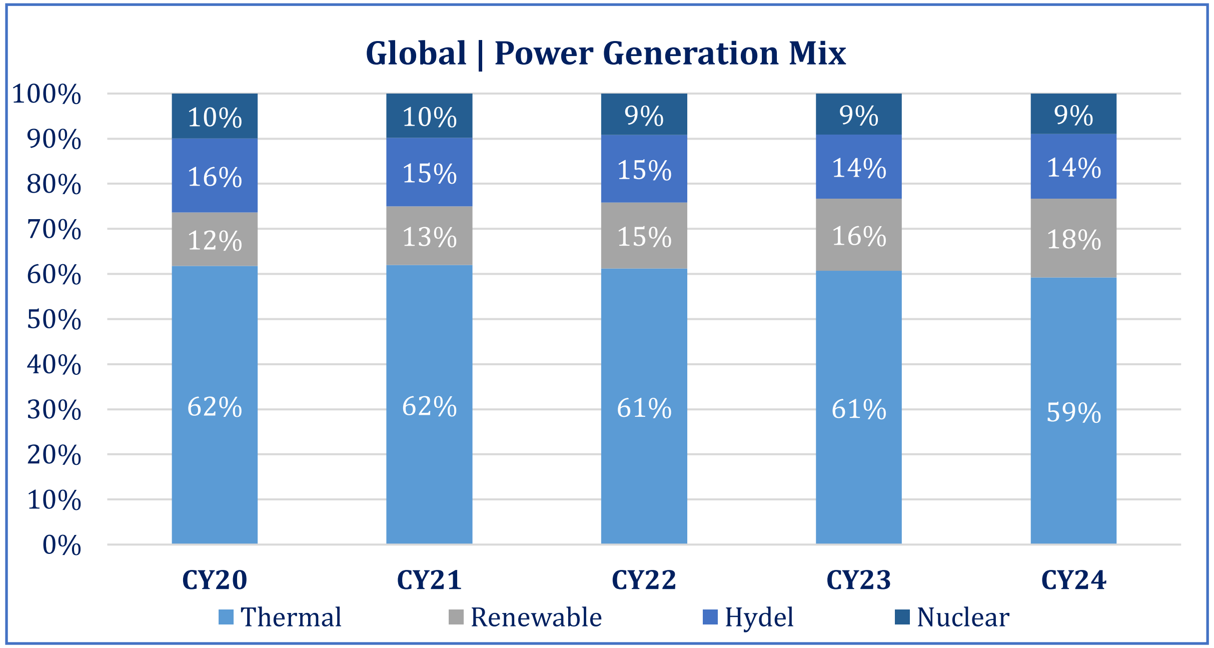
- Electricity is generated at power plants and moves through a complex system, generally called the grid, of electricity substations, transformers, and power lines that connect electricity producers and consumers. This study shall focus on the **Electricity Distribution** system.

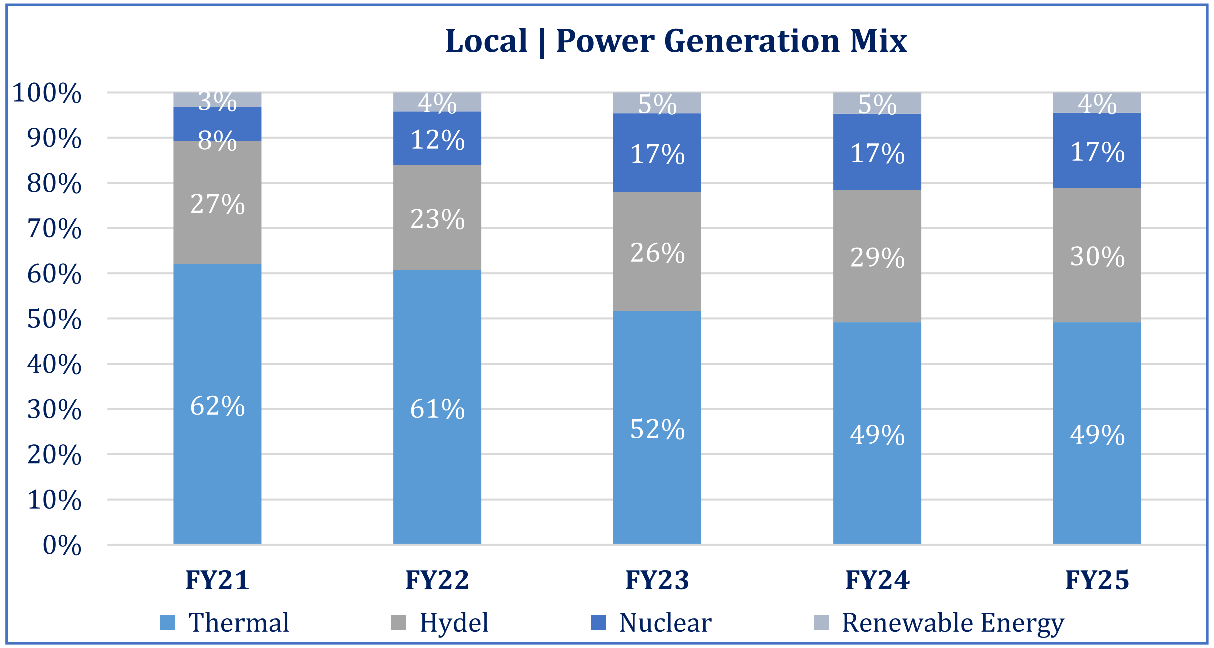


Source: EIA

Distribution | Electricity

Electricity Mix | Global vs. Pakistan





- The global power generation mix in CY24 remained predominantly reliant on thermal energy sources, including Coal, Oil, and Gas, which collectively accounted for ~59.0% of total electricity generation. Renewable energy sources, such as solar and wind, represented a combined share of ~18.0% during the year. Among clean energy sources, hydel maintained the largest contribution at ~14.0%, while nuclear energy ranked second, holding a share of ~9.0% in CY24.

- In Pakistan, the energy mix has gradually shifted away from thermal generation since FY21. The share of thermal declined from ~62.0% in FY21 to ~49.0% in FY25, reflecting a structural transition toward relatively cleaner sources. Hydel contribution increased from ~27.0% in FY21 to ~30.0% in FY25, while nuclear energy expanded significantly from ~8.0% to ~17.0% over the same period. Against a total power generation of ~135,079 GWh in FY25, the combined share of hydel and renewables stood at ~34.0%, remaining broadly unchanged compared to the same period last year, indicating stability in the non-thermal contribution to the overall generation mix.

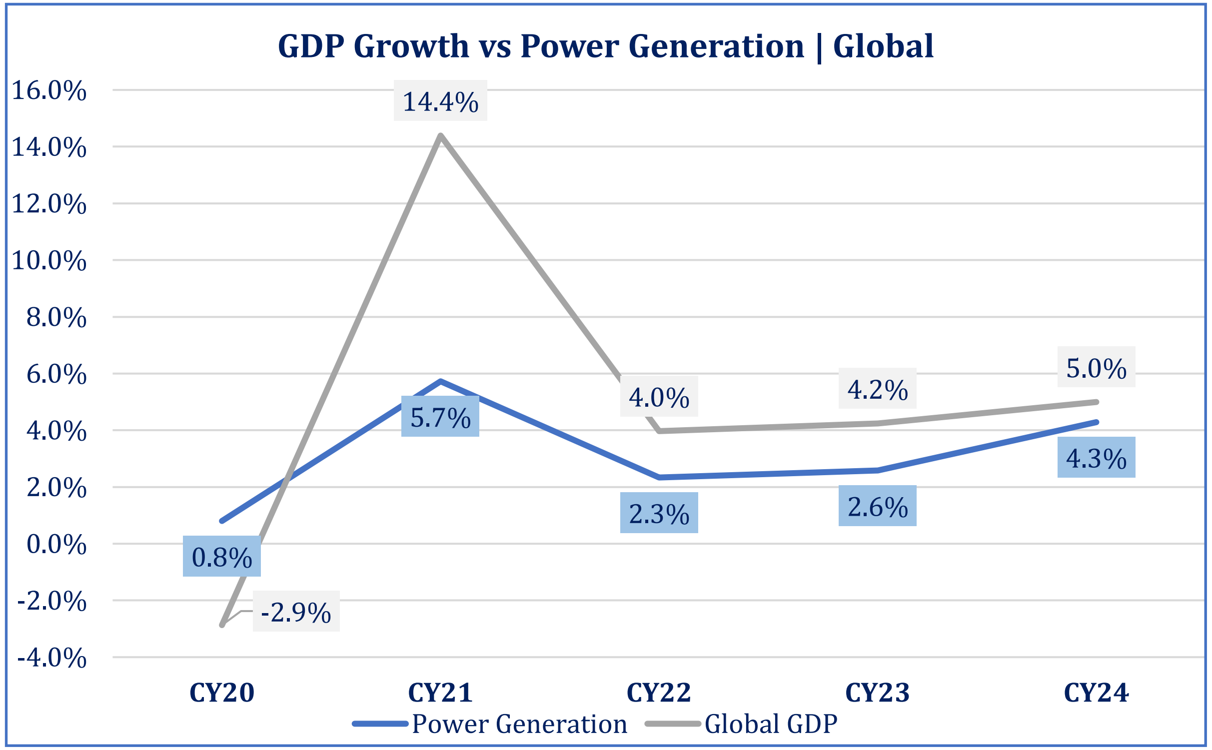
Source: Ember, NEPRA

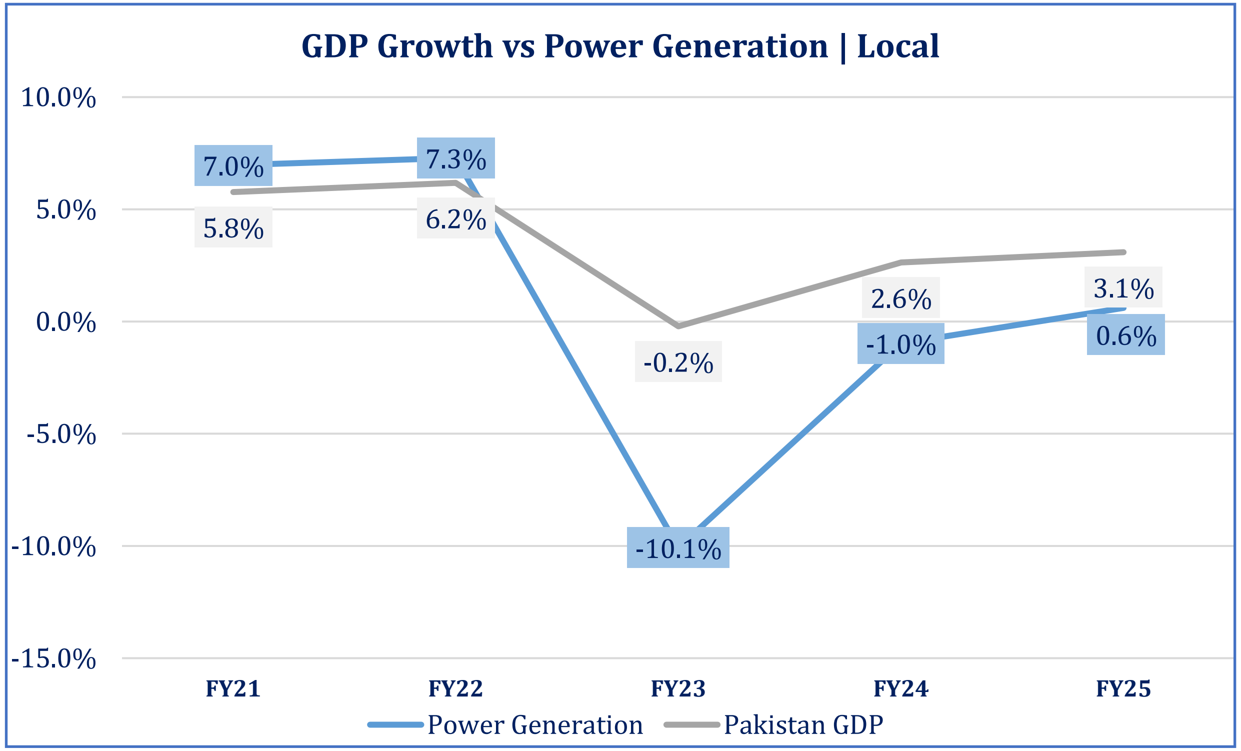
Distribution | Electricity

Electricity Consumption vs. GDP Growth

- Global electricity generation reached ~30,937 TWh in CY24, up ~5.0% YoY (SPLY: ~29,665 TWh). Meanwhile, the global GDP grew by ~4.3% YoY during the same period, recording at USD~110.98trn.

- Pakistan's power generation stood at ~135,079 GWh in FY25, marking a decline of ~1.5% YoY, while on the other hand, GDP grew, in real terms, by ~3.1% YoY from a negative growth of ~0.2% YoY in FY23.





***Note:** Local power generation data reflects the CPPA-G and KE systems.*
MW is converted into GWh

Source: WB, Ember, SBP, NEPRA, PBS

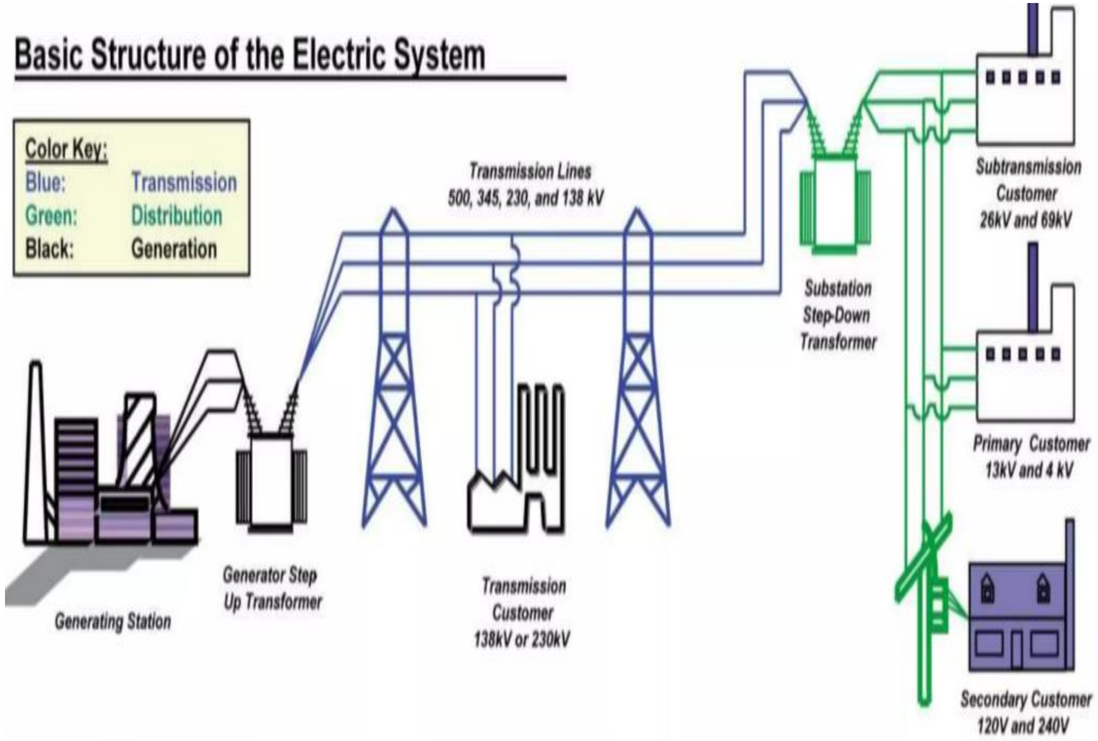
Transmission | An Overview

- Electricity Transmission is the vital link between electricity generation and distribution. Transmission lines carry electricity at high voltages over long distances from power plants to distribution companies, which bring electricity to homes, industry, offices etc.

- As per the NEPRA Act, there can be only one National Grid Company (NGC) at a particular time. National Transmission & Dispatch Company Limited (NTDC) is acting as an NGC under a license issued by NEPRA.

- On the Provincial Scale, the NEPRA (Amendment) Act, 2018, provides Provincial Governments the right to establish one Provincial Grid Company (PGC) in each province.

- Under-utilization of efficient power plants, over-loading of transmission lines, insufficient transformation capacity of power transformers, and outages of transmission lines, etc. have been the main constraints for transmission & distribution (T&D) networks. Transmission losses due to electricity generated clocked in at ~2.6%



Note: For the purpose of this study, 1GWh= 1,000 MWh

Source: NEPRA, PACRA Database

Distribution | Electricity

Transmission | Local Structure

- The National Transmission & Dispatch Company (NTDC) was incorporated in Nov'98 and commenced commercial operation in Mar'99. It was organized to take over all the properties, rights and assets obligations and liabilities of 220KV and 500KV Grid Stations and Transmission Lines/Network owned by Pakistan Water and Power Development Authority (WAPDA).
- The National Transmission and Dispatch Company (NTDC) was renamed National Grid Company (NGC) of Pakistan Ltd in Mar'25 as part of power sector restructuring reforms.
- The entity was granted transmission license in Dec'02 by National Electric Power Regularity Authority (NEPRA) to engage in the exclusive transmission business for a term of thirty (30) years.
- KE is the only vertically-integrated power utility in Pakistan, which means the organization manages all three key areas – Generation, Transmission and Distribution – of producing and delivering energy to consumers.

NGC | Transmission Network (FY25)

No. of Grid Stations	Grid Station Potential (kV)	Transformation Capacity (MVA)	Transmission Lines (km)	Transformers Installed at Grid Stations	
				500/220kV	220/132kV
19	500	25,950	9,100	47	41
49	220	30,850	11,853	-	145
68	-	**56,800**	**20,953**	**47**	**186**

KE | Transmission Network (FY25)

No. of Grid Stations	Grid Station Potential (kV)	Transformation Capacity (MVA)	Transmission Lines (km)	Transformers Installed at Grid Stations	
				220/132kV	132/11/66kV
1	500	1,800	7	-	-
12	220	5,500	467	12	-
62	132	7,117	805	-	180
3	66	79	153	-	4
78	-	**14,496**	**1,432**	**12**	**184**

Source: NEPRA

Distribution | Electricity

Transmission Network | NGC & KE

NGC Network				
Year	Generation Capability (MW)	Demand During Peak Hours (MW)	Surplus/(Deficit) MW	
Actual				
FY21	27,819	28,253	(434)	
FY22	27,748	24,564	3,184	
FY23	30,574	23,679	6,895	
FY24	31,182	24,485	6697	
FY25	24,733	23,848	885	
Year	Planned Generation Capability (MW)	Projected Growth Rate (%)	Demand During Peak Hours (MW)	Surplus/(Deficit) MWh
Projected				
FY26	34,243	2.6	27,168	7,075
FY27	34,630	2.6	27,871	6,759
FY28	37,630	6.1	29,562	8,068
FY29	39,356	3.6	30,614	8,742
FY30	39,532	2.9	31 ,491	8,041

KE Network				
Year	Generation Capability (MW)	Demand During Peak Hours (MW)	Surplus/(Deficit) MW	
Actual				
FY21	3,202	3,604	(402)	
FY22	3,383	3,670	(285)	
FY23	3,409	3,654	(245)	
FY24	3,550	3,568	(18)	
FY25	3,545	3,707	(162)	
Year	Planned Generation Capability (MW)	Projected Growth Rate (%)	Demand During Peak Hours (MW)	Surplus/(Deficit) MWh
Projected				
FY26	4,173	4.2	3,926	247
FY27	4,197	4.2	4,158	39
FY28	4,269	4.2	4,261	8
FY29	4,882	4.2	4,441	441
FY30	4,882	4.2	4,562	320

Note: *Generation capability' is the maximum generation capability of any day recorded during the year and 'Demand' is the maximum demand of any day recorded during the year.*

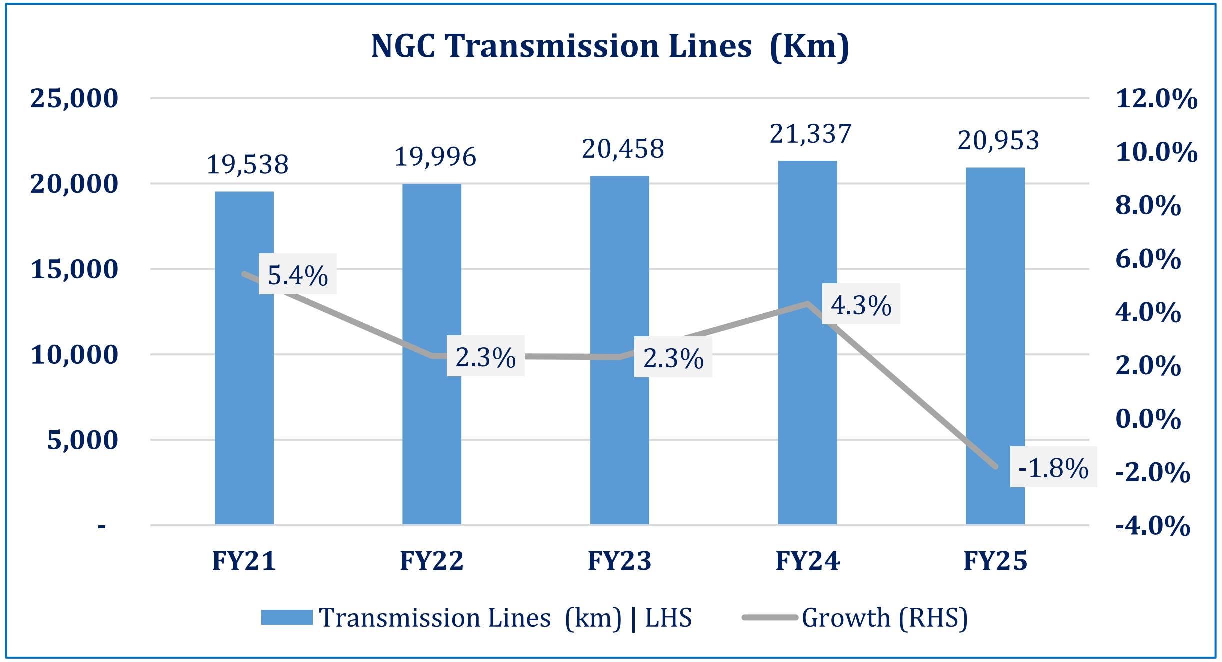
Source: NEPRA

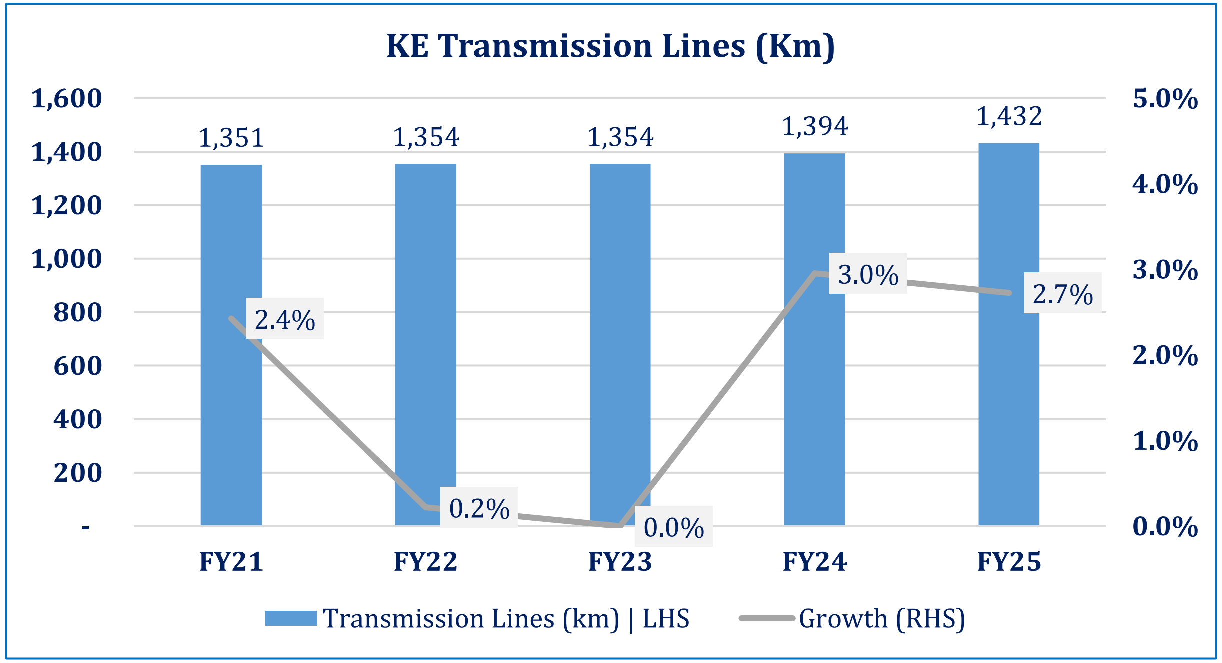
Distribution | Electricity

Transmission | Assets

Grid Stations (No.)	FY21	FY22	FY23	FY24	FY25
NGC	62	69	69	69	68
KE	71	71	71	74	78
Total	**140**	**140**	**140**	**143**	**146**

Grid Station Capacity (MVA)	FY21	FY22	FY23	FY24	FY25
NGC	62,830	68,060	71,290	72,560	65,880
KE	11,253	11,403	11,565	12,695	14,496
Total	**74,083**	**79,463**	**82,855**	**85,255**	**80,376**





***Note**: KE grid stations data pertains to 220/132kV grid potential.*

Source: NEPRA

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Transmission | Losses

- Transmission Loss refers to the loss of electricity during movement from a powerplant or power station to different substations.

- Transmission refers to the movement of electricity at high voltage. Losses during transmission are generally lower than those during distribution. Distribution network carries electricity at lower voltage and larger distances to the end-consumers.

- During FY25, transmission losses in NGC network of 500/220kV grid power were recorded at ~2.6% as compared to ~2.5% in FY24.

- Distribution losses* were recorded at ~16.1% in FY25 (SPLY: ~17.2%), significantly higher than transmission losses

Transmission Losses (500/220kV) (GWh)	FY21	FY22	FY23	FY24	FY25
Units Received (R)	132,299	140,346	132,008	133,815	133,621
Units Delivered (D)	128,620	136,674	128,811	130,438	130,189
Units Lost (R - D)	**3,679**	**3,672**	**3,197**	**3,377**	**3,432**
Transmission Losses (%)	**2.7%**	**2.6%**	**2.4%**	**2.5%**	**2.6%**

***Note**: Transmission losses in the table refer to NGC Losses only. *Distribution losses pertain to average of DISCOs and KE T&D losses.*

Source: NEPRA

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Distribution | An Overview

- Distribution is one of the key functions for the provision of electricity to the end consumers. As of End-June'25, there are ten State Owned Distribution Companies (DISCOs) exclusively responsible for the supply of electricity in their respective areas. These DISCOs are licensed by NEPRA. In addition, KE is also licensed to supply electricity in its designated areas. Following amendments in the NEPRA Act in April 2018, separate licenses are required to be obtained for the supply of electricity and sale of electricity.

- Besides DISCOs and KE, some other local authorities such as DHA, Bahria Town and Industrial Estates Development Authority have also been granted the license to supply electricity in the territory specified in their respective distribution licenses.

Brief Background

- DISCOs and GENCOs were created in Pakistan as WAPDA was unbundled to restructure the power sector to improve efficiency and transform gradually into a competitive market. For this process to occur smoothly, the Pakistan Electric Company Pvt. Ltd. (PEPCO) was created in 1998 and assigned the task then of unbundling WAPDA into 8 DISCOs, 4 GENCOs and NGC (then NTDC). PEPCO oversees the management of all corporatized DISCOs, GENCOs, and NGCs. In CY21, its headquarters were relocated and rebranded as the Power Planning and Monitoring Company; however, it has yet to become operational.

- From CY07 onwards, the Ministry of Water & Power has notified NEPRA of the approved tariff for all DISCOs replacing the unified WAPDA tariff.

Source: NEPRA

Distribution | Electricity

Distribution | Local Structure

- DISCOs are responsible for the operations & maintenance of the transmission and distribution assets at 132kV and below. Power Delivery through DISCO networks mainly depends on the adequacy of three major components; (i) 11kV feeders, (ii) Power Transformers and (iii) Distribution Transformers.

DISCOs Operational | FY25
Peshawar Electric Supply Company (PESCO)
Tribal Areas Electric Supply Co. (TESCO)
Islamabad Electric Supply Co. (IESCO)
Gujranwala Electric Power Co. (GEPCO)
Lahore Electric Supply Co. (LESCO)
Faisalabad Electric Supply Co. (FESCO)
Multan Electric Power Co. (MEPCO)
Hyderabad Electric Supply Co. (HESCO)
Sukkur Electric Power Co. (SEPCO)
Quetta Electric Supply Co. (QESCO)
K-Electric (KE)

DISCOs | Assets Structure | FY25	NGC	KE	Total
Transmission lines – 132kV (km)	33,080	805	**33,885**
Grid Stations – 132 kV	186	73	**259**
Grid Stations Transformation Capacity (MVA)	39,930	7,838	**47,768**
Feeders – 11 kV	11,613	2,131	**13,744**
Feeders Length (km)	373,534	11,835	**385,369**
Distribution Transformers (DTs) (No.)	855,075	31,678	**886,753**
Transformation Capacity of DTs (kVA)	66,399,794	9,094,130	**76,493,924**
DTs Low-tension LT lines (km)	792,058	31,131	**823,189**
No. of Connections	**38,549,897**	**3,851,077**	**42,400,974**

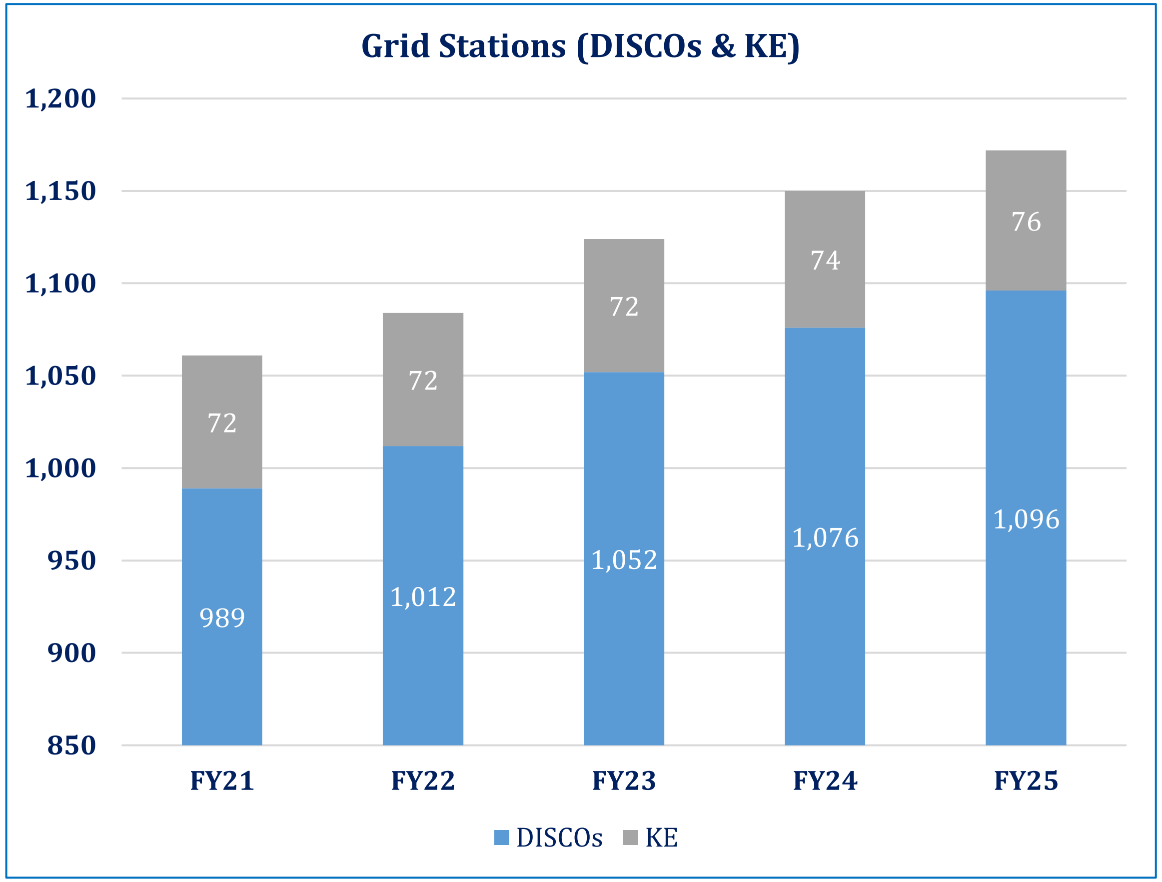
Source: NEPRA

Distribution | Electricity

Local | Assets (Lines & Grid Stations)

- The country's Distribution Network is classified into DISCOs, KEs, and small and captive Power Producers. DISCOs purchase power from NGC through CPPA-G. As of FY25, DISCO transmission lines cover ~96.5% (SPLY: ~93.8%) of Pakistan's geographical area.

Distribution Lines DISCOs (Km)	FY21	FY22	FY23	FY24	FY25
High-Tension (HT) Lines	384,445	390,789	397,150	403,462	412,569
Low-Tension (LT) Lines	240,931	242,925	247,144	247,308	792,058
Sub-total (A)	**626,864**	**633,906**	**642,621**	**650,755**	**1,204,627**
Distribution Lines KE (Km)	**FY21**	**FY22**	**FY23**	**FY24**	**FY25**
High-Tension (HT) Lines	11,269	11,511	11,882	12,256	12,793
Low-Tension (LT) Lines	18,509	18,936	19,370	30,871	31,131
Sub-total (B)	**29,778**	**30,447**	**31,252**	**43,127**	**43,924**
Grand Total (A+B)	**656,642**	**664,353**	**673,873**	**693,882**	**1,248,551**



**High Tension Lines carry high voltage (11kV, 33kV etc.), and are used to transmit power to long distances. LT lines carry low voltage (till 1kV) and are used for shorter distances, e.g., households.*

Source: NEPRA

Distribution | Electricity

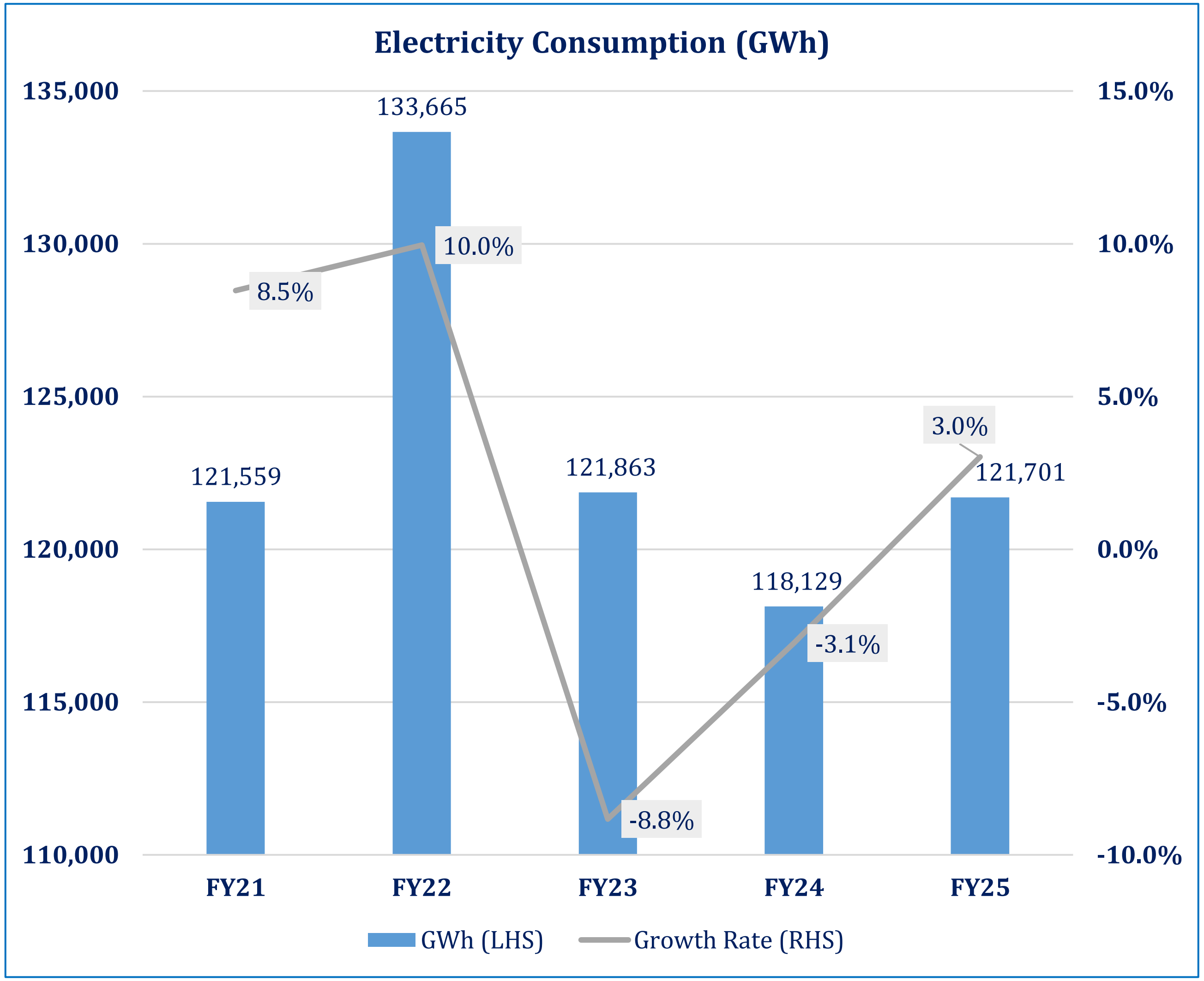
Local | Demand

- Pakistan's overall Electricity consumption rose by ~3.0% YoY in FY25, to record at ~121,701 GWh (FY24: ~118,129GWh). The main reason for this increase was higher consumption seen in domestic (~4.4% YoY), commercial (~5.6% YoY) & industrial (~4.9% YoY) segments. Other factors include return of captive power users to the national grid, improvements in macroeconomic indicators and recent power sector reforms.

- The average power consumption per capita was recorded at ~505.0kWh in FY25 (SPLY: ~500.5kWh).

- Globally, average Electricity consumption per capita is around ~3,700–3,900 kWh per year, with high-income countries (such as Canada, USA, South Korea) often exceeding ~12,000 kWh per capita, whereas Pakistan's per capita consumption (FY25: ~505 kWh) remains significantly below both the global average and that of most major economies, reflecting lower access and industrial use.

- In FY25, transmission losses in the CPPA-G system clocked in at ~2.6% (SPLY: ~2.5%), while distribution losses accrued to ~17.6% during the same year (FY24: ~18.3%).



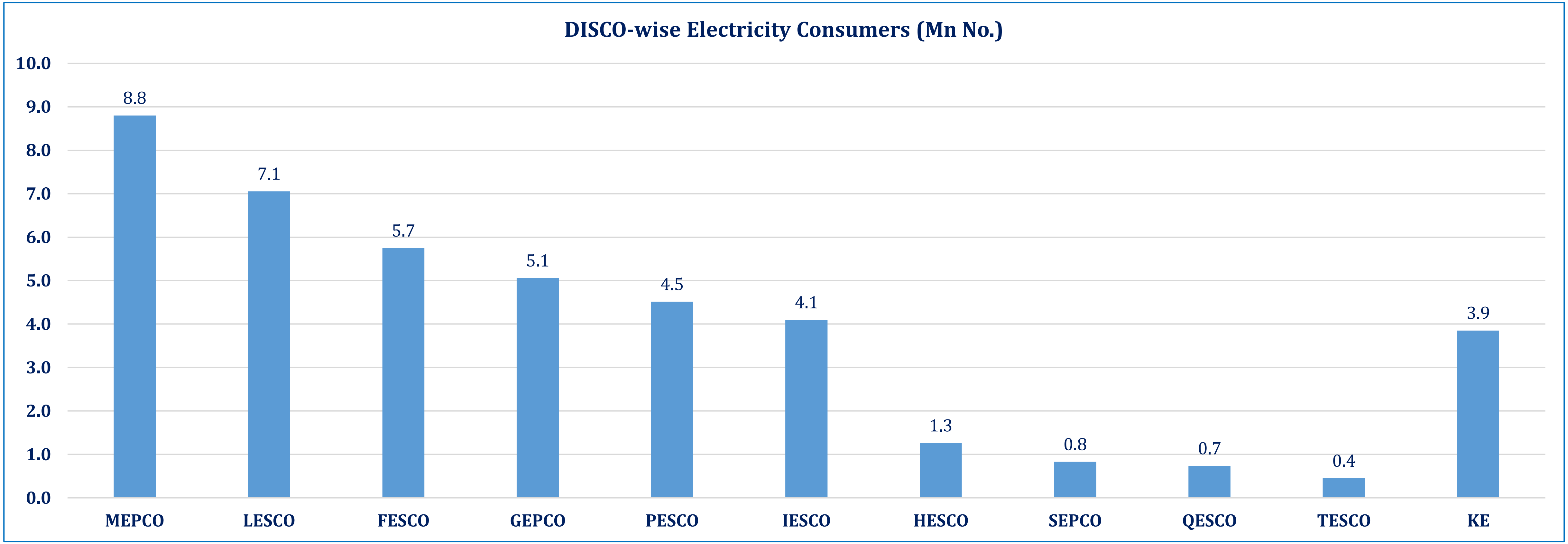
***Note**: For per capita consumption, population levels taken as ~236Mn in FY24 and ~241Mn in FY25*

Source: NEPRA

Distribution | Electricity

Local | DISCO-Wise Consumers

- In FY25, total number of electricity consumers nationwide surged to ~42.4Mn (SPLY: ~40.3Mn). The largest consumer base is served by MEPCO (~8.8Mn), followed by LESCO (~7.1Mn), FESCO (~5.7Mn) and GEPCO (~5.1Mn). The total electricity consumers for KE recorded at ~3.9Mn (FY24: ~3.7Mn)



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Local | Performance Parameters

Transmission & Distribution Losses

- T&D losses are a vital parameter in measuring the performance of DISCOs.
- NEPRA has set targets for the DISCOs to maintain their losses to a certain level. Breaching these targets leads to a significant loss to the national exchequer.
- The performance of DISCOs is benchmarked with their actual losses as against the targets set by NEPRA. The more the actual losses exceed the target, the worse its performance is considered to be.

Recoveries

- DISCOs are ideally required to realize maximum recoveries against their billing.
- Lower recoveries of DISCOs is the root cause of the crumbling financial issues of the power sector.
- Accumulation of Circular debt also stems from the inefficiency of the DISCOs to fully recover their billed amounts and clear their dues to the NGC and Power Producers in the given time frame.

Load Shedding

Although load shedding has reduced significantly over the years, it is still not eliminated completely as DISCOs are carrying out load management as per AT&C criteria which is still not in line with the requirements of NEPRA Performance Standards.

Safety

Safety is also one of the very important features in evaluating the quality of infrastructure and maintenance standards of the DISCOs. The increasing number of fatalities for both employees and the public on account of electricity accidents is a concern.

Source: NEPRA

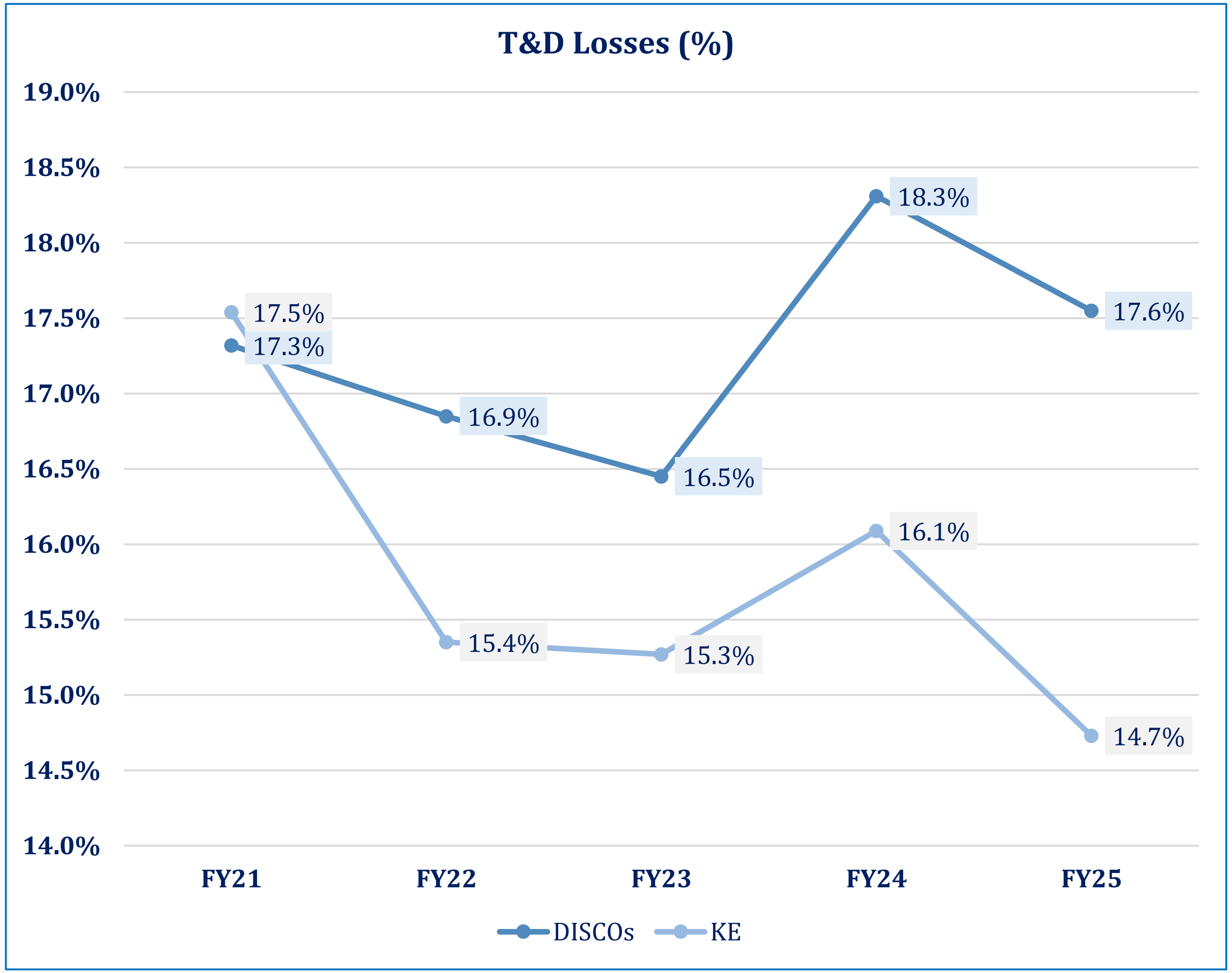
Distribution | Electricity

Local | Transmission & Distribution Losses

- NEPRA has allowed a certain percentage of T&D Losses in the tariff structure of DISCOs. Any loss above the allowed limit results in financial loss to the national exchequer (Mentioned in the next slide) and lower returns for DISCOs.

- In CY22, KE applied to NEPRA for approval of generation tariffs for its power plants beyond Jun'23, as per NEPRA rules. Meanwhile, the Multi-Year Tariffs (MYT) for Transmission and Distribution businesses for FY24–30 were determined by NEPRA in May'25, while the Supply MYT remains under NEPRA's determination.

- T&D Losses of the DISCOs and KE were recorded at ~17.6% and ~14.7%, respectively, in FY25 (SPLY: ~18.3% and ~16.1%, respectively).



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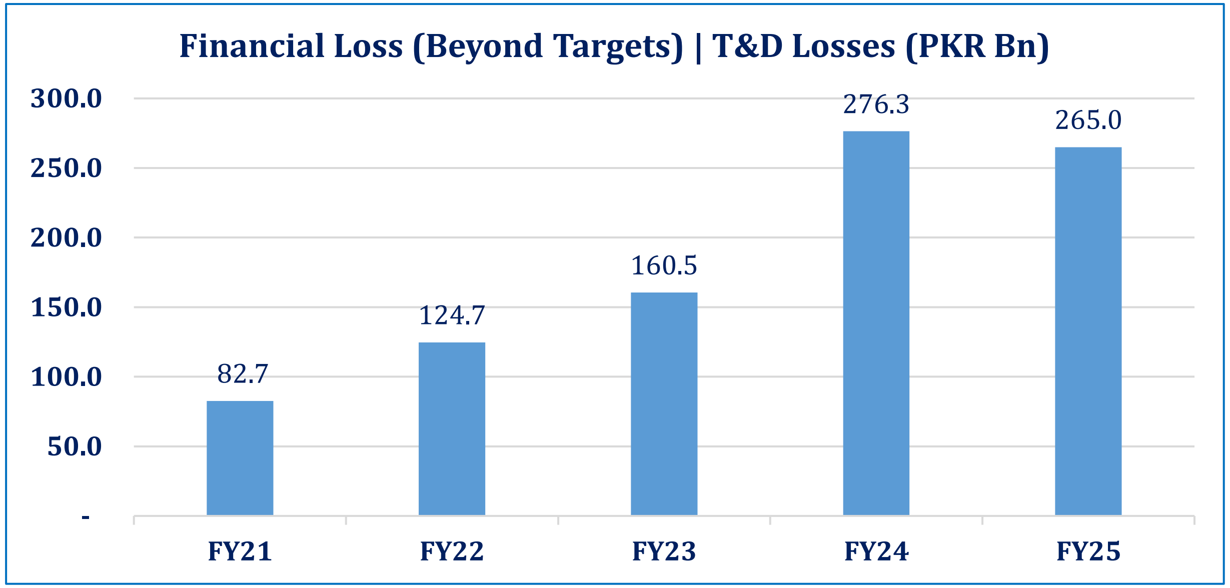
Local | Transmission & Distribution Losses

- In FY25, all DISCOs except TESCO reported transmission and distribution (T&D) losses higher than their allocated limits, as depicted in the table below.

- The financial losses for the period were lower than previous period, recording at PKR~265.0Bn (FY24: PKR~276.3Bn), down ~4.1% YoY. Although the financial losses were less for the period, they remain substantial and continue to reflect persistent inefficiencies in the distribution sector.



FY25 | Overview of T&D Losses

DISCO-wise T&D Losses	PESCO	IESCO	GEPCO	FESCO	LESCO	MEPCO	QESCO	SEPCO	HESCO	TESCO	KE
Actual Reported Loss (%)	37.2%	8.6%	10.6%	9.0%	13.7%	13.8%	38.4%	39.2%	27.9%	8.3%	14.7%
Loss (%) Allowed in Tariff by NEPRA (FY25)	19.2%	7.3%	8.9%	8.4%	9.5%	11.3%	13.8%	16.3%	17.6%	8.9%	14.6%
Loss Exceeding/(Less than) Allowance	17.9%	1.3%	1.7%	0.6%	4.2%	2.5%	24.6%	22.9%	10.3%	-0.6%	0.2%

Source: NEPRA

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Local | DISCO's Average Recoveries

Recoveries of Billed Amounts | DISCOs and KE (%)												
Period	**PESCO**	**TESCO**	**IESCO**	**GEPCO**	**LESCO**	**FESCO**	**MEPCO**	**HESCO**	**SEPCO**	**QESCO**	**Overall DISCOs**	**KE**
FY21	101.8	83.2	116.8	105.1	98.7	97.2	102.1	75.6	64.4	39.8	**97.3**	94.9
FY22	91.9	66.2	95.6	98.1	96.6	94.8	92.0	73.7	63.7	35.2	**90.5**	96.7
FY23	91.6	85.1	104.9	98	94.3	100.3	98.2	74.4	66.5	36.9	**93.3**	92.8
FY24	91.9	105.6	97.0	96.2	96.1	99.6	97.2	76.5	66.6	36.6	**92.6**	91.5
FY25	91.5	91.9	101.0	101.5	101.3	100.4	101.5	74.8	74.2	38.8	**96.3**	90.6

- During FY25, recoveries against the billed amount for the DISCOs stood at ~96.3% (SPLY: ~92.6%), amounting to PKR~716.5Bn.
- Given the cyclic nature of payments, the low recovery of DISCOs hampered the ability to make payments to generation and transmission companies through the CPPA-G. In FY25, overall receivables for DISCOs surged to PKR~2,132Bn, compared to PKR~2,034Bn in SPLY, indicating an increase of PKR~98Bn or ~4.8% YoY. The 96.3% recovery rate is also the highest since FY21 as several DISCOs focused on recoveries and adopted strict measures.

Source: NEPRA

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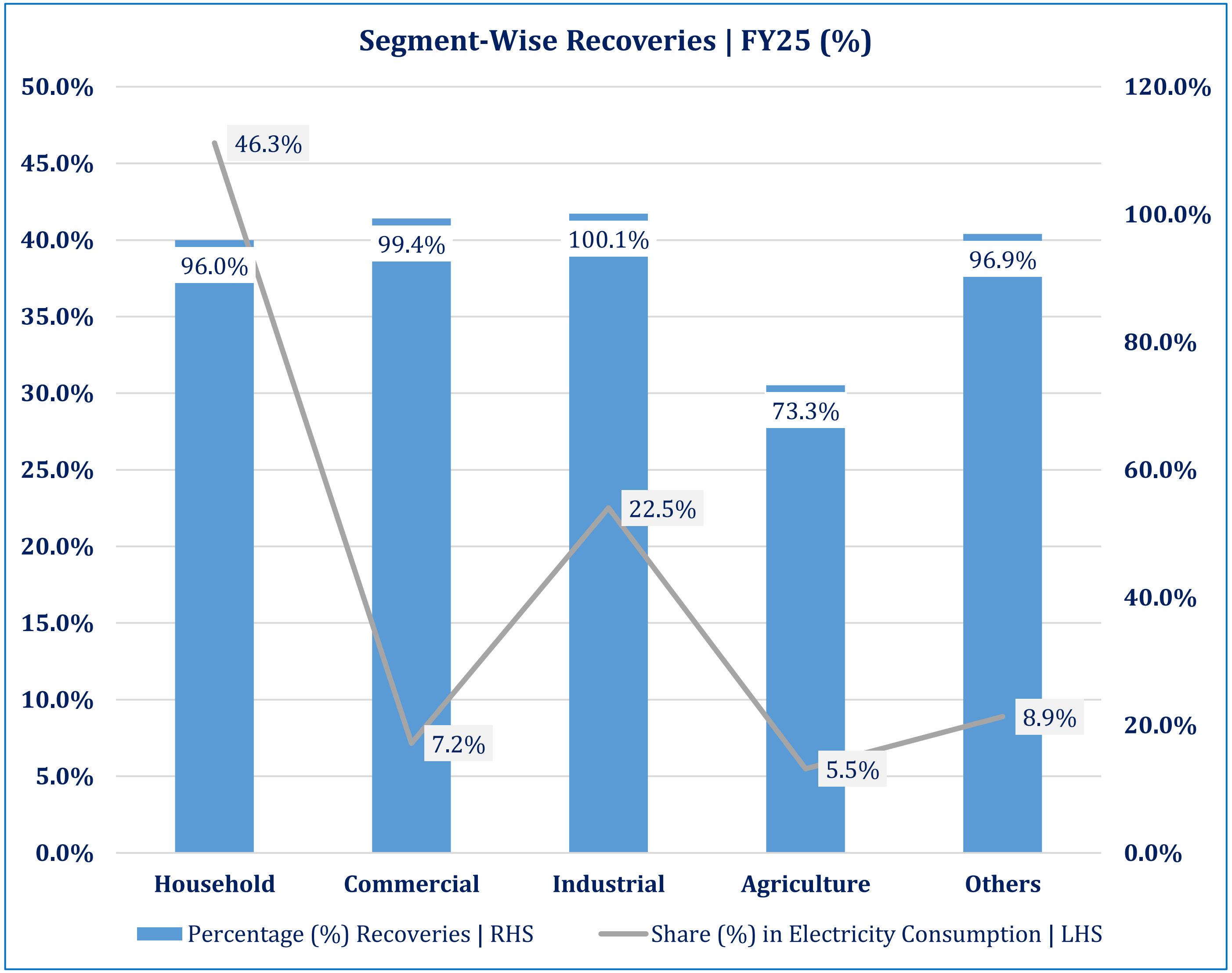
Local | Segment-wise Recoveries

- In FY25, the lowest recovery rate was witnessed in the agricultural segment (~73.3%), although this was an improvement from FY24 levels (~69.0%), while those from the household segment improved to ~96.0% (SPLY: ~91.6%).
- Recovery rate was the highest among commercial and industrial consumers recorded respectively at ~99.4% and ~100.1% (SPLY: ~98.3% & ~99.3).
- The 'Others' category, as depicted in the chart, include public lighting and bulk supply of electricity etc. and recorded a recovery rate of ~96.9% in FY25 (SPLY: ~80.2%).



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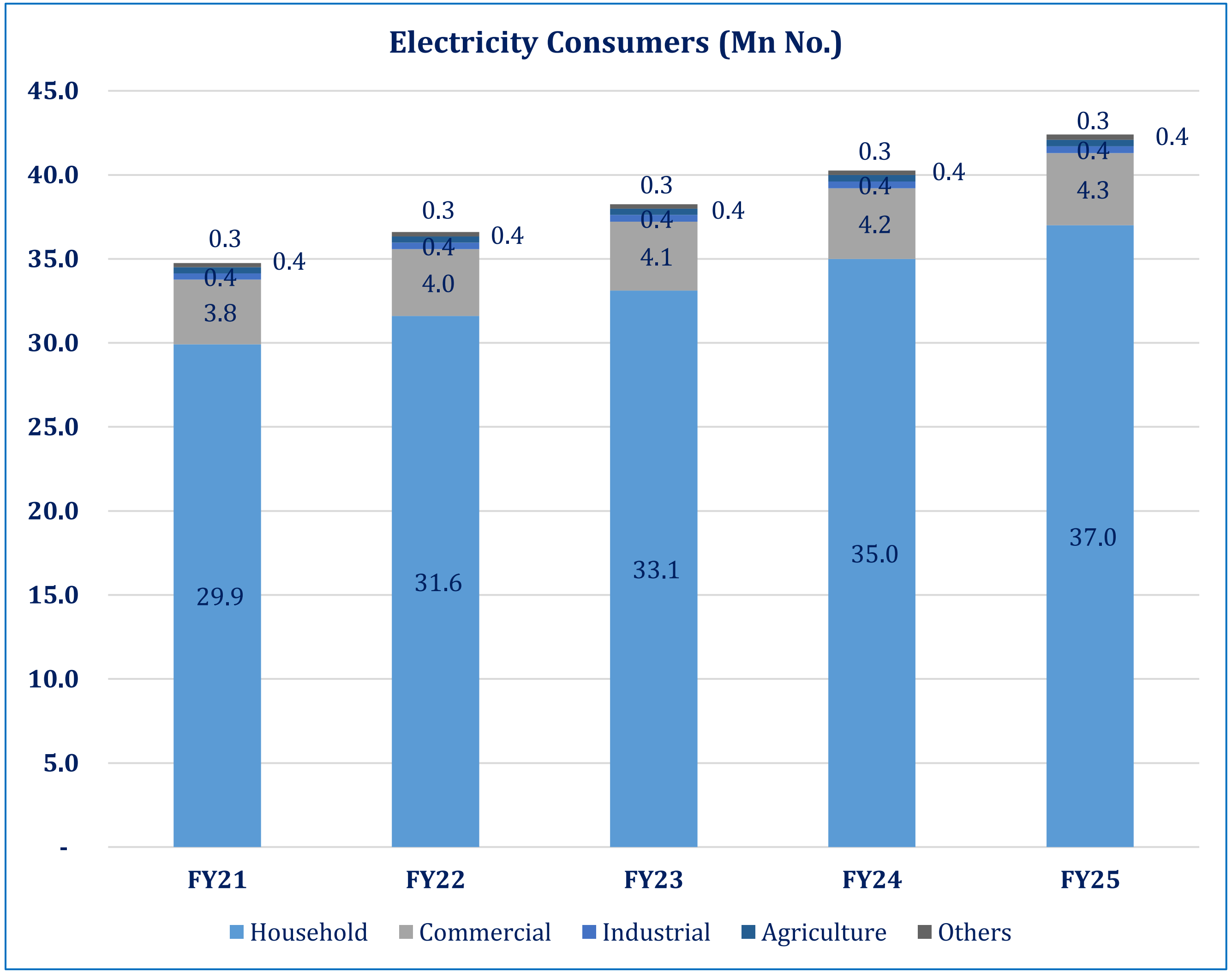
Local | Consumer-wise Demand

- Household/ domestic segment makes up ~87.3% of total connections in the country followed by commercial and industrial connections during FY25.
- For the period, Household consumers grew from ~35.0Mn to ~37.0Mn, driving the majority of the overall increase in total connections. In the last five years, around 7Mn new connections have been given to households.
- Commercial and Industrial connections showed slight growth overall, with commercial rising from ~4.2Mn to ~4.3 Mn while industrial remained largely stable at around ~0.4Mn (SPLY: ~0.4Mn).
- Like the Industrial segment, the Agricultural & 'Others' categories stayed nearly constant at ~0.4Mn & ~0.3Mn, indicating minimal expansion in this segment.



Note: *Others in the figure above include public lighting, bulk supply of electricity etc. *Latest data.*

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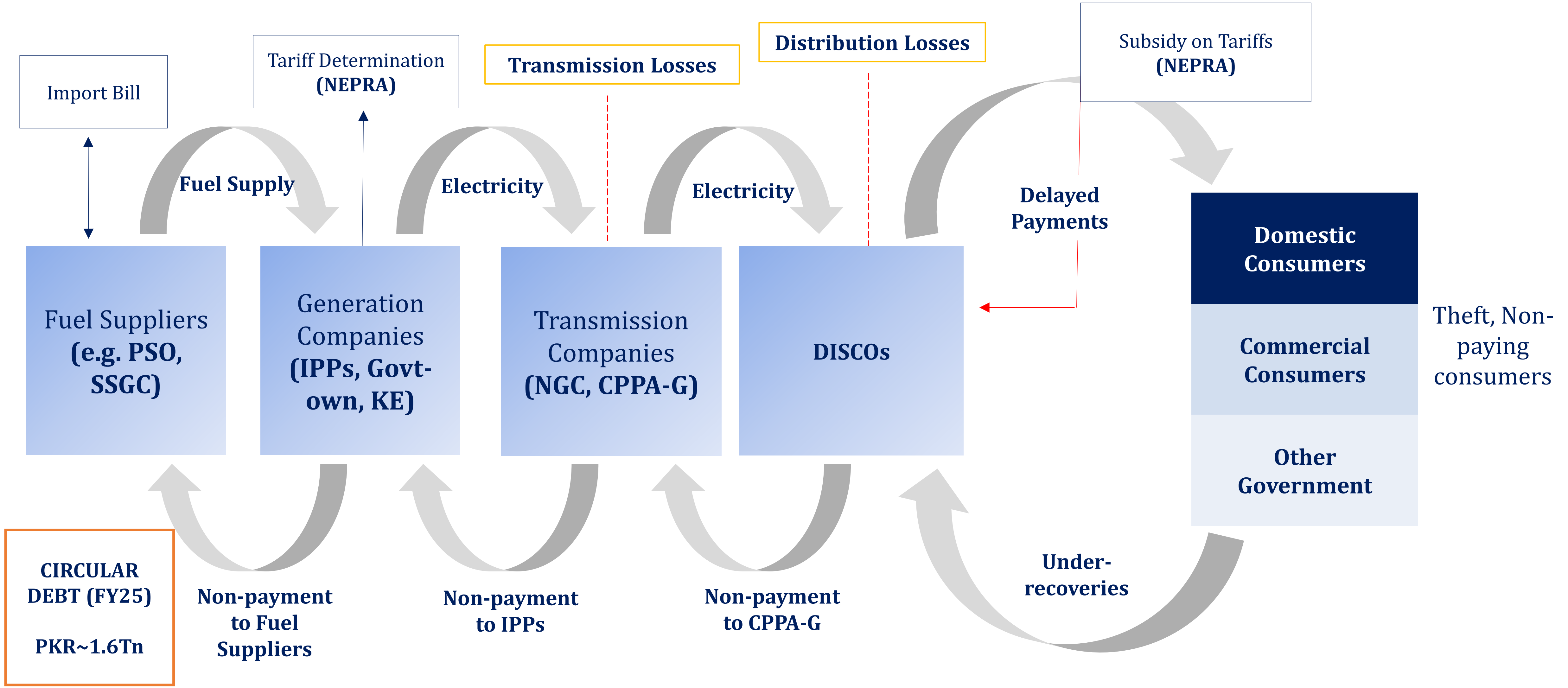
Circular Debt | The Unfortunate Menace

- **Circular Debt is the net unfunded outstanding liability position of the power distribution companies (DISCOs) to the Central Purchasing Power Authority-Guarantee (CPPA-G)**, which further cascades into delayed settlement of payment obligations by the CPPA-G to the Power Generation Companies (GENCOs)/ Independent Power Producers (IPPs). The cash gap at the CPPA-G is bridged through borrowings by Power Holding Private Limited (PHPL) to settle CPPA-G's debts.

- The **five key contributors** include, (i) High cost of power generation, (ii) delays in tariff determination, (iii) high transmission and distribution (T&D) losses and poor revenue collection by the DISCOs, (iv) partial (and often delayed) tariff deferential subsidies (TDS) payment by the GoP to the DISCOs and K-Electric (KE), and (v) high financial costs on PHPL borrowing, and late-payment penalty charges on CPPA-G payables.

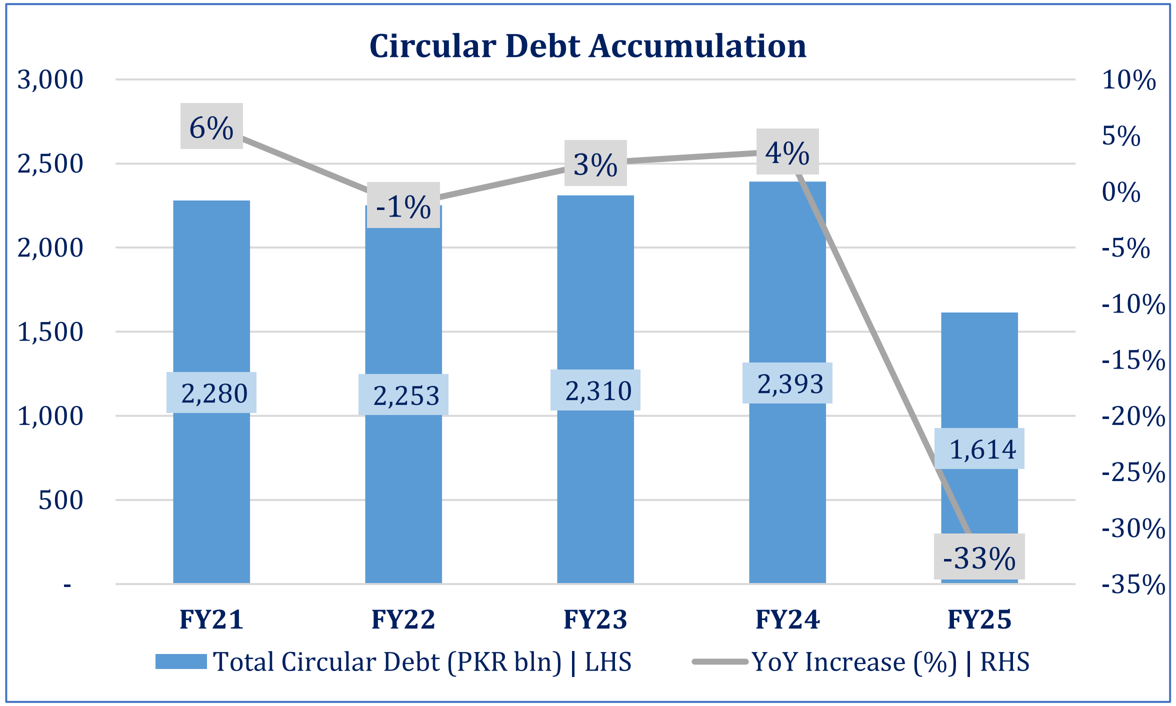
Distribution | Electricity

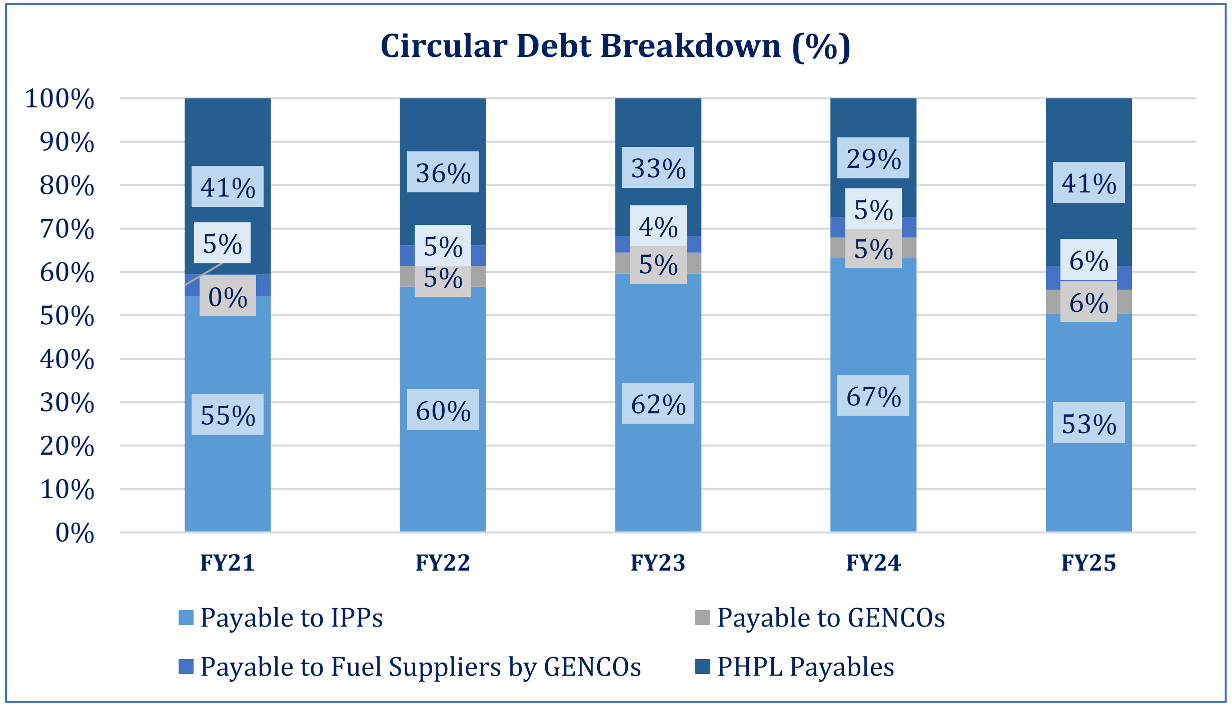
Circular Debt | How it Flows



Distribution | Electricity

Local | Circular Debt Stock





- Pakistan's total circular debt decreased to PKR~1,614bln as of FY25, down by ~33% YoY, reflecting the continuing accumulation of circular debt. A further breakdown of circular debt flow is described later. During the said period, circular debt made up ~15.1% of the country's GDP (taken at current prices) (FY24: ~2.3%).
- However, as of End-September'25, the stock was up by a marginal ~4.9% to PKR~1,693bln, as compared against End-Jun'25. Payables to IPPs and PHPL payables together accounted for ~94.0% of the circular debt stock in FY25 (SPLY: ~96.0%).

Distribution | Electricity

Local | Circular Debt Flow

- Circular debt affects not only the liquidity of the fuel supplier, generation, transmission, and distribution companies but also increases the cost of electricity for the end-consumer.

- In FY25, despite DISCOs' shortfall adding PKR~397bln to the circular debt through inefficiencies in T&D losses and low recovery ratios, the overall circular debt decreased in comparison to the last year.

- Higher T&D losses rose to ~17.6% in FY25 (FY24: ~18.3%) while, recoveries against the billed amount inched up to ~96.62% (SPLY: ~92.4%). The shortfall in the recovery and T&D losses contributed 132.5bln and 265bln respectively to circular debt.

- In FY25, receivables for DISCOs continued to surge and were registered at PKR~2,160.1bln (SPLY: PKR~2,017.1bln), an increase of PKR~129bln. Delays in subsidy payments and increasing receivables from public and private consumers are some of the major contributing factors to the mounting power circular debt.

Figures are stated in PKR bn.

Break-up of Increase/ (Decrease)	FY24	FY25	3MFY25	3MFY26
Budgeted but unreleased subsidies	0	28	71	-19
Unclaimed Subsidies	-63	0	0	0
IPPs Interest Charges on delayed payments	138	58	48	67
PHL Markup paid out of IPPs' claims				
Pending Generation Cost (QTAs + FCA)	145	-85	-13	5
Non-payment by K-Electric	-155	4	1	33
DISCOs Losses Inefficiencies	276	265	133	87
DISCOs Under Recoveries	125	132	126	84
Other Adjustments	-198	-358	-269	-178
PHL Principal Repayments	-82	-24	-	-
PHL Unpaid Markup	-	-	-	-
Stock Payments	-292	-801	-4	-
Total Debt Increase/ (Decrease)	**106**	**-780**	**73**	**79**

Source: Power Division, NEPRA

Local | Recalibrating Circular Debt

IPPs | Amendments to the PPAs

- In CY21, the Government of Pakistan (GoP) initiated reforms in the sector to renegotiate the Power Purchase Agreements (PPAs) with the IPPs to reduce the rising power tariffs and contain the increasing accumulation of circular debt. However, most of the negotiation remained unresolved.
- The Government of Pakistan in CY24 resumed the negotiation process with the IPPs and formed a special task force to take charge of it. However, this time, the process does not only involve 'renegotiation' with the IPPs but also an early 'termination' of some of the PPAs.
- Furthermore, renegotiation features would involve a shift of agreements from 'Take or Pay' to 'Take and Pay model'.
- In the initial phase of the process, the GoP has terminated PPAs of ~5 IPPs which were operational under the Power Policy of 1994 and 2002. The GoP, in return, has agreed to clear all outstanding dues on its part as of End-Sep'24, in the context of capacity payments, energy purchase price and pass-through items, by End-Dec'24.
- The GoP believes in saving around PKR~411.0bln to the national exchequer over the remaining contract periods of these terminated IPPs and reducing the power unit cost by PKR~0.71/kWh. Overall, the government expects to cut PKR~8-10/kWh as part of the overall policy measures.
- In the second phase, following the termination of five Independent Power Producers (IPPs) under the 1994 and 2002 Power Policy, the government has successfully negotiated revised agreements with ~8 bagasse IPPs and is now renegotiating with ~18 additional IPPs established under the 1994 and 2002 Power Policies.
- These IPPs will be transitioned from a 'Take or Pay' model to a 'Hybrid Take and Pay' model, aiming to improve efficiency and reduce financial burdens. However, the government has yet to reveal whether additional IPPs terminations are planned as part of this restructuring.

Source: Power Division

Indicative Generation Capacity Expansion Policy (IGCEP 2022-31)

- The IGCEP 2022-31, developed by NTDC and approved by NEPRA in Feb'23, serves as a key document for planning new generation capacity to meet future electricity demand scientifically and systematically.
- The document, covering a horizon of ~10 years and to be revised annually, builds on the plans laid down by the preceding iteration and proposes a gradual shift from an energy mix heavily dominated by imported fossils like Coal, Furnace Oil and RLNG towards one pillared by indigenous sources of energy, including Hydel, Thar Coal, Wind and Solar. Moreover, it targets using indigenous and renewable energy resources to generate low-cost, environment-friendly electricity.
- Furnace Oil is expected to be phased out by CY31. Similarly, electricity generation from RLNG and imported Coal will drop to ~2% and ~8%, respectively, in CY31. At the same time, there will be a substantial increase in the electricity generated by hydel, wind and solar PV. The contribution of hydel, wind and solar PV which currently stands at ~28%, ~4% and ~1% respectively will be increased to ~39%, ~10% and ~10% respectively, thereby increasing the total share of green electricity to ~59%.
- However, the development of IGCEP was not finalized, and hence, the government formed a technical committee to finalize the assumption sets for IGCEP. Building on this framework, NTDC developed the latest iteration, IGCEP 2024-34, aligning it with the newly approved Grid Code 2023 and the directives outlined in the National Electricity Policy 2021 and the National Electricity Plan 2023-2027.
- NTDC/System Operator submitted ISP-2024, integrating IGCEP 2024-34 and TSEP 2024-34, for the Authority's review. However, the case was returned for further sensitivity analysis, which NTDC delayed, leaving it still pending.
- Out of ~120 countries, Pakistan was ranked ~113 on the Energy Transition Index (ETI) in CY23, with an ETI score of ~46.2, reflecting a lack of sufficient initiatives aligning with the county's commitment to energy transition efforts. A further bifurcation of this score reveals that for System Performance (SP), the country's score was recorded at ~55.2, whereas on the Transition Readiness (TR) indicator, it scored ~34.5. TR includes factors such as skilled workforce, innovation and physical and digital infrastructure.

Source: NEPRA, World Energy, WEF

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Local | National Electricity Policy

- **National Electricity Plan 2023-2027 (First Plan)**
  - The plan outlines the implementation framework for National Electricity Policy 2021 under the umbrella of 6 overarching objectives that include diversification, resilience & accessibility, self-sufficiency, affordability, financial viability and sustainability.
  - It also includes a tangible action plan covering ~20 priority areas including investments, subsidies, fiscal incentives, regional integration, localization, digitalization, tariff design, climate change mitigation, governance, research & development, and capacity building.
- **Fast Track Solar PV Initiatives 2022**

The main objectives of these initiatives are as follows:

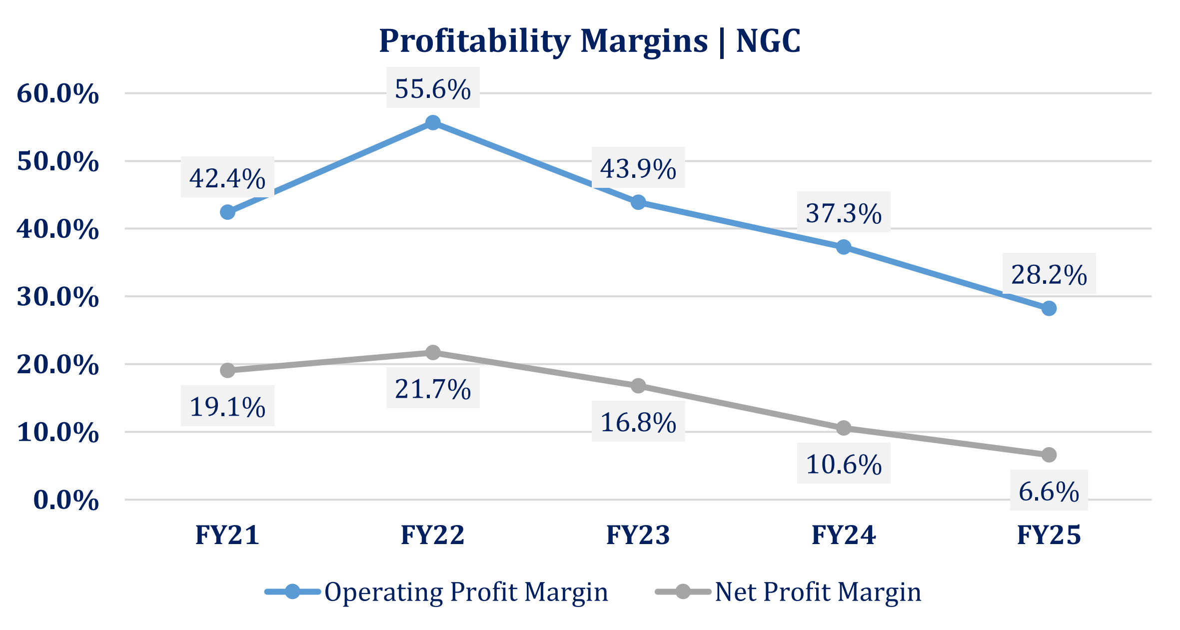
  - Substitute expensive imported fossil fuels used for power generation with Solar PV energy deployments.
  - Utilize existing transmission networks to the maximum for offtake of electric power for Federally-owned public power utilities (FPUs).
  - Easing the pressure on foreign exchange reserves through reduced reliance on imported fossil fuels.
  - Solarization of Public Buildings.
  - Solar PV Generation on ~11 kV Feeders

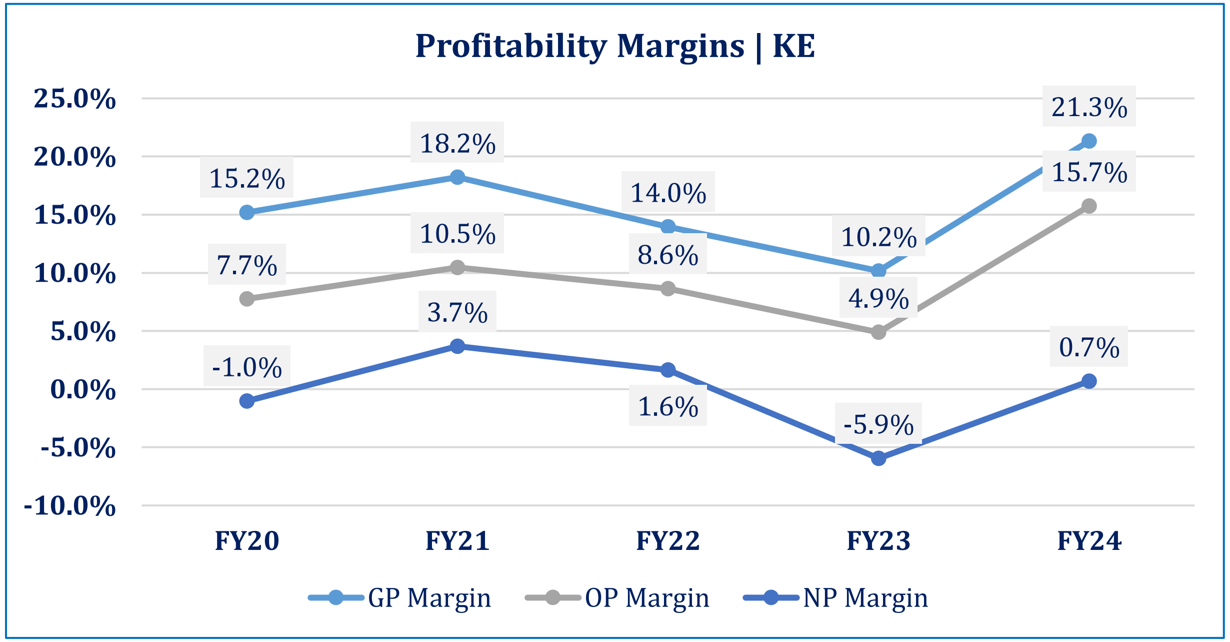
- In continuation with the above, the GoP has set the target for renewable energy share to ~20% by CY25 and ~30% by CY30 according to the ARE Policy, CY20, to bring down high prices of electricity and ensure sustainable use of resources.
- In FY24, the government launched the Anti-Theft Campaign to combat electricity theft. The operation involved resolving numerous cases, filing FIRs, making arrests, and suspending several employees.
- Despite these efforts, the campaign had a minimal financial impact, yielding recoveries of PKR~12.2Bn from defaulters and PKR~8.3Bn from fines and recoveries. However, transmission and distribution (T&D) losses, along with the non-recovery of bills, continued to escalate, contributing PKR~591.0Bn to the circular debt during FY24.

Source: Ministry of Energy

Distribution | Electricity

Business Risk | NGC & KE





- For NGC, the operating profit margin declined to ~28.2% in FY25, primarily attributable to a ~17.8% YoY increase in administrative expenses. Consequently, the net profit margin also weakened to ~6.6% (SPLY: ~14.5%). The contraction in profitability mainly stemmed from a ~40% YoY decline in other income. Nevertheless, the impact was partially cushioned by a ~26% reduction in finance costs, supported by comparatively lower interest rates during the period.
- KE's gross profit margin improved to ~21.3% in FY24 due to ~45.5% YoY increase in net revenue, significantly outpacing the ~5.1% YoY rise in COGS. At the operating level, margins expanded to ~15.7% (vs. ~4.9% in FY23), driven by stronger revenue growth, a ~60% YoY increase in other income, and relatively contained operating expenses. Net margins remained modest, improving to ~0.7% in FY24, despite elevated finance costs continuing to weigh on bottom-line performance.

***Note**: KE is involved in all 3 verticals of Power sector while NGC is involved in transmission only. FY25 data for KE has not yet been made available.*

Source: PACRA Database

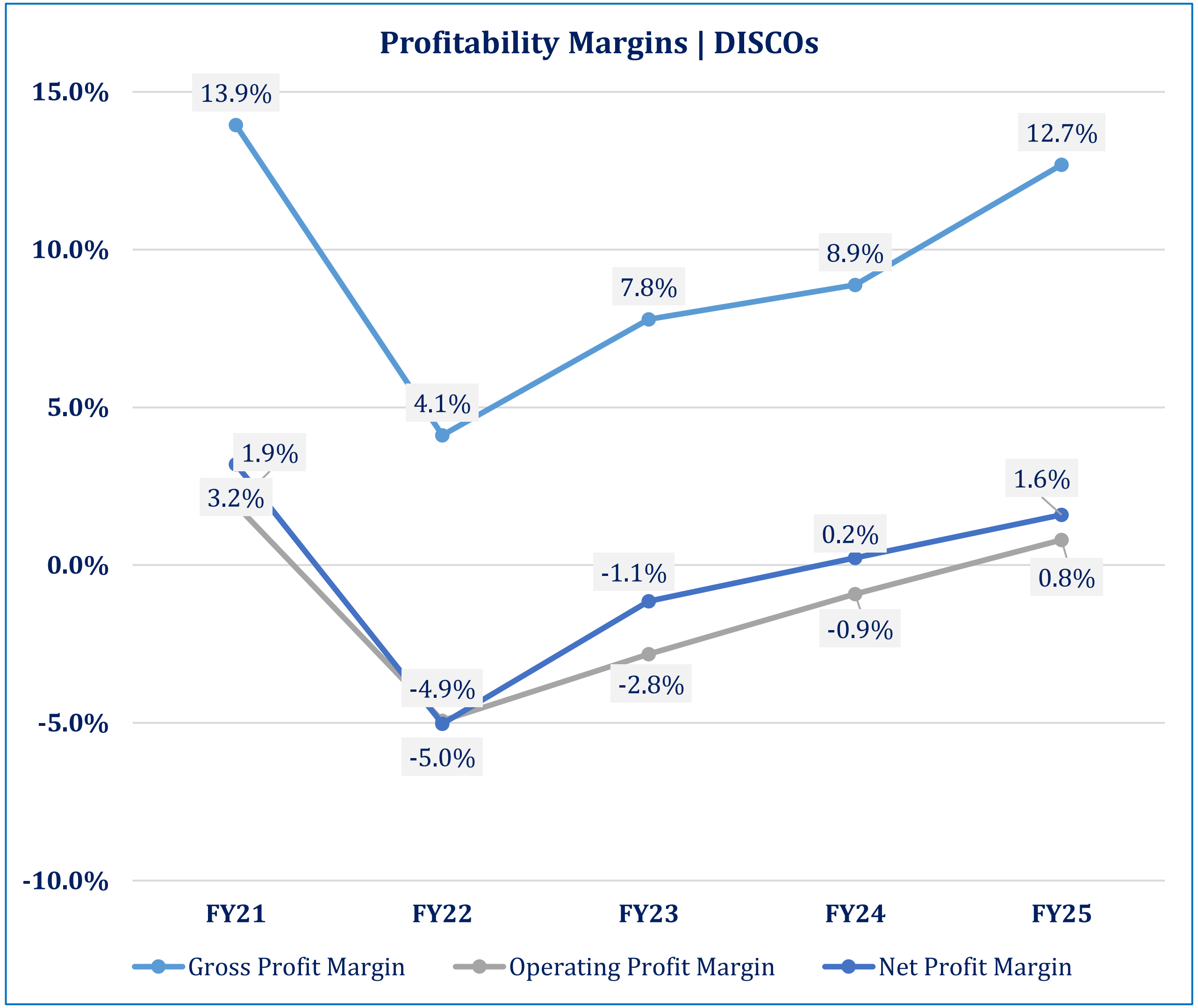
Distribution | Electricity

Business Risk | DISCOs

- At the Distribution stage of Electricity, DISCOs are allowed Distribution margins to cover O&M cost, salaries, wages and other benefits, depreciation, other operating expenses, return on rate base, other income, T&D losses (as covered earlier) as well as prior year adjustments.

- The average gross profit margin of Sector players increased to ~12.7% in FY25 (FY24: ~8.9%), on account of ~5.8% lower COGS for the period despite a ~1.7% YoY decline in revenue.

- Meanwhile, average net profit margin for DISCOs also improved to ~1.6% in FY25 from ~0.2% in FY24, primarily driven by lower finance cost. The operating margins recorded at ~0.8% (FY24: ~-0.9%), which is lower than the net margins majorly due to higher 'Other Income' for the period, which includes profit on bank deposits, late payment surcharges etc.

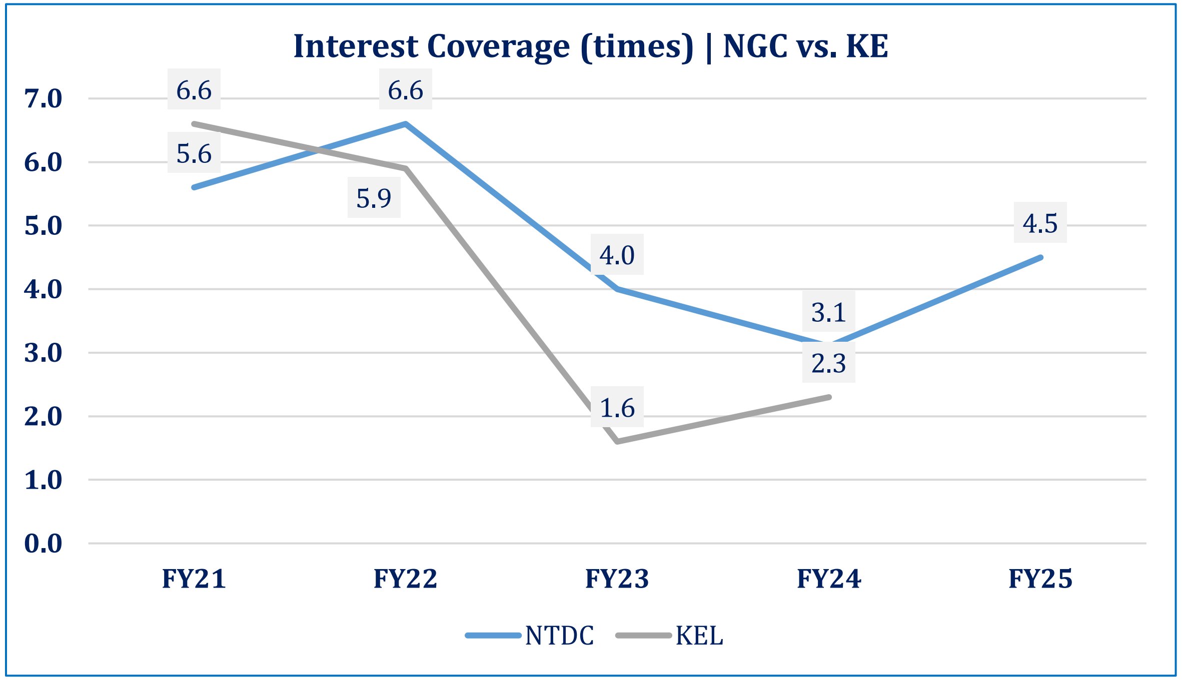


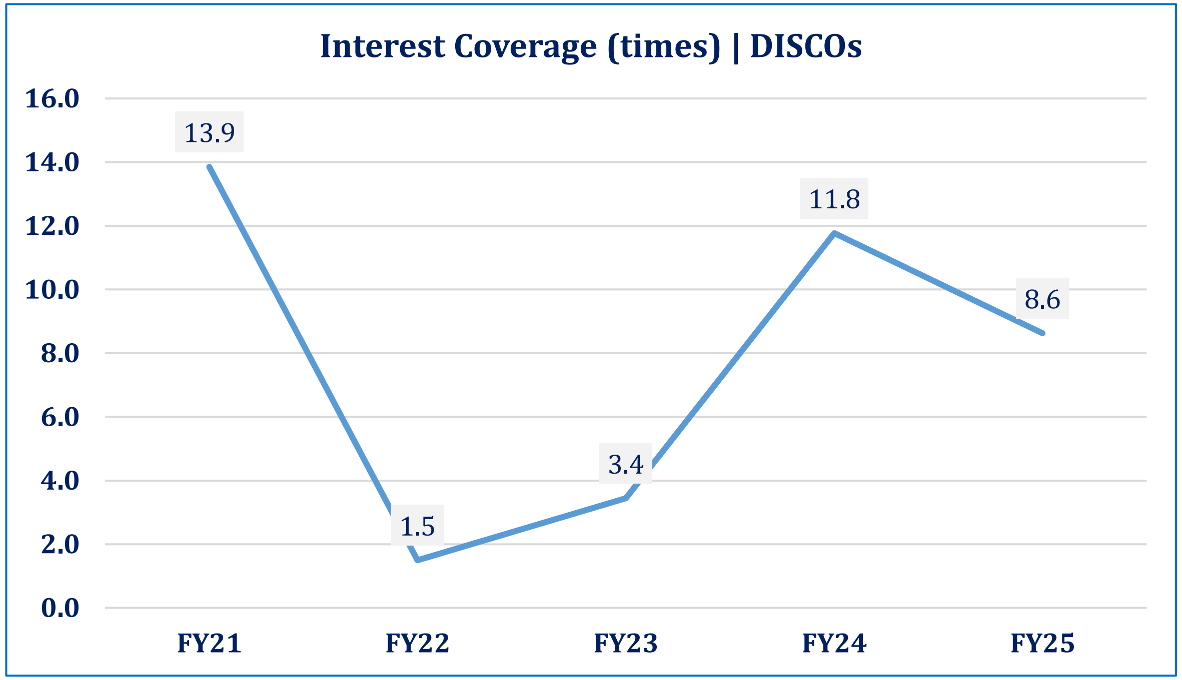
Note: DISCO's data is indictive of 4 DISCOs: MEPCO, GEPCO, IESCO & FESCO.

Source: PACRA Database

Distribution | Electricity

Financial Risk | NGC & KE





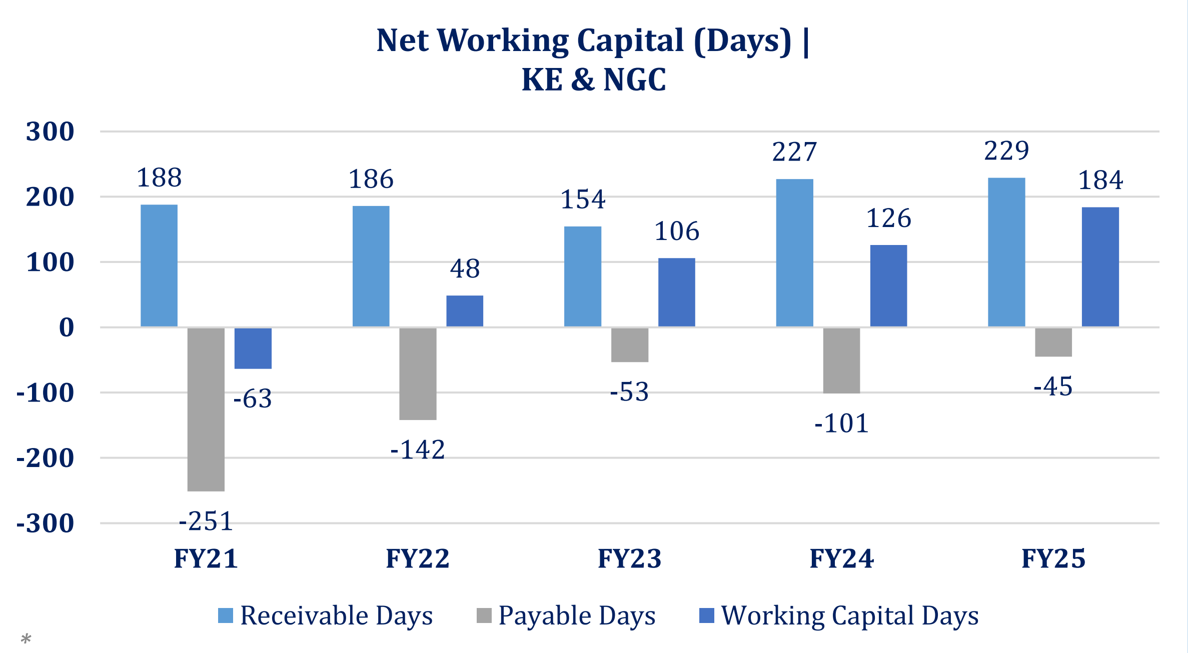
- The interest coverage of the NGC improved to 4.5x in FY25, primarily driven by a decline in finance costs during the period. This improvement was supported by a cumulative reduction of approximately 1,100 basis points (11%) in policy rate, which eased borrowing costs and strengthened debt-servicing capacity. KE's interest coverage improved slightly to record at ~2.3x in FY24 (SPLY: ~1.6x).
- The average coverage ratio of DISCOs has been on an upward trajectory since FY22, but fell in FY25 to ~8.6x (SPLY: ~11.8x). This was majorly driven by weaker earnings for the Sector during the period.

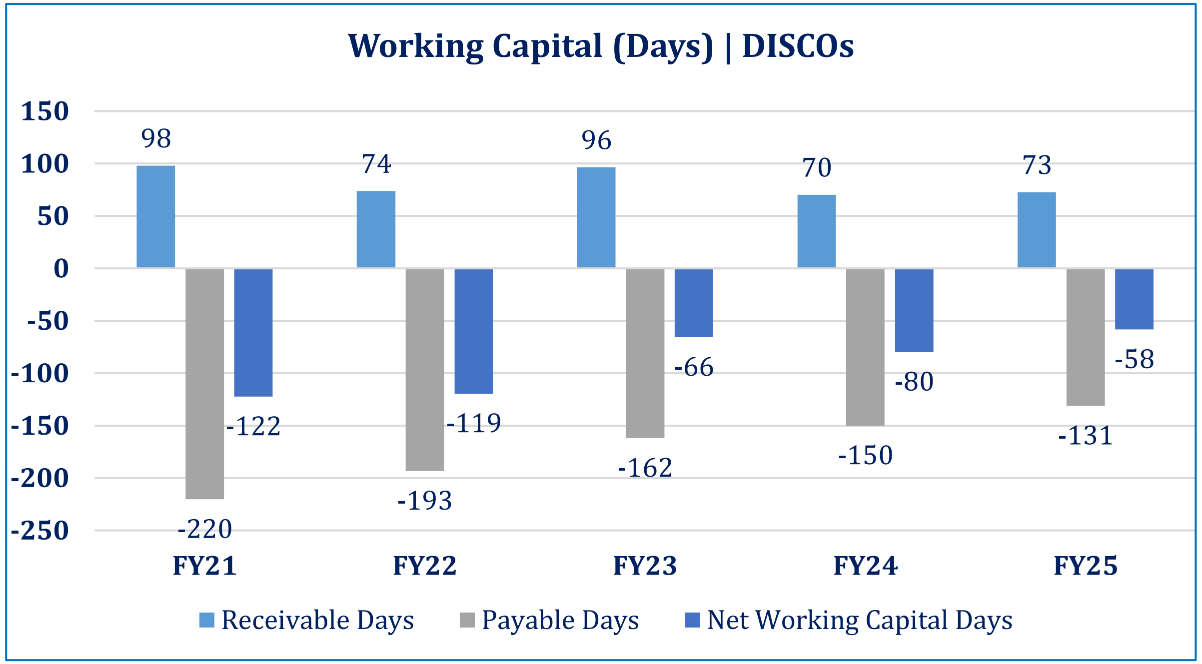
***Note**: DISCO's data is indictive of 4 DISCOs: MEPCO, GEPCO, IESCO & FESCO. KE is involved in all 3 verticals of Power sector while NGC is involved in transmission only.*

Source: PACRA Database

Distribution | Electricity

Financial Risk | Working Capital Management





- The average net working capital days of the NGC increased to ~184 days in FY25 (SPLY: ~126 days), mainly on the back of lower payable days which were recorded at ~45 days (FY24: ~101 days). For the DISCOs, average working capital days clocked in at negative ~58 days in FY25 (FY24: ~ -80 days). This was primarily driven by lower payable days, which still remained high at ~131 days in FY25 (FY24: ~150 days), significantly exceeding receivable days, which increased slightly to ~73 days (FY24: ~70 days), thereby keeping the working capital cycle negative.
- Negative working capital days are a result of low recoveries/ line losses by electricity distribution and transmission companies as well as delays in receipts of subsidies from the government which results in payment delays to creditors.

Note*: DISCO's data is indicative of 4 DISCOs: MEPCO, GEPCO, IESCO & FESCO. KE is involved in all 3 verticals of the Power sector while NGC is involved in transmission only.*
**FY25 data for KE has not yet been made available therefore our analysis pertains to NGC only.*

Source: PACRA Database

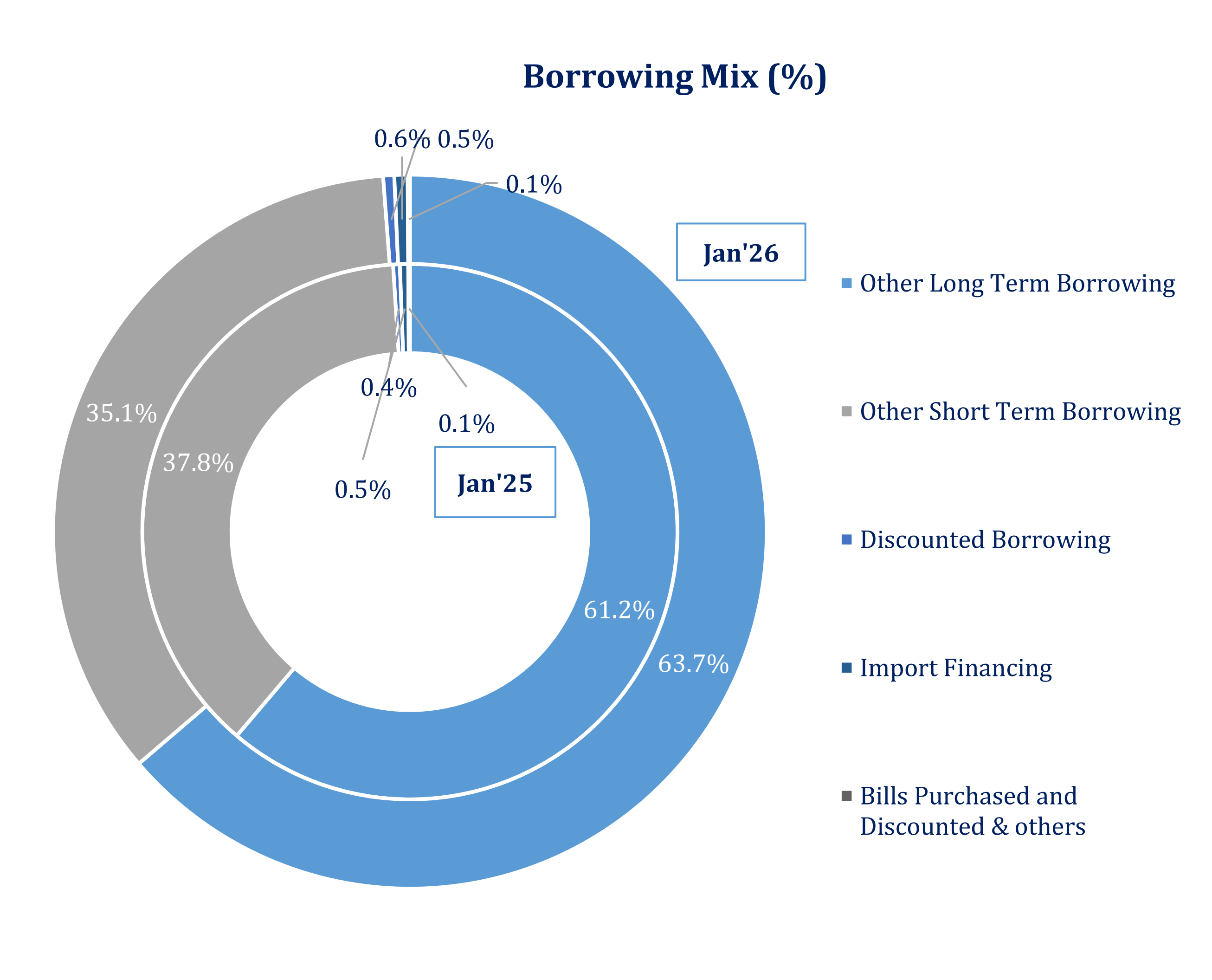
Distribution | Electricity

Financial Risk | Borrowing Mix

- The total borrowing of the Sector stood at PKR~363,622Mn as End-Jan'26 (SPLY: PKR~454,854Mn), down ~20.1% YoY.

- The largest component of borrowing comprises the fixed long-term loans which constituted ~64.2% of the total borrowing and stood at PKR~232,931mln as of End-Jan'26 (End-Jan'25: PKR~279,735mln).

- Meanwhile, the short-term borrowing formed ~35.8% of the total borrowing and stood at PKR~130,476mln as at End-Jan'26

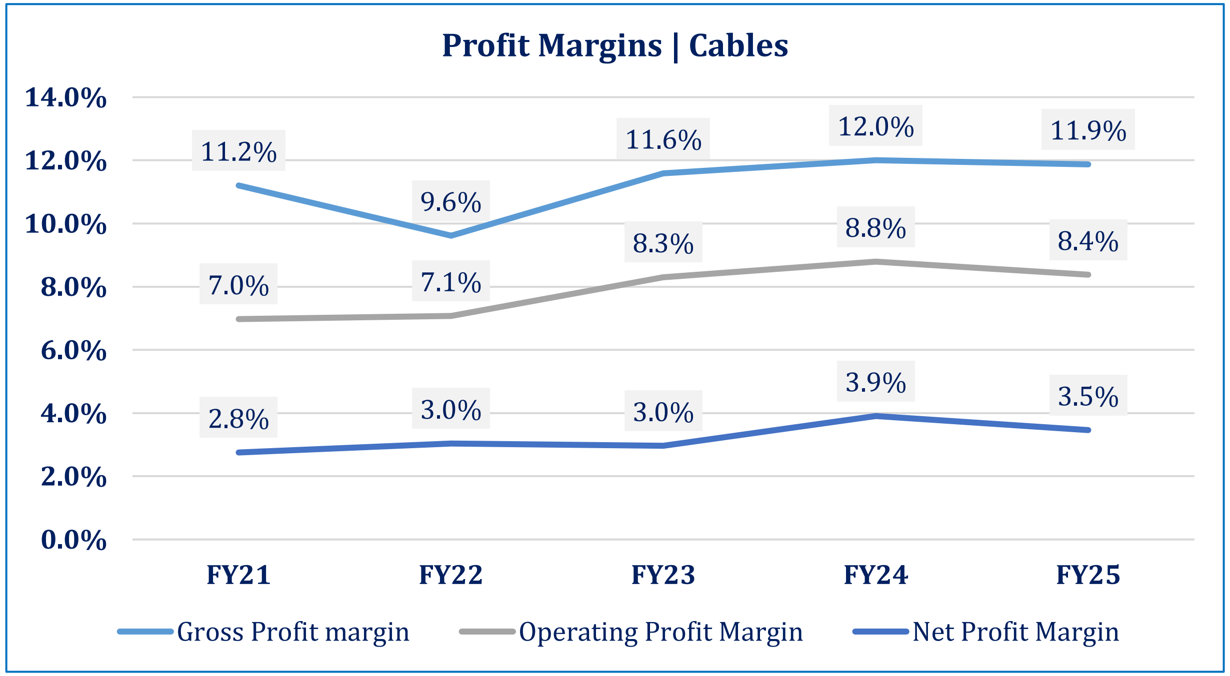


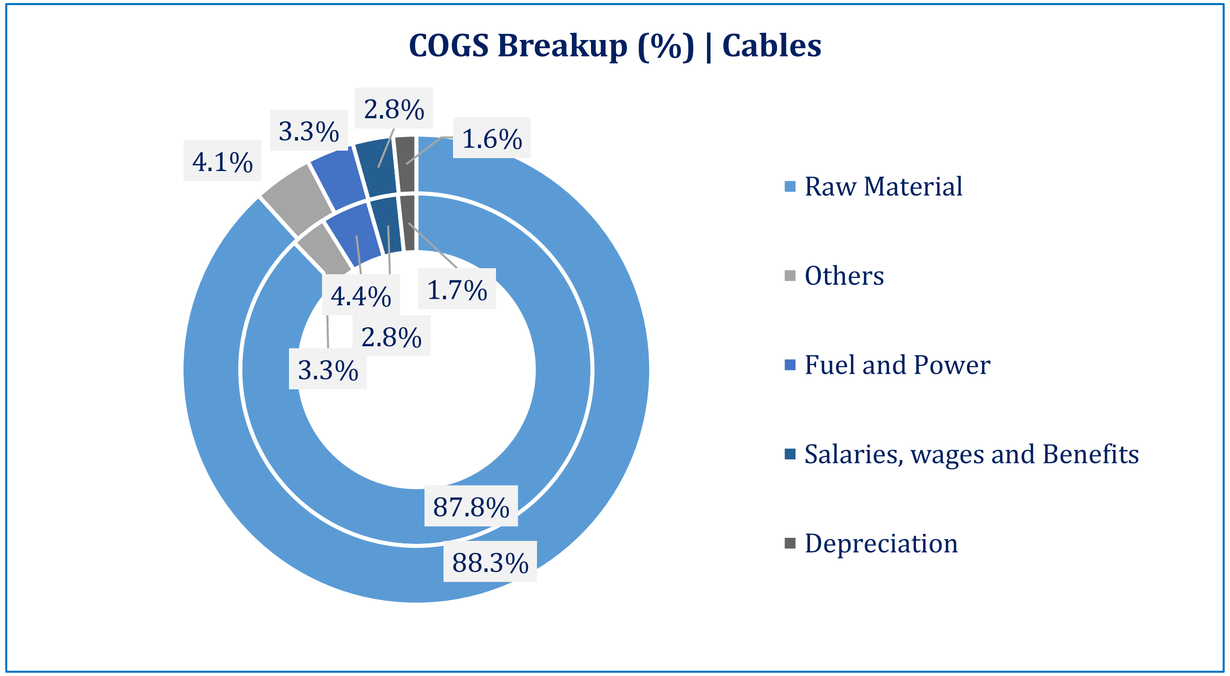
Note: Data is reflective of SBP classification "Electric Power Generation, Transmission and Distribution"

Source: SBP

Margins & Cost Structure | Cables

- Margins exhibited a declining trend in FY25. Average gross margins of the Segment declined slightly to ~11.9% in the period (FY24: 12.0%), mainly on the back of ~33.9% higher COGS for the period (mainly due to elevated prices of imported raw materials.), despite a ~33.7% higher revenue.
- Similarly, average operating margins for the segment also fell to ~8.4% in FY25 (SPLY: ~8.8%). Additionally, the average net profit margin declined to ~3.5% in the period (SPLY: ~3.9%), due to ~65.8% higher finance cost for the period.
- The largest component of the segment's direct costs is raw material which constituted ~88.3% of direct costs in FY25 (FY24: ~87.8%). Thus, any fluctuation in the price and availability of raw materials can have a significant impact on the segment players' performance.





Note: Data is reflective of PACRA-rated sector players.

Source: PACRA Database

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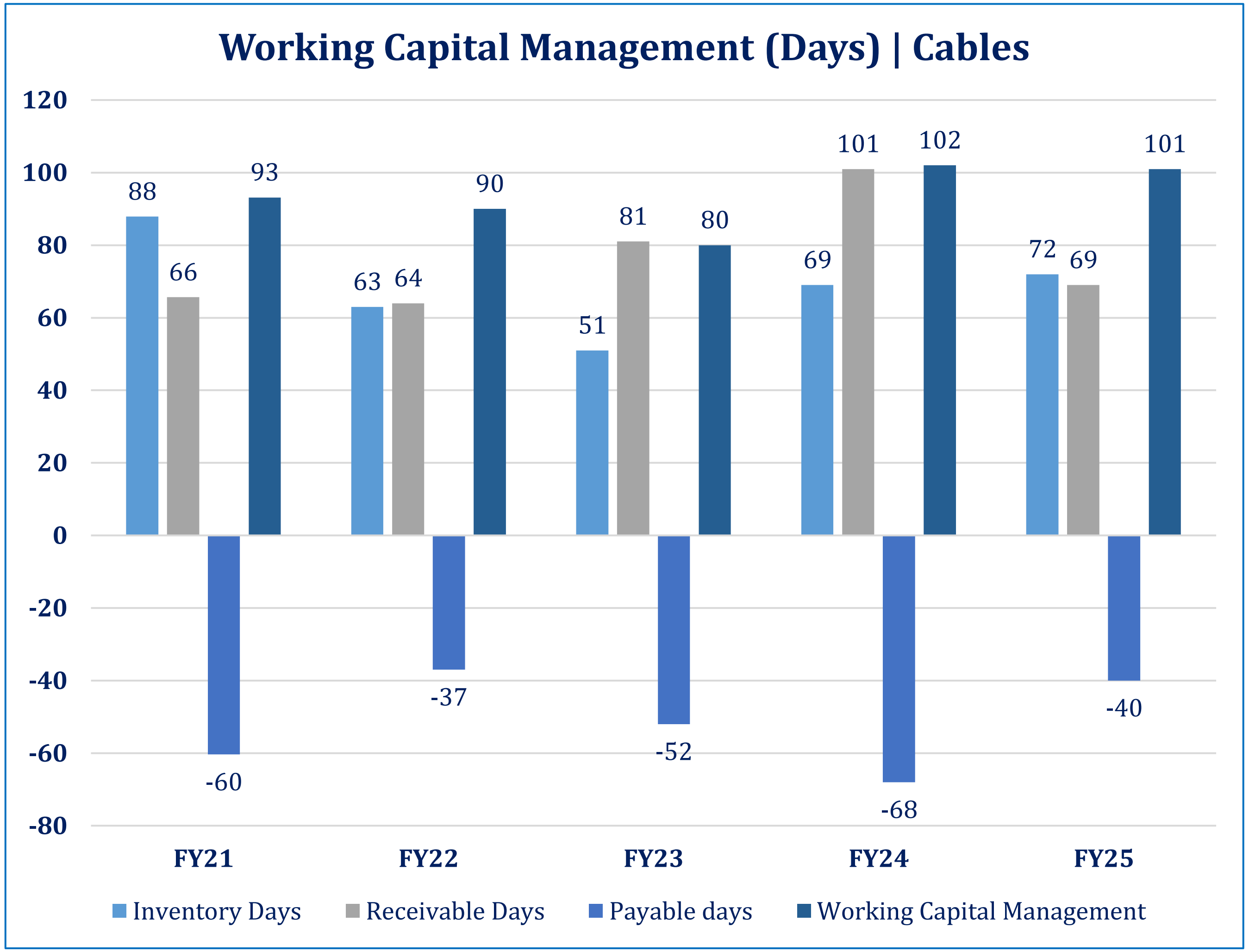
Financial Risk | Working Capital Management | Cables

- The Segment's working capital management is largely a function of its trade receivables and payables. In FY25, average working capital days of the sector declined marginally to ~101 days (FY24: ~102 days).
- During the period, average inventory days rose to ~72 days (FY24: ~69 days) whereas average receivable days declined to ~69 days (FY24: ~101 days). Meanwhile, average payable days decreased to ~40 days (FY24: ~68 days), reflecting tighter working capital management driven by improved receivable recovery despite slightly higher inventory levels and reduced supplier credit support.



Note: *Data is reflective of PACRA-rated sector players.*

Source: PACRA Database

Distribution | Electricity

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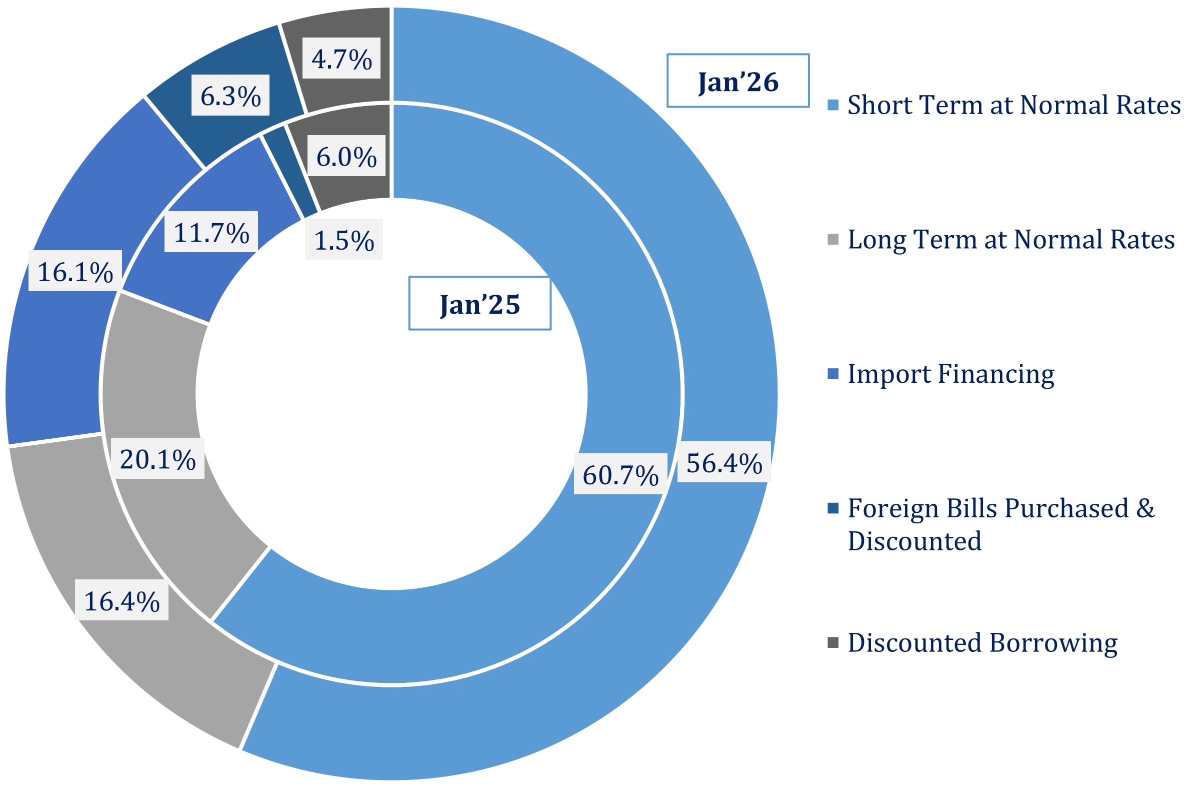
Financial Risk | Borrowings | Cables

- The Cable segment recorded total borrowings of PKR~31.1Bn as at End-Jan'26, marking a YoY increase of ~20.1% (SPLY: PKR~25.9Bn).
- Short-term borrowings (STBs) constituted ~56.4% of total borrowings as of End-Jan'26 and stood at PKR~17.5Bn (End-Jan'25: PKR~15.7Bn), marking ~11.6% YoY increase.
- Meanwhile, long-term borrowings (LTBs) constituted ~16.4% share and were recorded at PKR~5.1Bn, while import financing constituted ~16.1% share, recording at PKR~5.0Bn during the period under review.
- The Segment exhibited an average leveraging ratio of ~39.2% in FY25 (SPLY: ~37.1%) while average interest coverage recorded at ~2.4x (SPLY: ~3.1x).

Borrowing Mix (%) | Cables



Note: *Leverage and Coverage is based on the PACRA-rated player. Borrowing data is reflective of SBP classification "Manufacture of Other Electronic and Electric Wires and Cables"*

Source: SBP, PACRA Database

Distribution | Electricity

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SWOT Analysis

- Backbone of the economy, with players operating in a regulated environment.
- Low business risk due to regulated business, risk mitigants such as sovereign guarantees on payment by purchaser and performance guarantees by contractors.
- Fixed distribution margins. Regulator allowances for T&D Loss Limits.

- Power structural reforms as envisaged could not be achieved due to DISCOs not becoming entirely independent autonomous entities.
- Inefficiency in the distribution system leading to power outages despite available capacity (T&D losses and fatalities).
- Lack of investment in T&D infrastructure.

- Circular Debt
- Sustained T&D Losses.
- Liquidity Damages (LDs) on account of non-performance of FSA.
- Change in regulatory environment leading to lower/or no guaranteed off take for new plants and change of terms for existing ones.

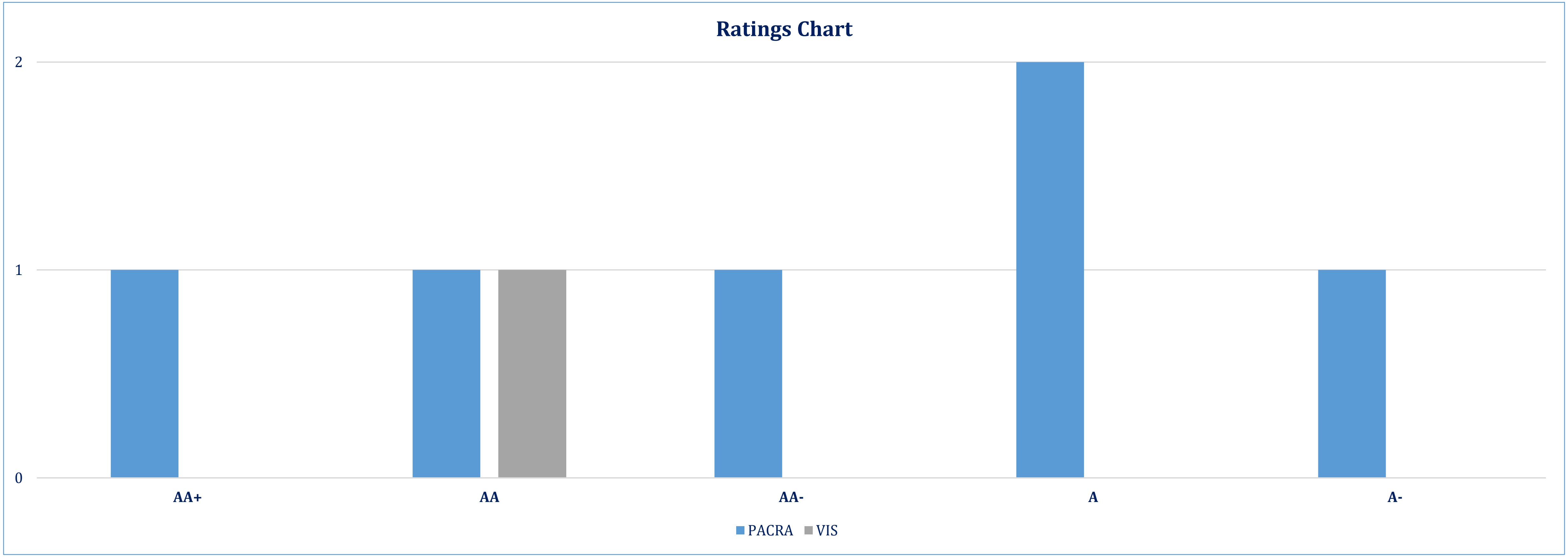
- Revival in economic activity resulting in increased demand.
- Amendment to PPAs to revise the payment and tariff structure for power purchase from IPPs.
- Exploration of Coal reserves leading to significant coal-based power projects and investments in the Hydel and Renewable Energy Power plants.

Source: PACRA Database

Distribution | Electricity

Rating Curve

- PACRA rates 2 entities in the Electricity (Distribution) Sector, namely, NGC and K-Electric, with rating bandwidth ranging between AA+ and AA. These also include a player operating in the Cables segment with a Long-Term Rating of A- and 3 DISCOs (one private and two state owned).



Source: PACRA Database

Distribution | Electricity

Outlook: Stable

- Pakistan's overall power consumption inched up by ~3.0% YoY in FY25, accounting for ~90.0% of the total power generated during the year (SPLY: ~-3.1% YoY; ~86.1%, respectively). The Sector continues to grapple with structural challenges, notably elevated Transmission & Distribution (T&D) losses and sub-optimal bill recoveries by the DISCOs. On the circular debt front, some respite was observed during FY25, as improved governance and financial discipline curtailed the pace of debt accumulation. After reaching PKR ~2.4Tn in FY24, the stock declined to PKR ~1.6Tn in FY25, representing ~1.4% of the Country's GDP. Payables to IPPs and PHPL collectively constituted ~94.0% of the circular debt stock in FY25 (SPLY: ~96.0%). As of End-Sept'25, the circular debt stock had declined by ~31.4% compared to End-Sept'24.
- Moreover, average T&D losses of the DISCOs and KE were recorded at ~20.7% and ~14.7%, respectively, in FY25 (SPLY: ~20.1% and ~16.0%, respectively), resulting in a financial impact of ~PKR 265.0Bn during the year (down ~4.1% YoY). Recoveries against the billed amount improved to ~96.3%, reflecting an increase of ~3.7% YoY (SPLY: ~92.6%). However, DISCOs' receivables continued to rise, reaching ~PKR 2,132.0Bn, representing a ~4.8% YoY increase.
- During FY25, NGCs' gross/operating profit margin declined to ~28.2% (SPLY: ~37.3%). Likewise, the net profit margin also fell to ~6.6% during the year (SPLY: ~10.6%). Conversely, the gross profit margin for DISCOs improved to ~12.7%, compared with the previous year, despite net revenue remaining largely stable and declining slightly by ~1.7% YoY, while the net profit margin increased to ~1.6%. Lower finance costs, coupled with improved electricity offtake during the period, supported margin expansion during the year.
- Pakistan's electricity distribution capacity is broadly adequate to meet prevailing demand. However, the Sector continues to face structural bottlenecks within the Transmission & Distribution (T&D) network that limit optimal utilization of available capacity. Addressing these constraints requires timely investments and coordinated planning aimed at strengthening and expanding the National Grid System. Enhancing grid infrastructure and network efficiency will be critical to facilitating reliable power flows, reducing system bottlenecks, and enabling the transmission of relatively cheaper electricity to end-consumers in an efficient and sustainable manner.
- Recent policy measures, including the growing shift toward solarization, are expected to reduce system losses and improve energy access and independence, particularly for rural and off-grid consumers. In parallel, revisiting the uniform national tariff framework and moving toward more cost-reflective regional pricing could strengthen operational accountability across DISCOs. Progress on the privatization or strategic management of relatively better-performing DISCOs is also likely to enhance operational efficiency, improve governance standards, and help contain T&D losses over the medium term. Furthermore, as power subsidies are largely financed by the Federal Government, provinces currently have limited fiscal incentives to curb electricity theft, underscoring the need for comprehensive structural and infrastructural reforms to improve Sector discipline and long-term sustainability.

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