2025 STATE OF THE INDUSTRY REPORT



National Electric Power Regulatory Authority

STATE OF THE INDUSTRY REPORT 2025



National Electric Power Regulatory Authority

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FOREWORD

As Pakistan's power sector enters a new phase of transition, the year under review, FY 2024-25, presents both grounds for cautious optimism and reasons for concern. On one hand, the concerted efforts to rationalize and retire comparatively high-cost, underutilised generation capacity, coupled with rigorous negotiations with Independent Power Producers (IPPs) to reduce existing tariffs despite inherent challenges, mark a significant milestone in the sector's evolution. On the other hand, deep-rooted inefficiencies, inadequate planning, lack of digitized and reliable data, underutilisation of existing assets, weak governance, shifting demand dynamics, and an increasingly complex global energy landscape continue to test the sector's sustainability, affordability, and reliability.

Over the past year, the NEPRA, despite facing several challenges, has taken forward-looking measures to reposition the power sector for modern realities. These initiatives include driving institutional realignment (such as the establishment of the Independent System and Market Operator, ISMO), advancing the Competitive Trading Bilateral Contracts Market (CTBCM) framework, shifting tariff structures toward coincident load-based models, and supporting the increasing role of distributed and renewable generation. Collectively, these actions aim to sustain the momentum of sectoral reforms, encourage public-sector entities to operate as truly independent companies rather than as extensions of the pre-unbundled Water and Power Development Authority (WAPDA) structure, and ensure that the sector's institutional architecture continues to evolve in line with the changing needs of consumers, investors, and the national economy.

However, a closer examination reveals that the burden of this transition is substantial, and the road ahead remains challenging. While installed generation capacity has reached record levels, actual electricity demand is declining, driven by affordability constraints, rising tariffs, increased adoption of distributed generation, and slowing industrial and agricultural activity. This has created a widening gap between capacity and utilisation, amplifying fixed costs, eroding financial margins, and raising critical concerns about the cost-effectiveness and sustainability of recent investment decisions.

At the same time, the distribution segment continues to exhibit deep-rooted governance and operational challenges, including high Transmission and Distribution (T&D) losses, low recovery rates, delayed subsidy disbursements, and a circular debt cycle that undermines both investor confidence and the quality-of-service delivery. Meanwhile, solar- and wind-based distributed generation are expanding rapidly, signalling encouraging progress toward a climate-aligned energy transition. However, this growth also introduces new complexities in grid management, disrupts traditional revenue models, and raises important questions around tariff design and cost allocation. Recognizing the issue, NEPRA has directed all Distribution Companies (DISCOs) to undertake technical and financial analysis for distribution feeders for sustainable and technically robust integration of distributed generation.

The sector now stands at an inflection point: the old era of scarcity is ending, but the new era, defined by surplus capacity, structural cost pressures, and shifting demand, may prove even more complex. To ensure this transition delivers lower bills, better service, and sustainable growth rather than higher costs and idle assets, capacity payments, investment decisions, tariff design, and institutional roles must be realigned with a future of lower utilisation, changing load profiles, and rapid adoption of distributed technologies. As FY 2025-26 begins, it must be reaffirmed that regulatory independence, transparency, a fair balance between investor and consumer interests, and strong accountability mechanisms are not optional, they are fundamental. NEPRA remains steadfast in its mandate to protect consumers, ensure a sustainable and viable power industry, and support the delivery of reliable electricity. Enhanced performance metrics, stricter enforcement of technical and commercial standards, disciplined investment planning, and greater focus on emerging demand

trends, including electric vehicles, rooftop solar, off-grid, and mini-grid solutions, will be critical to sustaining progress and strengthening the sector's resilience.

To deliver affordable, reliable, and sustainable electricity, reforms must focus not only on processes but on achieving real, measurable outcomes. Long-pending public sector entities awaiting privatization or corporatization should be expedited, allowing them to operate as independent companies free from direct or indirect government control. The transition ahead will be challenging and requires careful management, but the potential benefits, long absent from the power sector for over two decades, are substantial: a more efficient, modern electricity system that supports Pakistan's economic growth, fulfils climate commitments, and advances social equity. The task is clear, and the opportunity is significant. All stakeholders, regulators, operators, investors, and consumers, must work together to ensure this promise is fulfilled, not deferred.

This State of the Industry Report presents an in-depth evaluation of the financial, operational, and regulatory dynamics influencing Pakistan's power sector. It highlights the critical need to address technical limitations, rectify economic inefficiencies, and dispel the misinformation that often heightens public scepticism toward essential reforms. Through a clear, evidence-based examination of current challenges, the report pinpoints the most urgent issues and offers practical, forward-looking solutions.

The goal of this report is to promote informed discussion and enhance cooperation among all stakeholders, helping to build a power sector that is more efficient, resilient, and sustainable. May this report serve as a driver of meaningful progress, encouraging collective commitment to transforming Pakistan's energy landscape and securing a brighter, more sustainable future for the nation.

DISCLAIMER:

The data presented in the State of the Industry Report-2025 has been sourced from relevant entities and compiled with care. However, some of the data in the report is provisional and may be revised in future editions. Further, the financial impacts calculated in the report are based on best estimates worked out on the basis of available information with the NEPRA. All the analysis pertaining to utilisation factors, underutilisation of generation assets has been made on the basis of installed capacity. The information and analysis contained in this report are intended for informational, analytical, and research purposes only. The report shall not be liable for any legal claims or disputes arising from regulatory observations or the data presented herein.

EXECUTIVE SUMMARY

01

The assessment of Pakistan's power sector during the review period FY 2024-25 reveals that, despite some structural and policy-level interventions, overall progress remains limited and insufficient to instil confidence in its ability to drive sustained industrial growth and provide meaningful relief to electricity consumers across industrial, commercial, agricultural, and residential categories. The sector continues to face deep-rooted operational and governance challenges that constrain its efficiency and undermine its potential contribution to economic development.

Generation capacity under "Take or Pay" contracts remains significantly underutilised, resulting in a persistent financial burden in the form of capacity payments for idle plants. At the same time, the transmission network is both underutilised and constrained, contributing to higher transmission tariffs while also preventing the dispatch of electricity from cheaper and more efficient generation sources in accordance with the Economic Merit Order (EMO). On the distribution side, many government-owned DISCOs continue to exhibit poor governance practices, with T&D losses exceeding allowable limits, low bill recovery ratio, and load-shedding practices based on Aggregate Technical and Commercial (AT&C) losses. These inefficiencies further exacerbate the underutilisation of generation, transmission, and distribution assets and contribute to the circular debt problem.

The challenges confronting power sector entities largely driven by the entities owned by the Government of Pakistan are complex and span planning, execution, and operational domains. Persistent inefficiencies in strategic planning, project implementation, and routine operations have hindered the sector's ability to achieve financial sustainability and contribute effectively to national economic growth. These issues are further exacerbated by weak governance, limited accountability, and the absence of performance-driven management practices, all of which constrain the sector's capacity to optimize its assets and consistently provide affordable, reliable electricity to consumers.

During the period covered by this report, FY 2024-25, efforts were made to reduce the "Take or Pay" electric power generation capacity by retiring or decommissioning inefficient power plants, whose utilisation factors have remained very low over the past several years and may not be feasible to operate in the future due to lower efficiencies. The total generation capacity for which PPAs were terminated, retired or decommissioned during the year amounted to 2,829 MW.

As a result of these efforts, the effective operational electric power generation capacity of Pakistan's power sector decreased to 41,121 MW as of June 30, 2025, down from 45,888 MW as of June 30, 2024. However, 884 MW of new capacity of hydel (Suki Kinari Hydropower) was added during the year.

The utilisation factor of thermal power plants including nuclear, in CPPA-G system, during the year remained 38.82%. It is important to note that generation cost represents the largest component of the electricity tariff at the consumer level, accounting for approximately 82%. During FY 2024-25, the actual per-unit Capacity Purchase Price (CPP) in Central Power Purchasing Agency (Guarantee) Limited (CPPA-G) system remained Rs. 14.21/kWh, making it the highest among all components of the electricity tariff in the country. This high per-unit CPP is primarily due to the underutilisation of "Take or Pay" power plants.

During the period covered in this report, several power plants, through Power Purchaser CPPA-G, approached NEPRA seeking a reduction in their generation tariffs. The approval of these tariff adjustments is expected to have a long-term positive impact on the power sector. By lowering

generation costs, these measures will provide sustained financial relief, improve the overall efficiency of electricity pricing, and contribute to stabilizing tariffs for consumers in the coming years. This initiative reflects an effort to optimize the sector's operational costs while ensuring continued reliability and affordability of electricity supply. Ensuring a stable and predictable regulatory environment will continue to be important for sustaining investor confidence.

While significant efforts are being made to reduce electricity tariffs, persistent operational inefficiencies in public sector power plants, such as the 747 MW Guddu Power Plant, 969 MW Neelum Jhelum Hydropower Plant, and several other hydroelectric plants under WAPDA (Golen Gol Hydro, Jinnah Hydel, Gulpur Hydropower and others), are significantly undermining these initiatives. These inefficiencies result in lower plant utilisation, higher generation costs, and reduced overall system efficiency, which in turn prevent the benefits of tariff reductions from being fully passed on to consumers. Consequently, the intended financial relief from many IPPs' tariff adjustments, as well as the retirement or decommissioning of other underperforming power plants, is being offset, limiting the overall effectiveness of sector reforms.

The Part Load Adjustment Charges (PLAC) also contributed to an increase in overall generation costs, amounting to Rs. 46.388 billion during FY 2024-25, compared to Rs. 55.671 billion in FY 2023-24. Although these charges cannot be eliminated, they can be significantly reduced through effective demand-side management.

Similarly, the Non-Project Missed Volume (NPMV) cost stood at Rs. 13.285 billion in FY 2024-25, as against Rs. 39.521 billion in FY 2023-24. Although this cost has reduced significantly during the reporting period, it remains largely avoidable and can be further minimized through improved grid management and operational efficiency.

Another factor adversely impacting the overall generation cost is the lower utilisation factor of coal-based power plants using Thar coal**.** Reduced plant utilisation has negatively affected both the Capacity Purchase Price (CPP) and the Energy Purchase Price (EPP)**,** as the fixed costs of mining operations are embedded within the EPP component. The utilisation factor of Thar coal-based power plants stood at 67.23% during FY 2024-25.

Moreover, the delay in establishing a regular supply of Thar coal to Lucky Electric Power Company Limited has further contributed to inefficiencies and higher generation costs.

It has been observed that various assets in the country's transmission system remained underutilised. Since, the system log reports are still maintained manually, it is difficult to quantify and analyse the extent and impact of this underutilisation. Achieving true operational efficiency will be challenging without digitized, hourly utilisation data for all relevant assets.

A notable example of this inefficiency is the underutilisation of the 4,000 MW capacity Matiari-Lahore High Voltage Direct Current (HVDC) transmission line, whose utilisation factor remained only 35% during FY 2024-25, despite payments being made based on a 100% availability factor. This underutilisation adversely affects both the transmission tariff and the overall cost of electricity.

The poor performance of National Grid Company of Pakistan Limited (NGC) is not only affecting its own transmission tariff but also increasing the overall generation cost. A significant number of constraints in the NGC system are forcing power plants to operate in violation of the economic merit order. It has been observed that almost every transmission project is suffering from delays and cost overruns. Among these, the delay in completing the interconnection between the K-Electric Limited (KE) and NGC systems, the Lahore-North Grid, and other associated transmission lines, as well as the SCADA-III project, has severely affected Pakistan's power system, both technically and financially during FY 2024-25.

Governance remains the most critical challenge confronting Pakistan's DISCOs. KE, PESCO, HESCO, SEPCO, and QESCO are the poorest performers, with T&D losses far exceeding NEPRA limits, low revenue recovery, excessive AT&C losses, prolonged load-shedding, mounting receivables, poor service quality, and high consumer dissatisfaction. Their performance is weak across nearly all operational and financial indicators.

Except for TESCO, no DISCO met the regulator-approved T&D loss targets. However, the gap between allowed and actual losses in LESCO, GEPCO, IESCO, FESCO, and MEPCO is relatively small compared to the worst-performing DISCOs. Moreover, these better-performing utilities demonstrate significantly higher recovery ratios.

Although TESCO reports T&D losses below the regulatory threshold, the reliability of these figures is doubtful due to extensive unmetered supply, making actual losses difficult to verify.

Operational inefficiencies persist across all DISCOs, including KE. Delays in new connections, meter replacements, and net-metering approvals are common. Overbilling practices, particularly detection bills issued without due process, and frequent inflated billing complaints further undermine consumer trust.

Overall, weak DISCO performance is a major contributor to circular debt, adding approximately Rs. 397 billion during the reporting period. Load-shedding based on high AT&C losses is both unlawful and inequitable, unfairly penalizing compliant consumers while underutilizing "Take or Pay" generation capacity and deepening inefficiencies across the power sector.

Given the rising cost of electricity and the non-consumer-centric behaviour of DISCOs, many consumers, especially those who can afford it, are increasingly turning to alternate energy sources, primarily rooftop solar PV systems, to meet their electricity needs. With the declining cost of lithium batteries and the availability of higher-capacity models, the use of batteries as energy storage devices and their utilisation during non-solar hours has been increasing.

The performance of the ISMO has been below expectations. The adoption of modern technology in system operations remains limited, and an effective Supervisory Control and Data Acquisition (SCADA) system providing complete visibility and control is yet to be commissioned. Ideally, the System Operator should be capable of alerting relevant stakeholders about the constraints of the transmission and distribution system, along with their financial implications, monitoring hourly load patterns, and assisting the relevant forums in implementing effective demand-side management. However, in Pakistan, the ISMO, currently, lacks these critical capabilities.

Since the majority of DISCOs operate under the public sector and remain owned by the Federal Government, even after more than two decades of incorporation as companies, they have largely failed to function as true corporate entities. It remains unclear whether these DISCOs themselves are unwilling to operate independently or whether their owners are reluctant to promote them as such. However, it has been observed that they are increasingly being brought under centralized control previously under PEPCO and now under Power Planning and Monitoring Company (PPMC). The Boards of Directors (BoDs) show little interest in improving the financial health of these companies or transforming them into organizations of international standard. Furthermore, there is a lack of accountability for BoD members, Chief Executive Officers, and other officers and officials. This absence of deterrence has emboldened these entities to maintain the status quo, perpetuating inefficiencies and poor performance across the sector.

The regulator's monitoring and enforcement drive has been diluted by lengthy review, appeal, and petition processes, which are so time-consuming that they undermine the very purpose of enforcement actions. Furthermore, the limitation on taking action against delinquent individuals weakens the regulator's monitoring and enforcement efforts. When actions are taken against public sector companies, owned by the Federal Government, any resulting penalties ultimately burden

electricity consumers or taxpayers, thereby diminishing the effectiveness and deterrent impact of such measures.

It is considered prudent practice for commercial agreements to be structured in a way that allows all entities in the supply chain to cover their risks through back-to-back arrangements. Such agreements typically include mechanisms for built-in penalties in the event of poor performance and rewards for efficient operation. However, in Pakistan's power sector, the majority of entities, including incorporated companies, continue to operate under public sector ownership by the Federal Government. As a result, these entities have not entered into commercially binding agreements with one another. This means that, although these entities were created as independent organizations following the unbundling of WAPDA, in practice they continue to operate in a manner similar to their functioning under the previously bundled structure. Under such circumstances, the reforms introduced in the 1990s, instead of reducing inefficiencies, have adversely affected the power sector entities.

Although this is fundamentally a policy issue, from a practical standpoint, the uniform consumer tariff across all DISCOs not only undermines efficiency drives but also creates legal complications, as there is no mechanism to enforce uniform tariffs in export processing zones, housing colonies, and similar areas. Similarly, under a uniform tariff structure, privatization may not achieve the intended efficiency gains. Therefore, the sector should draw lessons from international best practices to make privatization more effective and to provide DISCOs with proper incentives to enhance efficiency.

Addressing inefficiencies in Pakistan's power sector requires a holistic, integrated approach beginning with a reflection of the original objectives of the Power Sector Restructuring Plan envisaged in 1990s. This reform, launched through the unbundling of the vertically integrated WAPDA, sought to transform the sector by enhancing operational efficiency, promoting transparency, attracting private investment, and ensuring long-term financial sustainability through decentralization and market-based initiatives.

More than two decades later, however, the transition from a monopolistic structure to a truly competitive power market remains largely unrealized. The unbundled entities have yet to evolve into independent, commercially driven organizations, and continue to operate under varying degrees of bureaucratic control.

The essence of the reforms was to establish autonomous, corporatized entities, each responsible for its specific business functions. Any form of re-centralization, whether direct or indirect, undermines this foundational vision. The continued control of power sector through government-created entities such as Pakistan Electric Power Company (PEPCO), GENCO Holding Company Limited (GHCL), Power Holding Private Limited (PHPL), Power Information Technology Company (PITC), Central Power Purchasing Agency (Guarantee) Limited (CPPA-G), and Power Planning and Monitoring Company (PPMC) runs counter to the reform spirit, which emphasized independence, efficiency, and commercial accountability over bureaucratic oversight.

Achieving real efficiency in the power sector demands synchronized progress across the entire value chain, generation, transmission, distribution, and supply side. Improvements in one segment cannot yield optimal outcomes if other segments remain outdated or inefficient. A modern generation fleet serves little purpose if transmission infrastructure cannot deliver power reliably due to congestion or technical losses. Similarly, weak distribution networks plagued by outages, theft, and poor revenue recovery can nullify gains made elsewhere.

To ensure alignment, power sector entities must operate under commercially binding agreements that clearly define roles, performance standards, and accountability mechanisms. Each entity should bear the financial consequences of its inefficiencies, rather than passing these costs to electricity consumers or taxpayers. For instance, during FY 2024-25, law abiding electricity consumers paid

approximately Rs. 233 billion as a Debt Servicing Surcharge (DSS), a burden stemming not from normal business operations, but from the inefficiencies of a few power sector entities.

In conclusion, Pakistan's power sector transformation will remain incomplete unless the 1992 WAPDA Restructuring Plan is fully implemented. The reforms' objectives corporatization, decentralization, and privatization aimed to promote efficiency, transparency, and financial sustainability through a clear separation of policy, regulation, and operations. These principles remain highly relevant. Sector entities must operate as autonomous, professionally managed, and financially independent organizations within a robust regulatory framework. Experience from other jurisdictions shows that sustainable improvements occur when corporatized entities are governed autonomously under transparent regulation rather than direct administrative control. Continued centralized oversight, overlapping mandates, and fragmented supervision will only hinder progress, perpetuate inefficiencies, and impose unnecessary financial burdens on the economy.

Structured into two sections, the State of the Industry Report provides a detailed evaluation of the sector's performance in Section 1, while presenting essential statistical data for informed decision-making in Section 2. In addition, web based detailed data on various generation companies offering a comprehensive overview of performance metrics and operational statistics to aid informed decision has been made part.

Submitted in accordance with Section 42 (1) (b) of the NEPRA Act, this report aims to inform the Federal Cabinet and the Council of Common Interests (CCI) about the current state of Pakistan's electric power industry, offering actionable recommendations and strategic interventions to ensure a more efficient and sustainable energy future for the nation.

OVERVIEW OF THE ELECTRIC POWER SECTOR

02

Electricity is the backbone of economic growth and the foundation of modern society, driving progress and elevating the quality of life by powering innovation, infrastructure, and everyday essentials. The socio-economic growth of a country depends on access to electricity to drive productivity, attract investment, and support vital infrastructure. Be it industry, businesses, social services or routine lives of households, electricity is the fundamental requirement for all walks of life in today's world. Inadequate and unaffordable access to electricity can perpetuate poverty, limit economic opportunities, and stifle national progress. Thus, the role of electricity transcends from a mere utility to a critical driver of national development and prosperity.

In Pakistan, the electric power sector has long been struggling to provide affordable electricity to its citizens. Initially grappled with power generation deficits, the sector's primary challenge today is managing and reducing the soaring cost of electricity, largely driven by underutilised excess capacity. Additionally, curtailing of renewable energy (RE) power generation capacity is also becoming a formidable challenge.

The current generation mix, combined with the underutilisation of existing power generation capacity, has led to elevated electricity costs undermining sustainable development and disproportionately impacting low and middle-income groups. Despite ongoing efforts to address issues within the generation, transmission, distribution, and supply segments, the sector continues to face intensive challenges. Systemic inefficiencies, the underutilisation of generation, transmission, and distribution assets due to poor planning and weak governance, delays in project execution, fuel supply management issues, and high-capacity charges have all contributed to the escalating cost of electricity during FY 2024-25.

The soaring cost of electricity, compounded by a web of taxes, surcharges, fees, and duties, has reached an unsustainable level for most consumers, crippling their ability to pay and severely undermining the financial recovery efforts of DISCOs.

Today, the power sector is facing a host of challenges in the generation, transmission, distribution and supply segments which need to be addressed through a comprehensive strategy focusing on the efficient management of primary fuel supplies, the integration of affordable, clean, and green electricity sources, and the promotion of competition to bolster energy independence and enhance efficiency across all segments of the sector.

This overview takes a look at the major issues affecting the power sector and recommends possible remedial measures to address the persistent challenges for the sector's sustainability. It highlights the critical need for strategic reforms to reduce electricity costs, improve operational efficiency, and enhance overall sector performance.

The forthcoming sections will delve into the specific challenges faced in each segment generation, transmission, distribution, and supply providing a detailed analysis and actionable recommendations for overcoming these issues.

2.1 GENERATION SECTOR

In the previous State of the Industry Reports, NEPRA has consistently highlighted enduring issues within the power generation sector, such as violations of EMO, excessive capacity payments, payments related to NPMV, PLAC, as well as issues involving CPPA-G and KE. Unfortunately, these issues continued to persist in FY 2024-25. Key challenges affecting the performance of the generation sector during FY 2024-25 are outlined below:

2.1.1 Challenges and Cost Dynamics of Power Generation Sector of Pakistan:

Electric power generation remains the most cost-intensive component of Pakistan's power sector (82% of total cost), making affordable electricity highly dependent on an efficient and balanced generation mix. A significant portion of the country's generation capacity has been contracted on a "Take or Pay" or "Must Run" basis, which has remained persistently underutilised. This has led to higher per-unit generation costs and increasing financial pressure on the sector.

Thermal power plants, with availability typically exceeding 92%, provide a dependable base-load supply as they can operate continuously and independently of weather conditions. However, this reliability is accompanied by high fuel expenses, price volatility, transportation challenges, and notable environmental impacts due to greenhouse gas emissions. When thermal power plants operate at a high plant utilisation factor, their per-unit CPP remains relatively low typically below the per-unit EPP. However, at low utilisation levels, the per-unit CPP increases sharply and often exceeds the per-unit EPP.

In contrast, RE sources such as hydropower, wind, and solar offer the advantage of zero fuel costs and negligible EPP, but they are inherently variable and dependent on weather conditions. Their intermittency limits availability and introduces uncertainty in generation. Moreover, the per-unit CPP of RE plants is generally higher due to lower capacity factors and higher upfront capital costs. Therefore, prudent system planning is essential to maintain supply reliability and achieve an optimal balance between CPP and EPP for overall cost efficiency and operational stability.

The variability of RE generation requires backup thermal capacity to meet demand at all time, which also creates operational challenges. Thermal plants are often required to operate at part load to maintain grid stability, thereby reducing their efficiency. Analysis for FY 2024-25 indicates that, despite having no fuel costs, the generation cost from several RE plants remains higher than that of imported-fuel-based thermal units. Higher capacity payments, coupled with low utilisation of existing assets, continue to undermine the financial sustainability of the power sector.

A comprehensive reassessment of Pakistan's generation portfolio, contractual arrangements, and grid integration strategies is therefore imperative to enhance cost efficiency, improve system flexibility, and ensure the long-term sustainability of the sector.

2.1.2 System Demand and Generation Utilisation – FY 2024-25:

During FY 2024-25, the system peak demand reached 24,699 MW on June 20, 2025, at 24:00 hours. However, this peak demand level persisted for only 01 hour, whereas, the total served load remained above 24,000 MW for 10 hours. At the time of peak demand (24,699 MW), the dependable generation capacity in the system was 33,281 MW, resulting in a utilisation factor of 74%. The generation mix at the time of peak demand (24,699 MW) comprised 37% RE (hydropower 33%, wind 4%, and solar 0%), 55% thermal, and 8% nuclear.

In contrast, the minimum system load of 6,106 MW was observed on March 31, 2025, at 12:00 hours, when the dependable generation capacity stood at 33,281 MW resulting in a utilisation factor of only 18%. The generation mix at this time comprised 14% RE (hydropower 12%, and negligible wind and solar), 44% thermal, and 41% nuclear.

An analysis of the available load duration curve for FY 2024-25 shows that system demand remained within the following ranges:

(a) 24,000 – 24,699 MW for 10 hours
(b) 23,000 – 24,000 MW for 70 hours
(c) 22,000 – 23,000 MW for 200 hours
(d) 21,000 – 22,000 MW for 362 hours
(e) 20,000 – 21,000 MW for 505 hours

This demand profile highlights a critical policy question for the power sector: should Pakistan continue to add or retain "Take or Pay" or "Must Run" generation capacities to cater to short-duration peak demands, or instead adopt a strategy of optimized capacity planning that balances system reliability with economic efficiency? Options such as operating with lower spinning reserves during non-critical periods or implementing demand side management including targeted economic load management may offer more cost-effective alternatives.

A carefully calibrated approach is therefore essential, one that ensures supply reliability while minimizing excess capacity costs, supporting a sustainable and financially viable power system.

2.1.3 Data Gaps Hindering Effective Power Sector Planning:

It is observed that many power sector entities, particularly at NGC and distribution grid stations, still maintain hourly logs manually, with no computerized data available. The lack of digitized data poses a major challenge to effective planning, as it restricts access to accurate, timely, and comprehensive information required for informed decision-making. In the absence of digital records, planners must rely on fragmented, outdated, or manually compiled data, which increases the risk of errors, inefficiencies, and misallocation of resources. This has contributed to the underutilisation of assets across all segments of the power sector including generation, transmission, and distribution which is a key factor behind higher consumer-end tariffs. Moreover, the unavailability of real-time, analyzable data impedes the identification of trends, demand forecasting, and monitoring of interventions, thereby slowing development initiatives and reducing their overall effectiveness. In today's era, where data-driven strategies are essential, the absence of digitized information remains a critical bottleneck to achieving precise, efficient, and responsive planning.

The data currently available in digitized form is scattered across multiple entities, with accessibility for relevant stakeholders being extremely limited or, in many cases, non-existent. It has been observed that data-holding entities are often reluctant to share information, even with the regulator. Therefore, except where confidentiality is essential, this data should be made publicly accessible to engage industry, academia, research institutes, and other interested stakeholders. Broader access would enhance transparency and encourage meaningful contributions from all relevant parties. This underscores the urgent need to develop a centralized data repository to enable efficient and effective data analysis. Such a repository would support informed strategy development, robust planning, and better decision-making, ultimately making the power sector more reliable, efficient, and capable of ensuring optimal utilisation of assets across all segments of the system.

2.1.4 Modernizing the IGCEP Framework:

Pakistan's power sector has traditionally focused on maintaining sufficient generation capacity to meet annual peak demand, regardless of its short duration. While this approach once ensured reliability, it is no longer aligned with the sector's evolving dynamics or economically feasible. The rapid expansion of RE generation and the declining costs and increasing adoption of Battery Energy Storage Systems (BESS) are transforming both demand patterns and operational requirements.

The IGCEP remains largely peak-centric, even as Pakistan's demand profile undergoes structural change. Distributed solar generation is reducing daytime grid demand and shifting system peaks to night hours. At the same time, BESS enables the storage of excess solar energy during the day for discharge during evening peaks, providing a cost-effective means of balancing supply and demand.

To remain effective, the planning framework must evolve from a traditional capacity-addition model to one focused on system flexibility, distributed optimisation, and demand-side participation.

Future iterations of the IGCEP should move beyond centralised generation modelling to reflect the realities of decentralised energy systems, incorporating distributed generation, storage, and distribution-level dynamics. DISCOs must undergo a transformation from being passive data providers to becoming active participants in the power sector's planning process. Positioned closest to end consumers, DISCOs possess valuable insights into local demand dynamics, distributed generation patterns, and voltage management challenges. Their analytical input is crucial for accurate demand forecasting, optimal storage deployment, and the design of effective demand response strategies.

However, the current structure of the power sector limits their role. Centralized control over DISCO operations, centralized power procurement, and the absence of operational autonomy have rendered them largely irrelevant in strategic planning. Generation capacity is often allocated to DISCOs without considering their actual demand profiles or obtaining their consent, while corresponding capacity charges are imposed regardless of utilisation. This arrangement leaves little incentive for DISCOs to engage proactively or to motivate their teams toward performance improvements. Consequently, the IGCEP has struggled to achieve its intended goals of efficiency and cost-effectiveness in the power sector.

With recent technological advancements, the importance of Demand Side Management (DSM) in generation planning has grown significantly. DSM enables utilities to manage consumption patterns intelligently, reducing the need for new generation capacity while improving overall system efficiency. In Pakistan's context, there exists substantial untapped potential to meet both current and future demand through well-designed DSM strategies. By leveraging such approaches, the power sector can lower electricity costs, enhance reliability, and move toward a more sustainable and efficient energy system.

2.1.5 Power Balances in NGC System – Surplus Capacity:

The assessment of power balances within the NGC system highlights the relationship between available generation capacity and projected national demand. Based on the actual data for FY 2023-24 and FY 2024-25, it is evident that the available generation capacity significantly exceeds the national demand during the corresponding periods. Furthermore, forecasts for FY 2025-26 to FY 2029-30 indicate that the NGC is expected to maintain more than adequate generation capacity to meet the projected national demand over the next five years.

Projections indicate a surplus margin of up to 8,700 MW under normal operating conditions. While this surplus enhances the system reliability, it also increases generation costs, ultimately leading to higher consumer tariffs, as most of the plants operate under "Take or Pay" or "Must Run" agreements.

In addition to the drawback of surplus generation and the resulting higher CPP, a critical concern remains that transmission infrastructure development has not kept pace with the generation expansion. Despite the addition of cost-effective EPP plants, transmission constraints continue to limit the evacuation and delivery of cheaper electricity to major load centres, thereby undermining the intended benefits of this low-cost generation capacity.

2.1.6 Addressing Fundamental Gaps and Preserving the Integrity of the Integrated System Plan:

The Integrated System Plan (ISP), comprising the IGCEP and TSEP, serves as the cornerstone for coordinated generation and transmission planning based on the principles of least-cost expansion and system reliability. Although the Grid Code clearly defines the planning criteria and methodology, persistent delays in the timely submission of annual iterations continue to disrupt planning continuity and diminish the ISP's effectiveness as a forward-looking tool for guiding system development.

After more than two decades, NGC submitted its first TSEP during FY 2024-25. However, the quality of the submitted document was not adequate for further processing or for obtaining approval from the Authority. Accordingly, NGC was directed to submit addendum to IGCEP 2025 incorporating certain scenarios including increase in load factor. Despite several follow-ups, NGC was unable to resubmit the revised document by the end of FY 2024-25. In consideration of the said, the Authority initiated legal proceedings against NGC which remained under process during the period.

Furthermore, the integrity of the ISP is increasingly affected by considerations beyond the scope of technical system planning. When project inclusion or exclusion for any reason is influenced by factors other than least-cost analyses, demand forecasts, resource optimisation, and grid integration studies, the neutrality and credibility of the planning process are compromised. Such practices erode investor confidence and undermine the very purpose of the ISP. Any project incorporated outside the least-cost criteria should be explicitly classified as a strategic project, and the resulting cost differential should not be passed on to the power system.

2.1.7 Power Generation Performance and Challenges - FY 2024-25:

During FY 2024-25, Pakistan's power generation sector faced significant challenges, primarily due to the low utilisation of thermal power plants operating on a "Take or Pay" basis. The annual average utilisation factor of these plants, of the country, remained at 38.19%. As of June 30, 2025, the total installed capacity of thermal power plants stood at 26,754 MW, with a dependable capacity of 24,189 MW, reflecting a change from June 30, 2024, when installed and dependable capacities were 32,386 MW and 26,261 MW, respectively.

RE power plants continued to experience operational constraints due to the intermittent nature of their primary energy sources i.e. water, wind, and solar. During FY 2024-25, the actual combined utilisation factors for hydropower, wind, and solar power plants were 39.70%, 23.87%, and 20.13%, respectively. The lower utilisation factor of RE power plants is inherent in nature and is primarily driven by the variability and limited availability of renewable resources.

The integration of RE power plants has contributed to a reduction in the EPP, as power generation from RE sources does not involve fuel costs. However, the inherent variability of primary energy resources such as hydrology, wind, and solar has resulted in lower plant utilisation factors. This has, in turn, increased the per-unit fixed costs and consequently the per-unit CPP. These dynamics highlight the importance of maintaining an optimal balance between EPP and CPP to achieve a cost-effective and sustainable power sector.

In FY 2024-25, in CPPA-G system, the total CPP amounted to Rs. 1,807.40 billion, with thermal power plants accounting for Rs. 1,242.70 billion and RE power plants including hydel for Rs. 564.70 billion. Total electricity generation during the year reached 81,486.43 GWh from thermal power plants including nuclear and 45,672.80 GWh from RE sources. The average CPP stood at Rs. 15.32/kWh for thermal, Rs. 13/kWh for RE, and Rs. 15/kWh for all power plants combined. The average EPP was Rs. 13.54/kWh for thermal, Rs. 0.74/kWh for RE (as there is no EPP in solar and wind), and Rs. 9.04/kWh for the CPPA-G system.

These trends underscore the importance of enhancing thermal power plant utilisation and optimizing RE integration to ensure a reliable, efficient, and cost-competitive electricity supply in Pakistan.

2.1.8 Enhancing Power Sector Efficiency in Pakistan: Strategic Early Termination of Low-Utilisation IPP Contracts:

In the wake of surplus "Take or Pay" power generation capacity across the national grid (excluding KE), the power purchaser initiated a comprehensive review of its power purchase portfolio. As part of this process, all relevant stakeholders engaged in consultations with IPPs whose plants exhibited low utilisation factors and were deemed no longer cost-effective to operate.

Following extensive negotiations, a major milestone was achieved whereby PPAs with six (06) IPPs were mutually terminated ahead of their original expiry dates. The IPPs whose contracts were concluded under this arrangement include:

(a) Hub Power Company Limited (1,292 MW)
(b) Atlas Power Limited (224 MW)
(c) Lalpir Power Limited (362 MW)
(d) PakGen Power Limited (365 MW)
(e) Saba Power Company Limited (136 MW)
(f) Rousch (Pakistan) Power Limited (450 MW)

Collectively, these plants contributed approximately 2,829 MW to Pakistan's total generation capacity. The decision to terminate these PPAs was driven by the persistent challenge of excess installed capacity, coupled with stagnant or modest growth in electricity demand, which resulted in substantial fixed "capacity payments" to idle or underutilised plants. By concluding these contracts ahead of schedule, the power sector aims to curb avoidable capacity costs and alleviate the financial burden on consumers.

Preliminary estimates indicate that the early termination of these agreements will generate savings of approximately Rs. 411 billion over the remaining contract periods. This is expected to translate into an annual relief of around Rs. 60 billion for consumers, primarily through lower electricity tariffs and a reduction in the accumulation of circular debt.

This initiative represents a significant step toward optimizing the national power generation mix, enhancing the financial sustainability of the power sector, and ensuring a more balanced alignment between supply and demand in the years ahead. However, it is essential that careful and data-driven analyses be undertaken by all relevant stakeholders when planning future capacity additions.

2.1.9 Energy vs Capacity Charges in CPPA-G and KE Systems:

The consumer-end electricity tariff is composed of several components, including the EPP, CPP, T&D Losses, Distribution and Supplier Margins, Transmission Charges, Market Operator Fees, and Prior Year Adjustments (PYA).

For FY 2024-25, the annual average EPP for the CPPA-G system stands at Rs. 9.04/kWh, reflecting a highly competitive rate that remains lower than that observed in many countries worldwide. In contrast, the annual average CPP for the CPPA-G system is Rs. 14.21/kWh, which is significantly higher than in many other regions. This is primarily due to the underutilisation of installed generation capacity.

In the KE system, the annual average EPP of KE's own generation fleet for FY 2024-25 is Rs. 23.36/kWh, which is comparatively higher than that of the CPPA-G system. Similarly, the annual average CPP for the KE system is around Rs. 8.33/kWh. The comparison of EPP and CPP between the two systems indicates that there is substantial potential to develop strategies that optimize the use of the country's generation resources.

A year-on-year comparison reveals that, in the CPPA-G system, the per-unit EPP and CPP decreased by Rs. 0.33/kWh and Rs. 0.77/kWh, respectively, compared to FY 2023-24. However, in the KE system, the EPP was reduced by Rs. 4.03/kWh, mainly due to increase in drawl from national grid, while CPP was increased by Rs. 0.18/kWh as compared to FY 2023-24. It is pertinent to mention that still per unit CPP is higher in both CPPA-G and KE system.

To address the challenges of higher per-unit CPP and to maintain the EPP at the lowest possible level, it is essential to focus on optimizing the generation mix. This entails maximizing the utilisation of existing generation assets while minimizing reliance on costlier fuels. It is also noted that per-unit capacity charges for RE power plants are currently high, regardless of the underlying causes. In FY

2024-25, the per-unit CPP, in CPPA-G system, were recorded for hydro, wind, and solar power at Rs. 9.76/kWh, Rs. 34.55/kWh, and Rs. 32.36/kWh, respectively, reflecting the relatively higher cost of capacity from these renewable sources. Additionally, most new hydropower projects, as well as the initially established, wind, and solar power projects are supplying electricity at rates that pose financial challenges to the power sector.

Efforts to balance the generation portfolio by leveraging cost-effective resources while ensuring optimal asset utilisation will be crucial for achieving an affordable and sustainable electricity supply in the future.

2.1.10 Balancing EPP and CPP: Challenges of RE Integration in Pakistan's Power Sector:

The EPP and CPP are the two core components of electricity generation costs, jointly forming the Power Purchase Price (PPP). While PPP determines consumer bills, the balance between CPP and EPP is especially important for utilities and planners, as it directly affects system affordability, financial sustainability, and long-term reliability.

In most power systems, including Pakistan's, once a plant is commissioned, CPP becomes a fixed obligation payable regardless of dispatch. EPP, by contrast, is incurred only when electricity is generated, making it the controllable portion of PPP through economic dispatch and efficient resource utilisation.

In past years, Pakistan has added substantial new generation capacity particularly RE with the objective of reducing EPP. However, the PPP of several RE plants has exceeded the EPP of many already commissioned "Take or Pay" thermal power plants, including those operating on relatively expensive RLNG and RFO. Data show that many RE projects during FY 2024-25, have supplied electricity at rates up to Rs. 49/kWh, while several thermal plants capable of generating power at Rs. 20-25/kWh in fuel cost remained underutilised. Because RE plants are granted a "Must Run" status, these lower-cost thermal power plants were not dispatched, contributing to a higher overall PPP.

These developments highlight the need for a comprehensive evaluation of dispatch economics, cost implications, and system integration requirements when adding new RE capacity. Ensuring that future RE expansion aligns with system affordability, operational flexibility, and long-term reliability is essential for maintaining a sustainable and secure power sector.

2.1.11 Energy Purchase Price in the Power Sector:

The actual average annual Energy Purchase Price (EPP) for FY 2024-25 stood at Rs. 9.04/kWh, registering a decline from Rs. 9.37/kWh during the corresponding period of the previous financial year. This reduction reflects improved cost efficiency in power procurement operations. Furthermore, the actual EPP remained significantly lower than the projected EPP of Rs. 10.94/kWh for FY 2024-25.

During FY 2024-25, the power sector experienced a notable reduction in electricity procurement from high-cost RLNG and RFO-based generation sources, while witnessing a marginal increase in energy availability from RE resources. In addition, 1,431 GWh of electricity was injected into the grid by net-metering consumers, highlighting increased consumer participation in decentralized renewable energy generation, particularly through rooftop solar installations.

The combined impact of reduced reliance on cost-intensive thermal sources and enhanced contribution from renewable and distributed generation sources played a significant role in lowering the overall energy purchase cost.

2.1.12 Hydrological Dependence and Utilisation of Hydropower:

Hydropower, 11,500 MW, which accounts for a significant share of Pakistan's generation capacity, remains highly dependent on hydrological conditions. Major reservoirs such as Tarbela (4,888 MW)

and Mangla (997 MW), along with run-of-river projects like Ghazi Barotha (1,450 MW), Neelum-Jhelum (969 MW), Warsak, and others are crucial for system stability and seasonal peak supply. In FY 2024-25, hydro generation in the CPPA-G system reached its peak in June 2025, contributing over 5,410 GWh, equivalent to 38.87% of the system's total generation. However, output declined sharply in January 2025, falling to 866 GWh, equivalent to 10.52% of the system's total generation, primarily due to reduced river flows.

For general analysis purposes, the utilisation factor of all combined hydropower plants in Pakistan during FY 2024-25 remained around 39.68% of their installed capacity. The primary reason for the low utilisation factor was unfavorable hydrological conditions, which are beyond the control of the power plants, while several plants (Neelum Jhelum, Jinnah Hydel, Golen Gol Hydropower, Gulpur Hydropower etc.) underperformed due to internal operational issues.

The variability of hydrology poses a significant challenge for the power sector, as fluctuations in water availability require maintaining equivalent backup generation capacity to meet demand when hydropower plants cannot operate at full capacity. To accurately assess the true cost of hydropower generation, it is essential to include the costs associated with its intermittency and reliability risks. This variability often results in hydropower being supplied to the national grid at rates that are comparable to or even higher than those of many thermal power plants, particularly during the plant's debt-servicing.

2.1.13 Wind Energy Dependence and Utilisation of Wind Power:

As of June 30, 2025, the installed capacity of all wind power plants in Pakistan stood at 1,838 MW. Despite this substantial installed capacity, actual electricity generation from these plants remains highly dependent on wind speeds and prevailing meteorological conditions.

During FY 2024-25, the highest monthly generation from all combined wind power plants was recorded in June 2025, reaching 522.02 GWh (3.75% of the system's total generation). In contrast, the lowest monthly generation occurred in November 2024, amounting to 98 GWh (1.20% of the system's total generation).

Overall, the utilisation factor of Pakistan's wind power plants during FY 2024-25 remained at 23.87% of their installed capacity. The primary reason for this relatively low utilisation factor was the variability of wind resources, which are beyond the control of plant operators. Additionally, some plants underperformed due to operational or technical challenges.

The inherent variability of wind presents a major challenge for the power sector. Fluctuations in wind availability require maintaining backup generation capacity to ensure a reliable electricity supply when wind plants cannot operate at full capacity. To accurately evaluate the true cost of wind energy, it is essential to account for costs associated with intermittency and reliability risks. As a result, wind power is occasionally supplied to the national grid at rates comparable to, or even higher than, those of conventional thermal power plants, particularly during the plant's debt-servicing.

2.1.14 Solar Energy Dependence and Utilisation of Solar Power:

As of June 30, 2025, the installed capacity of all solar power plants in Pakistan stood at 780 MW. Despite this substantial installed capacity, actual electricity generation from these plants remains highly dependent on solar irradiance, seasonal variations, and prevailing meteorological conditions.

During FY 2024-25, the highest monthly generation from all combined solar power plants was recorded in March 2025, reaching 140 GWh. In contrast, the lowest monthly generation occurred in November, 2025, amounting to 84 GWh. Within the CPPA-G generation portfolio, solar energy contributed its highest share in March, 2025 at 1.39%, whereas the lowest contribution was recorded in November, 2024 at 0.85%. During FY 2024-25, solar power contributed 0.1% to the country's total electricity generation.

The primary reason for this relatively low utilisation factor was the variability of solar resources, which are beyond the control of plant operators.

The inherent variability of solar power presents a major challenge for the power sector. Fluctuations in sunlight availability require maintaining backup generation capacity to ensure a reliable electricity supply when solar plants cannot operate at full capacity. To accurately evaluate the true cost of solar energy, it is essential to account for costs associated with intermittency and reliability risks. As a result, solar power is occasionally supplied to the national grid at rates comparable to, or even higher than, those of conventional thermal power plants, particularly during the plant's debt-servicing.

It has been observed that several solar IPPs are supplying electricity to the CPPA-G system at significantly higher rates than those offered by net-metering consumers within the same system. This fact needs to be considered when formulating policies for net-metering consumers.

2.1.15 Operational Inefficiencies and System Constraints in the Power Generation Sector:

In addition to the challenges stemming from inadequate planning in expanding generation capacity, several operational inefficiencies persisted in Pakistan's power generation sector during FY 2024-25. Key issues included, operation of combined cycle plants in open cycle mode, delays in maintenance activities, weak fuel supply agreements and arrangements, and underutilisation of low-cost generation sources such as Thar coal and nuclear power plants. These shortcomings raised generation costs, and strained the financial viability of generation companies, as well as the power sector. Moreover, an inadequate and poorly maintained transmission network limited the evacuation of cheaper power, leading to greater reliance on costlier plants. Several power plants have demonstrated poor performance; notable examples include the following:

(a) Suboptimal Utilisation of Indigenous Thar Coal Power Plants

During FY 2024-25, the combined plant utilisation factor of Thar coal-based power plants remained at 67.23%. The EPP structure of these plants is distinct, as it incorporates not only fuel and variable Operation and Maintenance (O&M) expenses but also the fixed costs associated with coal mining operations. Lower utilisation results in these fixed costs being spread over a smaller generation base, thereby increasing the per-unit EPP. Conversely, higher utilisation enables a more efficient allocation of fixed costs, reducing the EPP and enhancing overall economic performance. Moreover, as Thar coal is an indigenous resource, its optimal utilisation also alleviates pressure on the national exchequer by conserving foreign exchange reserves.

Given the ongoing load-shedding and under-dispatch of these facilities, all relevant entities including the System Operator, NGC, DISCOs, and the Ministry of Energy (Power Division) must ensure the maximum utilisation of Thar coal-based generation capacity.

Maximizing the use of Thar coal plants will lower generation costs, reduce dependence on imported fuels, and strengthen the sustainability and resilience of Pakistan's power sector.

(b) Thar Coal: A Strategic Indigenous Energy Resource

Thar coal, as a locally available and cost-effective resource, plays a vital role in Pakistan's power generation by reducing reliance on imported fuels, easing pressure on foreign exchange reserves, and supporting economic stability. Power plants running on Thar coal rank higher in the EMO, achieving better utilisation compared to those dependent on imported fuels.

The 660 MW Lucky Electric Power Plant (LEPL), near Karachi, was commissioned to run on Thar coal but, due to mine development delays, was allowed to operate on imported coal. LEPL achieved commercial operations on March, 2022. Continued unavailability of Thar coal has led to significant underutilisation, with utilisation factors over the last three years (FY 2022-23, FY 2023-24, and FY 2024-25) at 57%, 29% and 19%, respectively.

This reliance on imported coal results in higher generation costs, increased tariffs, and added pressure on foreign exchange reserves. Additionally, LEPL's "Take or Pay" tariff structure raises the per-unit CPP when utilisation is low, straining the power sector's efficiency.

Ensuring a regular supply of Thar coal and establishing reliable railway transport from Thar mines to LEPL is critical to optimize plant utilisation, lower costs, and maximize the economic benefits of this indigenous resource.

(c) Nuclear Power Plants

During FY 2024-25, the combined plant utilisation factor of nuclear power plants remained at 70.80%. It is noteworthy that the per-unit EPP of nuclear power plants is very low, ranging from Rs. 1.95/kWh to Rs. 2.72/kWh in the CPPA-G basket. Consequently, underutilisation of nuclear power plants adversely impacts both the EPP and the overall tariff, as these plants supply power to CPPA-G on a "Take or Pay" basis.

Given the ongoing load-shedding and under-dispatch of these facilities, it is imperative that all relevant stakeholders including the System Operator, NGC, DISCOs, and the Ministry of Energy (Power Division) take coordinated measures to ensure the maximum utilisation of nuclear generation capacity.

Maximizing the use of nuclear plants will not only reduce generation costs and dependence on imported fuels but also enhance the sustainability, efficiency, and resilience of Pakistan's power sector.

(d) 747 MW Guddu Power Plant

The continued operation of the Guddu 747 MW power plant in open-cycle mode since 2022 has resulted in significant operational and financial inefficiencies. Operating in open cycle substantially reduces thermal efficiency, causing more indigenous gas to be consumed per unit of electricity generated and thereby wasting valuable fuel resources. Consequently, the plant's generation has remained well below its potential, while the cost of production has risen sharply which for open-cycle generation being approximately 1.5 times higher than for combined-cycle operation. This situation has created a dual financial burden, higher direct generation costs at Guddu and increased marginal fuel expenses across the power system, as the shortfall is met through costlier plants. Had the plant been operating in combined-cycle mode during FY 2024-25, savings of approximately Rs. 8.46 billion could have been realized. Furthermore, reduced output from Guddu necessitated greater reliance on expensive generation sources, leading to an additional loss of about Rs. 29.82 billion during the same period. Cumulatively, from 2022 through the end of FY 2024-25, losses attributable to open-cycle operation are estimated at Rs. 25.84 billion, while the corresponding system-wide losses from increased dependence on high-cost plants have exceeded Rs. 90.16 billion.

(e) Neelum Jhelum Hydropower Project

The Neelum-Jhelum Hydropower Project (NJHP) in Azad Jammu and Kashmir has faced a troubled operational history since its 2018 commissioning. Frequent technical failures, costly repairs, and prolonged outages have prevented it from reaching its expected annual output of 5,100 GWh.

In mid-2022, a tailrace tunnel collapse forced a shutdown. Repairs costing Rs. 6.60 billion allowed the plant to resume in August, 2023, briefly reaching its full 969 MW capacity in March, 2024. However, pressure drops in the headrace tunnel in May, 2024 prompted another shutdown due to structural concerns. Inspections confirmed significant tunnel damage requiring extensive restoration. As of mid-2025, NJHP remains offline, with repairs and investigations ongoing. The government projects at least two more years of downtime and has formed a judicial commission to probe design, construction, and oversight flaws.

Originally estimated at Rs. 84 billion, the project's cost has ballooned to over Rs. 420 billion. Auditor General and independent reports cite lapses in engineering, procurement, contract

management, and geological risk assessment. Frequent outages have disrupted power supply, increased reliance on costly thermal energy, and strained the national grid.

A major impact of the unavailability of the NJHP during FY 2024-25 was that the electricity it could have generated being a hydro-based source with no fuel cost had to be replaced by generation from more expensive, fuel-based power plants. Based on the benchmark annual generation of 5,126 GWh and the average marginal cost of generation in FY 2024-25, this led to an estimated financial loss of Rs. 71.05 billion during the year. Moreover, the energy that could have been produced by the NJHP would have helped conserve Pakistan's foreign exchange reserves by reducing the need for imported fuels.

It is important to note that electricity consumers have paid Rs. 75.50 billion under the Neelum-Jhelum surcharge, yet due to inefficiencies and mismanagement, this money has not translated into any tangible benefit for them.

(f) Golen Gol Hydropower Project

The performance of the Golen Gol Hydropower Project (108 MW) remained below expectations during FY 2024-25. Against its benchmark annual energy generation of 436 GWh, the plant generated only 194.64 GWh. Based on the benchmark generation level and the average marginal cost of generation during FY 2024-25, this under performance resulted in an estimated financial loss of Rs. 5,283 million for the year. In addition to the financial impact, the reduced generation also represented a missed opportunity to conserve Pakistan's foreign exchange reserves, as higher hydropower output would have decreased the reliance on imported fuels.

(g) Jinnah Hydropower Project

The performance of the Jinnah Hydropower Project (96 MW) remained below expectations during FY 2024-25. Against its benchmark annual energy generation of 688 GWh, the plant achieved an actual generation of only 135.65 GWh. Considering the benchmark generation and the average marginal cost of generation during FY 2024-25, this shortfall translated into an estimated financial loss of Rs. 12,703 million for the year.

(h) Gulpur Hydropower Project

The performance of the Gulpur Hydropower Project (100 MW) remained below expectations during FY 2024-25. Against its benchmark annual energy generation of 465 GWh, the plant achieved an actual generation of only 175.65 GWh. Considering the benchmark generation and the average marginal cost of generation during FY 2024-25, this shortfall translated into an estimated financial loss of Rs. 6,715 million for the year.

2.1.16 Electricity Supply Rates of RE Plants in CPPA-G System:

During the debt service period, electricity supply rates from RE power plants were, at times, significantly higher than those of many base-load power plants, thereby impacting consumer-end tariffs. In FY 2024-25:

(a) **Solar Power:** A total of three (03) solar power plants, with a combined capacity of 300 MW, supplied electricity at rates exceeding Rs. 40/kWh. An additional three (03) solar power plants, totalling 130 MW, supplied electricity at rates around Rs. 30/kWh.

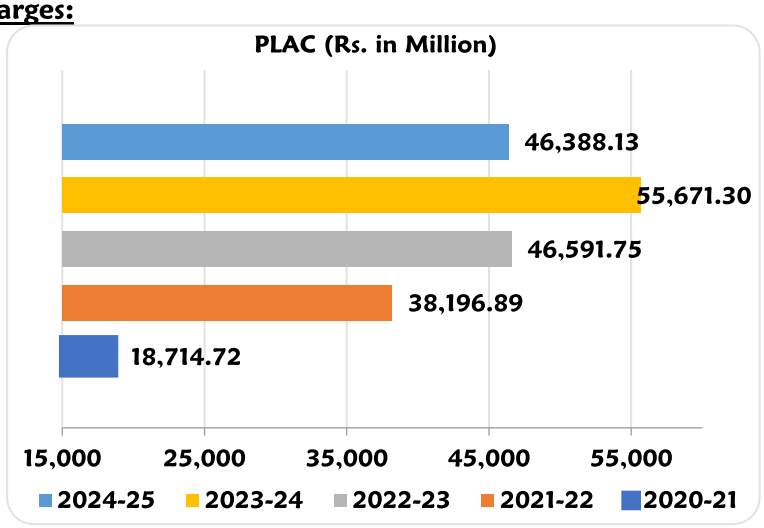
(b) **Wind Power:** During the same period, seven (07) wind power plants, with a combined capacity of 402 MW, supplied electricity at rates exceeding Rs. 40/kWh. An additional ten (10) wind power plants, totalling 500 MW, supplied electricity at rates above Rs. 30/kWh.

(c) **Hydropower:** Similarly, two (02) hydropower plants, with a combined capacity of 964 MW, supplied electricity at rates exceeding Rs. 30/kWh. An additional two (02) hydropower plants, totalling 860 MW, supplied electricity at rates above Rs. 20/kWh.

This analysis highlights the variability in RE tariffs during FY 2024-25 and underscores their influence on overall electricity pricing for end consumers.

2.1.17 Part Load Adjustment Charges:

PLAC arise when power plants operate below optimal capacity, reducing efficiency and increasing production costs, which are passed on to consumers through the Fuel Price Adjustment (FPA). Under PPAs, power producers can claim PLAC when not running at full capacity, creating an avoidable financial burden on the energy sector. In FY 2024-25, PLAC is stood at Rs. 46.39 billion, down from Rs. 55.67 billion in FY 2023-24.



It is noted that the PLAC for several power plants have not been included in the figures presented above, as their PPAs are yet to be finalized in this regard. Once these charges are finalized, the total PLAC amount is expected to increase further.

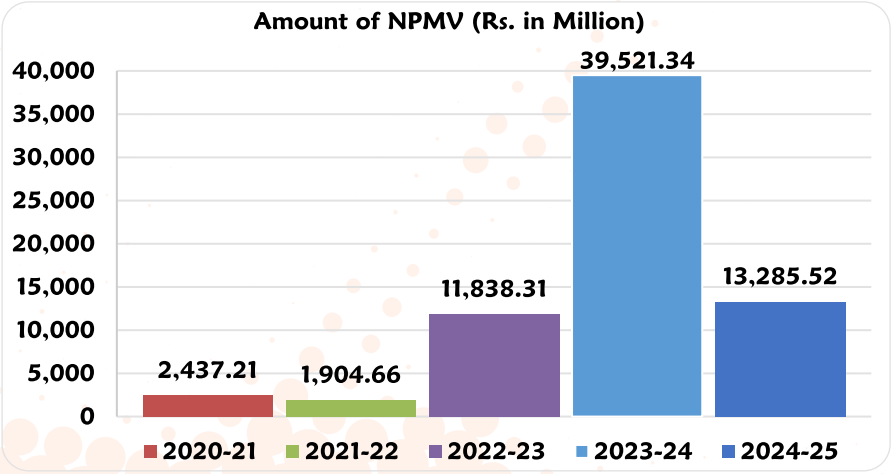
Although the PLAC for FY 2024-25 has decreased compared to FY 2023-24, it could have been further reduced through more efficient demand-side management. Strategies such as optimizing consumption during peak hours under the Time-of-Use (ToU) tariff structure, introducing peaking power plants. Adopting Battery Energy Storage System (BESS), and promoting merchant power plants could help achieve this. Implementing demand-side measures can significantly lower PLAC by better aligning electricity demand with generation. By synchronizing consumption with plant operation, these measures reduce the economic impact of underutilised power plants.

2.1.18 Non-Project Missed Volume:

Non-Project Missed Volume (NPMV) refers to the potential energy that could have been generated but was not, due to factors beyond the control of the power producer, such as grid constraints, scheduled maintenance, or other system issues.

A major contributor to NPMV is inadequate transmission infrastructure and poor grid connectivity, which leads to significant unused potential, undermining the effectiveness of RE initiatives and increasing electricity costs through NPMV-related payments.

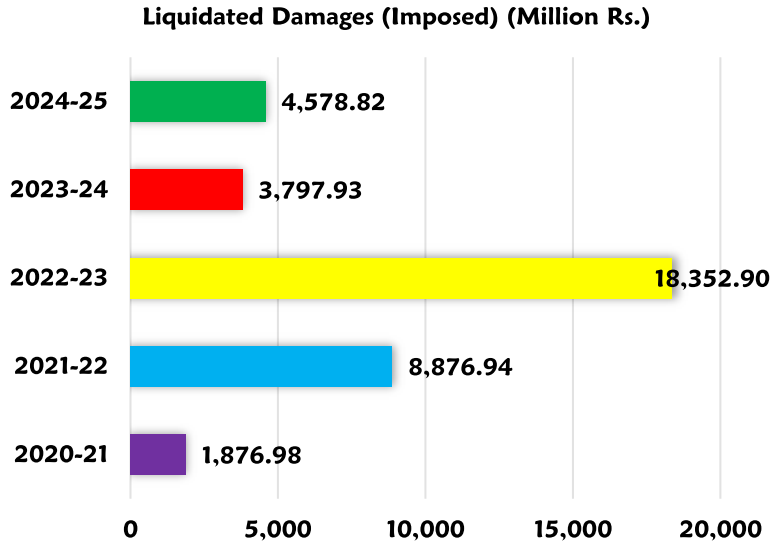
In FY 2024-25, NPMV totalled Rs. 13,285.52 million, down from Rs. 39,521.34 million in FY 2023-24. In principle, NPMV resulting solely from transmission or distribution constraints will be charged by CPPA-G to the responsible transmission companies and DISCOs, rather than being passed on to consumers.



2.1.19 Liquidated Damages:

Power plants operating in Pakistan under "Take or Pay" arrangements are bound by specific performance obligations under their PPAs. Failure to meet the guaranteed parameters results in the imposition of Liquidated Damages (LDs). Ideally, LDs should adequately compensate for the financial losses incurred due to such non-performance. However, the current LD rates are often insufficient to cover these losses. Therefore, future PPAs should ensure that LD provisions are aligned with the actual economic impact of performance shortfalls.

During FY 2024-25, CPPA-G imposed Rs. 4,578.82 million in LDs on various IPPs and public sector plants. The total amount of LDs imposed over five years (FY 2020-21 to FY 2024-25) were Rs. 37,483.57 million. However, recoveries remained limited, Rs. 7,835.01 million till FY 2024-25, as many entities contested these penalties through prolonged legal and arbitration processes. Such disputes delay recoveries, increase administrative costs, and weaken contractual enforcement.



To strengthen compliance, the contractual agreement framework may be designed such that payment of invoiced LDs is mandatory for licensees, with the option to subsequently challenge the imposition through appropriate legal or regulatory forums. Any adjustments arising from final, binding decisions can then be settled accordingly.

Enhancing LD enforcement mechanisms and ensuring timely recovery would promote operational discipline, improve financial accountability, and contribute to a more reliable and cost-efficient power sector.

2.2 TRANSMISSION SECTOR

At present, Pakistan's transmission system remains one of the weakest component of the power sector, primarily due to deficiencies in planning, coordination, and project execution. Although major initiatives such as the Matiari-Lahore HVDC line have been completed, the line remains underutilised while consumers continue to bear the cost of its full capacity. Similarly, the long-delayed interconnection between KE and NGC systems has resulted in substantial financial losses during FY 2024-25 and the inefficient utilisation of national generation resources. The SCADA-III project, aimed at modernising system monitoring and control, has also faced significant delays, further limiting operational efficiency. Overall, the transmission network suffers from inadequate north-south transfer capacity, high technical losses, and ageing infrastructure. Chronic underutilisation of various assets within NGC underscores persistent weaknesses in planning and execution. These systemic inefficiencies not only restrict optimal power flow from generation-rich southern regions to northern demand centres but also compel reliance on costlier generation sources ultimately driving up tariffs and undermining the sustainability of Pakistan's power sector.

2.2.1 Project Execution Delays in Transmission Sector:

Delays in project execution remain a persistent challenge across several major initiatives in the transmission sector. These delays not only impede the timely expansion of transmission capacity but also undermine system reliability, operational efficiency, and the affordability of electricity for consumers. Prolonged implementation timelines create bottlenecks in power evacuation, increase

reliance on high-cost generation, and defer the realization of critical system-strengthening benefits. A comprehensive list of delayed projects is provided in the relevant chapter; however, a few key projects of particular strategic importance are highlighted below for emphasis.

(a) Challenges in South-to-North Power Transfer

Significant transmission limitations continue to restrict the evacuation of low-cost generation from the southern region to high-demand northern load centres. The 500 kV Lahore North Grid Station has faced substantial delays and remains incomplete, constraining the transfer capacity of existing 500 kV Jamshoro and Matiari circuits. As a result, the 4,000 MW HVDC Matiari-Lahore Line remains underutilised, necessitating greater reliance on high-cost RFO and RLNG-based generation. These delays not only increase electricity tariffs and reduce overall system efficiency but also undermine the financial viability of the power sector, with broader adverse impacts on economic activity and growth nationwide.

(b) Delay in SCADA-III Project

The SCADA-III modernization project, launched to enhance real-time grid monitoring and control, has been delayed by nearly three years and remains incomplete. Timely completion is essential to strengthen ISMO's operational control and ensure more reliable system dispatch. Similar to other NGC projects, this delay highlights persistent weaknesses in NGC's project execution and management.

(c) Delay in 500 kV K2/K3-Port Qasim Transmission Line

The dedicated 500 kV K2/K3-Port Qasim line, intended to evacuate nuclear generation from the K2/K3 plants, was originally scheduled for completion in April, 2022 but has been delayed by over three years. NGC was unable to complete the project during FY 2024-25 as well. This prolonged delay has exposed the power system to significant reliability risks and incurred financial losses.

(d) Inadequate NGC-KE Interconnection

The 500/220 kV KKI Grid Station, along with the KKI-K2/K3 and KKI-Port Qasim lines, is vital for strengthening inter-regional power exchange and enabling the import of lower-cost energy from the CPPA-G pool into the KE system. Since electricity generation from KE's own fleet is considerably more expensive than imports from CPPA-G, the timely completion of this project was critical. However, the project was not completed by the end of FY 2024-25, highlighting inefficiencies within NGC that have adversely affected the power sector's cost-effectiveness and operational efficiency during the same period.

2.2.2 Underutilisation of HVDC Line:

The 660 kV HVDC Matiari-Lahore Transmission Line, spanning 886 km with a transfer capacity of 4,000 MW, was commissioned to transmit cost-effective power primarily from coal and nuclear sources from southern to central Pakistan. However, during FY 2024-25, its utilisation remained below expectations. The average annual utilisation FY 2024-25, of the HVDC line stood at 35.04%, with an average loading of 1,401 MW against its rated capacity of 4,000 MW. The highest utilisation was recorded in July, 2024 (55.12%), followed by August, 2024 (45.73%) and June, 2025 (45.33%), coinciding with the summer peak demand period. Conversely, the lowest utilisation occurred in November, 2024 (19.99%) and February, 2025 (23.00%), reflecting reduced winter demand across the system. Despite its strategic importance for the economic evacuation of power from the south, the PMLTC HVDC system continues to face operational challenges, particularly insufficient AC network support, leading to persistent under-utilisation of this key transmission corridor.

The utilisation factor of the HVDC transmission line over the last three FY 2022-23, FY 2023-24, and FY 2024-25 was 39.60%, 38.00%, and 35.04%, respectively. Despite this partial utilisation, consumers were billed for the full 100% capacity. The total invoiced amount for the HVDC line during these fiscal years was Rs. 73.3 billion, Rs. 97.83 billion, and Rs. 109.33 billion, respectively.

2.2.3 Transmission Tower Collapse Incidents:

Over the past five years, transmission tower collapse incidents across NGC and KE networks have reflected both the operational challenges of managing geographically diverse infrastructure and the gradual improvements in the overall network resilience.

Between FY 2020-21 and FY 2024-25, NGC recorded notable fluctuations, particularly in its southern regions more exposed to windstorms, cyclones, and flooding. Incidents rose from 11 in FY 2020-21 to a peak of 33 in FY 2022-23, before declining sharply to 09 in FY 2024-25. The North Region experienced fewer but more variable incidents, ranging between 02 and 09. Overall, NGC's total tower collapses peaked at 42 in FY 2022-23 and decreased to 16 in FY 2024-25, indicating a positive trend in structural stability.

KE, by comparison, exhibited a relatively lower and more stable frequency of incidents, with collapses declining from 15 in FY 2020-21 to 02 in FY 2021-22, and fluctuating slightly to 04 in FY 2024-25.

2.2.4 Filing of NGC Tariff on Coincidental Basis:

Historically, the NGC submitted its petitions for determination of Use of System Charges (UoSC) before NEPRA based on the Non-Coincidental Maximum Demand Indicator charging each DISCO according to its individual peak demand, regardless of whether that peak coincided with the national or system peak. While this approach was practical in earlier years due to data constraints, it did not accurately reflect the simultaneous load imposed on the transmission network.

To address this limitation, NEPRA has consistently directed NGC to transition to a Coincidental MDI (CMDI) framework, aligning demand charges with the true system peak load. This shift promotes fair cost allocation, efficient network utilisation, and greater transparency in transmission pricing.

In FY 2024-25, though delayed, NGC filed its first UoSC petition based on the CMDI methodology for control period FY 2022-23 to FY 2024-25, following the successful completion of the CMDI Implementation Project, which established a real-time smart metering infrastructure for accurate system-wide data acquisition and analysis.

Under the CMDI regime, each DISCO's demand is measured at the time of the system-wide peak, accurately capturing its contribution to overall network loading.

2.2.5 Standard Operating Procedures for Integration and Central Dispatch Coordination between KE and the System Operator:

The legal and policy framework comprising the NEPRA Act, the National Electricity Policy, the National Electricity Plan, and the Grid Code unequivocally mandates the establishment of a single licensed System Operator responsible for centralized system operations and integrated planning of the entire national grid encompassing both the NGC and KE regions.

Historically, independent system operations and planning by KE have resulted in suboptimal cost savings and have adversely affected least-cost generation planning and efficient system operations.

It is noted that the annual average generation cost (EPP) of KE generation fleet during FY 2024-25 stood at Rs. 23.36/kWh, whereas the annual average generation cost (EPP) of the CPPA-G fleet during the same period was Rs. 9.04/kWh, significantly lower than that of KE's generation fleet.

To enhance dispatch efficiency, reduce overall system operating costs, and ensure compliance with the statutory framework, the Authority, through its determination dated May 26, 2025, in the matter of the CTBCM Integration Plan of KE, has directed that the KE region be brought under central dispatch by the System Operator licensed under Sections 23G and 23H of the NEPRA Act.

Accordingly, KE and the System Operator are required to jointly finalize and implement a Standard Operating Procedure (SOP), consistent with the Grid Code, to govern coordinated scheduling, dispatch, data exchange, and system visibility in order to ensure cost effective power system in the country. The SOP must ensure real-time operational coordination, SCADA integration, and the establishment of a unified national economic merit order.

The SOP shall enable the integration of KE's generating units as Centrally Dispatched Generating Units and ensure the uniform application of the EMO across the national grid. The timely finalization and operationalization of this SOP remain a regulatory priority, critical for achieving a unified, transparent, and economically optimized dispatch regime across Pakistan's power system.

2.2.6 Approval of Revised Investment Plan of NGC:

In accordance with Section 32 of the NEPRA Act, 1997, and the Guidelines for Determination of Revenue Requirement and UoSC for Transmission Licensees, 2017, the Authority has approved the investment plan and loss assessment of the NGC for three-year tariff control period spanning FY 2022-23 to FY 2024-25. A summary of the approved investments is presented below:

(Rs. Million)

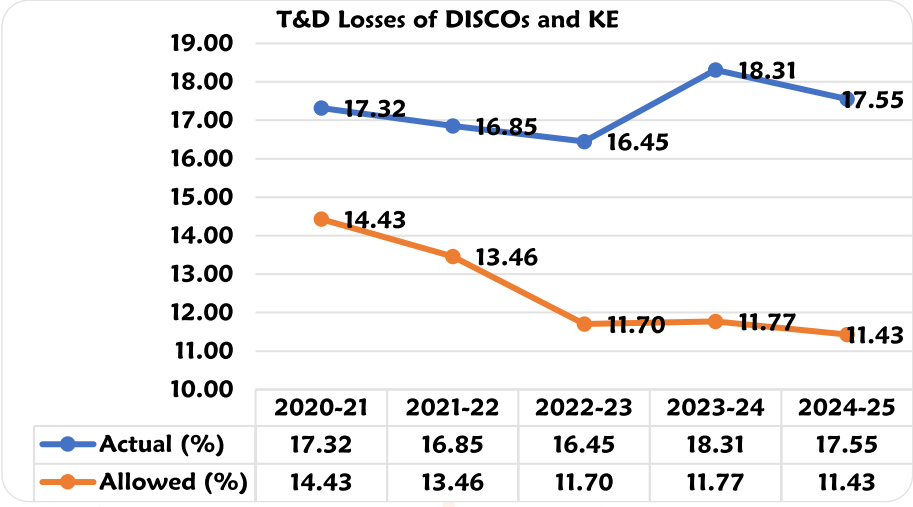
Description/Head	FY 2022-23	FY 2023-24	FY 2024-25	Total
Special Economic Zones	2,334	16,563	5,053	**23,950**
PSDP Funded Ongoing Works	101,813	91,388	76,965	**270,166**
PSDP Funded New Works	648	414	37,765	**38,827**
Self-Financed Ongoing Works	10,467	4,031	700	**15,198**
PSDP Funded Completed Works	1,594	32	0	**1,626**
Foreign Funded Completed Works	1,659	696	200	**2,555**
Grand Total Allowed	**118,515**	**113,124**	**120,683**	**352,322**
3rd Party Audit Fee	66.66	66.66	66.66	**200.00**

Source: NEPRA

2.3 DISTRIBUTION AND SUPPLY SECTOR

2.3.1 Transmission and Distribution Loss Targets:

Excessive T&D losses remain a major driver of circular debt. For FY 2024-25, DISCOs had an average allowed loss target of 11.43%, yet actual losses reached 17.55%, creating an unrecovered financial burden of approximately Rs. 265 billion that directly added to circular debt.



	2020-21	2021-22	2022-23	2023-24	2024-25
Actual (%)	17.32	16.85	16.45	18.31	17.55
Allowed (%)	14.43	13.46	11.70	11.77	11.43

This persistent gap highlights systemic inefficiencies, including outdated infrastructure, underinvestment in loss reduction, weak anti-theft enforcement, and governance shortcomings. While some DISCOs have shown marginal improvements, most continue to exceed their targets, undermining sectoral sustainability and eroding consumer confidence as inefficiencies are ultimately socialized through higher tariffs and fiscal pressures.

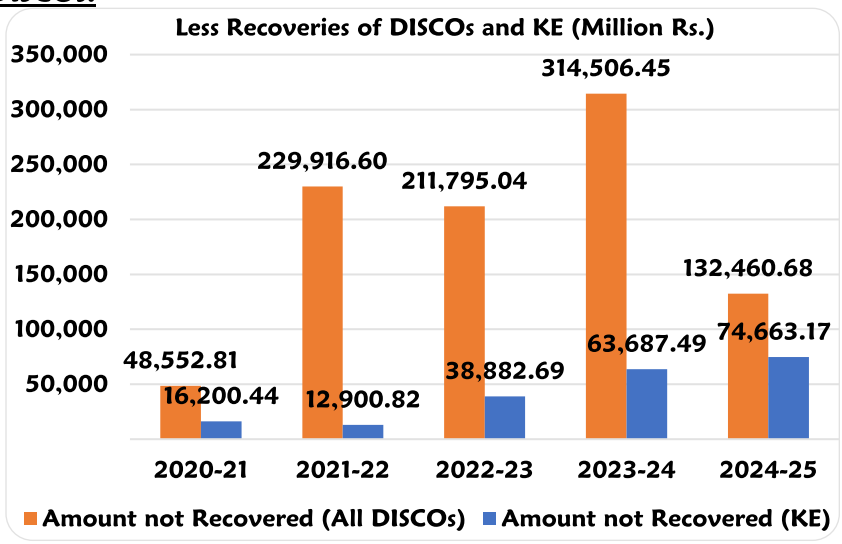
It is also observed that, instead of improving governance and management systems to reduce T&D losses, the DISCOs tend to issue detection bills to a large number of consumers often without

adhering to the provisions of the CSM. They issue inflated bills based on average units and record extraordinary units against government or inactive connections, which may superficially show lower T&D loss figures but ultimately lead to lower recoveries and higher receivables, while also causing social unrest among consumers who receive electricity bills exceeding their actual consumption. To address this, DISCOs must implement time-bound loss reduction plans with measurable milestones. Any losses beyond regulatory targets should be absorbed by the companies themselves, not passed on to consumers or added to circular debt. Boards and management of underperforming DISCOs will be held accountable under performance-linked frameworks. Additionally, independent annual audits of losses, billing systems, and anti-theft measures will be conducted and publicly disclosed to ensure transparency.

Reducing technical and commercial losses to international best-practice levels is critical for the sector's sustainability. Without concrete improvements, excessive T&D losses will continue to fuel circular debt and threaten the stability of the power sector.

2.3.2 Less Recoveries of DISCOs:

Weak recovery performance is another major contributor to circular debt. For FY 2024-25, DISCOs achieved an overall recovery rate of 96.62% against the allowed 100%, resulting in an estimated Rs. 132.46 billion shortfalls. Some DISCOs in high-loss regions recorded recoveries as low as 39%, severely undermining sectoral financial sustainability.



The practice of issuing electricity bills with incorrect readings is a major driver of non-payment, leading to lower recoveries for the DISCOs. Many DISCOs routinely generate thousands of detection bills for units exceeding those recorded on meters, and even bill extraordinary units against certain government and inactive connections accounts that cannot reasonably be paid. This approach ultimately results in lower recovery ratios and higher receivables.

This shortfall reflects inadequate billing and collection practices, weak enforcement against defaulters, external interference, and limited coordination with provincial governments. These inefficiencies impose a dual burden: the government must provide subsidies or arrange borrowings, while honest consumers face higher stood to cover non-recoveries.

Enhancing recoveries requires robust enforcement, strict accountability of DISCO management, and strengthened collaboration with provincial authorities, particularly regarding government-sector defaults. Any shortfall below allowed benchmarks should be borne by DISCOs, not consumers or circular debt. Boards and CEOs will be held directly responsible for persistent underperformance. Modern billing systems, including digital platforms and pre-paid meters, must be fast-tracked to improve transparency and efficiency.

2.3.3 Circular Debt – Stock, Flow, and Accumulation:

While determining the consumer-end tariff, NEPRA ensures that the revenue requirements of all entities in the power supply chain are adequately covered. Therefore, it can be stated that if NEPRA's determined tariff is fully implemented and all sector entities meet the performance targets prescribed

by the regulator, the financial obligations of each entity in the supply chain would be met, and the issue of circular debt would not arise.

However, in practice, several power sector entities are unable to achieve the operational and financial targets set by NEPRA due to systemic inefficiencies, including weak governance, poor recovery performance, and high technical and commercial losses. Consequently, these entities fail to recover sufficient revenue from consumers to meet their payment obligations, leading to the emergence and accumulation of circular debt.

As of June 30, 2025, the circular debt stock in Pakistan's power sector stood at approximately Rs. 1.614 trillion, reflecting the continued impact of these inefficiencies on the sector's financial sustainability. This circular debt a year before i.e. on June 30, 2024 was Rs. 2.393 trillion, meaning thereby it decreases by Rs. 780 billion during one year.

This is not the first instance where the power sector has witnessed an abrupt reduction in circular debt over a short period of one year; similar trends have been observed previously. Both the current and past declines in circular debt primarily stem from external financial injections into the power sector rather than from structural improvements.

During FY 2024-25, DISCOs contributed to the circular debt through inefficiencies in two major areas T&D losses, and low recovery ratios adding approximately Rs. 265 billion and Rs. 132 billion, respectively. Surprisingly, despite these inefficiencies during the FY 2024-25, the overall circular debt figure decreased in comparison to past year.

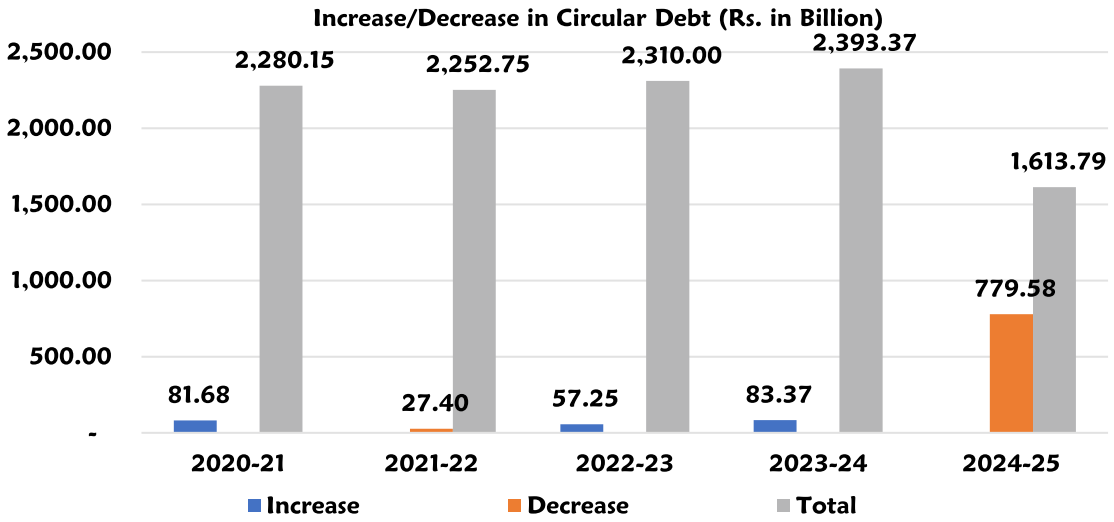
This reduction is attributable to the Government of Pakistan securing in commercial financing to retire the liabilities of the Power Holding (Pvt.) Limited (PHPL) and clear arrears owed to IPPs. While this intervention temporarily lowered the circular debt figure, it did not address the underlying inefficiencies in the sector.

To service the cost of this borrowing undertaken to manage the inefficiencies of power sector entities the majority of electricity consumers, except for a few protected domestic categories, are now required to pay an additional Rs. 3.23/kWh under the Debt Service Surcharge (DSS) for the next many years. This Rs. 3.23/kWh payment effectively shifts the burden of sector inefficiencies onto consumers and represents a significant cost, likely the third-largest standalone component of the end-consumer tariff, after the CPP and the EPP.

It is important to note that the only private sector distribution company, KE, has not contributed to the circular debt. KE absorbs the financial impact of its higher T&D losses and lower recoveries instead of passing them on to consumers. Nevertheless, KE consumers are still subject to the DSS, despite their company's non-contribution to the circular debt. KE has collected and remitted Rs. 35.76 billion from its consumers under the DSS to the Government of Pakistan/CPPA-G.

Had these public sector DISCOs been privatized in line with the strategic plan of 1992, the trillions of rupees in losses could have been avoided, and electricity consumers would have enjoyed better service. However, the question of why these DISCOs have not been privatized even after more than two decades needs careful analysis, as the challenges to privatization persist and will not resolve on their own. Nevertheless, with well-designed strategies and firm commitment, these challenges can be addressed, making privatization both a feasible and beneficial objective.

Given the ongoing structural inefficiencies and historical performance of DISCOs, there is little reason to expect that circular debt accumulation can be sustainably controlled or that the power sector will see lasting improvements under the current system.

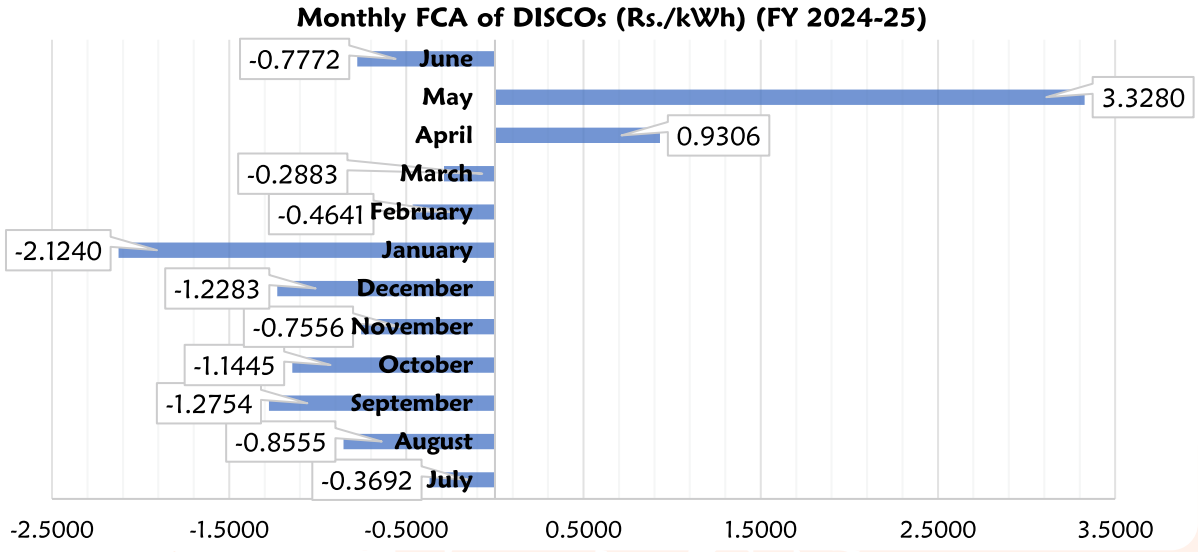


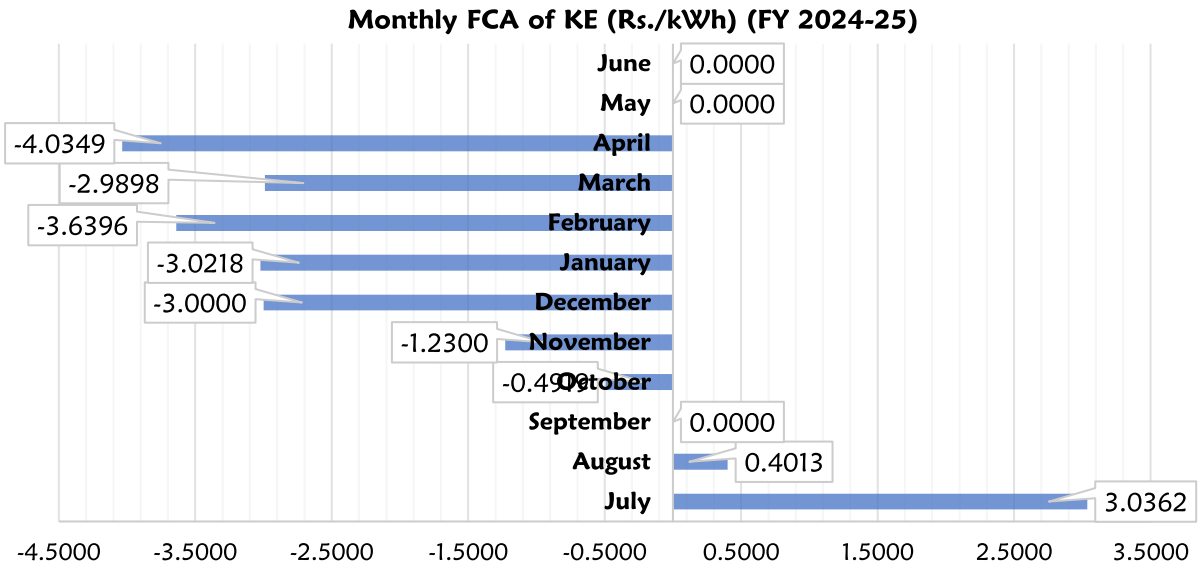
2.3.4 Monthly Fuel Charges Adjustments of DISCOs and KE:

In accordance with Section 31(7) (iv) of the NEPRA Act, 1997, the Authority is mandated to adjust the approved base tariff for fuel price variations on a monthly basis, within a seven-day period. This adjustment is important to reflect the fluctuations in fuel costs and their impact on the generation cost of electricity.

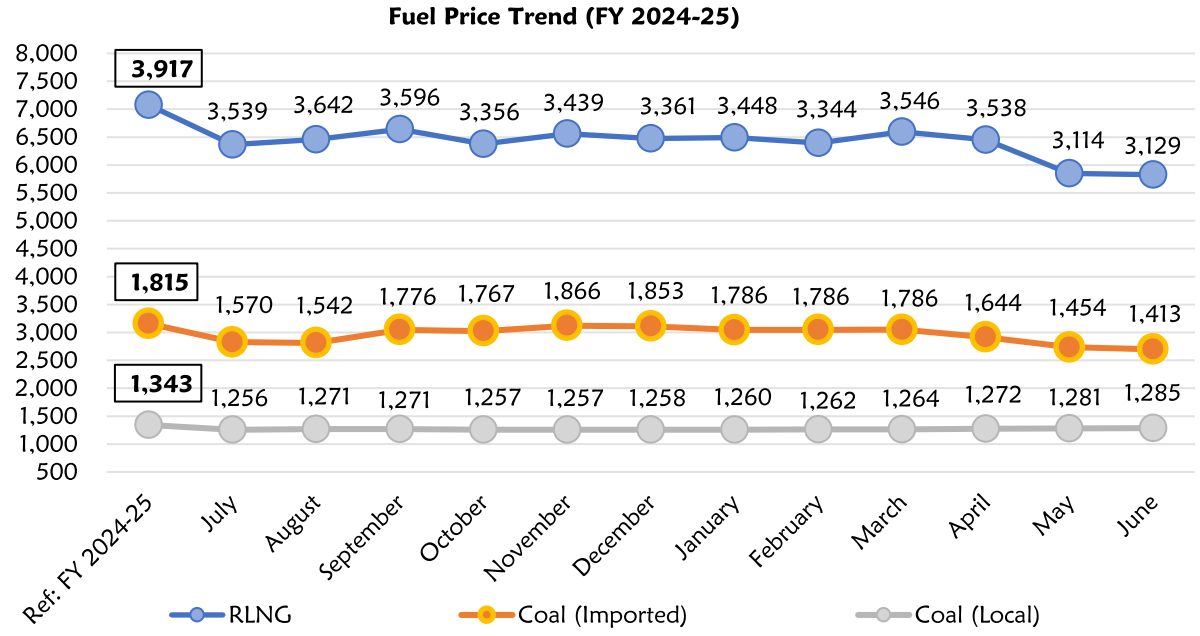
The Authority approved the power purchase price based on projected electricity generation and expected fuel prices for different sources. These projections are adjusted later to reflect actual figures, with any changes whether increases or decreases passed on to consumers as monthly fuel charge adjustments.

The adjustment process calculates the fuel charge for each DISCO based on their specific energy purchases, including those from the CPPA-G, bilateral contracts (CPP and SPP), and net-metering. According to the uniform tariff rules set by the NEPRA Act and the National Energy Policy, NEPRA determines a National Average Uniform Fuel Charge Adjustment (FCA), which applies to all consumers except lifeline consumers. FCA for KE is determined separately. The monthly FCA for the CPPA-G and KE systems for the FY 2024-25 are given in the following two graphs:





The month-by-month trend of fuel prices for RLNG (Rs. million/MMBTU), Imported and Local Coal (Rs. million/metric ton) is presented in the following graph:



Together, these graphs provide a clear overview of the factors affecting power pricing. They help stakeholders understand how fuel costs impact consumers and encourage more informed discussions about energy pricing and policy.

2.3.5 Privatization of DISCOs:

DISCOs remain the weakest link in the electricity supply chain, constraining operational performance and undermining financial sustainability. Chronic inefficiencies including high technical and commercial losses, incomplete metering, and persistent under-recoveries have perpetuated circular debt and eroded sectoral discipline. Nearly three decades after unbundling, most DISCOs are still Government owned, administratively managed, and commercially fragile.

One of the primary objectives of the reform plan initiated in the 1990s was to reduce government control over power entities. However, for reasons known only to the concerned authorities, this objective remains unfulfilled. Consequently, government-run power entities continue to

underperform, draining national resources, hampering economic growth, and exacerbating the hardships of ordinary citizens. Had these companies been privatized as originally envisioned in the reform plan, many of the persistent challenges and inefficiencies in the power sector experienced in the past and still evident today could have been avoided.

It is worth noting that KE, which was privatized in 2005, has significantly reduced its losses from around 40% in FY 2005-06 to 14.73% in FY 2024-25, demonstrating the potential benefits of privatization in improving operational efficiency and financial sustainability.

The ongoing privatization of IESCO, FESCO, and GEPCO represents a necessary corrective step. These transactions must be executed transparently, with clear reallocation of legacy liabilities and enforceable performance benchmarks. However, privatization should be viewed as a means to enhance competition, drive efficiency, and reduce fiscal dependence not an end in itself.

Smaller and financially constrained DISCOs, such as PESCO and SEPCO, require alternative solutions, including management contracts, performance-based concessions, or franchised operations, to achieve to enhance efficiency and service quality. Lasting improvements depend on market-driven incentives and competition rather than administrative directives.

2.3.6 Need for Dynamic Distribution Investment Plans:

In accordance with Section 32 of the NEPRA Act and Regulation 14 of the NEPRA Licensing (Distribution) Regulations, 2022, DISCOs are required to submit five-year Distribution Investment Plans (DIPs) for regulatory approval. The Authority has already approved multi-year investment plans for LESCO, FESCO, and IESCO covering FY 2023-24 to FY 2027-28. During the reporting period, all other DISCOs, except HAZECO, submitted their respective multi-year DIPs. HAZECO, being a newly established entity carved out of PESCO, submitted a single-year plan. A review of the submitted DIPs revealed several critical issues:

(a) **Overly Optimistic Demand Projections:** Most DISCOs based their investment proposals on anticipated demand growth rates between 2.4% and 6%, despite a consistent decline in actual demand in recent years.
(b) **Data Inaccuracies:** In multiple cases, input data was found to be inaccurate or inconsistent with on-ground realities.
(c) **Underutilised Infrastructure:** Many grids and sub-transmission lines have recorded average loading below 50% over the past three years. Nevertheless, several DISCOs proposed additional expansion projects without adequate due diligence or consideration of existing underutilised assets.

Given these shortcomings, the Authority found it challenging to approve the DIPs in their current form. Consequently, NEPRA conducted extensive technical reviews and site inspections to verify the authenticity of the proposed investments and underlying assumptions. Following this exercise, most DISCOs agreed to revise their DIPs for further regulatory processing.

To ensure the efficient utilisation of national resources, it is imperative that future investment plans are realistic, data-driven, and aligned with actual system requirements. Properly structured and validated DIPs will enable the power distribution sector to become more efficient, responsive, and sustainable ensuring that every investment is both necessary and impactful.

2.3.7 Advanced Metering Infrastructure Rollout:

During FY 2024-25, the DISCOs submitted their five-year distribution investment plans for the period FY 2024-25 to FY 2029-30 for approval by the Authority. For LESCO, FESCO, and IESCO, the Authority had already approved their Multi-Year Tariff (MYT) up to FY 2027-28. During FY 2024-25, all DISCOs approached NEPRA seeking approval for investment in the installation of Advanced Metering Infrastructure (AMI) meters across Pakistan.

It has been observed that in several areas where Automatic Meter Reading (AMR) or AMI meters were installed in limited numbers, the installations were not fully prepared or integrated to achieve the intended objectives. In many DISCOs, cases of "mute meters" were also reported. NEPRA has highlighted these issues to the respective DISCOs, and further inquiries into the matter are currently underway.

While the initiative is commendable, it is essential that a comprehensive roadmap be defined and shared publicly before full-scale implementation. This roadmap should clearly outline how the investment will benefit electricity consumers and ensure that it does not impose additional financial burdens, as has occurred with some previous initiatives. Conducting a pilot project beforehand would have been beneficial, and if such a pilot was undertaken, its findings should have been considered in planning the rollout. Moreover, capacity building within the DISCOs is crucial to realize the true objectives of the AMI project effectively.

2.3.8 Decline in Demand of Electricity in the Country:

During FY 2024-25, total electricity consumption in all the DISCOs including KE remained at 111,466.69 GWh, slight increase (1.71%) from 109,591.26 GWh as compared to FY 2023-24 however, this increase is yet 11.80% and 1.29% decline from the consumption of the country in FY 2021-22 and FY 2022-23 when the consumption was recorded at 124,628.9 GWh and 112,902.49 GWh respectively.

(a) The residential (household) sector's share rose from about 49.23% (53,957.18 GWh) in FY 2023-24 to 50.51% (56,303.64 GWh) in FY 2024-25.
(b) Industrial consumption increased from 27,753.59 GWh in FY 2023-24, to 29,114.08 GWh in FY 2024-25, increasing the industry share from 25.32% to 26.12%, respectively. This slight increase, among other factors, is associated to shifting of industry from captive generation to national grid and the incremental package introduced by the Federal Government.
(c) Agricultural use plunged sharply, from 8,577.92 GWh in FY 2023-24 to 5,881.92 GWh in FY 2024-25, a drop of about 31.43%, cutting its share from roughly 7.83% to 5.27%.

The rise in the residential share might appear to signal higher household demand, but in reality, it reflects steeper declines in agricultural consumption. Residential use grew only slightly, meaning households now occupy a larger share simply because the number of electricity consumers has increased while overall demand has shrunk.

The main driver is rising electricity tariffs, which have made grid power unaffordable. High costs have pushed consumers toward conservation and solar alternatives, while economic stagnation has further reduced demand.

Falling consumption has worsened financial pressures: capacity payments to power producers remain fixed, increasing per-unit costs and deepening the circular debt crisis. As electricity grows more expensive, affordability drops, creating a self-reinforcing cycle of declining demand.

It is important to recognize that the persistently high electricity tariffs in Pakistan largely result from poor planning, weak governance, and operational inefficiencies across the power sector. The continued public-sector control of key power entities has exacerbated, rather than resolved, systemic challenges despite repeated reform initiatives intended to enhance efficiency. Chronic mismanagement, lack of accountability, and external interference have further eroded performance and escalated costs. To achieve a sustainable and financially resilient power sector, Pakistan must move beyond public-sector dominance and adopt a competitive, transparent, and professionally managed framework grounded in market-based principles and institutional autonomy.

2.4 CTBCM PROGRESS AND THE 800 MW MARKET ALLOCATION INITIATIVE

CTBCM is an important initiative in the journey of power sector reforms in Pakistan, aimed at transitioning the sector from the prevailing single-buyer model to a competitive multi-buyer, multi-seller structure. The foundation for the CTBCM was laid as early as 2002 through NGC's Transmission Licence, which set July 01, 2009, as the Competitive Market Operation Date (CMOD), allowing a maximum extension of three years i.e., up to July 01, 2012. This regulatory instrument provided both a clear direction and a definitive timeline for transitioning to a competitive market framework.

However, no substantial progress was made during the intervening years on market design or institutional capacity building. The CTBCM design was submitted to NEPRA in 2018, almost a decade beyond past the initial regulatory target date.

The Authority approved the high-level design of the CTBCM in 2019, followed by approval of the detailed design in 2020. In the intervening period, a number of steps were taken to facilitate the implementation of CTBCM including development of policy and regulatory frameworks, deployment of IT/OT systems, test run of the market, and capacity building of relevant stakeholders. The operationalization of CTBCM has been constrained primarily due to challenges associated with the determination of wheeling or open-access charges, particularly the treatment of stranded cost components. The matter was conclusively settled by NEPRA in its determination dated January 01, 2021, wherein it was decided that stranded costs are a manifestation of sectoral inefficiency and cannot be passed onto market participants. However, the decision was challenged by DISCOs before the Islamabad High Court. By its order of March 03, 2023, the Court directed NEPRA to decide the matter within ten weeks. However, due to factors such as the FY 2023-24 tariff rebasing, the decision was delayed. Meanwhile, the National Electricity Plan and the NEPRA Eligibility Criteria (Electric Power Supplier Licences) Rules, 2023 were issued, requiring market consumers to pay capacity or stranded costs equivalent to those of similar consumers of the supplier of last resort. In May 2024, the Prime Minister of Pakistan formed a committee to determine an optimal wheeling charge, the report of which was still awaited during the reporting period.

Acknowledging that market implementation requires addressing the issue of stranded costs, the Federal Government is considering amendments to the National Electricity Plan and NEPRA Eligibility Criteria (Electric Power Supplier Licences) Rules, 2023 to separate stranded costs from grid charges. As of June 2025, the proposal envisions allowing market participants to bid for shares of the proposed 800 MW wheeling quantum. It has taken four years to reaffirm the regulator's 2021 conclusion that stranded costs should not be imposed on market players.

The decision to amend the National Electricity Plan and NEPRA Eligibility Criteria (Electric Power Supplier Licences) Rules, 2023 to discover stranded costs through a competitive 800 MW wheeling auction is a positive step toward CTBCM implementation. It enables transparent cost discovery and market-driven participation, setting precedents for future transactions. However, the auction must ensure transparency, simplicity, and equitable access to foster broad, credible, and competitive participation.

The success of CTBCM depends on its liquidity and scalability. Starting with 800 MW, volumes should grow to enhance supplier participation, price discovery, and consumer choice, ultimately optimizing resources and supporting economic growth. Pakistan's power sector now has the opportunity to build a transparent, competitive, and sustainable electricity market.

2.5 INDEPENDENT SYSTEM AND MARKET OPERATOR

The Federal Government's establishment of the ISMO in 2025 redefined Pakistan's power sector institutional framework. Through NEPRA determinations dated April 30, 2025, system and market operation licences were transferred to ISMO, making it responsible for real-time operation of the National Grid and administration of market functions under the CTCBM framework. This consolidates operational responsibilities under a single entity, replacing the previous arrangement

where National Power Control Centre (NPCC) under NGC handled system operations while CPPA-G managed market functions.

This structural realignment addresses longstanding coordination inefficiencies between technical and commercial functions. ISMO now provides a unified operational interface, ensuring transparent, auditable, and economically efficient system operations, while independently administering the market in accordance with licences, the Market Commercial Code, Grid Code, and other regulatory instruments.

With the merger of System Operator and Market Operator roles, ensuring functional separation between the two activities is essential. The System Operator function covers real-time system operations, including security-constrained economic dispatch, frequency control, ancillary services, and grid stability. The MO function handles market administration, including contract registration and imbalance settlement. Operational and managerial separation is critical to prevent conflicts of interest and ensure independent, transparent system operations and market settlements.

The composition and functioning of ISMO's BoD are central to maintaining this independence. The Board must be professionally competent, appointed through merit-based, transparent procedures, and reflect neutrality, avoiding dominance by either the public sector or market participants. A visibly independent Board reinforces confidence in ISMO's impartiality.

Institutional and operational independence are key to the credibility of the CTBCM and broader power sector reforms. If ISMO operates with neutrality, professionalism, and transparency, it will underpin a fair and efficient electricity market. Conversely, any perception of bias or institutional capture could undermine investor confidence, distort competition, and compromise market integrity.

The current human and technical resources at ISMO are inadequate to manage such sensitive functions. Therefore, rapid capacity building is essential. Without this, there is a risk that, similar to previous reform initiatives that failed to achieve their objectives, the establishment of ISMO may also fall short of its intended impact.

2.6 MISALIGNMENT OF CURRENT TOU WINDOWS WITH SYSTEM PEAKS

Over a decade since its introduction in the early 2010s, the ToU tariff mechanism implemented by NEPRA as a demand-side management tool has played a significant role in curbing peak electricity demand during the critical evening hours (6:00 PM to 10:00 PM). At the time, ToU tariffs effectively addressed acute generation constraints by incentivizing consumers to shift usage away from peak periods.

However, the power sector landscape has since undergone substantial transformation. Key developments include large-scale capacity additions under "Take or Pay" and "Must Run" contracts, widespread adoption of distributed generation technologies such as solar PV, and changing consumption patterns influenced by higher electricity tariffs and the penetration of energy-efficient appliances.

These structural changes have resulted in a misalignment between the current ToU tariff windows and the actual system peak demand patterns, which now vary significantly across different DISCOs. This mismatch has led to inefficient grid utilisation during off-peak hours, increased part-load adjustment costs, mounting NPMV penalties, and growing financial burdens on both the national exchequer and end-consumers.

Despite the pressing need for an updated assessment, DISCOs had not undertaken detailed studies to evaluate the impact of this misalignment or to propose revised ToU frameworks aligned with actual load profiles. Recognizing the urgency, NEPRA has formally directed all DISCOs to conduct

comprehensive studies to ascertain factual peak demand hours and recommend regionally tailored ToU tariffs.

Such recalibration is essential to promote system efficiency, enable cost-reflective pricing, reduce fiscal liabilities, and ensure the long-term sustainability of the power sector in Pakistan's evolving energy environment.

2.7 REFORMING NET-METERING IN PAKISTAN: ADVANCING SOLAR INTEGRATION FOR A RESILIENT AND EQUITABLE ENERGY FUTURE

The rapid uptake of distributed solar photovoltaic (PV) systems across Pakistan driven by rising electricity tariffs, technological affordability, and growing consumer awareness has brought net-metering to the forefront as a transformative tool for energy democratization. Net-metering not only empowers consumers by enabling self-generation and bill reduction but also contributes to broader national goals such as energy security, decarbonization, and reduced pressure on grid infrastructure during peak hours. It represents a practical and equitable mechanism for integrating clean energy into the distribution network, especially when supported by appropriate technical standards and interconnection protocols. International best practices consistently affirm that with the sound utility practices and cost-reflective structures, net-metering can coexist with utility sustainability while catalyzing green growth. The issue of net-metering is complex, with DISCOs and net-metering consumers holding opposing views. DISCOs argue that net-metering negatively impacts their business and other consumers by reducing electricity sales, widening the gap between day and night demand, causing grid stability issues, and compelling them to buy power at high rates. These challenges, they claim, undermine their financial sustainability and operational efficiency.

Conversely, net-metering consumers maintain that their systems offer clear benefits supplying electricity at lower costs than marginal fuel prices, improving DISCOs' cash flow, and mitigating circular debt. They further highlight that distributed solar reduces T&D losses, supports grid stability, promotes environmental sustainability, and delays expensive grid expansion projects. Net-metering consumers also claim that they supply electricity to the grid at rates significantly lower than many utility-scale RE power plants, which often charge around Rs. 45-50/kWh.

Importantly, it is observed that in maximum cases, DISCOs are not making actual cash payments to net-metering consumers for excess energy exported to the grid; instead, settlements are often conducted through billing adjustments. As a result, utilities benefit from deferred cash outflows amounting collectively to billions of rupees improving their short-term liquidity. This dynamic underscores that net-metering, rather than imposing an immediate financial burden, may in fact provide temporary fiscal relief to DISCOs, even as they adapt to the structural changes brought by decentralized energy generation. A data-driven and consultative reform of the net-metering framework can therefore ensure long-term equity, grid reliability, and sectoral sustainability.

Furthermore, to address concerns regarding the potential financial burden caused by net-metering consumers, it is essential for the DISCOs, ISMO, and CPPA-G to conduct a comprehensive financial study. This study should determine whether the buyback rate offered to net-metering consumers is higher or lower than the cost of power purchased from marginal or costlier power plants. If the buyback rate is found to be higher, its implications should be carefully analyzed. Additionally, the impact of net-metering on foreign exchange savings should also be assessed, as it represents an important economic factor. Therefore, to establish the true financial feasibility of net-metering at the current buyback rate or to evaluate the need for revisions a detailed financial analysis must be undertaken and made publicly available.

In this context, NEPRA has directed the DISCOs to conduct a comprehensive study to assess the technical, financial, and regulatory impacts of increasing solar PV penetration. The aim is not to constrain consumer choice, but to ensure a balanced framework where the benefits of net-metering are preserved, while utilities are enabled to recover fixed costs and invest in modern, flexible grid systems. A reformed net-metering regime rooted in data-driven analysis and stakeholder

consultation can continue to deliver economic and environmental benefits, while addressing emerging challenges to grid stability and utility viability.

2.8 ADVANCING OFF-GRID RENEWABLE SOLUTIONS FOR HIGH-LOSS FEEDERS

Pakistan's power sector continues to grapple with significant AT&C losses, particularly in rural and remote regions where traditional grid extension is neither technically efficient nor commercially sustainable. In many such areas, continued reliance on centralized grid infrastructure results in high technical losses, persistent electricity theft, low revenue recovery, and long feeder lines that are economically impractical to maintain. These inefficiencies disproportionately burden honest consumers, undermine service delivery, and exacerbate the financial instability of DISCOs. Given these challenges, a strategic pivot toward off-grid RE systems offers a practical and scalable alternative that aligns with national energy access goals and fiscal prudence.

The rapid decline in the cost of solar and wind technologies, combined with advancements in storage and control systems, has created a compelling opportunity to deploy decentralized energy solutions in loss-prone rural regions. Off-grid systems such as solar mini-grids and standalone RE units can significantly enhance electricity access, reduce AT&C losses, and alleviate the pressure on the national grid. These solutions are particularly well-suited to areas where extending grid infrastructure is no longer viable, offering communities reliable, clean power while enabling DISCOs to focus their resources on commercially recoverable territories. Moreover, off-grid deployment contributes to energy equity by ensuring that underserved populations are no longer penalized, through AT&C base load-shedding, for systemic inefficiencies beyond their control.

Although such analyses should have been carried out by all DISCOs themselves not only to enhance their financial viability but also to provide relief to all stakeholders no such initiative has been undertaken so far, despite NEPRA's earlier emphasis on the matter.

Thus, to ensure a successful transition, NEPRA has directed the DISCOs for a comprehensive feasibility study to identify high-loss feeders suitable for off-grid conversion. This study should assess technical readiness, economic viability, and social impact, forming the foundation for targeted investments, regulatory support, and public-private partnerships. The adoption of off-grid solutions in commercially non-viable areas not only promises enhanced operational efficiency but also presents a transformative pathway toward a more resilient, inclusive, and financially stable power sector. Strategic implementation of these measures will help bridge regional disparities, improve customer satisfaction, and foster long-term sustainability across Pakistan's energy landscape.

2.9 BATTERY ENERGY STORAGE SYSTEM

Battery Energy Storage Systems (BESS) are rapidly transitioning from pilot demonstrations to widespread rooftop and commercial deployments in Pakistan. Driven by rising electricity costs and inconsistent policy directions, both industrial and distributed consumers are increasingly adopting solar-plus-storage solutions. In some cases, batteries are even being used in a manner similar to LPG cylinders charged at one location through rooftop solar or other means and then transported to commercial sites for use during periods of grid unavailability.

In Pakistan's power sector, the combined financial burden of NPMV and PLAC, in CPPA-G and KE system, during FY 2024-25, recorded as around Rs. 59.67 billion. The adoption of BESS can significantly help minimize these losses.

To adopt BESS at the utility scale, a comprehensive feasibility and planning study is essential. Such a study should evaluate key value streams and applications of BESS, including but not limited to renewable firming, ancillary services, avoiding NPMV and PLAC charges, black start capability, and resilience enhancement.

A well-planned integration of BESS will not only strengthen grid reliability and flexibility but also accelerate Pakistan's transition toward a more sustainable, efficient, and resilient power system.

2.10 NEED FOR DIGITALIZATION IN THE POWER SECTOR

Digitalization has become the cornerstone of efficiency, transparency, and innovation across industries. It enables real-time data processing, informed decision-making, and automation of routine operations enhancing performance, reducing costs, and minimizing human error.

In Pakistan, however, government-owned power entities have been slow to adopt digital transformation. Core functions such as system planning, monitoring, loss assessment, and consumer service management still rely on outdated manual or semi-automated processes. For instance, grid station events are still recorded manually in logbooks, while most DISCOs operate without integrated Enterprise Resource Planning systems. This lack of digital integration results in data silos, inefficiencies, delayed decision-making, and limited visibility across the power value chain from generation to distribution.

Moreover, many DISCOs have outsourced several key activities to newly created centralized entities. Instead of developing their own analytical capacity and strategic insight, they often operate under external directives, showing limited evidence of independent analysis or data-driven decision-making at least none that have been presented to the regulator. This dependency further constrains their ability to innovate and respond proactively to operational challenges.

To enhance efficiency and transparency, public sector power utilities must adopt comprehensive digital transformation strategies. Priorities should include establishing centralized data management systems, automating core operational processes, and enabling real-time monitoring and analytics. Such measures will strengthen institutional accountability, improve service delivery, and create a more resilient, data-driven, and consumer-centric power sector in Pakistan.

2.11 ENHANCING REGULATORY INDEPENDENCE AND COORDINATION IN PAKISTAN'S POWER SECTOR

Pakistan's power sector operates under multiple oversight and facilitation mechanisms intended to boost investment, lower tariffs, and speedy decision-making. However, overlapping advisory, executive, and regulatory roles can undermine predictability and create investor hesitation.

Globally, successful electricity markets separate policymaking, regulation, and implementation, ensuring reform momentum while preserving regulatory independence. Poor coordination risks uncertainty in licensing, tariffs, and compliance, delaying investments.

In Pakistan, converging economic management and investment structures heighten the need for clear institutional boundaries. Parallel reviews or informal approvals can disrupt time-sensitive regulatory processes.

The right to seek a review, appeal, or court remedy against NEPRA's decisions is fully respected. However, it has been observed that licensees and other relevant entities sometimes use this right mainly to delay compliance, which weakens the deterrent effect of regulatory actions. One major reason for long delays in decisions by the NEPRA Appellate Tribunal (NAT) is that the Tribunal has often remained non-functional due to quorum issues. To avoid such delays and to maintain the effectiveness of the regulatory system, it is important to ensure that the NAT remains functional at all times. In addition, appeals against regulatory decisions, especially those affecting the sector as a whole, should be decided as quickly as possible to ensure clarity and certainty within the sector.

Preserving regulatory independence both in substance and perception is essential for attracting investment, lowering capital costs, and sustaining reforms. Transparent, disciplined coordination among institutions, grounded in statutory mandates, is critical for a stable, credible, and accountable power sector.

2.12 STRENGTHENING INSTITUTIONAL INDEPENDENCE AND THE REGULATORY-POLICY INTERFACE IN PAKISTAN'S POWER SECTOR

The National Electricity Policy and National Electricity Plan (2023-27), framed under Section 14A of the NEPRA Act, define Pakistan's strategic objectives for supply security, financial sustainability, and market development. The Act clearly distinguishes policy formulation from regulatory authority, granting NEPRA an independent mandate to regulate generation, transmission, and distribution based on evidence, technical merit, and due process.

One notable example of inconsistency between policy directives and the existing regulatory framework is the implementation of AT&C loss-based load-shedding. It has been observed that DISCOs are carrying out load-shedding schedules based on AT&C losses in compliance with a policy directive. However, such a practice does not conform to the provisions of the current regulatory framework, which does not authorize load management decisions to be made on the basis of commercial losses.

Preserving a clear separation between policy direction and regulatory execution is essential for predictability, investor confidence, and effective reform. Policy sets national goals; regulation ensures their lawful and efficient implementation.

While recent institutional developments reflect progress, they have sometimes blurred the boundaries between policymaking, implementation, and regulation. As the power sector transitions toward a competitive market, NEPRA's independence both in perception and practice must remain intact. The sector's strength lies in coherent, complementary institutions operating within their defined mandates.

2.13 ROLE OF POWER PLANNING AND MONITORING COMPANY

PPMC was established under the National Electricity Policy as a designated entity of the Ministry of Energy (Power Division) to carry out specific functions outlined in the National Electricity Plan and provide technical assistance to DISCOs. While the intent behind such institutional support is commendable, it raises important questions regarding the autonomy of DISCOs since the 1992 restructuring initiative.

Since the launch of the reform agenda, multiple entities have been created under the guise of assisting DISCOs or acting on their behalf, often charging DISCOs for their services. Yet, little effort has been made to empower DISCOs to operate independently, build internal capacity, or take strategic decisions. This overreliance on external support risks marginalizing DISCOs in shaping their own operational and strategic direction. Lessons from successful examples, such as KE, demonstrate that DISCOs can thrive without such intermediaries. The contrast in performance underscores the urgency for DISCOs to cultivate self-sufficiency and strengthen internal capabilities rather than depend on external agencies.

The original reform agenda sought to address systemic inefficiencies, decentralize operational control, and enhance financial sustainability in the power sector. However, successive institutional arrangements first through PEPCO and now via PPMC indicate a persistent trend toward centralized oversight. This raises critical questions about whether current practices remain aligned with the foundational principles of the restructuring plan.

2.14 ELECTRIC VEHICLE POLICY 2025-30

During FY 2024-25, Pakistan advanced its electric vehicle (EV) agenda by introducing the National Electric Vehicle Policy 2025-30, targeting 30% of new vehicle sales to be electric by 2030. The policy emphasizes expanding EV infrastructure charging and battery-swapping stations integrating charging provisions into building codes, incentivizing local manufacturing, and extending AIDEP-based fiscal concessions for EV assemblers until 2026 with a gradual phase-out. Around 40 new charging stations are planned along major motorways, supported by a digital platform to manage subsidies and applications.

The National Energy Efficiency and Conservation Authority (NEECA) also issued the EV Charging Infrastructure & Battery Swapping Station Regulations 2024, setting technical, operational, and safety standards, requiring station registration, inspections, and mandatory charging points in new or renovated commercial buildings.

A key development was the rationalization of EV tariffs. On April 15, 2025, NEPRA revised the base tariff to Rs. 23.57/kWh, removing the previous fixed margin of Rs. 24.44/kWh. This reduced the effective end-user cost by ~45% (from Rs. 71.10/kWh to Rs. 39.70/kWh) and confirmed that Fuel Cost Adjustments (FCAs) would not apply, stabilizing EV user expenses. While this is a significant reduction, given Pakistan's RE potential and ongoing improvements in battery storage, efforts could be made to encourage charging stations to generate their own RE, enhancing sustainability and further lowering costs.

2.15 ANNUAL FEE TO BE CHARGED BY PPIB FROM POWER GENERATION COMPANIES

The Private Power and Infrastructure Board (PPIB) was established in 1994 with the mandate to promote private sector investment in Pakistan's power sector. In 2012, PPIB was granted statutory status under the Private Power and Infrastructure Board Act, 2012.

In 2019, several IPPs approached the NEPRA seeking clarification regarding the treatment of the PPIB fee as a pass-through item. The IPPs reported that PPIB had imposed an annual post-operation fee ranging between US$ 250 and US$ 300/MW.

The matter for regulatory approval of this fee was brought before NEPRA by CPPA-G during FY 2023-24, NEPRA after due consideration and regulatory proceedings, approved the levy of an annual post-operation fee by PPIB on power generation companies.

PERFORMANCE OF THE GENERATION SECTOR

03

3.1 GENERAL

The electric power generation segment continues to serve as the backbone of Pakistan's power sector, accounting for the largest proportion of overall revenue requirements. During FY 2024-25, generation expenses represented nearly 82% of the consumer-end tariff, highlighting the segment's decisive impact on the cost structure of electricity delivered to consumers.

Pakistan's power generation mix comprises a diverse range of energy sources, including thermal, nuclear, and RE such as hydropower, wind, solar, and bagasse. In addition, electricity imports from Iran continue to play a vital role in supplying power to remote areas of Balochistan.

Although Pakistan possesses abundant indigenous energy resources, these remain significantly underutilised due to geographical and infrastructural constraints. The uneven spatial distribution of these resources adds to operational challenges: hydropower potential is concentrated in the far north, while solar, wind, and coal reserves are largely situated in the southern regions. In contrast, the major demand centers lie in central Pakistan, creating transmission bottlenecks that impede the efficient flow of low-cost electricity to load hubs. These constraints continue to undermine both supply reliability and cost efficiency across the entire power value chain.

As of FY 2024-25, Pakistan's total installed power generation capacity stood at 41,121 MW, comprising 38,431 MW (93.46%) within the CPPA-G system, and 2,690 MW (6.54%) within the KE network. Within the CPPA-G system, the capacity mix consisted of 20,544 MW (53.46%) Thermal, 3,620 MW (9.42%) Nuclear, 11,500 MW (29.92%) Hydel, 1,838 MW (4.78%) Wind, 680 MW (1.77%) Solar, and 249 MW (0.65%) Bagasse. In the KE generation system, the mix comprised 2,590 MW (96.28%) Thermal, and 100 MW (3.72%) Solar.

A significant portion of KE's electricity demand was met through power imports from the CPPA-G system. Within the CPPA-G generation portfolio, the public sector contributed 56.81% of the total capacity, while the remaining 43.19% was owned by the private sector. In contrast, the entire generation fleet of KE is privately owned.

On a national scale, the country generated a total of 135,078.54 GWh of electricity during the year. The thermal generation segment remained dominant, contributing 88,623.00 GWh (65.61%) of the total generation. Within this segment, the contribution breakdown was as follows: 15,547.60 GWh (17.54%) from Local Coal, 9,343.99 GWh (10.54%) from Imported Coal, 22,452.08 GWh (25.33%) from Nuclear, 27,969.94 GWh (31.56%) from RLNG, 12,497.91 GWh (14.10%) from Indigenous Gas, 806.40 GWh (0.91%) from RFO, and 5.00 GWh (0.01%) from HSD.

Conversely, RE sources accounted for the remaining 46,001.62 GWh (34.06%) of total generation. The renewable share was distributed among Hydropower 39,972.98 GWh (86.89%), Wind 3,843.36 GWh (8.35%), Solar 1,514.91 GWh (3.29%), and Bagasse 670.37 GWh (1.46%) and share of Import from Iran (Tavanir) was 453.92 GWh (0.33%) of electricity during the year.

While Pakistan possesses a diverse energy mix including thermal, nuclear, and renewable sources geographical and infrastructural constraints limit the optimal utilisation of its indigenous, cost-effective resources. Transmission bottlenecks between resource-rich regions and major demand centers exacerbate supply inefficiencies and increase costs. Additionally, the addition of generation

capacity exceeding current demand has created further challenges for the power sector. Strengthening infrastructure and enhancing the efficiency of the generation portfolio will be critical to ensuring reliable, affordable, and sustainable electricity for the country.

3.2 INSTALLED CAPACITY IN THE COUNTRY

As on June 30, 2025, the total installed capacity of Pakistan (including KE) remained at 41,121 MW. The detailed breakdown of capacity according to energy sources is provided below:

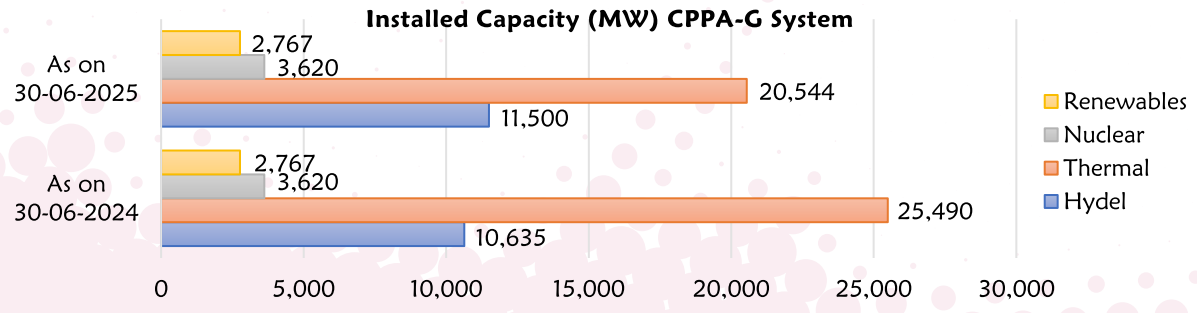
	As on 30-06-2024	As on 30-06-2025	Variation	
			(MW)	(%)
A. CPPA-G SYSTEM				
WAPDA Hydel	9,389	9,389	0	0.00
IPPs Hydel	1,246	2,111	865	69.42
Total (Hydel)	**10,635**	**11,500**	**865**	**8.13**
GENCOs	4,587	3,572	(1,015)	(22.13)
IPPs	20,563	16,632	(3,931)	(19.12)
SPPs/CPPs	340	340	0	0.00
Total (Thermal)	**25,490**	**20,544**	**(4,946)**	**(19.40)**
Nuclear	**3,620**	**3,620**	0	0.00
Wind	1,838	1,838	0	0.00
Solar	680	680	0	0.00
Bagasse/Biomass	249	249	0	0.00
Total (RE)	**2,767**	**2,767**	**0**	**0.00**
Total (CPPA-G SYSTEM)	**42,512**	**38,431**	**(4,081)**	**(9.60)**
B. KE SYSTEM				
KE Own	2,816	2,396	(420)	(14.91)
IPPs	366	104	(262)	(71.58)
SPPs/CPPs	94	90	(4)	(4.26)
Solar	100	100	0	0.00
Total (KE SYSTEM)	**3,376**	**2,690**	**(686)**	**(20.32)**
GRAND TOTAL	**45,888**	**41,121**	**(4,767)**	**(10.39)**

Note:

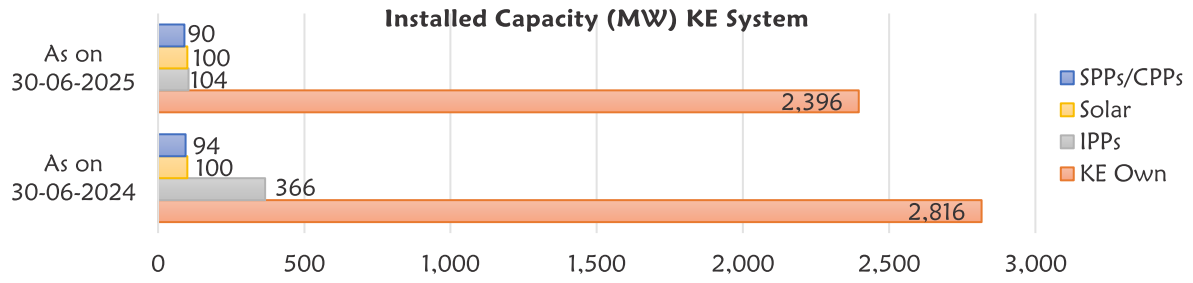
(i) 884 MW Suki Kinari HPP added to the system.
(ii) 18 MW Pehur HPP exit from CPPA-G system.
(iii) As of June, 2025 all the generation units of Old TPS Guddu (1,015 MW) stands expired.
(iv) Termination of six PPAs—Lalpir Power, Pakgen Power, HUBCO, Atlas Power, Rousch Pakistan, and Saba Power—totalling 2,829 MW.
(v) PPA and Tariff of KAPCO (1,600 MW) was expired on October 24, 2022. However, on June 03, 2025, 550 MW of KAPCO was reinstated in the system.
(vi) Gul Ahmed and Tapal Energy PPAs and tariffs expired.
(vii) NEPRA's provisional approval for BQPS-I (Units 1 & 2, 210 MW each) expired in November, 2024.

Source: GENCOs/WAPDA/IPPs/DISCOs/KE/CPPA-G

The following graph illustrates CPPA-G's installed power generation capacity across various energy sources for FY 2023-24 and FY 2024-25, highlighting the growth and diversification of its energy portfolio:



The following is the graphical representation showcasing the installed power generation capacity across various energy sources for the FY 2023-24 and FY 2024-25, illustrating the diversity and growth in KE's energy portfolio:



3.3 DEPENDABLE CAPACITY IN THE COUNTRY

Dependable capacity refers to the portion of total installed generation capacity that can be reliably delivered under normal operating conditions, taking into account scheduled maintenance, fuel availability, and technical constraints. As of June 30, 2025, Pakistan's total dependable generation capacity was 38,474 MW, including 35,951 MW within the CPPA-G system and 2,523 MW within the KE system. The table below provides a detailed breakdown of this capacity by energy source and system, offering a comprehensive overview of the country's power generation mix.

	As on 30-6-2024	As on 30-6-2025	Variation	
			(MW)	(%)
A. CPPA-G SYSTEM				
WAPDA Hydel	9,466	9,368	(98)	(1.04)
IPPs Hydel	1,200	2,080	880	73.33
Total (Hydel)	**10,666**	**11,448**	**782**	**7.33**
GENCOs	2,985	2,708	(277)	(9.28)
IPPs	17,833	15,514	(2,319)	(13.00)
SPPs/CPPs	257	257	0	0.00
Total (Thermal)	**21,075**	**18,479**	**(2,596)**	**(12.32)**
Nuclear	**3,326**	**3,266**	**(60)**	**(1.80)**
Wind	1,845	1,847	2	0.11
Solar	634	680	46	7.26
Bagasse/Biomass	278	231	(47)	(16.91)
Total (RE)	**2,757**	**2,758**	**1**	**0.04**
Total (CPPA-G SYSTEM)	**37,824**	**35,951**	**(1,873)**	**(4.95)**
B. KE SYSTEM				
KE Own	2,593	2,253	(340)	(13.11)
IPPs	354	101	(253)	(71.47)
SPPs/CPPs	191	90	(101)	(52.88)
Solar	79	79	0	0.00
Total (KE SYSTEM)	**3,217**	**2,523**	**(694)**	**(21.57)**
GRAND TOTAL	**41,041**	**38,474**	**(2,567)**	**(6.25)**

Source: GENCOs/WAPDA/IPPs/DISCOs/KE/DLR

3.4 ELECTRICITY GENERATION AND CONSUMPTION

During FY 2024-25, Pakistan's total electricity generation, including both CPPA-G and KE systems stood at 135,078.54 GWh, marking a slight decline from 137,078.00 GWh in the previous fiscal year, despite the addition of millions of new electricity consumers to the system.

This decline underscores the urgent need for a comprehensive policy review and coordinated national efforts to stimulate electricity demand. Consumers remain connected to the grid primarily for affordable tariffs and reliable supply, yet Pakistan's power sector continues to fall short on both fronts. Rising tariffs, excessive surcharges, and unreliable electricity have eroded confidence among both large and small consumers. Extended load-shedding, poor customer service, and overbilling have further accelerated the shift toward alternative energy sources.

Policy uncertainty, particularly regarding net-metering, is another major concern that discourages grid dependence and pushes consumers toward off-grid solutions equipped with battery energy storage systems. With the rapid decline in solar and battery costs, rooftop solar adoption is increasing, potentially further reducing grid demand and aggravating the financial stress on utilities.

To reverse this trend, it is imperative to enhance supply reliability, reduce electricity costs, and restore consumer trust. On the operational front, improvements in management, governance, and efficiency are essential, along with the elimination of imprudent costs. On the policy front, strategies must adapt to evolving market dynamics, promote investment in renewable integration, and ensure long-term energy security.

The accompanying data on electricity generation and imports highlights significant fluctuations in demand drivers. A thorough analysis of these trends is critical to formulating effective, sustainable policies that can strengthen Pakistan's power sector, ensuring both financial stability and energy sustainability.

As on 30th June	FY 2023-24	FY 2024-25	Variation	
			(GWh)	(%)
A. CPPA-G SYSTEM				
WAPDA Hydel	35,032.87	33,518.60	(1,514.28)	(4.32)
IPPs Hydel	4,869.47	6,454.39	1,584.92	32.55
Total (Hydel)	**39,902.34**	**39,972.98**	**70.64**	**0.18**
GENCOs	3,489.59	3,673.70	184.11	5.28
IPPs	54,463.99	54,906.74	442.74	0.81
SPPs/CPPs	314.19	264.48	(49.71)	(15.82)
Import From Iran	377.58	453.92	76.34	20.22
Total (Thermal)	**58,645.36**	**59,298.83**	**653.47**	**1.11**
Nuclear	**23,154.81**	**22,452.08**	**(702.72)**	**(3.03)**
Wind	3,941.07	3,843.36	(97.70)	(2.48)
Solar	1,028.90	1,186.09	157.18	15.28
Net-Metering Import	438.46	0.00*	(438.46)	(100.00)
Bagasse/Biomass	726.85	670.37	(56.48)	(7.77)
Total (RE)	**6,135.28**	**5,699.82**	**(435.46)**	**(7.10)**
Total (CPPA-G SYSTEM)	**127,837.78**	**127,423.71**	**(414.07)**	**(0.32)**
B. KE SYSTEM				
KE Own	7,471.32	6,432.62	(1,038.70)	(13.90)
IPPs	1,156.19	599.99	(556.20)	(48.11)
SPPs/CPPs	348.33	293.40	(54.93)	(15.77)
Solar	187.38	189.36	1.98	1.06
Net-Metering Import	77.00	139.46	62.46	81.12
Total (KE SYSTEM)	**9,240.22**	**7,654.83**	**(1,585.39)**	**(17.16)**
GRAND TOTAL	**137,078.00**	**135,078.54**	**(1,999.46)**	**(1.46)**

** Net-Metering Imports in FY 2024-25 has been recorded as 1,430.77 GWh.*
Source: GENCOs/WAPDA/IPPs/DISCOs/KE/CPPA-G

3.5 SHARE OF GENERATION CAPACITY IN PUBLIC AND PRIVATE SECTOR

In FY 2024-25, Pakistan's total electricity generation was divided between the public and private sectors, with the public sector contributing a larger share. Public sector power plants collectively produced 80,633.68 GWh of electricity, accounting for 59.69% of the nation's total power generation. In comparison, private sector power producers, including KE, generated 54,444.86 GWh, representing the remaining 40.31% of total output. This distribution highlights the continued dominance of the public sector in Pakistan's power generation mix.

3.6 ENERGY AND CAPACITY PAYMENTS OVERVIEW

Energy and capacity payments together constitute two principal components of the overall power purchase cost. Capacity payments are the fixed charges paid to generators regardless of actual energy offtake can adversely affect electricity consumers under the "Take or Pay" and "Must Run" regimes, especially when plant utilisation factors are low. The widening gap between rising capacity

payments and limited energy offtake has placed an increasing financial burden on end-consumers. This trend underscores structural inefficiencies in generation planning, dispatch optimization, and demand forecasting.

In contrast, energy payments, which represent variable costs linked to the actual electricity dispatched, can be reduced through prudent operational and dispatch strategies. Optimizing plant loading, avoiding the use of costlier fuels, and ensuring full evacuation of energy from renewable sources can significantly lower overall energy payments. Such measures also help minimize part-load adjustment charges and reduce non-project missed volumes, thereby enhancing the overall efficiency and cost-effectiveness of the power system.

For FY 2024-25, the following table represents the generation source wise energy and capacity Payments to generators connected to CPPA-G system in comparison to last year:

Source of Generation	FY 2023-24 (Rs. in Million)		FY 2024-25 (Rs. in Million)	
	Energy Payments	Capacity Payments	Energy Payments	Capacity Payments
WAPDA	2,769.28	121,106.14	3,082.84	180,453.37
Hydel IPPs	4,830.17	109,016.04	7,158.14	209,709.91
RLNG	561,905.47	191,994.18	526,025.65	146,781.50
Gas	163,202.49	53,096.41	155,068.34	36,920.06
RFO	87,606.72	83,654.16	2,731.60	25,247.27
Nuclear	37,609.84	401,938.69	52,361.56	362,705.27
Local Coal	222,753.62	304,059.97	211,889.59	256,053.95
Imported Coal	90,082.82	420,953.38	155,156.82	413,786.84
Import (Tavanir)	13,037.94	1,519.15	11,932.18	1,206.67
Wind	0.00	172,859.88	0.00	132,774.25
Solar	0.00	36,601.28	0.00	38,380.80
Bagasse	5,472.48	5,334.75	23,715.58	3,378.54
SPPs	-311.40	-189.90	0.00	0.00
Total	**1,188,959.43**	**1,901,944.12**	**1,149,122.29**	**1,807,398.41**

Note: *Plant-wise detailed list of capacity and energy payments made to the generators connected to CPPA-G and KE systems are presented in statistical section of the report.*
Source: CPPA-G

For FY 2024-25, total capacity payments to generators connected to the CPPA-G system amounted to Rs. 1,807,398 million, reflecting a reduction of about 5% from Rs. 1,901,944 million in FY 2023-24. During the same period, energy payments also recorded a moderate decline, standing at Rs. 1,149,122 million, which represents a decrease of approximately 3% compared to Rs. 1,188,959 million in the previous year.

This marginal improvement in the overall cost mix is largely attributed to reduced capacity charges from RLNG, RFO, gas, local coal, and imported coal plants. Capacity payments for RLNG-based generation declined from Rs. 191,994.18 million in FY 2023-24 to Rs. 146,781.50 million in FY 2024-25, reflecting a decrease of about 24%. Similarly, gas-based plants recorded a reduction of nearly 30%, from Rs. 53,096.41 million to Rs. 36,920.06 million. Capacity charges for RFO-based plants fell sharply by around 70%, from Rs. 83,654.16 million to Rs. 25,247.27 million. Local and imported coal plants also witnessed moderate decreases of approximately 16% and 2%, respectively.

Conversely, a significant increase was observed in WAPDA hydropower capacity payments, which rose from Rs. 121,106.14 million in FY 2023-24 to Rs. 180,453.37 million in FY 2024-25, marking a rise of about 49%. Likewise, capacity payments to hydel IPPs nearly doubled, increasing from Rs. 109,016.04 million to Rs. 209,709.91 million, representing an increase of around 92%.

Despite these shifts, the structural imbalance between high fixed capacity obligations and limited energy dispatch remains evident, underscoring the need for improved generation planning, demand forecasting, and optimization of the generation mix.

During FY 2024-25, the Authority approved the, two-part, generation tariff for KE for control period 2023-24 till 2029-30. The following table presents the capacity and energy payments provided to KE based power plants for FY 2024-25 along with their utilisation factors:

Name of Plant	FY 2023-24	FY 2024-25	FY 2023-24 (Rs. Million)		FY 2024-25 (Rs. Million)	
	Utilisation Factor (%)		Energy Payment	Capacity Payment	Energy Payment	Capacity Payment
Bin Qasim TPS-I	8.46	10.49	25,901.59	9,111.06	13,721.00	6,392.50
Bin Qasim TPS-II	51.03	31.54	79,953.12	16,327.01	38,630.17	14,394.55
Bin Qasim TPS-III	50.63	52.47	94,201.54	26,604.68	92,809.98	24,587.50
Korangi Town GTPS-II	0.17	0.45	60.88	361.82	155.00	832.91
SITE Town GTPS-II	0.02	0.00	6.61	288.54	0.00	180.91
Korangi CCPP	5.16	6.08	4,580.02	8,140.09	4,970.46	7,176.40
Total	**30.29**	**26.08**	**204,703.77**	**60,833.20**	**150,286.61**	**53,564.77**

Source: KE

During FY 2024-25, KE recorded a notable decline in generation-related payments, with total energy payments falling by approximately 26.58% and capacity payments decreasing by 11.95% compared to the previous year. This downward trend aligns with developments observed in the CPPA-G system. The reduction in energy payments primarily stemmed from lower fuel consumption at KE's costlier fuel-based power plants and greater reliance on electricity imports from the national grid. Meanwhile, the decline in capacity payments reflected the retirement of certain units within KE's generation fleet.

At the plant level, performance varied considerably. The BQPS-I and II plants experienced steep declines in both energy and capacity payments, while BQPS-III maintained stable output and cost levels. Collectively, the Bin Qasim complex remained the backbone of KE's generation portfolio, accounting for nearly all energy-related expenditures. In contrast, smaller facilities such as Korangi Town GTPS-II and SITE Town GTPS-II operated at lower utilisation factors. Despite these operational adjustments, KE continues to face structural challenges arising from high fixed costs relative to its actual generation levels.

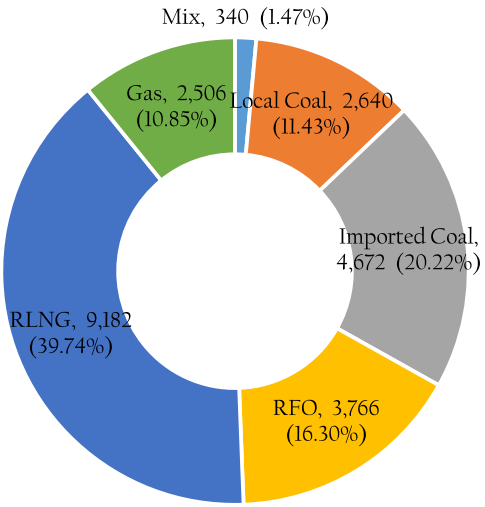
3.7 THERMAL AND RENEWABLE POWER GENERATION: CAPACITY, UTILISATION, AND COST DYNAMICS

Ensuring a reliable, continuous electricity supply requires sufficient baseload capacity. Thermal power plants, including nuclear, play a critical role in this regard, but they face two core financial challenges. First, their fixed costs, recovered through the CPP, are highly sensitive to utilisation. Higher load factors reduce the per-unit CPP, while under-utilisation sharply increases it. Second, thermal plants incur relatively high EPP due to fuel costs, which vary by fuel type.

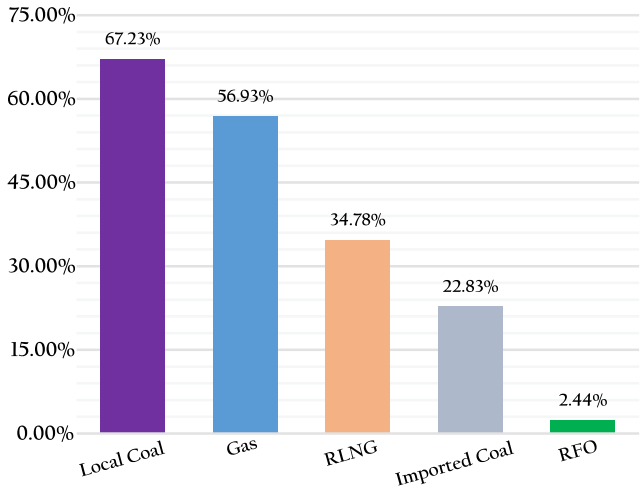
In power systems relying on a mix of inexpensive and higher-cost fuels, maximizing thermal utilisation eventually requires the use of costlier fuels, thereby increasing EPP. Conversely, limiting thermal output to contain EPP reduces plant utilisation, which raises the per-unit CPP. Balancing these two cost components is therefore essential for financial and operational efficiency.

As of June 30, 2025, the total installed and dependable capacity of all thermal power plants including nuclear stood at 26,754 MW and 24,189 MW, representing 65.06% and 62.87% of the country's total generation capacity, respectively. On the same date, the country's overall installed and dependable capacity amounted to 41,121 MW and 38,474 MW. The fuel-wise breakdown of dependable thermal capacity, along with corresponding utilisation levels for FY 2024-25, is presented below:

Installed Capacity of Thermal Power Plants by Fuel Category (as of June 30, 2025)



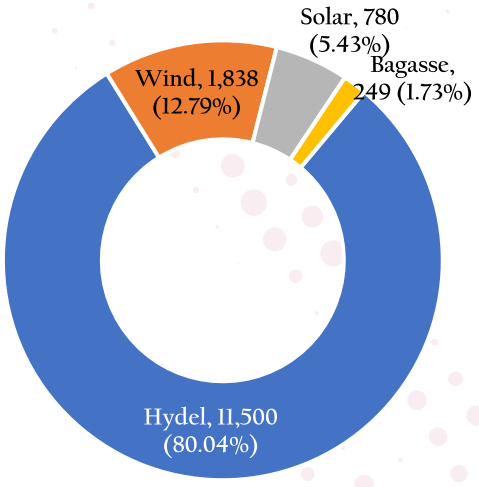
Capacity Utilisation of Thermal Power Plants by Fuel Category during FY 2024 25



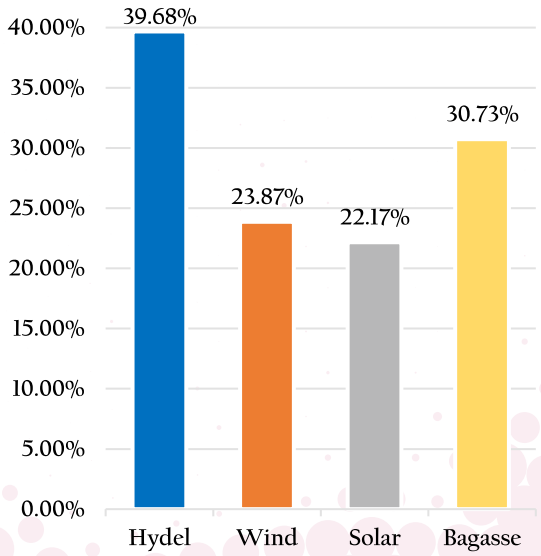
Integrating RE i.e. hydro, wind, and solar provides a powerful means of reducing EPP, as these technologies incur negligible fuel costs and can substantially lower system-wide variable generation expenses. However, their seasonal and hourly variability limits dispatchability, requiring the system to maintain sufficient firm capacity typically thermal or storage-based to meet base-load demand. Even when these firm resources are used less frequently due to higher renewable penetration, they must recover fixed costs through CPP, which can increase if thermal utilisation declines.

As of June 30, 2025, the total installed capacity of RE plants stood at 14,367 MW. However, their dependable capacity the portion that can be reliably expected varies due to the intermittent nature of water, wind, and sunlight. Seasonal and daily fluctuations in these resources influence actual output and limit capacity utilisation. The fuel-wise breakdown of dependable RE capacity and corresponding utilisation levels for FY 2024-25 are shown below:

Installed Capacity of Renewable Power Plants by Fuel Category (as of June 30, 2025)



Capacity Utilisation of Renewable Power Plants by Fuel Category during FY 2024-25



It should be noted that the installed capacity of RE plants is based on their nameplate ratings. In practice, actual output is limited by the variability of natural resources water, wind, and sunlight which fluctuate across seasons and times of the day, impacting capacity utilisation.

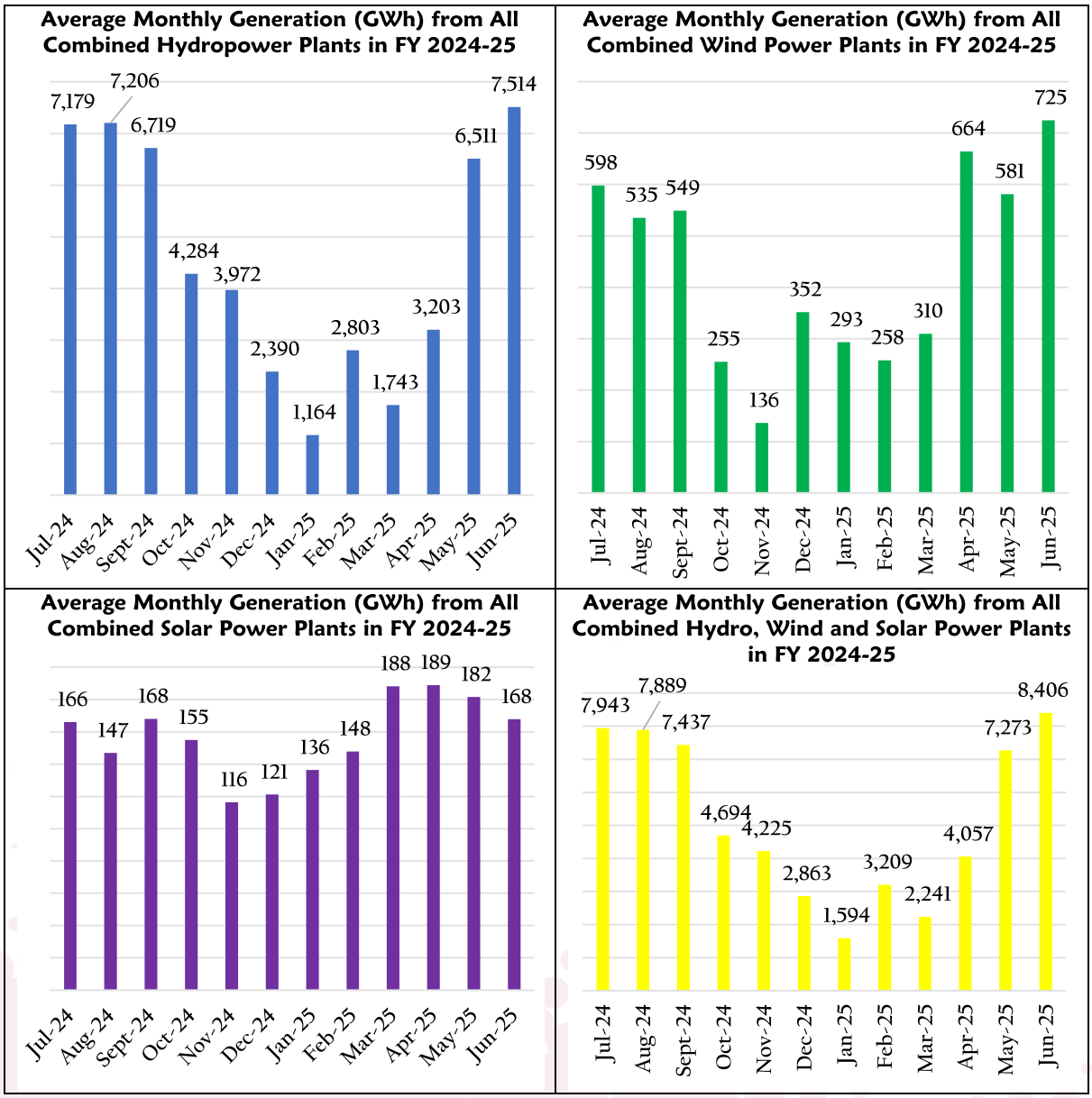
These dynamics underscore the need for a generation mix that balances CPP and EPP, rather than prioritizing one at the expense of the other. A financially resilient and reliable power system should:

(a) Prioritize thermal plants using predictable, lower-cost fuels.
(b) Integrate renewable resources with high-capacity utilisation factors.
(c) Strengthen grid flexibility to manage variability and ensure firm capacity availability.

Achieving this balance supports affordable tariffs for consumers, protects sector finances, and promotes long-term sustainability of the power system.

3.8 MONTHLY FLUCTUATIONS IN RENEWABLE POWER OUTPUT

RE power plants, including solar, wind, and hydro facilities, exhibit inherent variability in their electricity output due to their reliance on natural resources. The average monthly generation from hydro, wind, and solar, as well as the combined output from all three sources during FY 2024-25, is shown in the following graphs, highlighting the seasonal and operational fluctuations in RE production:



3.9 QUARTERLY CPP RANGE COMPARISON BY FUEL TYPE – FY 2024-25

The table below provides a detailed comparison of CPP ranges for power plants connected to the CPPA-G system, categorized by their fuel type or primary energy resource. Covering all quarters of FY 2024-25, the data highlights how CPP values vary across different technologies and plant configurations:

Source	CPP Ranges (Rs./kWh)				
	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	FY 2024-25
Nuclear	6.1 ~ 16.6	6.3 ~ 16.7	6.3 ~ 16.7	6.3 ~ 16.7	6.1 ~ 16.7
Gas	1.7 ~ 6.6	1.7 ~ 6.6	1.7 ~ 6.6	1.7 ~ 2.2	1.7 ~ 6.6
RLNG	1.9 ~ 3.1	1.9 ~ 2.5	1.9 ~ 2.6	1.9 ~ 2.8	1.9 ~ 3.1
RFO	2.0 ~ 2.6	1.9 ~ 2.5	0.6 ~ 1.0	0.6 ~ 1.7	0.6 ~ 2.6
Imported Coal	10.1 ~ 11.7	9.4 ~ 11.8	8.6 ~ 11.9	9.0 ~ 11.8	8.6 ~ 11.9
Thar Coal	11.6 ~ 12.2	11.3 ~ 11.8	11.4 ~ 11.9	11.9 ~ 12.1	11.3 ~ 12.2
Wind	13.0 ~ 47.9	13.1 ~ 47.1	13.2 ~ 47.1	13.3 ~ 47.0	13.0 ~ 47.9
Solar	11.4 ~ 49.0	11.2 ~ 48.3	11.1 ~ 48.2	11.1 ~ 48.3	11.1 ~ 49.0

Source: Quarterly Indexation/Adjustment Decisions for different power plants.

From the above analysis, it is evident that despite having no fuel cost, electricity purchases from several RE power plants particularly older wind and solar projects remain significantly high, in some cases even exceeding the power purchase cost of fuel-based plants such as RFO and RLNG.

3.10 NON-PROJECT MISSED VOLUME

NPMV represents the quantum of missed energy arising from reasons not attributable to power producers, such as grid constraints, scheduled maintenance, or other operational limitations. RE projects are compensated for NPMV, and these payments ultimately increase the consumer tariff.

In FY 2024-25, NPMV-related payments stood at Rs. 13,285.52 million, a substantial reduction from Rs. 39,521.32 million in FY 2023-24. Due to the NGC's inability to evacuate power, 491.89 GWh of clean energy remained unutilised, which subsequently required the demand to be met through alternative, predominantly fossil fuel–based sources. For projects connected to the KE system, NPMV payments were zero in FY 2024-25, compared to Rs. 8.07 million in FY 2023-24.

3.11 PART LOAD ADJUSTMENT CHARGES

PLAC payments are made to power producers under their respective PPAs when the System Operator does not dispatch power plants at full load. Operating plants at part load reduces efficiency, which in turn affects end consumers through higher monthly Fuel Price Adjustments (FPA). During FY 2024-25, PLAC costs in the CPPA-G system amounted to Rs. 46.39 billion, compared to Rs. 55.67 billion in the previous year.

Under the MYT framework, PLAC for KE-operated plants totaled Rs. 7.53 billion in FY 2024-25, slightly higher than Rs. 7.25 billion recorded in FY 2023-24.

3.12 START-UP CHARGES

Start-up charges are paid to power plants when they resume operations after being offline. These charges arise from the terms outlined in the PPA between the power producer and the power purchaser. The amount varies across plants depending on their technical characteristics and the specific contractual arrangements. The table below presents the monthly start-up charges (Rs. in Million) for various power plants during FY 2024-25:

	GENCO-I	GENCO-III (Nandipur)	Port Qasim	Orient Power	Total
July, 2024	--	7.10	--	--	**7.10**
August, 2024	--	68.35	--	--	**68.35**
September, 2024	--	83.79	164.24	--	**248.03**
October, 2024	--	33.50	--	--	**33.50**
November, 2024	27.12	--	173.62	--	**200.74**

	GENCO-I	GENCO-III (Nandipur)	Port Qasim	Orient Power	Total
January, 2025	117.79	3.34	204.26	--	**325.38**
March, 2025	--	--	204.67	--	**204.67**
April, 2025	--	--	193.74	--	**193.74**
May, 2025	--	--	--	26.76	**26.76**
Total	**144.90**	**196.76**	**940.53**	**26.76**	**1,308.26**

Note: *(i) All these amounts of GENCO-III are on claimed basis as invoice is in process.*
(ii) Start-ups charges for the month of January, February and March, 2025 are not yet verified due to formula correction in process.
(iii) No start-ups charges are being paid to power plants for the month of December, 2024, February, and June, 2025.

Source: CPPA-G

3.13 DEGRADATION CHARGES

Degradation charges in power plants represent the costs associated with the gradual decline in a facility's performance or efficiency over time. Such charges arise from equipment wear and tear, aging infrastructure, reduced output capacity, and other factors linked to prolonged operations or environmental conditions. Typically defined in the PPA between the generator and the purchaser, the specific provisions vary by plant and contractual structure.

The table below presents the monthly degradation charges (Rs. in Million) for various power plants during FY 2024-25:

Name of IPPs (FY 2024-25)	July	August	September	October	November	December
Engro Powergen Qadirpur	2.183	2.192	2.122	1.225	5.746	5.977
Saif Power	7.797	7.927	8.027	8.898	8.984	9.550
Sapphire Electric	7.583	7.779	7.746	12.358	12.457	13.321
Uch-II Power	149.526	122.962	118.452	127.384	125.884	135.003
Foundation Power	18.746	19.044	18.371	19.309	18.810	20.594
Haveli Bahadur Shah	95.050	74.386	71.636	50.343	64.000	63.609
Balloki Power Project	100.830	101.962	90.320	70.112	69.912	73.826
Halmore Power	16.448	15.814	10.359	5.697	5.707	6.057
Orient Power	9.676	9.629	9.033	8.399	8.120	8.813
Quaid-e-Azam Thermal	102.201	103.128	100.112	74.323	71.501	75.945
Total	**510.040**	**464.823**	**436.178**	**378.047**	**391.122**	**412.694**

Name of IPPs (FY 2024-25)	January	February	March	April	May	June	Total
Engro Powergen Qadirpur	5.959	6.061	6.669	6.148	5.848	5.616	**55.746**
Foundation Power	9.556	8.461	9.145	8.417	7.810	-	**94.572**
Uch-II Power	13.340	11.838	12.767	11.757	11.935	11.340	**134.220**
Saif Power	135.570	120.540	120.590	54.650	52.294	49.889	**1,312.744**
Sapphire Electric	20.673	18.602	19.846	18.365	18.930	18.387	**229.677**
Halmore Generation	67.932	29.331	67.236	43.600	50.759	48.610	**726.492**
Orient Power	67.377	35.299	67.397	32.195	53.940	51.442	**814.611**
Quaid-e-Azam Thermal	10.235	9.146	7.004	9.249	11.809	11.210	**118.735**
Haveli Bahadur Shah	10.338	8.939	11.083	12.185	16.128	16.237	**128.580**
Balloki Power	53.058	47.791	51.900	64.355	63.630	71.193	**879.137**
Total	**394.038**	**296.008**	**373.636**	**260.922**	**293.083**	**283.923**	**4,494.515**

Source: CPPA-G

3.14 OPERATION OF POWER PLANTS IN VIOLATION OF ECONOMIC MERIT ORDER

In Pakistan's power sector, power plant operations frequently diverge from the EMO, which requires dispatching the lowest-cost electricity first. This principle is essential for system efficiency and for keeping tariffs affordable. However, persistent structural issues such as inadequate transmission capacity in the south-to-north corridor and the Lahore ring, as well as constraints arising from long-term gas supply contracts and low gas pressure routinely force operators to violate the

EMO. As a result, costlier power plants are dispatched ahead of cheaper ones, driving up the overall cost of electricity.

These deviations have carried a heavy financial toll: Rs. 60.386 billion in FY 2023-24 and Rs. 18.623 billion in FY 2024-25. Although the concerned entities may justify these outcomes, many of the underlying problems could have been mitigated through better planning, timely investments, and coordinated project execution. Continued non-compliance with the EMO not only inflates tariffs but also undermines the financial sustainability of the entire power sector, ultimately shifting the burden onto consumers.

Re-establishing strict adherence to the EMO supported by targeted infrastructure upgrades and improved fuel supply management could substantially reduce electricity costs and enhance the sector's long-term stability.

PERFORMANCE OF THE TRANSMISSION SECTOR

04

4.1 TRANSMISSION NETWORK: BACKBONE OF ELECTRIC POWER SYSTEM

The transmission network forms the structural backbone of the electric power system. It enables the bulk transfer of electricity from generation sources i.e. thermal, hydro, nuclear, and renewable, to major load centres nationwide. Its core functions are to maintain system stability, ensure reliable delivery, and support economically efficient dispatch of power.

In principle, a well-planned transmission network allows least-cost dispatch under the EMO through Security-Constrained Economic Dispatch (SCED), facilitating the transmission of electricity from low-cost plants to demand centres. In practice, however, Pakistan's transmission network has not been adequately designed, expanded, or reinforced to deliver this outcome. Constraints across key corridors, particularly South-to-North, have restricted the evacuation of low-cost generation and contributed to the suboptimal utilisation of installed power generation capacity.

The system's technical limitations are compounded by delays in reinforcement projects, ageing infrastructure, limited automation, and inadequate investment in grid modernisation. The grid lacks the redundancy and dynamic reactive power capability required for large-scale renewable integration, and its operational flexibility remains constrained.

As the sector transitions toward competitive market arrangements, the transmission network must evolve from a passive conduit of power to an active enabler of market efficiency and system reliability. Its neutrality, open access, and transparency are prerequisites for fair competition and efficient power trading.

The Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997 (NEPRA Act) establishes the legal and regulatory framework governing transmission. It vests NEPRA with exclusive authority to license, regulate, and monitor transmission operations. The relevant provisions include:

(a) **Section 16:** Establishes the framework and authority for the grant of Transmission Licences to entities seeking to engage in the business of power transmission.
(b) **Section 17:** Defines the specific criteria and requirements for the issuance of Transmission Licence to NGC [only one (01) licence to act as NGC at a time], which is responsible for the O&M of the interconnected national transmission system.
(c) **Section 18(A):** Empowers companies owned and controlled by Provincial Governments to develop, operate, and maintain transmission systems within their respective territorial jurisdictions, thereby supporting decentralised infrastructure development.
(d) **Section 19:** Provides for the grant of Special Purpose Transmission Licences, allowing entities to undertake dedicated transmission projects for specific purposes, such as evacuation of power from individual generation facilities or interconnection of isolated systems.

4.1.1 Brief Overview of Pakistan Transmission Segment:

As of June 30, 2025, Pakistan's national transmission system excluding Karachi and its adjoining areas is operated by the NGC, which is responsible for managing power transmission at 220 kV and above. In Karachi, the transmission network is operated and managed by KE, a vertically integrated private sector entity.

The NGC, operating as a public sector entity, has been exhibiting operational inefficiencies similar to other state-owned generation and distribution companies. These inefficiencies are placing a growing financial burden on both the national exchequer and electricity consumers.

NGC currently operates a vast transmission infrastructure comprising 19 grid stations at 500 kV (25,950 MVA), 49 grid stations at 220 kV (30,850 MVA), 86 circuits of 500 kV (9,100 km), and 158 circuits of 220 kV (11,853 km), along with 233 transformers installed across its network. However, physical expansion has not translated into proportional operational efficiency or reliability.

The performance of the national transmission system continues to be affected by three structural deficiencies:

(a) **Chronic Delays in Project Execution:** Several key transmission projects have suffered significant delays, resulting in network bottlenecks. The most prominent example is the 500 kV Lahore North Grid Station, which remains incomplete despite being critical for the utilisation of the 660 kV HVDC Matiari–Lahore Transmission Line. Originally scheduled for completion in 2021, the project remains incomplete. The delay has restricted the transfer of low-cost generation from the southern region and increased dependence on expensive northern generation, raising overall system costs.

(b) **Inadequate Integrated Planning:** Coordination between generation, transmission, and distribution planning remains weak. Capacity additions at the generation level have often outpaced corresponding transmission reinforcements. This misalignment has created congestion along the South-to-North transmission corridor, underutilisation of southern generation (particularly Thar coal and wind projects), and unnecessary reliance on imported fuels.

(c) **Institutional Inefficiencies:** The NGC's operational and governance framework remains heavily bureaucratic, with limited accountability and weak project management controls. Critical modernisation initiatives, such as SCADA-III, have faced prolonged delays, leaving the system operator without real-time visibility and automation capabilities that are standard in advanced grid operations.

(d) **Cumulative Effect of these Deficiencies is Systemic Inefficiency:** generation dispatch constrained by transmission capacity, high reliance on costly imported fuels, and rising end-user tariffs. These inefficiencies also manifest as capacity payments for unutilised generation and reduced competitiveness of the national power system.

Recognising these issues, the Authority initiated enforcement actions against NGC under Regulation 4 of the NEPRA (Fine) Regulations, 2021, due to non-compliance of regulatory directives and delays in project execution.

Going forward, the transmission segment must undergo a strategic shift from public sector-led incremental expansion to integrated, investment-driven modernisation. Without these reforms, the transmission system will remain the critical bottleneck in Pakistan's power value chain, limiting the benefits of generation diversification, renewable integration, and market liberalisation. Strengthening this backbone is thus a precondition for achieving reliability, affordability, and sustainable sector growth.

4.2 NATIONAL GRID COMPANY OF PAKISTAN LIMITED

Under Section 17 of the NEPRA Act, the NGC is licensed to transmit electric power across the country at voltage levels of 220 kV and above. The NGC has been mandated to operate and provide safe, and reliable transmission and interconnection services on a non-discriminatory basis to all users, including a BPC, who desire to directly connect to its facilities. The functions and responsibilities of NGC have been delineated under Section 18 of the NEPRA Act, which are, inter alia:

(a) to make available to the general public the tariff specifying the Authority's approved rates, charges and other terms and conditions for transmission and interconnection services, and
(b) it shall not levy any rate or charge or impose any condition for the transmission of electric power which has not been approved by the Authority as a tariff.

As of June 30, 2025, NGC is maintaining the following transmission facilities:

(a) 19 Nos. of 500 kV Grid Stations with transformation capacity of 25,950 MVA.
(b) 47 Nos. of 500/220 kV auto/power transformers installed at 500 kV grid stations.
(c) 86 Nos. of 500 kV circuits having length of 9,100 km.
(d) 49 Nos. of 220 kV Grid Stations with transformation capacity of 30,850 MVA.
(e) 41 Nos. of 220/132 kV transformers installed at 500/220 kV grid stations.
(f) 145 Nos. of 220/132 kV transformers installed at 220 kV grid stations.
(g) 158 Nos. of 220 kV circuits having length of 11,853 km.

The performance of the NGC of Pakistan has remained unsatisfactory for decades, resulting in billions of rupees in losses to electricity consumers and the national exchequer. Despite substantial investments in high-voltage infrastructure, NGC continues to grapple with persistent inefficiencies, including chronic delays in project execution, underutilisation of critical transmission assets, and inadequate system resilience. These longstanding shortcomings reflect deeper governance and institutional failures, emphasizing the urgent need for accountability, transparency, and structural reforms to ensure reliable and cost-effective power transmission across the country.

4.3 PROVINCIAL GRID COMPANIES AND SPECIAL PURPOSE TRANSMISSION LICENCES

Under Section 18A of the amended NEPRA Act, the Authority is empowered to grant transmission licences to companies owned by Provincial Governments for operations within their respective territorial limits. By the end of FY 2024-25, licences had been issued to the Provincial Grid Companies (PGCs) of Sindh, Punjab, and Khyber Pakhtunkhwa. These licences aim to accelerate the development of critical transmission infrastructure in coordination with the NGC.

Additionally, under Section 19 of the NEPRA Act, the Authority may issue Special Purpose Transmission Licences. To date, three such licences have been granted to Fatima Transmission Company Limited**,** Sindh Transmission and Dispatch Company (Pvt.) Limited, and Pak Matiari-Lahore Transmission Company (Pvt.) Limited.

4.4 INDEPENDENT SYSTEM AND MARKET OPERATOR

The establishment of ISMO in 2025 redefined the operational and institutional framework of Pakistan's power sector. Pursuant to NEPRA's determinations dated 30 April, 2025, the System Operator and Market Operator licences were transferred to ISMO, consolidating real-time grid operation and market administration under a single entity within the CTBCM framework.

This reform replaces the earlier dual structure where the NGC managed system operations and CPPA-G handled market functions. The consolidation addresses long-standing coordination issues between the technical and commercial segments of the sector, establishing a unified platform for transparent, auditable, and economically efficient operations governed by NEPRA's licensing framework, the Market Commercial Code, and the Grid Code.

Although both functions now reside within one organisation, their regulatory mandates remain distinct. The System Operator oversees real-time grid management, security-constrained dispatch, frequency control, and ancillary services, while the Market Operator administers contracts, settlements, and market transparency. Ensuring strict functional separation between these activities is essential to prevent conflicts of interest and uphold market integrity.

The independence and credibility of ISMO depend on the composition of its Board of Directors. which must be composed of technically competent, professionally reputed individuals, selected through transparent, merit-based processes. To ensure neutrality, the Board must remain free from undue influence by government entities, market participants, or other vested interests.

ISMO's success is foundational to the broader power sector reform agenda. Its ability to operate with transparency, neutrality, and technical rigor will be instrumental in fostering competitive markets, attracting investment, and enhancing consumer trust. Conversely, any erosion of its independence or governance standards could compromise market integrity and reform momentum.

4.5 POWER BALANCES IN NGC SYSTEM

Power balance in a country's power system refers to the continuous equilibrium between electricity generation and consumption to ensure reliable and stable operation. Maintaining this balance is critical, as even slight mismatches can lead to frequency deviations, system instability, or blackouts. A well-functioning power system requires adequate generation capacity, responsive demand-side measures, and robust transmission infrastructure to manage fluctuations and contingencies. As energy demand grows and renewable integration increases, achieving real-time power balance becomes more complex, underscoring the need for advanced grid management and investment in flexible resources.

The actual power balance of the NGC system for FY 2023-24 and FY 2024-25, along with the projected power balance from FY 2025-26 to FY 2029-30, as provided by NGC is presented in the table below:

A: Actual Figures

FY ending 30th June	System Generation Capability (MW)	Demand During NGC's System Peak Hours (MW) (including KE Supply)	Surplus/ (Deficit) (MW)
2024	31,182	24,485	6697
2025	24,733	23,848	885*

B: Projected Figures

FY ending 30th June	Planned Generation Capability as per NGC (MW)	NGC Projected Demand Growth Rate (%)	NGC's Projected Demand during Peak Hours (MW)	NGC Projected Demand Growth Rate (%)	NGC's Projected Demand during Peak Hours (MW)	Surplus/ (Deficit) (MW)
		Without Export to KE		With Export to KE		
2026	34,243	2.80	25,118	2.58	27,168	7,075
2027	34,630	2.80	25,821	2.59	27,871	6,759
2028	37,630	2.80	26,544	6.07	29,562	8,068
2029	39,356	2.80	27,288	3.56	30,614	8,742
2030	39,532	2.80	28,052	2.86	31,491	8,041

** China Power Hub was under Forced Outage, C-1 & K-2 were under Scheduled Outage.*
Source: NGC

Analysis of the power system indicates a substantial increase in the generation capacity, even when assessed against prevailing peak demand levels. The NGC's demand growth projections for 2026-2030 ranging from 2.56% to 6.07% annually appear optimistic given current consumption trends. This mismatch between projected and actual demand, combined with excess capacity, results in elevated costs for consumers through "Take or Pay" contracts that require payment for unused electricity. As tariffs rise, many grid-connected consumers particularly in commercial sectors and high-income residential areas are increasingly turning to self-generation solutions such as rooftop solar paired with battery storage. This shift further reduces demand on the grid, deepening the imbalance between contracted capacity and actual consumption.

At the same time, distribution inefficiencies particularly high AT&C losses continue to drive load-shedding, suppressing demand and leaving consumers to bear the dual burden of high costs and

unreliable service. Transmission constraints exacerbate the issue, preventing the optimal dispatch of electricity. As a result, cheaper generation sources in the south are often underutilised, while costlier plants in the north remain in operation, increasing overall system costs. Even with potential improvements in transmission infrastructure, the sector continues to face deeper structural challenges. These include stagnant demand growth, declining industrial output, rising energy efficiency, and widespread adoption of self-generation technologies all of which erode utility revenues and risk stranding both generation and transmission investments.

Addressing these issues requires a coordinated, data-driven strategy. This must include more accurate and realistic demand forecasting, a reassessment of generation capacity margins, and a thorough evaluation of financial risks associated with underutilised assets. In parallel, targeted policy reforms are needed to stimulate demand, enhance energy efficiency, and improve system flexibility. Without such an integrated approach, the power sector will struggle to achieve long-term sustainability, financial resilience, and affordable, reliable energy access for all consumers.

4.6 UNDERUTILISATION OF TRANSMISSION SYSTEM

The consistent underutilisation of transmission infrastructure especially during peak seasons signals deep inefficiencies in power sector planning. High-voltage lines, substations, and interconnections often operate well below their design capacity, despite substantial capital investment. This misalignment between infrastructure planning and actual power flows leads to assets remaining idle, yet incurring ongoing costs related to maintenance, depreciation, and financing. The latest system underutilisation statistics submitted by the NGC are presented in the following table:

Financial Year	No. of Underutilised Power Transformers		No. of Underutilised Transmission Lines	
	500 kV	220 kV	500 kV	220 kV
2023-24	12	18	26	49
2024-25	09	22	25	51

Source: NGC

The mismatch between planned transmission capacity and actual power flows has two key consequences. Financially, fixed network costs are spread over a lower volume of transmitted electricity, inflating per-unit costs and contributing to rising tariffs. Operationally, underutilised infrastructure highlights inefficiencies in system planning and delays future investments, ultimately weakening grid resilience and long-term efficiency. The NGC faces this challenge acutely, driven by delays in generation projects, transmission bottlenecks, and demand stagnation. Key corridors, originally built to evacuate power from generation hubs, now suffer from diminished flows.

To address this, the NGC must implement a targeted Utilisation Optimization Strategy. Key measures include load-flow and utilisation analysis to identify underused assets, network reconfiguration to improve load distribution, and better coordination between generation and distribution planning. In parallel, policy support is essential to stimulate demand growth. Aligning infrastructure development with actual system conditions will enhance efficiency, ensure financial sustainability, and improve grid reliability.

4.7 MERIT-ORDER OBSERVANCE/UNDERUTILISATION OF POWER PLANTS

(a) National Grid Company Network

Monitoring of ISMO's merit-order-based operations has consistently highlighted major network constraints driving the operation of costly plants, with the South-North transmission bottleneck emerging as the key issue. In FY 2024-25, merit order deviations led to a total financial impact of Rs. 18,623 million, including Rs. 15,607 million from transmission constraints, primarily the South-North corridor and contractual obligation resulting in underutilization of economical southern plants. The remaining Rs. 3,016 million stemmed from overloading of transmission lines and grids, poor planning, and incorrect unit commitments. The HVDC/HVAC corridor's seasonal limits of

2,600 MW in winter and 4,500 MW in summer have severely restricted evacuation from southern coal- and nuclear-based plants, significantly raising the electricity costs.

(b) KE Network

NEPRA also monitored the operation of KE's power plants, identifying key financial implications from low Gas/RLNG pressure and reliance on expensive plants. From July, 2024 to April, 2025, this resulted in a financial impact of Rs. 4,006 million, driven by low Gas/RLNG pressure at KGTPs, SGTPs, and KCCP; operation of KCCP on HSD; use of BQPS-I units on RFO; and reduced utilization of economical National Grid power. Of this, Rs. 1,588 million was attributed to Gas/RLNG pressure issues, while Rs. 2,418 million stemmed from underutilization of economical plants and/or limited National Grid intake. NEPRA also noted reliability concerns at BQPS-III due to turbine-related issues and initiated legal proceedings against KE accordingly.

4.8 OVERLOADING IN NGC'S 500 KV AND 220 KV NETWORK

The NGC faces critical overloading issues in several section of its 500 kV and 220 kV transmission network, particularly during peak demand in summer. Many grid stations and power transformers are operating beyond 80% of their rated capacity, risking equipment failure, voltage instability, and outages. In FY 2024-25, out of 192 transformers across 68 grid stations, 116 were overloaded:

Voltage Level	No. of Grid Stations	No. of Power Transformers	Loaded >80%
500/220 kV	19	47	30
220/132 kV	49	145	86
Total	**68**	**192**	**116**

Regions with notable overloading include Hyderabad, Islamabad, Lahore, and Multan, with persistent constraints at key grids like Gatti, New Multan, Sarfaraz Nagar, Muzaffargarh, and Sheikhupura. These limitations have led to reliance on expensive generation in violation of EMO and rising project costs due to delays. The details of some important overloading of these assets of NGC has been summarized below:

Overloading of 500/220 kV Transformers

Grid Station	Constraint Description	Period Since	System Impact / Remarks
Rawat	Persistent overloading of auto-transformers	2023	Causes reliance on Attock Gen. Limited to meet area demand
Sheikhupura	Four 600 MVA transformers overloaded	2018	Continuous dependence on Halmore and Sapphire plants
Gatti	Four 450 MVA transformers overloaded	2018	Linked with dispatch from Liberty Power Tech for local stability
Multan	Two 450 MVA transformers overloaded	2021-22	Indicates insufficient transformation capacity in southern-central corridor
Muzaffargarh	Two 600 MVA transformers overloaded	2021-22	Reflects capacity gap in regional transformation
Yousafwala	Three 600 MVA transformers and associated 500 kV Yousafwala–Sahiwal CFPP circuit overloaded	2023	Limits evacuation from Sahiwal Coal Power Plant
Jamshoro	Chronic overloading of 500/220 kV and 220/132 kV transformers	2017	Aggravated by bidirectional flows due to variable wind generation

Overloading of 220/132 kV Transformers

Grid Station	Constraint Description	Period Since	System Impact / Remarks
Sarfraz Nagar	Four 160 MVA transformers overloaded	2018	Partial mitigation achieved by augmentation of one unit; constraint persists pending installation of shunt capacitors

To address persistent overloading in NGC's transmission network, it is essential to fast-track the completion of critical transmission projects, upgrade existing substations with higher-capacity transformers and reactive power support, and enhance real-time grid monitoring through SCADA,

Energy Management System (EMS), and Real Time Digital Simulator (RTDS) systems. Additionally, network planning must be closely aligned with shifting demand centers and generation patterns. An urgent performance review is also necessary to identify and rectify delays and inefficiencies, ensuring reliable, cost-effective, and sustainable transmission system operations.

To assess the severity and duration of overloading, specifically, to determine how long a power transformer and/or transmission circuit operates beyond its rated capacity, hourly digitized operational data is required. Such time-resolved data enables accurate identification of overload periods, evaluation of their frequency and persistence, and assessment of potential thermal stress and reliability impacts on network assets.

4.9 TRANSMISSION AND TRANSFORMATION LOSSES OF NGC

The table below presents the month-wise Transmission and Transformation (T&T) losses for FY 2024-25, as reported by the NGC:

Month (FY 2024-25)	Energy Received by NGC at CDPs (GWh)	Energy Delivered by NGC at CDPs (GWh)	Units Lost (GWh)	T&T Losses (%)
July	15,911.51	15,529.07	382.45	2.404
August	14,951.55	14,591.24	360.32	2.410
September	13,555.55	13,251.77	303.78	2.241
October	10,712.98	10,486.33	226.65	2.116
November	8,288.16	8,044.00	244.16	2.946
December	8,059.68	7,827.27	232.41	2.884
January	8,638.97	8,356.83	282.14	3.266
February	7,113.37	6,886.79	226.58	3.185
March	8,624.63	8,381.71	242.92	2.817
April	10,100.49	9,850.39	250.11	2.476
May	13,271.27	12,956.28	314.99	2.373
June	14,393.13	14,027.43	365.70	2.541
Total	**133,621.29**	**130,189.10**	**3,432.19**	**2.569**

Note: Actual Month-wise T&T Losses.

While approving the Investment Plan for NGC for the period FY 2021-22 to FY 2024-25, the Authority approved T&T losses at 2.50%. However, the actual T&T losses recorded during the period from November 2024 to March 2025, as well as in May and June 2025, were consistently higher than the approved level of 2.50%. This persistent deviation warrants a detailed analysis to identify the underlying causes and to propose appropriate corrective measures.

T&T losses in NGC's network are driven by both technical and operational factors, such as ageing infrastructure, long-distance power transfers, reactive power imbalances, and delayed system upgrades. These losses undermine grid efficiency, increase operational costs, and reduce the volume of electricity available for sale, increase generation requirements, and elevate overall system costs. Financially, they constrain NGC's revenue recovery and exert upward pressure on consumer tariffs. Therefore, maintaining losses within regulatory thresholds is both a technical imperative and a core performance obligation.

To address this, NGC must adopt a targeted loss reduction strategy, focusing on real-time monitoring systems (e.g., SCADA, PMUs, EMS), optimized power dispatch, infrastructure modernization, and regular audits. Sustained investment in advanced technologies and efficient asset management is essential to ensure reduced losses, improved reliability, and long-term financial viability of the transmission system.

4.10 INVESTMENT DETAILS OF NGC

Pursuant to Section 32 of the NEPRA Act, 1997, and in accordance with the NEPRA Guidelines for Determination of Revenue Requirement and Use of System Charges (UoSC) for Transmission Licensees, 2017, the Authority approved the investment plan and loss assessment for the NGC covering the three-year tariff control period from FY 2022-23 to FY 2024-25.

(Million Rs.)

Description/Head	FY 2022-23	FY 2023-24	FY 2024-25	Total
Special Economic Zones	2,334	16,563	5,053	**23,950**
PSDP Funded Ongoing Works	101,813	91,388	76,965	**270,166**
PSDP Funded New Works	648	414	37,765	**38,827**
Self-Financed Ongoing Works	10,467	4,031	700	**15,198**
PSDP Funded Completed Works	1,594	32	0	**1,626**
Foreign Funded Completed Works	1,659	696	200	**2,555**
Land Acquisition of Solar Projects	Such costs shall be considered as a separate line item in the tariff determination of respective solar power plants.			
Grand Total Allowed	**118,515**	**113,124**	**120,683**	**352,322**
3rd Party Audit Fee	66.66	66.66	66.66	**200**
T&T Loss Level Allowed by NEPRA (%)	2.422	2.500*	2.500*	
T&T Loss Level Actual (%)	2.422	2.524	2.569	

** Provisionally allowed subject to Actual T&T Losses ascertained from CDP Metering Data.*
Source: NGC

4.11 TRANSMISSION SYSTEM CONSTRAINTS

Transmission system constraints significantly impact the overall efficiency, reliability, and affordability of electricity supply. When the transmission network lacks adequate capacity or flexibility, it restricts the flow of power from generation sources to demand centers. This leads to congestion, increased transmission losses, and underutilisation of low-cost or renewable generation, ultimately raising the overall cost of electricity.

Transmission constraints not only raise reliability concerns for consumers but also lead to higher electricity tariffs. This is primarily because, in the absence of adequate transmission capacity, the system must rely on more expensive and less efficient power generation sources, even when cheaper alternatives are available but inaccessible.

One of the key challenges in Pakistan's power sector is the persistent inadequacy of the transmission system particularly in evacuating electricity from cost-effective and indigenous generation resources located in the southern part of the country. Due to these constraints, the system is often forced to rely on more expensive power plants in the northern region, which significantly increases the overall cost of electricity supply.

Despite the critical importance of resolving these issues, many transmission bottlenecks have remained unaddressed for years. The NGC has consistently failed to resolve them in a timely and efficient manner. Observations show that nearly every second project undertaken by NGC suffers from time delays and cost overruns. These delays not only inflate capital costs but also result in operational inefficiencies such as the forced dispatch of power plants in violation of the EMO leading to substantial financial losses for the power system.

4.11.1 South-to-North Power Transfer Constraints:

The South-to-North transmission corridor remains a major bottleneck in NGC's network, limiting the transfer of cost-effective electricity primarily from coal, nuclear, and gas plants in the south to key demand centers in Punjab and Khyber Pakhtunkhwa. As a result, the system continues to rely on expensive RFO/RLNG-based generation in the north, leading to higher generation costs and electricity tariffs including the following limitations:

(a) **Limited Capacity of Existing HVAC Transmission Lines:** The overloaded 500 kV Jamshoro and Matiari Grid Stations, along with their associated lines, restrict power flow to just 1,800 MW far below the system's available 4,500 MW capacity (1,800 MW AC+2,700 MW DC). This bottleneck causes frequent load curtailment of up to 1,750 MW of cheaper power.

(b) **Underutilisation of 4,000 MW HVDC Matiari-Lahore Transmission Line:** Commissioned in September 2021, the 878 km HVDC line remains underutilised due to

delays in completing the 500 kV Lahore North substation and related transmission lines. This inefficiency imposes a financial burden on end-users despite the line's full operational readiness. During the FY 2024-25, average loading of the said HVDC transmission line is recorded as 1,401.40 MW with utilisation factor around 35.04%.

(c) **South-to-North Transmission and Transformation Constraints:** Capacity limitations on the 500 kV Dadu-Shikarpur, Shikarpur-Guddu, and Moro-Rahim Yar Khan lines force curtailment of low-cost generation from southern plants like Port Qasim and China Power Hub, even under normal (N-0) conditions reducing system efficiency and raising costs.

4.11.2 Delays in Completion of SCADA-III Project:

The original SCADA system, operational since 1992, became obsolete due to lack of hardware and software upgrades, impairing its functionality. To modernize operations and ensure nationwide real-time data acquisition, the SCADA-III project was launched with ADB support. Led by NGC, the project aims to modernize ISMO and regional operations, enhance grid visibility and control, integrate RE, and align with global best practices. Key objectives include replacing outdated SCADA/EMS platforms, establishing a reliable telecom backbone, and building a Backup Control Centre in Jamshoro for operational redundancy. Although approved in 2018 with a planned completion date of June 2022, the project is still ongoing.

The project's delay, now approaching three years beyond the original June, 2022 target, continues to impact operations. Limited real-time monitoring hampers NGC's ability to manage power flows effectively, respond to grid disturbances, and ensure system reliability. Financially, continued dependence on outdated systems and manual processes has increased operational costs.

4.11.3 Delays in Construction of 500 kV Lahore-North Grid Station:

The 500 kV Lahore-North Grid Station, a key project by the NGC to strengthen Punjab's transmission network for LESCO and GEPCO, is funded by the Asian Development Bank (ADB). It aims to resolve power supply constraints and improve voltage stability.

Originally set to be operational by September, 2021 alongside the 660 kV HVDC PMLTC transmission line, the project has faced significant delays. This has hindered the System Operator from efficiently evacuating cost-effective power from the South, increasing reliance on expensive generation sources, raising electricity costs for consumers, and straining the national economy. Additionally, the underutilised 4,000 MW PMLTC HVDC line remains far below its potential.

4.11.4 Delays in Construction of 500 kV K2/K3 – Port Qasim Transmission Line:

The 500 kV K2/K3-Port Qasim transmission line, approved by ECNEC in April, 2017 to evacuate power from the K2/K3 nuclear plants via the 500 kV KKI Grid Station, was scheduled for completion in April, 2022. However, due to significant delays, it operated under interim arrangements for three years and remains incomplete as of FY 2024-25.

4.11.5 NGC and KE Interconnection:

The development of the 500/220 kV KKI Grid Station represents a key milestone in strengthening the KE-NGC interconnection. By the end of Q1 FY 2024-25, the station was nearly complete and commissioned under an interim arrangement with an approved import limit of 1,600 MW. This provisional setup enabled KE to draw power via the 500 kV KKI-K2/K3 and KKI-Jamshoro transmission lines until the planned 500 kV double-circuit line linking KKI to the NGC grid through K2/K3 and Port Qasim Electric Power Company Limited was completed. The delay in project completion has limited the transfer of cheaper electricity from the CPPA-G system to KE, adversely affecting the power sector and the national exchequer during FY 2024-25.

4.11.6 Fatal/ Non-Fatal Accidents:

During FY 2024-25, a total of four (04) accidents were reported at NGC, comprising two (02) fatal and two (02) non-fatal incidents.

4.11.7 Details of Tower Collapse of 500 kV and 220 kV Transmission Lines of NGC for North and South Regions:

The details of the tower collapse incidents occurred during the last five (05) years are as follows:

Region	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25
South Region (Hyderabad and Quetta)	11	23	33	26	9
North Region (Islamabad, Lahore and Multan)	2	3	9	1	7
Total NGC	**13**	**26**	**42**	**27**	**16**

4.11.8 Details of Major Power Breakdowns/Blackout and Measures Taken:

No major power breakdown/blackouts in the NGC and KE networks have been reported during FY 2024-25.

4.12 DELAYED POWER EVACUATION PROJECT

Overloading at both 500 kV and 220 kV levels continues to hinder efficient power dispatch. To mitigate this, NGC has proposed new grid stations and upgrades to existing transmission infrastructure. However, delays in key power evacuation projects are worsening congestion and restricting the evacuation of lower-cost power. These setbacks not only affect grid stability and reliability but also lead to higher electricity tariffs for end consumers. Below is a list of major transmission projects that have experienced delays, along with the reasons for these setbacks as reported by NGC:

Name of Project and their Status (as on June 30, 2025)	Reasons for Delays
Augmentation at 220 kV Sammundri Road and Ghakkhar G/S: Initial Completion date as per PC-I: 27-02-2023 220 kV Sammundri Road (89% Completed) 220 kV Ghakkhar G/S (97.50% Completed)	(a) Delay in LC establishment due to cash foreign exchange constraints amid prevailing economic conditions. (b) Resultant delay in procurement and delivery of material. (c) Non-availability of shutdown during summer season owing to heavy load on NTDC network.
Augmentation at 220 kV WAPDA Town and 500 kV Sheikhupura G/S: Initial Completion date as per PC-I: 05-05-2023 220 kV WAPDA Town (97% Completed) 500 kV Sheikhupura G/S (91% Completed)	Change of Manufacturer for 250 MVA, 220/132 kV ATR from M/s TBEA Hengyang Transformer to M/s XIAN XD Transformer Co. China (Pvt.) Limited is main issue of delay.
Augmentation Works at 220 kV Ludewala G/S and Extension Works at New Kot Lakhpat G/S: Initial Completion date as per PC-I: 08-02-2024 New Kot Lakhpat G/S (95% Completed) 220 kV Ludewala G/S (97% Completed)	Delay in LC establishment due to cash foreign exchange constraints amid prevailing economic conditions resultant delay in procurement and delivery of material.
765/220 kV Mansehra Grid Station (LOT-3): Initial Completion date as per PC-I: 20-08-2025 (36% Completed)	(a) Extra time involved in the design & engineering approval of equipment and its impact on subsequent activities for procurement, manufacturing, FATs of equipment etc. (b) Site social issues and security concerns for movement/ deployment of Chinese nationals e.g, Construction Manager at site.
500 kV T/L for Nowshera (HVAC) G/S: Initial Completion date as per PC-I: 23-08-2023 (92% Completed)	(a) LC opening issues (b) ROW issues
500 kV Maira Switching Station: Initial Completion date as per PC-I: 11-07-2023 (89.36% Completed)	(a) Change in foundation design (b) Delay in approval of connector/hardware by contractor

Name of Project and their Status (as on June 30, 2025)	Reasons for Delays
500 kV Tarbela-Islamabad West T/L for Evacuation of Power from Tarbela 5th Extension: Initial Completion date as per PC-I: 03-11-2024 (80.49% Completed)	(a) ROW issues followed by court cases on several number of tower locations. (b) Persistent Right of Way issues as transmission line is passing through Housing Societies near Islamabad.
Extension Works at 220 kV University: Initial Completion date as per PC-I: 09-02-2024 (96% Completed)	(a) LC opening issues. (b) Non-availability of shut down
500 kV HVDC Converter Station Nowshera and Electrode Station Charsadda: Initial Completion date as per PC-I: 28-02-2022 (99% Completed)	The delay in the project is attributable to land acquisition of Converter station in Nowshera mainly: (a) Due to hindrances created by local inhabitants and political influence to delay the land acquisition by threatening the survey team at site. (b) Persistent transfer of Land Acquisition Collector. (c) Moreover, COVID-19 also caused a major set-back in disbursement of payments to the landowners due to restrictions on gathering of people imposed by the Government of Pakistan during the lockdown period. There was a ban on holding any kind of public meetings/gatherings. (d) As per contract the safe and secure site was to be handed over to EPC Contractor in February, 2019 however due to above mentioned reasons the site was handed over to contractor on 3rd April, 2021 causing delay of 766 days.
500 kV HVDC Transmission Line and Electrode Line: Initial Completion date as per PC-I: 05-11-2022 (86.90% Completed)	(a) Delay in confirmation of Earth Electrode Site. (b) Delay in establishing of LCs of Towers, Conductor, Insulator etc. (c) Delay in Type testing due to testing COVID – 19 Pandemic (d) Possession of Site. (e) Delay in Shipment of Insulators due to Port congestion (f) Force Majeure declared by Employer on 66kV Electrode Line. (g) Right of way issues in Tribal area due to demands related to PCSP programs (h) Blasting/explosive NOC required in Jamrud and Landi Kotal area from LEAs for excavation. (i) Stringing withheld by Ministry for a long duration due to stoppage of work in Afghanistan. (j) Delay in finalization of Electrode line Variation order due to conversion of 57 Nos. of Conventional foundation to Pile due to Electrode Station Site. (k) Shifting of Netracon Crews from project site to other NGCs important T/Line projects on the direction of management of NGC.
500 kV HVAC Grid Station Nowshera: Initial Completion date as per PC-I: 27-02-2024 (84.50% Completed)	(a) Late Hiring of Sub-Contractor by Main Contractor. (b) Late approval of change of Manufacturers (c) Delay in Finalization of System Designers for Protection and Control and SCADA and Telecom System. (d) Late Approval of NGC Inspectors from Competent Authority. (e) Restriction in movement of Chinese Engineers from China to Pakistan and within Pakistan. (f) Change in International Shipping routes due to Geo-Political Situation in Gulf.
500 kV K2/K3-Port Qasim T/L (102 km): Initial Completion date as per PC-I: 18-08-2024 (99.03% Completed)	(a) The Severe ROW problems in Balochistan (District Hub) area and in Gaddap (District Malir Karachi) by the landowners (b) ROW issues in Bahria Town Karachi (BTK-I) under the jurisdiction of District Jamshoro. (c) Litigation Matters (d) Material Shortage Issues. (e) Delay in approval of shutdown.

Name of Project and their Status (as on June 30, 2025)	Reasons for Delays
Extension and Augmentation Works at 220 kV Rohri, Daharki and Bahawalpur G/S: Initial Completion date as per PC-I: 13-02-2023 All Three Auto Transformers (250 MVA) Commissioned and energized at Daharki, Rohri and Bahawalpur	(a) Delay In Establishment of LC (b) Delay related to Design Consultant (c) Delay due to non-availability of Existing System/ Drawing by the Employer. (d) Delay in approval of Design ATR
Augmentation Works at 220 kV TMK G/S, 220 kV HR G/S and Ext. Works at 500 kV Jamshoro G/S: Initial Completion date as per PC-I: 29-05-2023 -ATR T-2 energized on No-load on 18-05-2025 -ATR T-2 energized on load on 05-05-2025 -500 kV Jamshoro G/S (67.35% Completed)	(a) Change of Scope due to unforeseen site conditions. (b) Non-availability of shutdown. (c) Change of Manufacturer of ATRs
Extension Works at 220 kV Sibbi G/S and 220 kV Loralai G/S: Initial Completion date as per PC-I: 27-03-2023 -220 kV Sibbi Grid Station (90% Completed) -220 kV Loralai Grid Station (82% Completed)	(a) Delay in establishment of LC to complete procurement/supply of material. (b) Security situation in the Balochistan province.
Augmentation at 220 kV Quetta Industrial G/S: Initial Completion date as per PC-I: 30-11-2022 (99.80% Completed)	(a) Delay in establishment of LC to complete procurement/supply of material. (b) Security situation in the Balochistan province.

The reasons cited by NGC for these delays are unconvincing and largely stem from poor planning, weak commitments, and inadequate coordination among stakeholders. Many of these issues could have been avoided through more diligent project management, clearer accountability, and proactive communication. Implementing prudent practices such as rigorous timeline assessments, early stakeholder engagement, and contingency planning would significantly reduce delays and improve overall project execution. Addressing these underlying management weaknesses is essential to ensure timely completion of critical transmission projects and to enhance grid reliability.

4.13 PERFORMANCE OF NGC UNDER NEPRA PERFORMANCE STANDARDS (TRANSMISSION) RULES, 2005

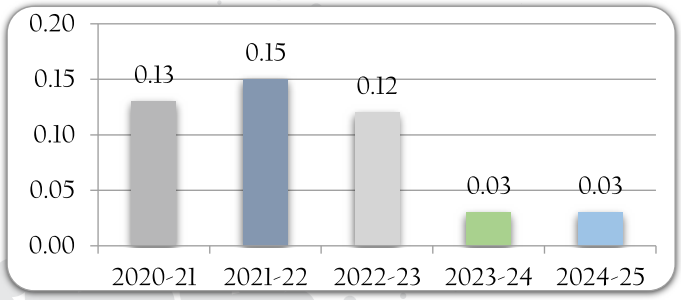
The Performance Standards (Transmission) Rules, 2005 (PSTR-2005) obligates each transmission licensee to furnish an Annual Performance Report (APR) in the manner specified by the Authority. In compliance with the PSTR-2005, NGC submitted its APR for FY 2023-24. This performance of NGC was assessed against key performance parameters including System Duration of Interruption, System Frequency of Interruption, Energy Not Served, Loss of Supply Incidents, as well as instances of Voltage and Frequency limits violation specified in the PSTR-2005. A summary of the findings is presented hereunder:

(i) System Reliability:

The System Reliability Indicators as reported by NGC are as follows:

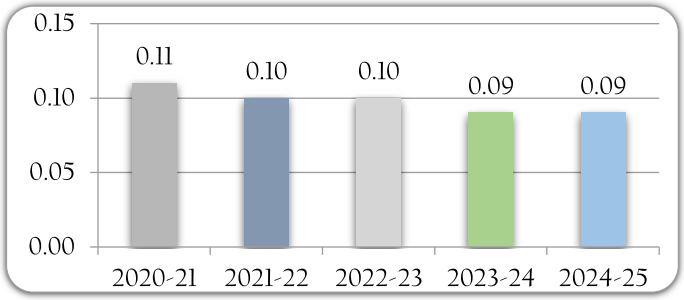
(a) System Duration of Interruption (Hrs./Point)

This indicator reflects the average duration of outages experienced at an interconnection point over the course of a year. In the FY 2024-25, this duration was recorded at 0.03 hours, which represents the same figure as in the previous financial year, as shown in the graph.



(b) System Frequency of Interruption (Nos./Circuit)

This metric indicates the average number of outages that occur on a circuit annually. In the FY 2024-25, this figure was recorded at 0.09/circuit, with the same value as reported in the previous year, as shown in the graph.

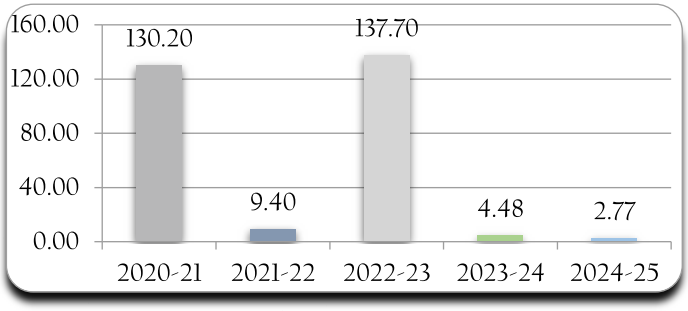


(ii) System Security:

NGC's reported System Security Indicators are as follows:

(a) Energy Not Served (GWh)

This KPI shows the estimates of the total Energy Not Served (ENS) contributed by loss of supply incidents during the year. The ENS decreased from 4.48 GWh in FY 2023-24 to 2.77 GWh in FY 2024-25; a decrease of 38.2% as compared to the previous year.



(b) Loss of Supply Incidents, Average ENS per Incident and Average Duration per Incident

During FY 2024-25, there were 49 losses of supply incidents, which shows a decrease compared to the previous year.

Financial Year	Loss of Supply Incidents (Nos.)	Average ENS per Incident (MkWh)	Average Duration per Incident (Hrs)
2020-21	57	2.28	1:20
2021-22	51	0.20	1.60
2022-23	55	2.50	1.14
2023-24	51	0.09	0.37
2024-25	49	0.06	0.35

Source: NGC

(iii) System Frequency:

During FY 2024-25, seven instances were observed when the system frequency exceeded the upper permissible limit of 50.50 Hz, as stipulated in Rule 8 of the PSTR-2005. The highest recorded frequency i.e., 50.62 Hz, was 1.24% above from the nominal frequency of 50 Hz in the FY 2024-25. The comparison of frequency limit violations for the past five years is presented below:

(a) NGC System Frequency

Financial Year	Number of times Frequency remained outside the Limits			Time duration the Frequency remained outside the Limits		
	In a year	Average/month	Average/day	hours	Min.	% of year
2020-21	4	0.30	0.01	0.60	36	0.007
2021-22	1	0.11	0.003	0.12	7	0.001
2022-23	15	1.25	0.041	1.70	102	0.013
2023-24	7	0.58	0.02	0.82	49.20	0.01
2024-25	8	0.67	0.02	0.74	44.40	0.01

Source: NGC

(b) NGC Monthly Frequency Violating Limit (Hz) (Highest System)

Month	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25
July	50.72	50.59	50.66	50.61	NIL
August	NIL	NIL	50.61	50.55	50.66
September	50.54	50.54	50.65	NIL	NIL
October	NIL	NIL	NIL	NIL	NIL
November	NIL	NIL	NIL	NIL	NIL
December	NIL	NIL	50.53	Nil	50.54
January	NIL	NIL	50.57	50.54	50.62
February	NIL	NIL	NIL	NIL	NIL
March	NIL	NIL	NIL	NIL	50.6
April	NIL	NIL	50.57	NIL	NIL
May	NIL	50.61	50.55	NIL	50.66
June	NIL	50.66	50.56	50.62	NIL

Source: NGC

It is added here that "NIL" lowest system frequency has been reported in the last five years.

4.14 TRANSMISSION NETWORK OF KE

KE holds a Transmission Licence granted under Section 16 of the NEPRA Act and is responsible for the ownership, operation, and maintenance of a transmission network spanning both 220 kV and 132 kV levels. Key information related to KE's transmission system is as below:

(a) 467 km of 220 kV Transmission Lines (423 km overhead and 44 km underground)
(b) 12 Nos. of 220 kV Grid Stations with transformation capacity of 5,500 MVA
(c) 805 km of 132 kV Transmission Lines (640 km overhead and 165 km underground)
(d) 62 Nos. of 132 kV Grid Stations having transformation capacity of 7,117 MVA
(e) 03 Nos. of 66 kV Grid Stations having transformation capacity of 79 MVA

4.15 POWER BALANCES IN KE SYSTEM

The following table offers a glimpse of the demand-supply situation within the KE system. It indicates that KE failed in its obligation to meet the system peak.

A: Actual Figures

Financial Year ending 30th June	Generation Capability (MW) [1]	Demand During KE's System Peak Hours (MW)	Surplus/(Deficit) (MW) [2]
2024	3,550 (including IPPs + NGC)	3,568	(18)
2025	3,545 (including IPPs + NGC)	3,707	(162)

B: Projected Figures

Financial Year ending 30th June	Planned Generation Capability as per KE (MW)	KE's Projected Demand Growth Rate (%)	KE's Projected Demand during Peak hours (MW)	Surplus/ (Deficit) (MW)
2026	4,173	4.24	3,926	247
2027	4,197	4.24	4,158	39
2028	4,269	4.24	4,261	8
2029	4,882	4.24	4,441	441
2030	4,882	4.24	4,562	320

[1] Based on maximum supply achieved in KE's System.
[2] Deficit based on peak demand and maximum supply achieved during the year.
Source: KE

4.16 LOADING POSITION OF POWER TRANSFORMERS IN KE SYSTEM

KE operates and manages a transmission network consisting of 12 grid stations at the 220/132 kV level, with a total transformation capacity of 5,500 MVA. In addition, there are 62 grid stations functioning at the 132/11 kV level, hosting a fleet of 180 power transformers collectively offering a transformation capacity of 7,017 MVA. Furthermore, KE maintains four (04) grid stations operating at the 66/11 kV level, housing 4 power transformers, with an aggregate transformation capacity of 79 MVA.

According to the operational data reported by KE for the 220/132 kV grid stations, no instances of over-loading were observed during FY 2024-25. However, at the 132/11 kV level, 25% power transformers were reported as overloaded during the same period. Additionally, two power transformers at the 66/11 kV level exceeded 80% of their rated capacity. The situation necessitates that KE must closely monitor and manage transformer loads, and take appropriate actions to ensure optimal performance and prevent potential issues.

4.17 FATAL/NON-FATAL ACCIDENTS IN KE SYSTEM

During FY 2024-25, a total of twenty-five (25) accidents were reported at KE, including two (02) fatal and twenty-three (23) non-fatal incidents. This highlights the ongoing safety challenges within the organization and underscores the need for enhanced preventive measures and safety protocols.

4.18 DETAILS OF TOWER COLLAPSE OF 220 KV TRANSMISSION LINES OF KE

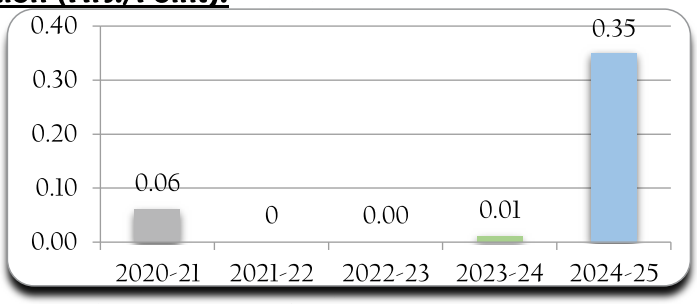
The details of the tower collapse incidents occurred during the last five (05) years are as follows:

FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25
15	2	4	9	4

4.19 PERFORMANCE OF KE UNDER NEPRA PERFORMANCE STANDARDS (TRANSMISSION) RULES, 2005

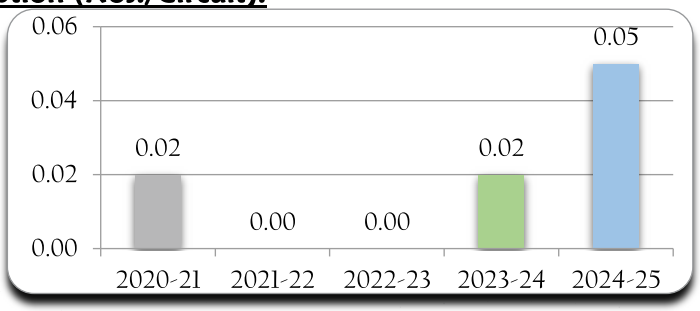
(i) System Duration of Interruption (Hrs./Point):

The KPI shows the average duration of outage an interconnection point observes during a year and it remained 0.35 in the year 2024-25 which increased as compared to preceding year.



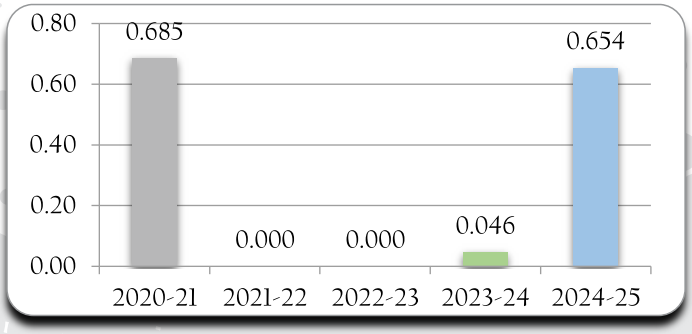
(ii) System Frequency of Interruption (Nos./Circuit):

This KPI reflects the average number of outages per circuit each year. In the year 2024-25, it remained at 0.05, indicating an increase compared to the previous year.



(iii) Energy Not Served (GWh):

The KPI estimates the total energy not served (ENS) due to loss of supply incidents throughout the year. For FY 2024-25, KE reported ENS as 0.654 GWh, which is an increase compared to the previous year.



(iv) System Frequency:

Rule 8 of the PSTR-2005 prescribes limits for frequency. The frequency data as reported by KE indicated variation in frequency limits beyond the permissible limits ±1%:

Description/Unit/Year	Unit	2020-21	2021-22	2022-23	2023-24	2024-25
No. of times Frequency remained outside the Limits in a Year	In a year	Nil	1	4	1	5
	Average/month	Nil	0.08	0.33	0.08	0.42
	Average/day	Nil	0.003	0.01	0.003	0.01
Time duration the Frequency remained outside the Limits in a Year	Days	Nil	0.006	0.02	0.003	0.01
	Hours	Nil	0.15	0.45	0.1	0.28
	%age of year	Nil	0.002	0.01	0.001	0.003

(v) KE's Monthly Frequency Variation (Highest of the System):

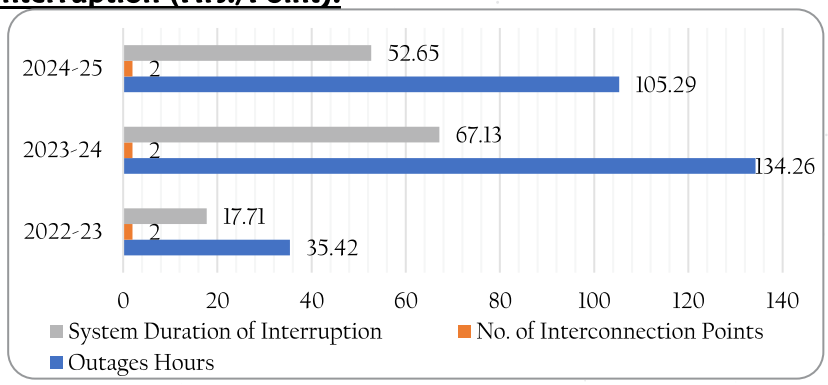
From the below table it is evident that the highest of the system frequency variation is recorded in the month of May, 2025 at 50.35 Hz for a duration of 5.35 minutes. However, total events of system frequency variations during the reporting year is recorded five (05) number of times.

Months	Highest Frequency		Lowest Frequency		Number of times the Frequency Remained Outside the Permissible Limits
	Frequency Recorded (Hz)	Duration (min)	Frequency Recorded (Hz)	Duration (min)	
January	50.51	5.18	Nil	Nil	1
March	50.51	6.38	Nil	Nil	1
May	50.53	5.35	Nil	Nil	3

4.20 PERFORMANCE OF SINDH TRANSMISSION AND DISPATCH COMPANY LIMITED

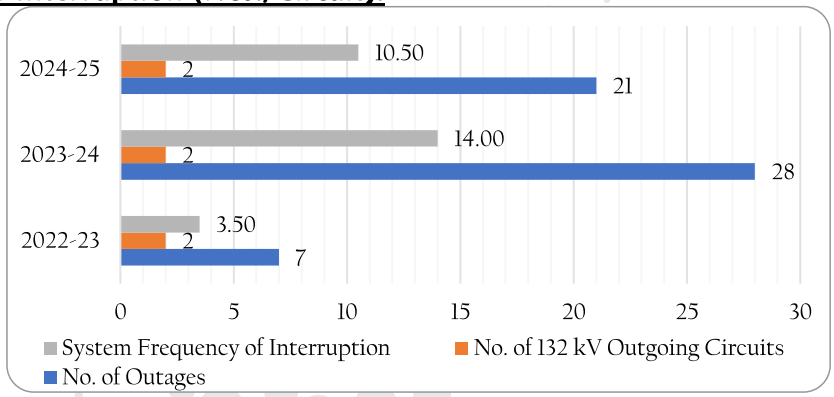
(i) System Duration of Interruption (Hrs./Point):

The KPI shows the average duration of outage on interconnection point experienced during a year. It was noted as 52.65 Hrs./point in FY 2024-25 indicating 21.5% decrease in average outage duration per interconnection point as compared to preceding year.



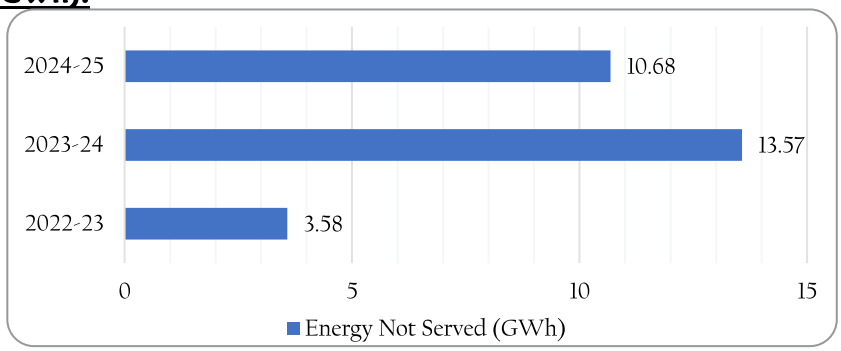
(ii) System Frequency of Interruption (Nos./Circuit):

The parameter indicates the average number of outages at a circuit during a year. During FY 2024-25 it remained 10.5 as shown in the accompanying figure for 25% decrease in average number of outages per circuit compared to preceding year.

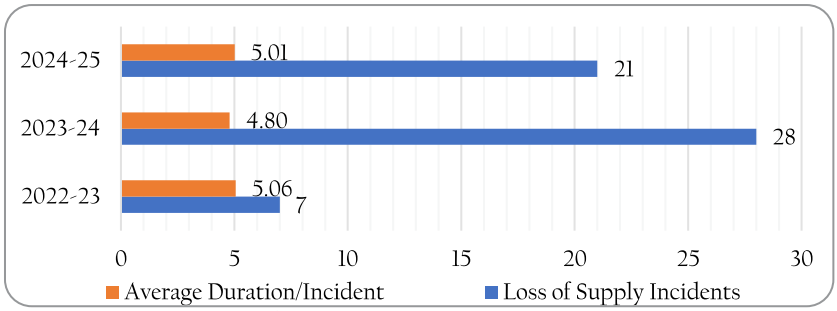


(iii) Energy Not Served (GWh):

The KPI shows the estimates of the total energy not served (ENS) contributed by loss of supply incidents during the year. The ENS decreased from 13.57 GWh in 2023-24 to 10.68 GWh in 2024-25; a decrease by 21.3% as compared to previous year.



The figure shows considerable improvement in loss of supply incidents (reduced by more than 25% during the FY 2024-25 over FY 2023-24). Therefore, STDC is required to continue its efforts to achieve reliability levels.



(iv) System Frequency:

Rule 8 of the PSTR-2005 prescribes limits for frequency. The frequency data as reported by STDC indicated variation in frequency limits beyond the permissible limits ±1%. The table below shows the frequency violations occurred both on highest and lowest side during last five years:

Time Period	Highest Frequency (Hz) Violations	Lowest Frequency (Hz) Violations	Total Number of Frequency Violations
FY 2020-21	Nil	Nil	Nil
FY 2021-22	Nil	Nil	Nil
FY 2022-23	1	3	4
FY 2023-24	Nil	Nil	Nil
FY 2024-25	Nil	Nil	Nil

4.20.1 Transmission Losses of STDC:

NEPRA has allowed a transmission loss of 2.0% to STDC for its 132 kV transmission line, connecting SNPC-I and SNPC-II power plants to the KDA-33 Grid Station of KE. For the FY 2024-25, following losses have been reported by the STDC:

Month (FY 2024-25)	Energy Received from SNPC-I & II (GWh)	Energy Delivered at KDA-33 Grid Station (GWh)	Transmission Losses	
			(GWh)	(%)
July	56.30	55.18	1.12	1.98
August	58.29	57.16	1.12	1.93
September	48.74	47.85	0.90	1.84
October	42.96	42.28	0.69	1.60
November	51.75	50.91	0.84	1.63
December	40.85	40.27	0.58	1.42
January	24.45	24.21	0.25	1.01
February	29.32	28.99	0.32	1.10
March	47.31	46.67	0.64	1.36
April	43.53	42.88	0.65	1.48
May	50.41	49.52	0.90	1.78
June	32.82	32.30	0.52	1.59
Total	**526.73**	**518.20**	**8.52**	**1.62**

Note: Actual Month-wise T&T Losses.
Source: STDC

4.20.2 Duration of Transmission Line Outages of STDC:

The following table presents a month-wise breakdown of the number of transmission line outages, including duration of the outage and reasons thereof, for FY 2024-25:

Month (FY 2024-25)	No. of Outages	Duration of Outages	Reason(s) of Outages
July	4	27 Hours 03 Mins	CKT 1: Porcelain Disc Insulator broken CKT 2: Porcelain Disc Insulator at Angle Tower broken
August	3	12 Hours 56 Mins	CKT 1: Porcelain Disc Insulator broken CKT 2: Porcelain Disc Insulator at Angle Tower broken
October	5	18 Hours 58 Mins	CKT 1: Porcelain Disc Insulator broken CKT 2: Porcelain Disc Insulator at Angle Tower broken
November	1	3 Hours 53 Mins	CKT 1: Porcelain Disc Insulator broken CKT 2: Porcelain Disc Insulator at Angle Tower broken
May	2	09 Hours 51 Mins	CKT 1: Porcelain Disc Insulator broken CKT 2: Porcelain Disc Insulator at Angle Tower broken
June	6	33 Hours 00 Mins	CKT 1: Porcelain Disc Insulator broken CKT 2: Porcelain Disc Insulator at Angle Tower broken
Total	**21**	**105 Hours 41 Mins**	

Source: STDC

4.21 PERFORMANCE OF PUNJAB GRID COMPANY LIMITED

Punjab Grid Company Limited (PGC), a wholly owned subsidiary of the Government of the Punjab, was incorporated with the Securities and Exchange Commission of Pakistan on January 03, 2023. NEPRA awarded PGCL a Transmission Licence on November 08, 2023, authorizing the company to transmit electric energy within its designated territorial limits for a period of thirty (30) years. Currently ongoing Initiatives of PGC is as under:

(i) Engagement with public and private stakeholders to commence operations.
(ii) Coordination meetings with KPT&GSC and STDC management.
(iii) Appointment of PGC's first external auditor.
(iv) Recruitment of a legal advisor.
(v) Preparation of a Transmission Line Investment Policy.

(a) Proposed Projects by PGC:

S. No.	Project Name	Status
Project 01	**Construction of 132 kV OHTL Lahore Region:** 132 kV line 33 km Multan Road to Sundar Industrial (Estimated Cost: Rs. 1.3 billion)	Approval of Standard Security Documents for Watse to Energy Power Projects in Punjab including Tripartite Transmission Service Agreement by Punjab cabinet is under process.
Project 02	**Construction of 132 kV OHTL South Punjab Region:** 132 kV line having length of 80 km from Taunsa HPP to Multan Industrial Estate (Estimated Cost: Rs. 6.23 billion)	GoPb is planning to develop Taunsa Hydropower project in Captive Mode.
Project 03	**Construction of 132 kV line from 250 MW Chishtian:** Solar Power Plant to Nearest 132 kV Grid Station having length of 20 km (Estimated Cost: Rs. 1.5 billion)	Planned

Source: PGC

4.22 PERFORMANCE OF PAK-MATIARI LAHORE TRANSMISSION COMPANY LIMITED

The 660 kV HVDC transmission line of PMLTC, extending 886 km from Matiari to Lahore, was developed to enhance power transmission, particularly for nuclear and coal-based power, from southern to central Pakistan. NEPRA approved the project in 2018, with a power transfer capacity of 4,000 MW. During FY 2024-25, the HVDC line encountered several issues including the following:

(a) System Stability Issues: Stability concerns adversely affected the line's operation, contributing to its underperformance.
(b) Infrastructure Deficiencies: The necessary Alternating Current (AC) infrastructure, such as the 500 kV Lahore North Grid Station and related transmission lines, was not fully developed, limiting the line's effectiveness.

These challenges led to considerable underutilisation of the HVDC line. During FY 2024-25, the month-wise utilisation and loading of HVDC line is as under:

Month (FY 2024-25)	Average Loading (MW)	Utilisation (%)	Month (FY 2024-25)	Average Loading (MW)	Utilisation (%)
July	2,204.85	55.12	January	1,267.33	31.68
August	1,829.38	45.73	February	920.08	23.00
September	1,463.89	36.60	March	1,290.00	32.25
October	1,096.44	27.41	April	1,534.23	38.36
November	799.81	19.99	May	1,600.26	40.00
December	950.76	23.77	June	1,813.38	45.33
Total (FY 2024-25)				**1,401.40**	**35.04**

Source: PMLTC

(a) Normal and Extreme Voltage Range of Converter Station AC Buses:

Converter Station	Recommended Normal Operating Voltage (kV)	Normal Continuous Operating Voltage Range (kV)	Typical Voltage Variation (kV)	Extreme Continuous Operating Voltage Range (kV)
Matiari	500	475 ~ 540	505 ~ 525	450 ~ 550
Lahore	500	475 ~ 530	490 ~ 510	450 ~ 550

(b) Normal and Post Distributed Frequency Variation:

The normal frequency variation of the Matiari converter station AC bus is within the range of 50±0.1 Hz, the post distributed frequency variation is within the range of 49.4~50.5 Hz, and the frequency after fault clearance is within the range of 50±0.2 Hz.

The normal frequency variation of the Lahore converter station AC bus is within the range of 50±0.1 Hz, the post distributed frequency variation is within the range of 49.5~50.5 Hz, and the frequency after fault clearance is within the range of 50±0.2 Hz.

(c) System Interruptions:

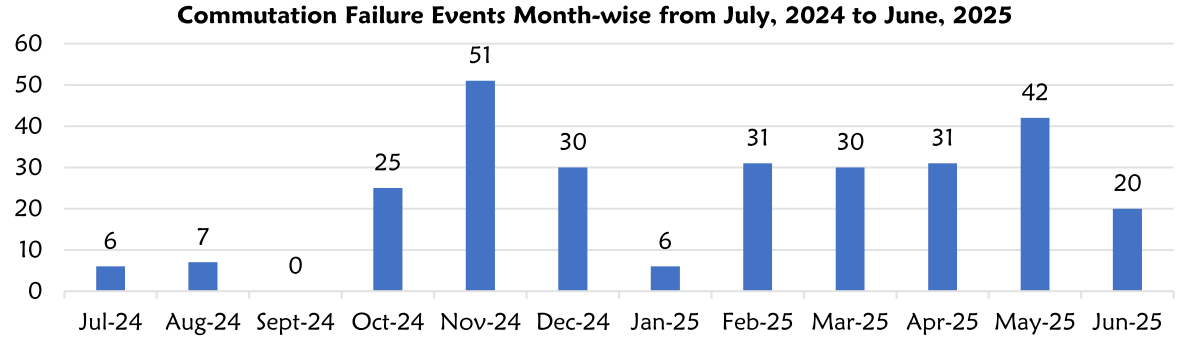
The HVDC system, connected to 10 Nos. 500 kV transmission lines at Matiari Converter Station and 6 Nos. 500 kV Transmission lines at Lahore Converter Station, recorded total 45 times line-tripping events at the Matiari Converter Station and 04 time at Lahore Converter Station due to AC network instability (i.e. conductor broken, tower collapsed and Foggy weather as intimated by ISMO). These frequent tripping incidents significantly affected AC voltage and frequency stability and further induced abrupt "jerks" in the HVDC system, which forced the ISMO to reduce power flows on both the HVDC and AC networks to maintain stability.

(d) Quarterly and Cumulative DC Power Transmission by ±660 kV HVDC Transmission Line:

FY 2024-25	Quarterly Transmission (Billion kWh)	Cumulative Transmission (Billion kWh)
July to September, 2024	4.059	45.576
October to December, 2024	2.102	47.678
January to March, 2025	2.524	50.202
April to June, 2025	3.605	53.87

(e) HVDC Commutation Failure Events:

The following graph provides month-wise number of commutation failure events occurred during FY 2024-25:



4.22.1 Transmission Losses of 660 kV HVDC Line:

NEPRA has allowed a margin of 4.30% for the annual transmission losses on the 660 kV HVDC transmission line, operated by the PMLTC. The monthly transmission losses reported during the FY 2024-25 are as below:

Month (FY 2024-25)	Energy Received by HVDC at CDPs (GWh)	Energy Delivered by HVDC at CDPs (GWh)	Utilisation (MW)	Utilisation Factor (%)	Units Lost (GWh)	Losses (%)
July	1,640.41	1,593.57	2,204.85	55.12	46.84	2.855
August	1,361.06	1,330.15	1,829.38	45.73	30.91	2.271
September	1,054.00	1,023.92	1,463.89	36.60	30.08	2.854
October	815.754	792.574	1,096.44	27.41	23.18	2.842
November	575.861	556.3329	799.81	19.99	19.53	3.391
December	707.362	686.3514	950.76	23.77	21.01	2.970
January	942.895	916.84	1,267.00	31.68	26.06	2.763
February	618.297	599.5979	920.00	23.00	18.70	3.024
March	959.76	933.8154	1,290.00	32.25	25.94	2.703
April	1,104.64	1,074.61	1,534.00	38.36	30.03	2.719
May	1,190.59	1,155.28	1,600.00	40.00	35.31	2.966
June	1,305.64	1,268.13	1,813.40	45.33	37.51	2.873
Total	**12,276.27**	**11,931.17**	**1,401.40**	**35.04**	**345.10**	**2.811**

Source: CDP Metering Data of NGC

PMLTC – 4,000 MW HVDC Transmission Line

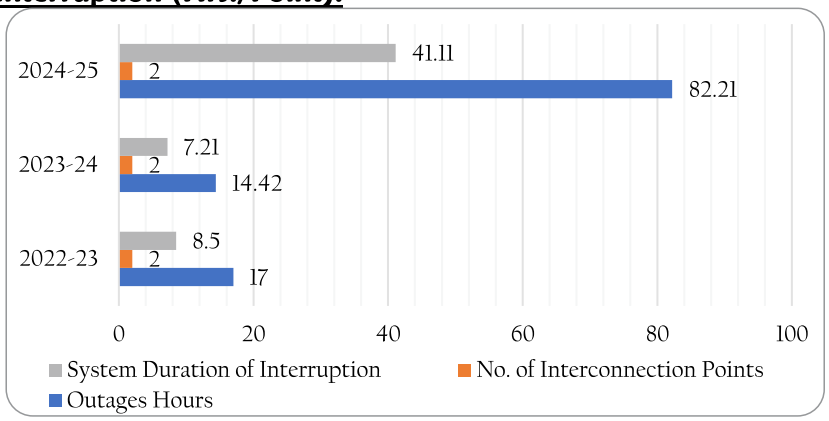
Month (FY 2024-25)	Invoice Amount Billed by PMLTC (Rs. in Billion)	Energy Transmission Capability (GWh)	Actual Energy Transmitted (GWh)	Utilisation Factor (%)	Losses+Aux. Consumption (%)
July	9.33	2,976.00	1,640.41	55.12	2.855
August	9.33	2,976.00	1,361.06	45.73	2.271
September	9.03	2,880.00	1,054.00	36.60	2.854
October	9.35	2,976.00	815.754	27.41	2.842
November	9.05	2,880.00	575.861	19.99	3.391
December	9.35	2,976.00	707.362	23.77	2.970
January	9.35	2,976.00	942.895	31.68	2.763
February	8.44	2,688.00	618.297	23.00	3.024
March	8.97	2,976.00	959.76	32.25	2.703
April	8.94	2,880.00	1,104.64	38.36	2.719
May	9.23	2,976.00	1,190.59	40.00	2.966
June	8.94	2,880.00	1,305.64	45.33	2.873
Total	**109.30**	**35,040.00**	**12,276.27**	**35.04**	**2.811**

Note: Authority has allowed HVDC Tariff at 98.50% Availability Factor.
Source: PMLTC

4.23 PERFORMANCE OF FATIMA TRANSMISSION COMPANY LIMITED

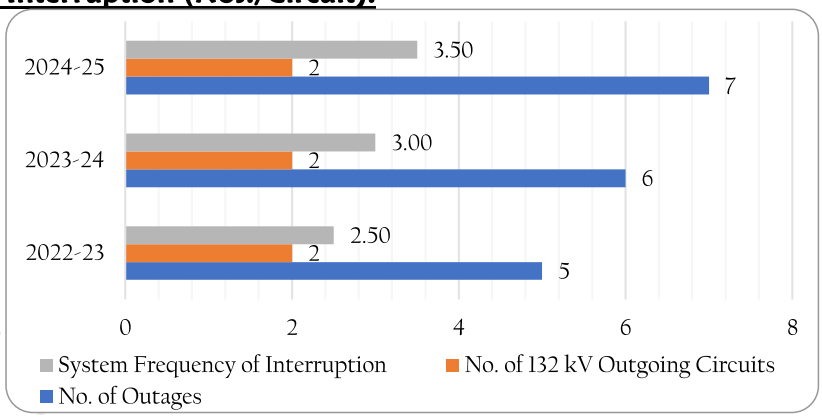
(i) System Duration of Interruption (Hrs./Point):

The KPI shows the average duration of outage on interconnection point experienced during a year. It was noted as 41.11 Hrs./point in FY 2024-25 indicating 100% increase in average outage duration per interconnection point as compared to preceding year.



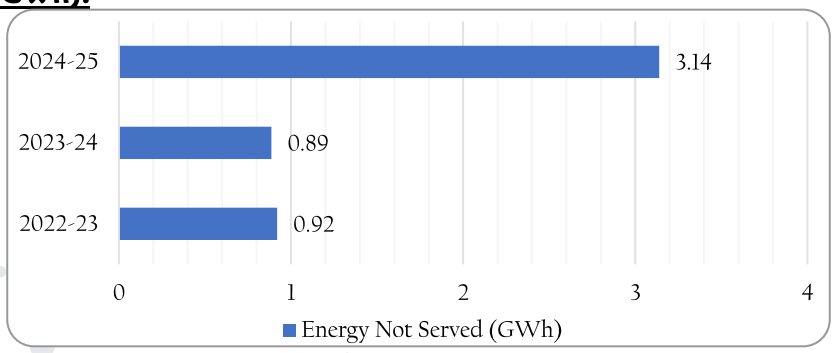
(ii) System Frequency of Interruption (Nos./Circuit):

The parameter indicates the average number of outages at a circuit during a year. During FY 2024-25 it remained 3.5 as shown in the accompanying figure for 16.67% increase in average number of outages per circuit compared to preceding year.

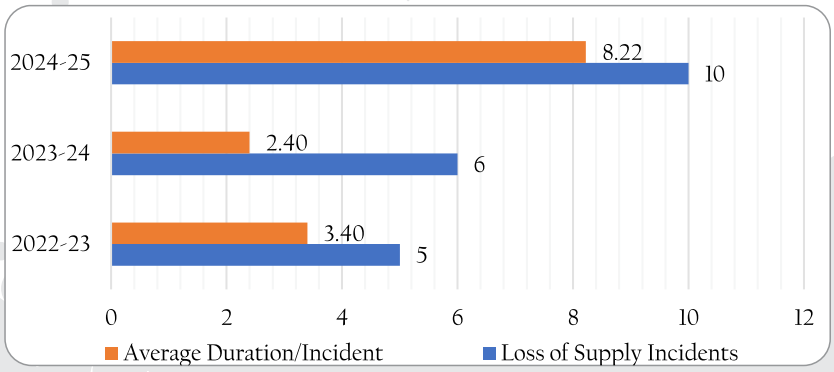


(iii) Energy Not Served (GWh):

The KPI shows the estimates of the total energy not served (ENS) contributed by loss of supply incidents during the year. The ENS increased from 0.89 GWh in 2023-24 to 3.14 GWh in 2024-25; an increase by 100% as compared to previous year.



The figure shows considerable improvement in loss of supply incidents (increased by more than 66.7% during the FY 2024-25 over FY 2023-24).



(iv) System Frequency:

Rule 8 of the PSTR-2005 prescribes limits for frequency. The frequency data as reported by FTCL indicated variation in frequency limits beyond the permissible limits ±1%. The table below shows the frequency violations occurred both on highest and lowest side during FY 2024-25:

Month (FY 2024-25)	Number of days/hours for a month over a year		Frequency Violation Recorded (Hz)		Duration of Variation		% Variation			No. of times frequency remained outside the limits
	Days	Hours	Highest	Lowest	Mins	Hrs.	Highest	Lowest	Period	Nos.
July	31.00	744	50.72	49.29	37	0.62	1.44	-1.42	0.08	12
August	31.00	744	50.73	49.36	54	0.90	1.46	-1.28	0.12	9
September	30.00	720	50.68	49.30	37	0.62	1.36	-1.40	0.09	13
October	31.00	744	50.58	49.37	34	0.57	1.16	-1.26	0.08	10
November	30.00	720	50.72	49.29	38	0.63	1.44	-1.42	0.09	12
December	31.00	744	50.69	49.48	32	0.53	1.38	-1.04	0.07	9
January	31.00	744	50.71	49.34	33	0.55	1.42	-1.32	0.07	21
February	28.00	672	50.73	49.24	28	0.47	1.46	-1.52	0.07	15
March	31.00	744	50.74	49.29	32	0.53	1.48	-1.42	0.07	19
April	30.00	720	50.71	49.29	10	0.17	1.42	-1.42	0.02	9
May	31.00	744	51.07	49.31	15	0.25	2.14	-1.38	0.03	16
June	30.00	720	50.72	49.37	17	0.28	1.44	-1.26	0.04	14
Year	**365**	**8760**	**51.07**	**49.24**	**367**	**6.12**	**2.14**	**-1.52**	**0.07**	**159**

Source: FTCL

PERFORMANCE OF THE DISTRIBUTION AND SUPPLY SECTOR

05

5.1 GENERAL

The distribution and supply segment constitutes the critical downstream arm of the power sector, where the entire electricity value chain meets the end consumer. It is the point at which technical performance translates into service quality and financial recovery, making it both the sector's most visible interface and its principal revenue conduit. The efficiency of this segment ultimately defines the sector's credibility and financial viability.

The distribution and supply of electric power is regulated under the NEPRA Act. The sector comprises eleven (11) state-owned DISCOs and one privatized utility, KE, each functioning under individual distribution licences within demarcated service territories. Hazara Electric Supply Company Limited (HAZECO) is a newly created company carved out from the service territory of PESCO on May 23, 2025. Therefore, for this report the data for the HAZECO is not mentioned separately and same is still covered under PESCO. Additionally, entities such as DHA (EME), Lasbela Industrial Estates Development Authority, and Aujla & Associates Town Developers (Pvt.) Limited hold limited-scope distribution licences for specific geographic localities.

With the enactment of the NEPRA (Amendment) Act, 2018, separation between the functions of electricity distribution and electricity supply was introduced with the legislative intent to pave the way for the development of a competitive electricity market. Prior to this amendment, the right to sell electricity was inherently embedded within the distribution licence. The 2018 amendment redefined electricity supply as a standalone activity, necessitating a separate licence under Section 23E of the amended Act.

As of the reporting period, NEPRA has issued electricity supply licences to all DISCOs except SEPCO and TESCO, whose applications remain under regulatory review due to ongoing compliance-related issues.

Currently the distribution and supply licences for each designated service area have been granted to the same entity. However, the respective licences provide for an eventual unbundling in consonance with the liberalization of the power sector.

Despite nearly three decades since the inception of reform initiatives to corporatize the power sector under a regulated regime, public-sector DISCOs remain largely unprepared to function as autonomous, corporatized, and performance-driven entities. These DISCOs continue to face deep-rooted challenges, including high T&D losses, poor recovery of billed amounts, and poor infrastructure. These issues contribute to abnormally high AT&C losses, which financially burden government-owned DISCOs and are ultimately passed on to electricity consumers through surcharges or to taxpayers via direct or indirect taxes. In an attempt to manage inefficiencies, some DISCOs resort to AT&C-based load-shedding, in violation of regulatory directions, unfairly penalizing consumers that pay for their electricity bills. Unjustified detection charges, inadequate service delivery, and delays in new electricity and net-metering connections further erode consumer trust and satisfaction.

These persistent inefficiencies have led to growing public dissatisfaction and a visible shift toward grid defection, especially among consumers who can afford distributed generation like rooftop solar. In many areas, particularly rural regions, poor supply quality, frequent outages, and weak customer

support contribute to a sense of neglect and unfair treatment. The cumulative effect of these shortcomings is not only economic but also social, fuelling public discontent and undermining trust in power sector institutions.

Efforts to privatize these entities have seen limited progress, hindered by clear intent. Consequently, the power sector continues to suffer from deep-rooted inefficiencies and persistent financial losses, challenges that significantly constrain broader economic growth and investment.

While limited progress has been made toward the privatisation of DISCOs, efforts to advance this reform have historically remained slow and inconclusive. Recently, the Federal Government has renewed its commitment to this agenda, initiating the privatisation process for GEPCO, LESCO, and FESCO, and appointing a transaction advisor to facilitate the process. The Authority notes this development as a potentially significant step toward achieving the long-standing policy objective of improving sector efficiency, financial discipline, and service delivery through private participation. The effectiveness of these efforts, however, will depend on sustained policy continuity, transparent execution, and institutional coordination.

Addressing the systemic issues plaguing Pakistan's power distribution and supply sector requires comprehensive structural reforms backed by strong political will and institutional commitment. A focused approach toward improving governance, enhancing accountability, and prioritizing customer-centric service delivery is essential to restore public trust, improve operational efficiency, and build a sustainable, transparent, and equitable distribution and supply system that meets the country's growing energy needs.

5.2 CONSUMER BASE OF DISCOS AND KE

During FY 2024-25, both the public sector DISCOs and KE witnessed continued growth in their consumer base. As of June 30, 2025, the total number of electricity consumers nationwide reached approximately 42.40 million, reflecting the addition of 2,139,498 new connections during the fiscal year.

Of these new connections, 1,992,771 were integrated into the networks of the public DISCOs, while 146,727 were added to the KE system. Consequently, the total number of electricity consumers stands at 38,549,897 for DISCOs and 3,851,077 for KE. The following table provides a breakdown of consumer numbers by category, as of June 30, 2025, for each DISCO:

DISCO	Domestic	Commercial	Industrial	Agricultural	Public Lighting	Bulk Supply	General Services+ Others	Total
PESCO	3,981,842	429,345	28,917	23,215	1,259	903	47,084	**4,512,565**
TESCO	407,354	29,016	4,553	3,559	9	97	3,400	**447,988**
IESCO	3,527,214	511,792	18,871	7,608	2,716	840	24,084	**4,093,125**
GEPCO	4,432,480	454,124	87,224	57,353	784	141	24,755	**5,056,861**
LESCO	6,124,417	741,119	93,127	71,860	2,876	448	20,765	**7,054,612**
FESCO	5,128,277	472,002	55,624	54,537	2,030	224	33,068	**5,745,762**
MEPCO	7,929,029	668,508	61,684	108,136	2,025	477	46,540	**8,816,399**
HESCO	1,034,306	179,395	16,187	15,933	589	344	14,251	**1,261,005**
SEPCO	661,980	128,424	13,805	9,342	498	545	13,393	**827,987**
QESCO	543,843	144,001	3,931	29,556	291	312	11,659	**733,593**
Total DISCOs	**33,770,742**	**3,757,726**	**383,923**	**381,099**	**13,077**	**4,331**	**238,999**	**38,549,897**
KE	3,258,859	545,129	23,078	1,571	204	201	22,035	**3,851,077**
Total Country	**37,029,601**	**4,302,855**	**407,001**	**382,670**	**13,281**	**4,532**	**2601,034**	**42,400,974**

Source: DISCOs/KE

As shown in the table above and reflected in the electricity sales figures, despite a substantial increase in the consumer base, energy sales have grown by only 1.71% year-on-year. This discrepancy

indicates that the surge in new connections has not resulted in a corresponding rise in overall consumption, pointing to a stagnation, or even a decline, in per capita energy usage.

Several factors likely contribute to this trend. Foremost among them is the sustained rise in electricity tariffs over recent years, which has probably encouraged consumers to adopt more energy-conscious behaviors or reduce their consumption. Additionally, there has been a notable shift toward self-generation through solar photovoltaic (PV) systems, both on-grid and off-grid, across residential, agricultural, and industrial sectors. This increasing adoption of Distributed Energy Resources (DERs) is reducing reliance on grid-supplied electricity.

These trends highlight the urgent need for a coordinated response from all stakeholders to address key challenges. Enhancing affordability, restoring consumer confidence, and promoting efficient energy use are essential. Moreover, policy frameworks must evolve to keep pace with changing consumption patterns, especially given the growing influence of DERs.

5.3 SALES OF DISCOS AND KE

During FY 2024-25, electricity sales to the National Grid including the energy supplied to KE registered a modest year-on-year increase of approximately 1.62% compared to FY 2023-24. It is important to note that these figures exclude KE's own electricity generation and its direct purchases from IPPs. Within KE's own network, electricity sales increased to 15,248.59 GWh in FY 2024-25, up from 14,908.51 GWh in the previous fiscal year, indicating a growth of approximately 2.28%.

Despite the overall increase in energy sales, the growth remains subdued when compared to the corresponding expansion in the consumer base, which suggests a shift in consumption behavior likely influenced by rising electricity tariffs, improved energy efficiency, and a growing adoption of alternative energy sources, particularly solar PV systems. A detailed breakdown of the category-wise annual sales growth percentage across the country for FY 2023-24 and FY 2024-25 is provided in the following table:

Category	Sales of DISCOs				
	FY 2022-23	FY 2023-24		FY 2024-25	
	Units Sold (GWh)	Units Sold (GWh)	Growth (%)	Units Sold (GWh)	Growth (%)
Domestic	46,164.48	47,142.85	2.12	49,317.08	4.61
Commercial	7,073.63	7,251.03	2.51	7,610.12	4.95
Industrial	25,737.81	22,532.09	-12.46	23,962.71	6.35
Agricultural	9,476.83	8,558.90	-9.69	5,840.57	-31.76
Public Lighting	473.75	595.77	25.76	441.71	-25.86
Bulk Supply	3,974.50	4,137.45	4.10	3,482.73	-15.82
General Services/Others	4,447.66	4,464.65	38.10	5,563.18	74.01
Total	**97,348.66**	**94,682.74**	**-10.94**	**96,218.10**	**1.62**
Supplied to KE	8,960.81	8,538.07	-4.72	10,234.27	19.87

Source: DISCOs

Category	Sales of KE				
	FY 2022-23	FY 2023-24		FY 2024-25	
	Units Sold (GWh)	Units Sold (GWh)	Growth (%)	Units Sold (GWh)	Growth (%)
Domestic	7,369.71	6,814.34	-7.54	6,986.56	2.53
Commercial	1,818.00	1,818.03	0.00	1,963.18	7.98
Industrial	5,350.19	5,221.51	-2.41	5,151.37	-1.34
Agricultural	66.31	19.02	-71.32	41.35	117.44
Public Lighting	47.53	57.71	21.40	55.10	-4.52
Bulk Supply	469.42	518.73	10.50	550.02	6.03
General Services/Others	432.66	459.18	6.13	501.02	9.11
Total	**15,553.83**	**14,908.51**	**-4.15**	**15,248.59**	**2.28**

Source: KE

The observed consumption trends offer valuable insights into shifting demand patterns within the grid. A comprehensive analysis of these trends is critical for optimizing generation and distribution operations, addressing emerging challenges, and enhancing the overall efficiency and reliability of the power sector.

5.4 TRANSMISSION AND DISTRIBUTION LOSSES OF DISCOS

As part of the tariff determination process, NEPRA sets specific T&D loss targets for each DISCO. These targets are tailored based on a range of factors including consumer mix, feeder lengths, geographical coverage, HT/LT ratio, and other operational considerations.

Any T&D losses exceeding the NEPRA-approved thresholds are not allowed to be passed on to consumers through tariffs. Such losses are, by design, to be absorbed by the respective DISCOs and reflected in their financial results. However, given the predominant public sector ownership in the distribution and supply segment, where eleven out of twelve DISCOs remain government-owned, the financial impact of these inefficiencies is not fully internalised at the company level. Instead, these losses are routinely transferred to the public sector balance sheet, counted as part of the circular debt. In effect, the cost of inefficiency, though disallowed in tariffs, ultimately reappears in the sector and borne by the consumers/tax payers through fiscal interventions of the GoP and surcharges levied on consumers.

A comparative analysis of the actual T&D losses versus NEPRA-approved targets for each DISCO, along with the associated financial implications (in Rs. Million), is provided in the table below:

DISCO	Description	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25
PESCO	Actual (%)	38.20	37.47	37.40	38.14	37.15
	Allowed (%)	21.33	20.73	20.16	29.71	19.26
	Financial impact of units lost beyond target	32,385	63,939	77,352	97,168	87,483
TESCO	Actual (%)	9.64	9.32	9.02	9.01	8.30
	Allowed (%)	9.60	9.31	9.21	8.59	8.89
	Financial impact of units lost beyond target	--	--	(164)	(226)	(479)
IESCO	Actual (%)	8.54	8.17	8.06	8.85	8.61
	Allowed (%)	8.50	8.15	7.80	7.31	7.31
	Financial impact of units lost beyond target	88	217	277	5,875	4,778
GEPCO	Actual (%)	9.23	9.07	8.61	11.54	10.60
	Allowed (%)	9.23	9.20	9.10	9.00	8.90
	Financial impact of units lost beyond target	(1,127)	(1,116)	(1,856)	9,217	5,499
LESCO	Actual (%)	11.96	11.52	11.29	15.92	13.70
	Allowed (%)	10.03	9.08	8.00	10.00	9.46
	Financial impact of units lost beyond target	7,693	9,279	21,785	47,635	35,169
FESCO	Actual (%)	9.28	9.09	8.59	9.86	9.02
	Allowed (%)	9.76	9.34	8.84	8.74	8.38
	Financial impact of units lost beyond target	(1,206)	(636)	(1,449)	5,040	2,965
MEPCO	Actual (%)	14.97	14.70	14.22	15.28	13.81
	Allowed (%)	13.12	12.79	12.34	11.83	11.34
	Financial impact of units lost beyond target	34	(902)	7,945	22,657	14,005
HESCO	Actual (%)	28.15	28.09	27.49	27.62	27.89
	Allowed (%)	19.43	19.07	18.57	18.06	17.55
	Financial impact of units lost beyond target	8,666	14,000	15,002	23,177	27,144

DISCO	Description	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25
SEPCO	Actual (%)	35.31	35.63	34.39	34.91	39.18
	Allowed (%)	17.89	17.41	17.05	16.68	16.31
	Financial impact of units lost beyond target	9,174	21,370	20,380	29,058	36,037
QESCO	Actual (%)	27.97	28.06	26.72	29.77	38.44
	Allowed (%)	14.70	14.49	14.27	14.04	13.81
	Financial impact of units lost beyond target	13,421	18,588	21,214	36,746	52,409
Total	**Actual (%)**	**17.32**	**16.85**	**16.45**	**18.31**	**17.55**
	Allowed (%)	**14.43**	**13.46**	**11.70**	**11.77**	**11.43**
	Financial impact of units lost beyond target	**69,128**	**124,739**	**160,486**	**276,349**	**265,010**
KE	Actual (%)	17.54	15.43	15.31	15.99	14.74
	Allowed (%)	16.80	15.95	15.36	14.58	14.58
	Financial impact of units lost beyond target	1,841	2,146	2,231	6,419	1,050

Source: DISCOs/KE

To bridge the financial gap created by the inefficiencies of public sector (government-owned) DISCOs, the Government has imposed a significant surcharge of approximately Rs. 3.23/unit on large consumer categories. This measure effectively transfers the burden of DISCOs' operational underperformance onto electricity consumers. The imposition of such surcharges highlights the broader economic cost of delayed structural reforms and continued Government ownership. It reflects systemic issues of poor governance, weak accountability, and operational inefficiencies that persist across government-run DISCOs.

5.5 RECOVERY RATIOS IN DISCOS SYSTEM

NEPRA sets tariffs based on the principle of 100% recovery of billed units by DISCOs. Ideally, any shortfall in recovery should be absorbed by the DISCOs and not passed on to consumers. However, for government-owned public sector DISCOs, this burden is often transferred to electricity consumers and/or taxpayers. Persistent recovery shortfalls in public sector DISCOs contribute directly to the accumulation of circular debt. In contrast, private entities such as KE bear their own recovery losses, except where these are adjusted against bad debts.

The following table presents the actual recovery ratios (%) of each DISCO over the past five years, alongside the corresponding unrecovered amounts (in Rs. Million) of billed units:

DISCO	Description	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25
PESCO	Recovery Ratio (%)	101.87	91.79	91.65	91.91	91.48
	Amount not Recovered	-3,300.10	19,171.61	26,180.15	31,037.1	29,767.97
TESCO	Recovery Ratio (%)	83.27	66.22	85.15	105.66	91.89
	Amount not Recovered	5,123.10	14,657.41	7,145.82	-2,607.88	3,996.51
IESCO	Recovery Ratio (%)	116.87	95.62	104.98	97.03	100.97
	Amount not Recovered	-37,199.00	12,692.72	-19,181.22	15,487.45	-4,896.40
GEPCO	Recovery Ratio (%)	105.10	98.19	98.00	96.21	101.49
	Amount not Recovered	-9,805.75	4,579.66	6,842.49	17,760.31	-6,734.60
LESCO	Recovery Ratio (%)	98.72	96.69	94.33	96.11	101.30
	Amount not Recovered	5,529.93	19,419.33	45,183.25	39,464.26	-12,976.46
FESCO	Recovery Ratio (%)	97.20	94.84	100.39	97.61	101.02
	Amount not Recovered	7,240.96	18,930.01	-1,876.57	14,826.77	-5,904.41
MEPCO	Recovery Ratio (%)	102.15	92.08	98.27	97.20	101.71
	Amount not Recovered	-6,033.90	31,739.28	8,853.39	19,248.56	-10,616.68
HESCO	Recovery Ratio (%)	75.63	73.72	74.42	76.40	74.76
	Amount not Recovered	17,551.62	23,361.68	29,132.97	36,779.04	39,484.96
SEPCO	Recovery Ratio (%)	64.48	63.78	66.50	65.41	74.21
	Amount not Recovered	17,865.74	22,895.13	27,209.75	38,188.89	23,935.77

DISCO	Description	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25
QESCO	Recovery Ratio (%)	39.80	35.28	36.92	31.79	38.68
	Amount not Recovered	51,580.21	62,469.78	82,305.02	104,322	76,404.01
Total	**Recovery Ratio (%)**	**97.30**	**90.51**	**93.39**	**92.44**	**96.62**
	Amount not Recovered	**48,552.81**	**229,916.60**	**211,795.04**	**314,506.45**	**132,460.68**
KE	Recovery Ratio (%)	94.87	96.69	92.76	91.54	90.56
	Amount not Recovered	16,200.44	12,900.82	38,882.69	63,687.49	74,663.17

Source: DISCOs/KE

Shortfalls in revenue recovery by government-owned DISCOs severely undermine their financial stability and exacerbate the growing circular debt. As discussed in the previous paragraphs, inefficiencies in public sector DISCOs are ultimately passed on to consumers and taxpayers through taxes and surcharges. This not only increases the financial burden on consumers but also highlights the detrimental effects of delayed reforms, poor governance, and weak accountability. Many of these challenges could have been avoided if the power sector reform agenda, conceived over three decades ago, had been implemented in a timely manner, particularly through the government's withdrawal from direct ownership and management of DISCOs. Continued delays in reform implementation have undermined the core objectives of privatization, limiting improvements in efficiency and financial sustainability.

5.6 RECEIVABLES OF DISCOS

Receivables remain the Achilles' heel of Pakistan's power sector, severely undermining the financial stability and operational efficiency of DISCOs. High outstanding receivables restrict cash flow, delay payments to power producers, and increase reliance on costly borrowing, thereby exacerbating the circular debt cycle. Alarmingly, due to a lack of stringent accountability in government-owned DISCOs, inflated receivables in several cases arise from bogus billing practices aimed at artificially improving T&D loss targets. This inaccurate billing leads to non-recovery and further inflates receivables.

Although DISCOs are authorized to classify receivables and write off non-recoverable amounts as bad debts following due process, none have exercised this option. It is imperative to initiate an independent inquiry to determine whether the high receivables are the result of legitimate billing or manipulative practices. Such an investigation is critical to addressing the root causes of the receivables issue and enhancing transparency in the sector:

Category	PESCO [1]	TESCO [2]	IESCO	GEPCO	LESCO	FESCO	MEPCO	HESCO	SEPCO	QESCO [3]	TOTAL
Government Receivables											
Federal Government	3,730.81	1,096.69	17,340.30	2,860.53	6,736.26	2,082.95	2,206.53	5,699.11	12,920.72	2,504.45	**57,178.35**
AJ&K Government	7,691.41	0.00	48,950.84	5,026.34	0.00	0.00	0.00	0.00	0.00	0.00	**61,668.59**
Provincial Government	24,880.10	1,982.32	-573.53	1,911.99	9,306.97	2,910.76	10,434.80	26,748.81	32,274.00	42,152.90	**152,029.12**
Government Receivables (06/2025)											
	36,302.32	**3,079.01**	**65,717.61**	**9,798.86**	**16,043.23**	**4,993.71**	**12,641.33**	**32,447.92**	**45,194.72**	**44,657.35**	**270,876.06**
Government Receivables (06/2024)											
	33,335.58	**3,264.62**	**61,521.27**	**8,883.56**	**21,445.92**	**5,540.75**	**12,863.67**	**26,138.07**	**42,653.71**	**40,698.43**	**256,345.58**
Private Receivables (Aging of Running Defaulters)											
1 month	6,326.61	233.44	3,701.48	2,905.08	15,915.49	3,302.76	5,356.86	1,840.67	3,241.22	761.32	**43,584.93**
2 months	1,082.14	7.19	506.80	165.07	4,472.42	922.67	912.90	538.98	210.52	188.92	**9,007.61**
3 months	2,242.82	8.23	98.03	6.13	2,490.19	354.12	708.97	573.89	577.07	259.52	**7,318.97**
4-6 months	8,358.00	11.38	73.46	0.01	7,293.72	174.46	971.37	1,342.96	1,270.00	672.69	**20,168.05**
Over 6 months and up to 01 year	6,293.82	20.87	18.58	0.00	6,760.13	22.38	575.04	2,442.14	1,236.92	1,214.86	**18,584.74**
01-03 years	27,127.10	20.15	0.61	0.00	2,858.09	0.00	116.69	9,606.21	3,140.19	3,068.97	**45,938.01**
Over 03 years	92,605.54	52,156.34	0.00	0.00	0.00	0.00	0.00	168,394.40	185,070.81	343,123.79	**841,350.88**
Running Defaulters (06/2025)											
	144,036.03	**52,457.60**	**4,398.96**	**3,076.29**	**39,790.04**	**4,776.39**	**8,641.83**	**184,739.25**	**194,746.73**	**349,290.07**	**985,953.19**
Running Defaulters (06/2024)											
	127,688.68	**49,899.17**	**6,353.20**	**4,854.69**	**37,324.99**	**7,416.75**	**9,683.84**	**150,934.10**	**171,981.31**	**528,799.01**	**1,094,935.74**
Aging of Disconnected Defaulters											
1 month	447.96	46.37	69.57	230.25	1,159.85	100.08	228.96	214.60	117.43	56.13	**2,671.2**
2 months	19.27	0.00	20.89	112.07	269.20	67.00	202.64	4.39	0.15	5.01	**700.62**
3 months	131.98	1.60	79.10	105.32	186.09	151.01	283.92	85.88	27.35	1.44	**1053.69**
4-6 months	390.01	54.94	153.88	943.10	2,751.44	687.28	922.83	237.49	72.59	5.81	**6,219.37**
Over 6 months and up to 01 year	1,510.57	29.67	391.95	1,413.33	4,297.46	1,940.23	4,188.89	176.95	70.40	32.87	**14,052.32**
01-03 years	10,170.27	1,532.27	396.13	2,360.23	9,100.33	2,581.14	8,127.81	759.32	211.55	140.37	**35,379.42**
Over 03 years	65,882.15	9,324.52	173.91	841.65	15,549.07	721.56	6,039.46	18,697.58	13,197.54	257,532.68	**387,960.12**

Category	PESCO [1]	TESCO [2]	IESCO	GEPCO	LESCO	FESCO	MEPCO	HESCO	SEPCO	QESCO [3]	TOTAL
Disconnected Defaulters (06/2025)											
	78,552.21	**10,989.37**	**1,285.43**	**6,005.95**	**33,313.44**	**6,248.30**	**19,994.51**	**20,176.21**	**13,697.01**	**257,774.31**	**448,036.74**
Disconnected Defaulters (06/2024)											
	69,659.58	**9,931.18**	**797.61**	**4,320.54**	**23,383.39**	**4,126.17**	**15,633.08**	**19,835.53**	**13,694.95**	**2,505.79**	**163,887.82**
Spill Over	11,044.34	1,844.93	14,612.22	27,545.39	71,980.56	42,157.38	37,219.57	5,488.80	2,296.39	4,278.57	**218,468.15**
Deferred Amount	5,084.67	16,632.34	1,214.15	3,226.42	18,584.88	1,263.14	4,528.47	360.99	38.63	159.97	**51,093.66**
Instalments	96.77	786.30	920.17	162.74	2,817.51	506.05	494.00	13.35	2.09	16.96	**5,815.94**
Subsidies (Private)	4,250.12	3,418.11	3,877.05	8,585.27	33,687.04	23,996.36	40,954.95	6,146.70	4,787.28	82,263.36	**211,966.24**
Private Receivables	**243,064.14**	**86,128.65**	**26,307.98**	**48,602.06**	**200,173.47**	**78,947.62**	**111,833.33**	**216,925.30**	**215,568.13**	**693,783.24**	**1,921,333.92**
Unidentified Cash/Credited Debtors											
	-3,471.63	**-1,248.16**	**-6,124.15**	**-2,429.87**	**-8,189.21**	**-1,853.72**	**-5,912.05**	**-542.92**	**-1,558.02**	**-349.29**	**-31,679.02**
Total Private Receivables (06/2025)											
	239,592.51	**84,880.49**	**20,183.83**	**46,172.19**	**191,984.26**	**77,093.90**	**105,921.28**	**216,382.38**	**214,010.11**	**693,433.95**	**1,889,654.90**
Total Private Receivables (06/2024)											
	212,771.04	**80,697.47**	**27,926.05**	**51,613.50**	**203,202.75**	**80,575.88**	**116,007.44**	**183,202.21**	**192,611.90**	**612,111.56**	**1,760,719.80**
Increase/Decrease of Private Receivables (06/2024)											
	26,821.47	**4,183.02**	**-7,742.22**	**-5,441.31**	**-11,218.49**	**-3,481.98**	**-10,086.16**	**33,180.17**	**21,398.21**	**81,322.39**	**128,935.10**
Net Receivables in DISCOs (06/2025)											
	275,894.83	**87,959.50**	**85,901.44**	**55,971.05**	**208,027.49**	**82,087.61**	**118,562.61**	**248,830.30**	**259,204.83**	**738,091.30**	**2,160,530.96**
Net Receivables in DISCOs (06/2024)											
	246,106.62	**83,962.09**	**89,447.32**	**60,497.06**	**224,648.67**	**86,116.63**	**128,871.11**	**209,340.28**	**235,265.61**	**652,809.99**	**2,017,065.38**
Increase/Decrease of Net Receivables (06/2024)											
	29,788.21	**3,997.41**	**-3,545.88**	**-4,526.01**	**-16,621.18**	**-4,029.02**	**-10,308.50**	**39,490.02**	**23,939.22**	**85,281.31**	**143,465.58**
K-Electric Receivables											**31,354.64**
IPPs Receivables											**8,749.36**
Total Receivables											**2,200,634.96**

[1] Provincial Government of KPK receivables includes Rs. 18.60 billion assessed for KPK consumers for the period 05-09-2008 to 15-09-2010 on account of Tariff Differential after withdrawal of KPK petition from PHC, the said amount has not been passed on to consumers. The payment of said receivables has been linked with the markup on NHP arrears payable to Government of KPK, as proposed by Government of KPK.

[2] Total Private Receivables include FATA domestic consumer's receivables.

[3] Total Private Receivables include Agriculture Tubewell Subsidies in Balochistan.

Source: PEPCO

5.7 RECEIVABLES OF KE

As of June 30, 2025, KE's total receivables amounted to Rs. 360.718 billion, marking a significant increase from Rs. 290.50 billion recorded on the same date in 2024. This reflects a substantial rise of Rs. 70.219 billion in receivables over the course of the reporting year in FY 2024-25. This increase underscores the need for effective strategies to manage and recover outstanding payments in order to maintain financial stability.

5.8 OVER-LOADING POSITION IN DISCOS SYSTEM

Efficient power delivery across DISCO networks relies heavily on the adequacy and performance of three critical components: 132/11 kV power transformers, 11 kV feeders, and distribution transformers. A persistent challenge across DISCOs is the overloading of both distribution transformers and 11 kV feeders, which directly impacts network reliability, operational efficiency, and consumer satisfaction.

Overloading occurs when transformers are subjected to loads beyond their rated capacity for extended durations. This situation typically stems from rapid load growth, unauthorized connections, and inadequate long-term planning. Prolonged overloading accelerates the aging of transformer components, increases technical losses, causes voltage drops, and raises the risk of outages and safety hazards. The following sections provide a consolidated overview of the current loading status of 132/11 kV power transformers, 11 kV feeders, and distribution transformers across all DISCOs.

(a) Loading Status of Power Transformers

During FY 2024-25, the overall percentage of overloaded power transformers across all DISCOs (excluding KE) decreased from 13.85% in FY 2023-24 to 12.45%, reflecting a marginal improvement in network loading management:

(i) Among individual DISCOs, PESCO reported the highest proportion of overloaded power transformers at 38.83%, followed by SEPCO at 25.00% and HESCO at 18.38%.
(ii) PESCO, GEPCO, LESCO, FESCO, MEPCO, SEPCO, and QESCO recorded a year-on-year reduction in the percentage of overloaded transformers, indicating progress in load management and system planning.
(iii) As of June 30, 2025, the proportion of overloaded power transformers in KE's network increased to 25.00% for FY 2024-25, up from approximately 21.20% in FY 2023-24, indicating growing stress on the system and highlighting the need for capacity enhancement measures.

(b) Loading Status of 11 kV Feeders

During FY 2024-25, the overall percentage of overloaded 11 kV feeders across all DISCOs (excluding KE) declined from 14.49% in FY 2023-24 to 11.75%, indicating a positive trend in feeder load management:

(i) At the DISCO level, TESCO reported the highest proportion of overloaded feeders at 35.63%, followed by PESCO at 28.78% and HESCO at 17.14%.
(ii) A reduction in overloading was observed in PESCO, TESCO, IESCO, GEPCO, LESCO, SEPCO, and QESCO, reflecting improved planning and operational measures over the previous year.
(iii) KE recorded a marginal increase in the overloading of 11 kV feeders, with the proportion rising from 4.88% in the preceding year to 7.41% in FY 2024-25, indicating a slight deterioration in load management at the feeder level.

(c) Loading Status of Distribution Transformers

During FY 2024-25, the overall percentage of over-loaded distribution transformers across all DISCOs (excluding KE) declined from 4.35% in FY 2023-24 to 3.99%, reflecting a positive trend in system loading:

(i) At the DISCO level, LESCO reported the highest proportion of over-loaded transformers at 8.57%, followed by SEPCO (7.95%) and MEPCO (6.40%).
(ii) Most DISCOs including PESCO, TESCO, IESCO, GEPCO, LESCO, HESCO, SEPCO, and QESCO showed improvement, with a year-on-year reduction in over-loaded transformers. However, FESCO and MEPCO experienced an increase in over-loading, indicating a decline in transformer loading management in these areas.
(iii) In FY 2024-25, the percentage of overloaded distribution transformers in KE's network increased to 19.89%, up from 18.78% in FY 2023-24. This upward trend indicates limited progress in addressing transformer overloading, which remains a concern for the stability and efficiency of the distribution network.

5.9 FATAL ACCIDENTS – UNSAFE WORK ENVIRONMENT IN DISCOS AND KE

Fatal accidents in DISCOs and KE remain a critical concern, underscoring persistent shortcomings in safety practices and organizational safety culture. Although the number of fatalities has decreased from 146 in FY 2023-24 to 123 in FY 2024-25, as detailed in the following table, each incident signifies a serious failure and is regarded with the utmost seriousness by the Authority.

DISCO	FY 2023-24				FY 2024-25			
	Fatal		Non-Fatal		Fatal		Non-Fatal	
	DISCOs	Public	DISCOs	Public	DISCOs	Public	DISCOs	Public
PESCO	7	13	16	2	6	14	9	2
TESCO	2	1	0	0	2	1	0	0
IESCO	5	21	6	6	6	22	10	7
GEPCO	4	3	4	1	2	1	3	1
LESCO	9	9	3	0	4	1	6	1
FESCO	4	3	3	0	6	0	2	0
MEPCO	1	2	0	0	5	1	0	0
HESCO	1	8	8	4	2	14	6	4
SEPCO	1	4	2	0	4	4	0	0
QESCO	3	8	0	0	1	1	0	0
DISCOs	**37**	**72**	**42**	**13**	**38**	**59**	**36**	**15**
KE	3	34	81	73	0	26	89	56
Total	**40**	**106**	**123**	**86**	**38**	**85**	**125**	**71**

Source: DISCOs/KE

These incidents are largely attributed to poor safety management, inadequate training, non-compliance with safety protocols, and human error. They underscore the urgent need for robust safety measures, and strict compliance of the NEPRA Safety Code, including:

(a) Comprehensive safety management systems
(b) Regular safety audits and inspections
(c) Strict adherence to electrical safety standards
(d) Continuous workforce training
(e) Mandatory use of personal protective equipment
(f) Strong monitoring, reporting, and accountability mechanisms

In response to persistent safety hazards in DISCOs, the Authority has directed detailed investigations and initiated legal action under the NEPRA Act. Proceedings have also been launched against HESCO, SEPCO, and QESCO for their failure to operationalize Health, Safety, and Environment Directorates. Further details of these investigations and enforcement actions are provided in subsequent sections.

The absence of a robust safety culture within most DISCOs remains a matter of grave concern. Field personnel continue to operate under unsafe and hazardous conditions, reflecting systemic neglect of

occupational health and safety protocols. The institutionalisation of safety must therefore transition from procedural compliance to a deeply ingrained organisational value. While the Authority has taken visible steps, through the promulgation of the Safety Code and directions for establishment of the Safety Directorate, their effectiveness ultimately depends on the commitment of DISCO management to translate these regulatory measures into daily operational practice. Senior leadership must champion a culture where safety performance is treated as integral to operational excellence rather than as an ancillary obligation.

A particularly pressing issue is the deficient earthing of poles and transformers. Inadequate or absent earthing arrangements have repeatedly resulted in fatal incidents, posing serious risks to both employees and the public, especially during the monsoon season. It is imperative that DISCOs ensure rigorous compliance with regulatory directions on equipment earthing and safety standards, implementing them comprehensively and sustainably. The protection of human life is not a matter of discretion; it is the foremost operational duty of every licensee entrusted with the supply of electric power.

5.10 STATUS OF NET-METERING IN DISCOS SYSTEM

Amid rising grid tariffs and persistent concerns over supply reliability and rising electricity tariffs due to structural inefficiencies of the DISCOs and overall macroeconomic situation of the country Pakistan has seen a rapid increase in Distributed Generation (DG), particularly rooftop solar PV systems. While this trend supports national objectives for sustainability and consumer empowerment, it also poses significant technical, commercial, and financial challenges for DISCOs.

Net-metering consumers claim that DISCOs are withholding substantial payable amounts, often resorting to delayed or book-only settlements, thereby improving DISCO cash flows at the consumers' expense. On the other hand, DISCOs contend that rising DG penetration undermines their revenue base and cost recovery mechanisms. In response, NEPRA has directed all DISCOs to undertake comprehensive studies assessing the technical, commercial, and financial impacts of solar DG integration both on utility operations and on other electricity consumers to support evidence-based regulatory and policy decisions.

The following table presents data regarding the number of consumers of different categories across DISCOs who have embraced net-metering, along with the volume of electricity units these consumers have exported to the DISCOs. It also includes the quantity of electricity units they have imported during the FY 2024-25:

Net-Metering Consumers, Import and Export for FY 2024-25

DISCO	Tariff Category	No. of Consumers (As of 30th June, 2025)	Exported Units (kWh) (Consumer to DISCO)	Imported Units (kWh) (DISCO to Consumer)	Net (Import-Export) (kWh)
			By Distributed Generators		
PESCO	Domestic	18,997	18,010,097	14,886,559	(3,123,538)
	Commercial	1,072	1,431,078	3,895,056	2,463,978
	Industrial	666	4,791,120	14,384,843	9,593,723
	Agricultural	18	13,986	15,370	1,384
	General Services	199	393,014	1,307,889	914,875
	Total	**20,952**	**24,639,295**	**34,489,717**	**9,850,422**
TESCO	Domestic	12	150,558	217,856	67,298
	Commercial	2	16,224	9,724	(6,500)
	Industrial	64	1,959,501	15,297,021	13,337,520
	Agricultural	0	0	0	0
	General Services	5	183,894	748,798	564,904
	Total	**83**	**2,310,177**	**16,273,399**	**13,963,222**

DISCO	Tariff Category	No. of Consumers (As of 30th June, 2025)	Exported Units (kWh) (Consumer to DISCO)	Imported Units (kWh) (DISCO to Consumer)	Net (Import-Export) (kWh)
			By Distributed Generators		
IESCO	Domestic	65,993	551,190,193	410,310,499	(140,879,694)
	Commercial	4,240	47,997,502	84,465,198	36,467,696
	Industrial	1,236	36,927,666	113,223,622	76,295,956
	Agricultural	201	1,786,619	1,992,080	205,461
	General Services	662	15,749,756	59,668,797	43,919,041
	Total	**72,332**	**653,651,736**	**669,660,196**	**16,008,460**
GEPCO	Domestic	28,690	189,875,316	165,816,299	(24,059,017)
	Commercial	2,929	32,314,039	61,791,280	29,477,241
	Industrial	4,856	99,958,322	329,049,550	229,091,228
	Agricultural	766	4,962,379	7,169,286	2,206,907
	General Services	417	7,594,558	20,718,420	13,123,862
	Total	**37,658**	**334,704,614**	**584,544,835**	**249,840,221**
LESCO	Domestic	95,057	752,972,860	721,838,973	(31,133,887)
	Commercial	5,668	71,932,035	179,218,694	107,286,659
	Industrial	3,865	130,395,423	828,939,323	698,543,900
	Agricultural	622	4,421,681	8,681,665	4,259,984
	General Services	747	18,249,299	79,629,357	61,380,058
	Total	**105,959**	**977,971,298**	**1,818,308,012**	**840,336,714**
FESCO	Domestic	21,619	177,568,447	164,107,790	104,038,403
	Commercial	2,032	29,430,211	69,201,376	18,811,288
	Industrial	3,440	105,155,969	509,921,447	79,663,728
	Agricultural	359	4,767,595	5,741,739	2,422,246
	General Services	394	10,120,461	26,494,886	6,196,447
	Total	**27,844**	**327,042,683**	**775,467,238**	**211,132,112**
MEPCO	Domestic	66,035	427,584,493	322,428,629	(105,155,864)
	Commercial	6,908	93,473,552	171,100,382	77,626,830
	Industrial	5,994	205,643,586	559,256,584	353,612,998
	Agricultural	3,839	43,308,583	59,259,174	15,950,591
	General Services	772	16,684,783	66,611,755	49,926,972
	Total	**83,548**	**786,694,997**	**1,178,656,524**	**391,961,527**
HESCO	Domestic	1,027	6,804,718	8,610,897	1,806,179
	Commercial	97	1,864,356	3,552,330	1,687,974
	Industrial	119	9,607,673	47,473,527	37,865,854
	Agricultural	9	95,846	219,039	123,193
	General Services	9	323,682	7,119,789	6,796,107
	Total	**1,261**	**18,696,275**	**66,975,582**	**48,279,307**
SEPCO	Domestic	128	2,109,949	2,097,142	12,807
	Commercial	41	614,946	1,220,310	(605,364)
	Industrial	70	5,532,773	26,819,417	(21,286,644)
	Agricultural	8	868,228	3,467,721	(2,599,493)
	General Services	3	278	35,418	(35,140)
	Total	**250**	**9,126,174**	**33,640,008**	**(24,513,834)**
QESCO	Domestic	228	2,224,889	1,692,830	(532,059)
	Commercial	45	603,380	1,976,658	1,373,278
	Industrial	24	1,050,579	2,149,632	1,099,053
	Agricultural	0	0	0	0
	General Services	23	1,066,245	2,303,771	1,237,526
	Total	**320**	**4,945,093**	**8,122,891**	**3,177,798**

DISCO	Tariff Category	No. of Consumers (As of 30th June, 2025)	Exported Units (kWh) (Consumer to DISCO)	Imported Units (kWh) (DISCO to Consumer)	Net (Import-Export) (kWh)
			By Distributed Generators		
TOTAL DISCOs	**Domestic**	**297,786**	**2,128,491,520**	**1,812,007,474**	**(198,959,372)**
	Commercial	**23,034**	**279,677,323**	**576,431,008**	**274,583,080**
	Industrial	**20,334**	**601,022,612**	**2,446,514,966**	**1,477,817,316**
	Agricultural	**5,822**	**60,224,917**	**86,546,074**	**22,570,273**
	General Services	**3,231**	**70,365,970**	**264,638,880**	**184,024,652**
	Total	**350,207**	**3,139,782,342**	**5,186,138,402**	**1,760,035,949**
KE	Domestic	25,562	117,598,129	107,374,854	(10,223,274)
	Commercial	1,035	4,546,512	50,727,722	46,181,210
	Industrial	1,124	11,986,326	494,001,429	482,015,102
	Agricultural	4	72,303	296,705	224,402
	General Services	407	1,864,962	30,566,459	28,701,496
	Total	**28,132**	**136,068,232**	**682,967,168**	**546,898,936**

Source: DISCOs/KE

Net-metering applications for systems below 25 kW are processed directly by DISCOs. However, the Authority received a significant number of complaints regarding delays and inadequate consumer facilitation. Taking serious note of these concerns, the Authority has directed all DISCOs to ensure timely processing and improved consumer support in accordance with the prescribed timelines.

It is also pertinent to note that, alongside on-grid installations, a growing number of consumers have opted for off-grid solar PV systems. In remote areas, many households rely exclusively on standalone solar PV solutions, with no connection to the distribution network. A notable trend has also emerged wherein consumers are increasingly installing solar PV systems coupled with battery storage to meet their entire electricity needs independently.

5.11 DELAYS IN PROVISION OF ELECTRICITY CONNECTIONS

The delayed provision of electricity connections remains a critical issue with far-reaching implications for both individuals and businesses. These delays are primarily attributed to material shortages, inadequate infrastructure, and operational inefficiencies within DISCOs.

For residential consumers, such delays cause prolonged hardship and disrupt daily life. For businesses, the lack of timely connections hampers operations, reduces productivity, and discourages investment particularly among new entrants ultimately stifling economic growth. Persistent inefficiencies not only erode public trust in DISCOs but also contribute to declining energy sales.

A key concern in this context is the unjustified cancellation of applications by DISCO staff, often without valid reasons and, in some cases, linked to the solicitation of financial incentives. This practice appears aimed at artificially reducing the backlog of pending applications.

To address these challenges, a fundamental shift is required in DISCOs' approach, moving towards a consumer-centric service model. Internal procedures must be streamlined, infrastructure strengthened, and field staff trained to prioritize consumer facilitation over exploitative practices. Moreover, DISCO management must implement robust monitoring mechanisms to track application cancellations, ensure transparency, and enforce accountability. Strict disciplinary action should be taken against personnel involved in unethical or corrupt practices. Details on pending electricity connections and their duration of pendency (as on 30 June, 2025) are provided in the table below:

DISCO	Total Nos.	Total Load (MW)	Pending Connections after expiry of time limit given in PSDR-2005					
			Up to 1 month	Up to 2 months	Up to 3 months	Up to 6 months	Up to 1 year	above 1 year
PESCO	2,624	102.350	2,409	174	6	7	6	22
TESCO	7	0	4	0	0	0	0	3
IESCO	6,132	16.461	5,350	640	5	1	136	0
GEPCO	7,464	15.516	7,464	0	0	0	0	0
LESCO	28,984	142.658	28,888	83	8	5	0	0
FESCO	25,715	86.442	23,027	2,678	9	1	0	0
MEPCO	34,926	109.846	34,919	7	0	0	0	0
HESCO	580	34.208	410	64	48	5	16	37
SEPCO	100	5.664	54	11	8	17	5	5
QESCO	626	53.09	352	112	2	3	4	153
KE	20,945	502.899	20,630	22	54	45	152	42
Total	**128,103**	**1,069.134**	**123,507**	**3,791**	**140**	**84**	**319**	**262**

Source: DISCOs/KE

MONITORING OF THE POWER SECTOR

06

6.1 GENERAL

Monitoring and Enforcement are central to effective regulatory governance, ensuring that policies and standards translate into real-world compliance. Monitoring through inspections, audits, and data analysis enables regulators to assess adherence, detect risks, and adjust strategies in response to changing conditions. Without systematic oversight, regulatory frameworks risk becoming symbolic, fostering non-compliance and undermining institutional credibility.

Enforcement gives regulatory rules their binding power through actions such as warnings, fines, and prosecutions that deter violations and promote accountability. Consistent and fair enforcement sustains public trust, prevents opportunistic behaviour, and ensures a level playing field among regulated entities.

Monitoring and Enforcement work together in a continuous feedback loop that drives ongoing improvement. Monitoring data help identify enforcement priorities, while enforcement outcomes, in turn, inform and refine monitoring strategies. In dynamic sectors such as the power industry, this interplay is essential for ensuring compliance, safeguarding public interests, and upholding the rule of law.

There is a full-fledged Monitoring and Enforcement (M&E) Department in NEPRA that remains actively engaged throughout the year in monitoring the performance and operations of licensees to ensure regulatory compliance, transparency, and accountability across Pakistan's power sector. The department plays a pivotal role in overseeing licensees' adherence to NEPRA's rules, regulations, and performance standards, while systematically identifying, investigating, and addressing instances of non-compliance. The following table provides a summary of the monitoring activities carried out over the past few years, which culminated in the imposition of penalties and fines on account of violations of NEPRA's regulatory framework.

Summary of the Fines Imposed (Rs. in Million)

Segment	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25
Generation	25	0	440	0	150
Transmission	0	50	30	10	10
Distribution	50	196	58	257.50	554
CPPA-G	0	0	60	60	0
KE	193.50	0	20	50	10
Total	**268.50**	**246**	**608**	**377.50**	**724**

Source: NEPRA

The core objective of M&E Department is to establish an effective deterrent mechanism that compels licensees to perform their duties in full compliance with the requirements of the regulatory framework. For this objective to be truly effective, M&E actions must be recognized, respected, and supported across all relevant forums, without being diluted or undermined.

While it is duly acknowledged that all licensees have the right to review, appeal, and petition before higher forums, it is equally important to ensure that such proceedings are concluded at the earliest possible stage. Prolonged delays in adjudication often embolden licensees to adopt a casual attitude toward their regulatory obligations, thereby weakening the deterrent effect of the enforcement process.

It is important to note that Pakistan's power sector is predominantly controlled by public sector entities. In the generation segment, out of a total installed capacity of approximately 41,121 MW, about 21,832 MW is owned and operated by the public sector. In transmission, except for KE and PMLTC, the entire network is publicly owned and managed. Similarly, in the distribution and supply segment (as Supplier of Last Resort – SoLR), 11 out of 12 companies operate under public-sector ownership.

Compliance issues with public sector entities remain particularly challenging. Legal proceedings for violations of regulatory provisions are often lengthy and cumbersome, typically taking more than six months even under efficient processing. Furthermore, nearly all penalty decisions by the Authority are subsequently challenged before the NEPRA Appellate Tribunal or at other forums, with prolonged adjudication timelines that dilute the intended deterrent effect.

In the case of government-owned entities, financial penalties ultimately burden electricity consumers or taxpayers rather than the responsible individuals. Institutional constraints also limit direct accountability for inefficiencies or non-compliance, thereby undermining the enforcement mechanism and perpetuating systemic inefficiencies in the sector.

Due to limitations in the NEPRA Act, the regulator currently lacks the authority to take direct action against delinquent officers or officials who, after thorough investigation, are found responsible for violations. The regulator can only proceed against the company as an entity. This gap emboldens individuals to continue committing violations without fear of personal accountability. Moreover, it has been observed that companies, in most cases, do not question or take action against their employees involved in breaches of the regulatory framework. Instead, they often support such employees and use legal avenues such as appeals and petitions before superior forums to delay proceedings. This practice ultimately undermines the accountability system within the sector.

6.1.1 Observations from Sector Monitoring: Critical Inefficiencies in Power Generation:

During the monitoring of the electric power generation segment, it has been observed that the sector faces several critical challenges. Among the most significant issues is the underutilisation of "Take or Pay" power generation capacity, which increases the per-unit CPP and, consequently, the overall consumer-end tariff. In addition, the poor performance of certain public sector power plants, such as the Neelum-Jhelum Hydropower Plant, and the operation of the 747 MW Guddu Power Plant in open cycle mode are also contributing to higher EPP while exerting additional pressure on the country's foreign exchange reserves.

Furthermore, several hydroelectric plants under WAPDA like Golen Gol Hydropower, Jinnah Hydel and Gulpur Hydropower etc. are underperforming, which exacerbates both the CPP due to their "Take or Pay" tariff structure and the EPP, as the shortfall in low-cost, fuel-free electricity must be compensated by more expensive, fuel-based generation.

Compounding these challenges, power plants are often operated in violation of the economic merit order: higher-cost plants are dispatched while cheaper ones remain underutilised, driven either by transmission constraints or contractual obligations tied to RLNG supply.

These persistent inefficiencies are causing substantial financial losses across the power sector, placing an additional burden on electricity consumers and driving up electricity costs. As a result, this not only affects households and industrial consumers but also hampers broader economic activities in the country.

6.2 MONITORING ACTIVITIES IN GENERATION SECTOR

6.2.1 Acquisition of Daily Data Pertaining to Key Performance Indicators from Operational Power Plants on the NEPRA Data Exchange Portal:

The daily data related to Key Performance Indicators (KPIs) was obtained from all operational power plants through the NEPRA Data Exchange Portal for FY 2024-25. This systematic collection of real-time operational data enables the Authority to conduct continuous and effective monitoring of licensee performance. The portal serves as a centralized digital platform that facilitates timely data submission, enhances transparency, and allows for prompt identification of deviations or inefficiencies in plant operations. Consequently, it strengthens evidence-based regulatory oversight and supports informed decision-making for performance evaluation and compliance enforcement. Using data from the portal, as well as from other primary and secondary sources, the M&E Department issues quarterly reports on the generation segment, which comprehensively highlight the key performance indicators for each power plant.

(a) Performance Monitoring of Power Plants

It is important to note that the EPP component of the consumer-end tariff is determined in advance by NEPRA, based on reference values for fuel prices and the projected generation mix. These reference and projected values are subsequently adjusted on a monthly basis through NEPRA's FCA exercise to reflect actual figures. This process not only ensures accurate tariff reflection but also provides an opportunity for effective and thorough monitoring of the performance of generation and transmission licensees, including the identification of transmission constraints that may lead to power plants operating in violation of the economic merit order.

The M&E Department conducts this oversight monthly, identifying power plants that are underperforming against regulatory targets and highlighting instances where transmission constraints prevent dispatch according to merit order. In addition, the department reviews bottlenecks in the fuel supply chain, including issues related to contractual agreements, to ensure that operational inefficiencies are detected and addressed in a timely manner.

The following table provides information on power plants that have failed to meet regulatory targets due to their own operational issues, transmission constraints that led to the underutilisation of efficient power plants, and fuel-related challenges that caused deviations from the EMO during FY 2024-25. The table also highlights the associated financial impact, indicative, of these operational inefficiencies:

Guddu 747 MW	Rs. 8.46 billion due to operation on open cycle mode during FY 2024-25, and Rs. 25.84 billion due to operation of Guddu 747 MW in open cycle mode from July, 2022 through the end of FY 2024-25.
Neelum Jhelum Hydropower	Due to non-operation of Neelum Jhelum Hydropower the sector faced a financial impact of Rs. 71.05 billion.
Jinnah Hydropower	Lower Generation (135 GWh) from Jinnah Hydropower in comparison to its annual benchmark energy resulted in financial loss of Rs. 12.703 billion.
Golen Gol Hydropower	Lower Generation (194 GWh) from Golen Gol Hydropower in comparison to its annual benchmark energy resulted in financial loss of Rs. 5.283 billion.
Gulpur Hydropower	Lower Generation (175 GWh) from Gulpur Hydropower in comparison to its annual benchmark energy resulted in financial loss of Rs. 6.715 billion.

Source: NEPRA

Indicative Financial Impact of Operation of Power Plants in Violation of EMO (Rs. Million)

	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25
Transmission constraints that led to the underutilisation of efficient power plants	3,683	20,203	61,866	17,159
Fuel-related challenges that caused deviations from the EMO	19,325	19,429	--	--
Underutilisation of efficient power plants due to other reasons	259	696	--	1,464
Total Indicative Financial Impact	**23,627**	**40,328**	**61,866**	**18,623**

Note: The actual generation for FY 2020-21 has been taken as the reference.
Source: NEPRA

6.2.2 Merit-Order Observance/Underutilisation of Power Plants:

(a) NGC Network

Enhanced monitoring of ISMO's merit-order-based operations has consistently revealed significant network constraints that compel the dispatch of costly generation units. The primary bottleneck identified is the South-North transmission corridor. In FY 2024-25, deviations from the merit order resulted in a total financial impact of Rs. 18,623 million. Of this, Rs. 15,607 million was attributable to transmission constraints, predominantly in the South-North corridor, coupled with contractual obligations that led to the underutilisation of more economical southern plants. The remaining Rs. 3,016 million arose from factors such as transmission line and grid overloading, inadequate planning, and incorrect unit commitments. The seasonal capacity limits of the HVDC/HVAC corridor 2,600 MW in winter and 4,500 MW in summer have severely restricted power evacuation from southern coal and nuclear plants, driving up overall electricity costs significantly.

(b) KE Network

NEPRA closely monitored the operations of KE's power plants and identified significant financial impacts arising from low Gas/RLNG pressure and dependence on costly generation units. Between July 2024 and April 2025, these issues resulted in a total financial burden of Rs. 4,006 million. Key contributors included low Gas/RLNG pressure at KGTPs, SGTPs, and KCCP; operation of KCCP on expensive HSD fuel; use of BQPS-I units running on RFO; and reduced utilisation of more economical power from the National Grid. Of the total impact, Rs. 1,588 million was linked to Gas/RLNG pressure problems, while Rs. 2,418 million resulted from underutilisation of cost-effective plants and limited intake from the National Grid. Additionally, NEPRA flagged reliability concerns at BQPS-III due to turbine-related faults and has initiated legal action against KE.

6.2.3 Preparation of Performance Evaluation Reports of Operational Power Plants:

In addition to quarterly performance reports, NEPRA also prepares an Annual PER to comprehensively assess the operational and regulatory compliance of generation licensees. The report for FY 2023-24 has been published and is available on the NEPRA website, while the report for FY 2024-25 has been finalized and is currently in the process of approval. Upon approval by the Authority, it will also be made publicly available on the website.

These reports present a consolidated overview of the performance of generation licensees, highlighting key operational trends, compliance status, and efficiency levels during the respective periods. They serve as an important regulatory instrument for monitoring sectoral performance, identifying systemic issues, and supporting evidence-based policy interventions aimed at improving the reliability and sustainability of Pakistan's power generation sector.

6.2.4 Legal Proceedings Concluded relating to Electric Power Generation Segment Issues:

During the reporting period, NEPRA concluded several legal proceedings initiated against various licensees for non-compliance with regulatory provisions and license conditions. These proceedings entailed a thorough examination of alleged violations, review of evidence, and provision of due process to the concerned licensees. The outcomes included the imposition of penalties, issuance of directives for corrective actions, and, in certain cases, closure of proceedings upon satisfactory compliance. The details of the proceedings concluded during FY 2024-25 are presented below:

(a) The Authority imposed a fine of Rs. 100 million on Central Power Generation Company Limited (CPGCL) in connection with the tripping and fire incident at Steam Turbine-16 of Guddu 747 MW Power Plant.
(b) The Authority imposed a fine of Rs. 25 million on KE in relation to the complete power system collapse on January 23, 2023, as well as the subsequent delays in system restoration.
(c) The Authority imposed a fine of Rs. 25 million on Huaneng Shandong Ruyi Power Plant (Sahiwal Coal) in relation to the complete power system collapse on January 23, 2023, as well as the subsequent delays in system restoration.
(d) The Authority imposed a fine of Rs. 25 million on Lucky Electric Power Company Limited (LEPCL) in relation to the complete power system collapse on January 23, 2023, as well as the subsequent delays in system restoration.
(e) The Authority imposed a fine of Rs. 10 million on Quaid-e-Azam Thermal Power Plant (QATPL) Bhikki in relation to the complete power system collapse on January 23, 2023, as well as the subsequent delays in system restoration.
(f) The Authority imposed a fine of Rs. 25 million on CPPA-G for failing to finalize the Operating Procedures for several power plants and for not signing the black start procedures with various power plants.
(g) The Authority imposed a fine of Rs. 25 million on NGC on account of non-finalization of Operating Procedures of a number of power plants and non-signing of black start procedures with different power plants.

Furthermore, proceedings regarding the blackout of January 23, 2023 were also initiated against Narowal Energy Limited and Tapal Energy (Pvt.) Limited. However, after due process, the Authority found their responses satisfactory and consequently disposed of the proceedings against them.

6.2.5 Legal Proceedings, Under-Process, relating to Electric Power Generation Segment Issues:

During the reporting period, several legal proceedings initiated against various licensees for violations of regulatory provisions and license conditions are currently under process. These cases are at different stages of adjudication, involving review of submissions, evaluation of evidence, and completion of hearings in accordance with due legal procedures. Upon conclusion, appropriate enforcement actions, including penalties or directives, will be taken based on the Authority's findings. The details of the ongoing proceedings are provided below.

(a) A Show Cause Notice was issued to WAPDA on account of certain hydel power stations recording outages exceeding the limits prescribed under the PPA.
(b) A Show Cause Notice was issued to WAPDA due to the non-performance of the Golen Gol Hydropower Project since its commissioning.
(c) A Show Cause Notice was issued to CPPA-G due to the non-imposition of Liquidated Damages on WAPDA, resulting from certain hydel power stations exceeding the allowed outage limits specified in the PPA.

(d) A Show Cause Notice was issued to KAPCO due to an extension of 485 days in the term of its PPA with CPPA-G, exceeding the duration of its generation license, and occurring prior to the submission of an application for licence renewal.

(e) Show Cause Notices were issued to Hub Power Company Limited, Northern Power Generation Company Limited (regarding its combined cycle plant at Nandipur), Orient Power Company Limited, Saif Power Limited, Lalpir Power Limited, Sapphire Electric Company Limited, Halmore Power Generation Company Limited, Thar Energy Limited, Saba Power Company Limited, Rousch (Pakistan) Power Limited, and National Grid Company of Pakistan Limited in the wake of the power system collapse that occurred on January 23, 2023.

6.2.6 Review Petition by Licensee against Authority's Decision – Proceedings Ongoing:

During the reporting period, several review proceedings filed by licensees against earlier decisions of the Authority are currently under process. These reviews are being examined in accordance with the prescribed regulatory framework to ensure transparency, fairness, and due process. Each case involves reassessment of the Authority's original findings based on the grounds raised by the licensees, supported by relevant evidence and documentation. The details of the review proceedings presently under consideration are as follows:

(a) Review petition filed by CPPA-G against the Authority's decision of imposing a fine of Rs. 10 million on account of extension in the term of the PPA signed with KAPCO by 485 days without prior approval of the Authority.

(b) Review petition filed by CPGCL against the Authority's decision of imposing a fine of Rs. 100 million on account of tripping and fire incident of ST-16 of Guddu 747 CCPP.

6.2.7 Directions to Power Plants regarding Activation of Black Start Facilities:

The issue of insufficient black start facilities in Pakistan's power system came to light during the inquiry into the nationwide blackout that occurred on 23 January, 2023. The investigation revealed that the black start capabilities at Orient Power and Sapphire Electric plants remained non-operational during the restoration process following the blackout.

In response, NEPRA promptly took cognizance of the issue and instructed both power plants to ensure that their black start facilities are maintained in a state of full readiness and remain available for operation at all times.

The plants informed the Authority that implementing the necessary modifications and upgrades to activate their black start systems would require additional funding beyond the existing tariff framework. However, NEPRA maintained that there should be no additional costs for keeping the existing black start facilities operational as it is an obligatory ancillary service under the Grid Code and PPAs, thereby requiring no additional payment.

The issue was thoroughly discussed in a stakeholders' meeting, which included representatives from the ISMO, CPPA-G, and the concerned power plants. Based on the discussions, NEPRA issued clear directives to both plants to activate and operationalize their black start capabilities within three months. Following these actions, similar directives were also issued to Foundation Power upon receipt of its formal request for black start capability enhancements.

6.2.8 Directions to Power Plants and the Power Purchaser regarding signing of Operating Procedures:

During the inquiry into the power system blackout on January 23, 2023, it was observed that the restoration of the power system took an unusually long time. One of the key reasons identified was that several power plants took longer than expected to synchronize with the system.

Upon investigation, it was found that CPPA-G and the power plants are required to develop and sign an Operating Procedure in compliance to the NEPRA Licensing (Generation) Rules, 2000 and as per the provisions of the signed PPA. This procedure, among other stipulations, clearly defines the timeline within which the plants must synchronize once the Notice to Synchronize (NTS) is issued by the System Operator. However, it was noted that several plants had not signed this Operating Procedure with CPPA-G.

A detailed inquiry was conducted regarding this matter, and after due process, CPPA-G and the respective plants were directed to finalize and sign the Operating Procedure within three months. Furthermore, a fine of Rs. 25 million has been imposed on NTDC and CPPA-G for the failure to have the operating system in place.

6.2.9 Direction to Power Plants, System Operator and Power Purchaser for Implementation of Day Ahead Merit Order:

It was observed that due to the absence of clear directives in the Grid Code, the Day-Ahead Merit Order (DAMO) has not been implemented. Consequently, the Authority issued specific instructions to ISMO and CPPA-G to execute the DAMO framework, with a target completion timeline of three months. These entities were also directed to submit the finalized SOPs and guidelines for DAMO implementation for the Authority's approval. Similarly, the Authority communicated its directives to the relevant generation companies, emphasizing the importance of timely and accurate submission of all required information and data to ISMO to facilitate effective DAMO implementation.

6.3 MONITORING ACTIVITIES IN TRANSMISSION SECTOR

Pakistan's transmission system has long been constrained by weak planning and chronic delays in project execution. The network suffers from a combination of underutilised assets, overloading, congestion, and overall inadequacy all of which contribute to higher electricity tariffs for consumers. Underutilisation spreads the fixed costs of transmission investments over a smaller volume of transmitted power, raising tariffs. Simultaneously, congestion and inadequate infrastructure elevate generation costs by forcing reliance on expensive power plants while cheaper units remain under dispatched.

These inefficiencies have persisted for decades, reflecting deep-rooted structural and operational weaknesses within the power sector. Despite repeated recognition of these issues, reform efforts have remained fragmented and have yielded limited tangible progress.

At present, underutilised assets, recurring congestion, and capacity constraints continue to undermine the performance of the national transmission network. Transmission bottlenecks have become commonplace, increasing system losses and compelling the dispatch of higher-cost generation in constrained areas. Moreover, several HVAC and HVDC lines remain significantly underused—representing substantial sunk investments that fail to deliver their intended economic and operational benefits.

These challenges reflect systemic deficiencies in planning, coordination, and real-time operational management. The growing disconnects between generation hubs and demand centers, coupled with delays in transmission expansion and maintenance, has further exacerbated the situation. Consequently, the NGC faces rising operational costs, and persistent inefficiencies in power dispatch.

Although several delayed projects have adversely affected Pakistan's power sector, the delay of the interconnection between the NGC and KE systems, as well as the Lahore North Grid and its associated transmission lines, has been particularly detrimental. These delays have resulted in substantial financial and operational losses to the national power system. The specific transmission system constraints and

project execution delays have already been discussed in detail in the relevant chapter on transmission system performance.

6.3.1 Data Exchange Portal for Monitoring of Transmission Licensees:

To institutionalize transparency, data integrity, and regulatory oversight, NEPRA has operationalized the Data Exchange Portal for all transmission licensees. This platform serves as a centralized digital repository for the systematic submission of operational, technical, and performance data.

The establishment of this structured mechanism has significantly enhanced data reliability, accuracy, and submission discipline, thereby enabling NEPRA to conduct more robust performance analyses and implement evidence-based regulatory interventions.

Building on the availability of comprehensive data through the portal, NEPRA has also introduced a Quarterly Performance Reporting framework.

6.3.2 Performance Evaluation Report of Transmission Licensees:

Under the PSTR- 2005, every transmission licensee is required to submit an Annual PER to the NEPRA. These reports serve as a key regulatory instrument for monitoring the operational efficiency, system reliability, and compliance of transmission licensees with prescribed technical standards.

NEPRA conducts a comprehensive analysis of these reports against critical performance indicators, including System Duration of Interruption, System Frequency of Interruption, Energy Not Served (ENS), Loss of Supply Incidents, System Collapses/Splitting/Isolations, and Voltage and Frequency Violations. This evaluation enables NEPRA to identify various technical and operational deficiencies, thereby facilitating the formulation of corrective measures by the concerned licensees.

During the reporting period, the PER for FY 2023-24 was finalized and uploaded on NEPRA's website for public access. Moreover, biannual report for July, 2024 to December, 2024 was also finalized and uploaded on NEPRA's website highlighting the key challenges and constraints of Transmission Sector. The PER for FY 2024-25 has also been completed and is presently under consideration by the Authority. It is expected to be published on NEPRA's website concurrently with the release of this report.

6.3.3 Legal Proceedings Concluded During FY 2024-25:

During FY 2024-25, NEPRA concluded several legal proceedings against NGC for non-compliance with regulatory provisions and to ensure adherence to safety and operational standards. The Authority imposed various penalties; however, these have been challenged by NGC before different appellate forums. A summary of the concluded proceedings is presented below:

(a) A fine of Rs. 10 million was imposed on NGC in relation to fatal accidents involving Mr. Zain ul Abideen and Mr. Khair Bux.
(b) A fine of Rs. 10 million was imposed on NGC due to the collapse of transmission towers in the South Region, attributed to cyclonic winds.
(c) A fine of Rs. 10 million was imposed on NGC in another case involving a fatal accident.
(d) A fine of Rs. 10 million was imposed on NGC in connection with the partial blackout of September, 2021, resulting from a fault at the 500 kV Jamshoro Grid Station.

6.3.4 Legal Proceedings in Process During FY 2024-25:

During FY 2024-25, the Authority initiated several legal proceedings to address instances of non-compliance and operational deficiencies observed within the transmission sector. The key actions undertaken are summarized below:

(a) Explanation Notices were issued to the NGC regarding delays in the completion of the Lahore North Grid Station and the fire incident at the 220 kV Band Road Grid Station, Lahore.
(b) Explanations were sought from NGC for non-compliance with NEPRA's directives concerning the payment dispute amounting to Rs. 697.10 million with the NPGCL.
(c) Show Cause Notices were issued to NGC for violations of NGC Specification P44:2018, delayed responses to NEPRA's official inquiries, and operational irregularities observed during inspections of the Jamshoro Grid Station and other South Region facilities (Jhimpir-II).

6.3.5 Directions to NGC Regarding Transmission Constraints and Expeditious Completion of Delayed Infrastructure Projects:

Persistent transmission constraints within the NGC and delays in critical transmission infrastructure projects continued to impact system operations during the reporting period. These limitations resulted in merit order violations and the operation of costly power plants, consequently imposing an additional financial burden on end consumers.

To address these challenges, NEPRA issued multiple directives to NGC to expedite the completion of delayed transmission projects that contribute to persistent system bottlenecks. These directives were communicated through formal correspondence, follow-up meetings, and continuous monitoring to ensure timely execution of essential transmission upgrades and network reinforcements.

A project of strategic importance, the SCADA-III system, also faced significant delays. Recognizing its critical role in enhancing grid reliability, system visibility, and operational efficiency, NEPRA issued several directions, convened multiple coordination meetings, and conducted on-site inspections to monitor its progress. The project, approved by ECNEC in 2018 and originally scheduled for completion by June, 2022, had achieved only 80% completion by June, 2025.

6.4 MONITORING ACTIVITIES IN DISTRIBUTION SECTOR

During the reporting period, NEPRA conducted extensive monitoring of DISCOs to ensure compliance with regulatory requirements and promote efficiency, reliability, and transparency. The assessment focused on service quality, system reliability, consumer response, safety, and overall operational performance.

Through inspections, data verification, and performance audits, NEPRA identified systemic issues, recurring deficiencies, and areas needing corrective action. Based on the findings, directives were issued to improve operational efficiency, resolve consumer complaints promptly, reduce technical and commercial losses, and ensure compliance with safety and service standards. Detailed observations and compliance status for each DISCO are provided in the following sections.

6.4.1 Overview of the Electricity Distribution and Supply Sector in Pakistan:

The significant share of electricity distribution and supply in Pakistan's power sector, excluding KE, lies with government-owned entities. It has been observed that public-sector entities in the power sector face serious governance and efficiency challenges.

In the distribution sector, there are persistent issues related to higher T&D losses and the less recovery of billed amounts. The performance of DISCOs in addressing consumer complaints is often inadequate.

It has been noted that DISCOs sometimes issue detection bills without concrete evidence of electricity theft, and these bills are frequently not in accordance with the provisions of CSM. Moreover, DISCOs take excessive time in providing new connections, replacing defective meters, facilitating net-metering connections, and resolving technical and commercial complaints.

Additionally, feeder-based load-shedding, implemented based on AT&C losses, results in collateral damage for electricity consumers, affecting reliability and service quality and in clear violation of regulatory directions. In conclusion, the distribution and supply sector faces significant challenges, with limited areas of excellence.

6.4.2 Data Exchange Portal (Distribution Module):

NEPRA has established a dedicated Data Exchange Portal to systematically collect, manage, and analyze critical operational information from all DISCOs on a monthly basis. The portal serves as a centralized platform for gathering comprehensive data, including but not limited to:

(a) Status of Time-of-Use (ToU) meters
(b) Damaged transformers
(c) Pending new connections
(d) Pending net-metering connections
(e) Defective meters
(f) Restoration time for power outages

The data collected through the Data Exchange Portal provides NEPRA with an accurate, overview of the operational performance of each DISCO. Analysis of this data generates KPIs that enable NEPRA to:

(a) Assess compliance with regulatory performance standards
(b) Identify operational inefficiencies and system bottlenecks
(c) Mitigate risks associated with delayed or inadequate service
(d) Support informed planning and decision-making for system upgrades and resource allocation
(e) Enhance overall efficiency and reliability in power distribution

The portal has significantly strengthened NEPRA's capacity to monitor and evaluate performance in time manner, facilitating proactive interventions and data-driven policy decisions.

6.4.3 Enforcement Actions on DISCOs for Non-Compliant Load-Shedding Practices:

During the reporting period, several DISCOs, including HESCO, SEPCO, QESCO, PESCO, and KE, were found implementing load-shedding based on AT&C losses at the feeder level. While this approach may have been operationally convenient for the DISCOs, it is not recognized under the NEPRA Act or the Performance Standards (Distribution) Rules, 2005, and constitutes a clear violation of the regulatory framework. Recognizing the serious implications of this practice for equity and consumer rights, NEPRA initiated proceedings against these DISCOs for engaging in discriminatory load-shedding.

After completing due process, NEPRA imposed a fine of Rs. 50 million on each of the five DISCOs for non-compliance with statutory obligations. KE and PESCO chose to challenge NEPRA's decision before the NEPRA Appellate Tribunal, which subsequently set aside NEPRA's order in their cases.

Despite these regulatory interventions, the DISCOs have continued to implement load-shedding based on AT&C loss criteria, representing a persistent violation of the NEPRA Act, their Distribution Licenses, and the Performance Standards (Distribution) Rules, 2005. This continued non-compliance has resulted in numerous consumer complaints regarding inequitable electricity supply.

In response to these ongoing breaches, NEPRA issued Show Cause Notices to HESCO, SEPCO, and QESCO on March 12, 2025, under Sections 27B and 28 of the NEPRA Act. These proceedings relate to the imposition of a daily fine of Rs. 100,000 for continued non-compliance with regulatory requirements. The proceedings against these three DISCOs are currently at an advanced stage.

It is regrettable that, instead of respecting the rights of electricity consumers and adhering to the regulator's directives, these DISCOs continue to carry out feeder-level load-shedding under the pretext of higher AT&C losses. This practice effectively punishes the majority of law-abiding consumers for the actions of a few defaulting consumers, contrary to the regulatory framework, which mandates that DISCOs address issues at the level of individual defaulting consumers rather than imposing collective penalties.

6.4.4 Establishment of Safety Directorate:

NEPRA has been allocating investments to all DISCOs under their respective investment plans to support safety improvement initiatives, with the overarching aim of promoting a zero-fatality goal across the distribution sector. Furthermore, in accordance with Section 7.1 of the NEPRA Power Safety Code 2024, all Licensees are required to establish independent Safety Directorates or departments dedicated to Occupational Health, Safety, and Environmental management.

While all DISCOs complied with NEPRA's directives, HESCO, SEPCO, and QESCO failed to establish their safety directorates. Consequently, legal proceedings were initiated against these three DISCOs for non-compliance. Show Cause Notices were issued under Regulations 4(8) and 4(9) of the Fine Regulations, and hearings were conducted for each DISCO.

After detailed deliberations, the Authority imposed a fine of Rs. 10 million each on HESCO and QESCO, while SEPCO's case remains under process.

6.4.5 Investigations for Fatal Accidents in Distribution Segment:

NEPRA upholds a policy of absolute zero tolerance for fatal accidents within DISCOs, regarding every loss of life as a preventable tragedy. The Authority firmly asserts that no operational urgency or procedural lapse can ever justify compromising human safety. Each incident serves as a solemn reminder of the collective responsibility of all power sector entities to maintain the highest standards of safety, vigilance, and accountability.

NEPRA is resolute in its commitment to preventing such tragedies, holding individuals and institutions strictly accountable for any negligence or disregard of safety protocols. The Authority ensures that victims receive necessary medical care and that families are provided appropriate financial compensation. Nevertheless, NEPRA recognizes that no compensation can replace a lost life, emphasizing the urgent need for strict compliance with safety protocols and fostering a proactive culture of safety across all DISCOs.

In the rare event of a fatal accident, NEPRA conducts thorough investigations to ascertain the causes, hold responsible parties accountable, and ensure that the maximum possible relief is provided to the bereaved families. Through these measures, the Authority reaffirms its unwavering commitment to human life, safety, and the continuous improvement of standards across the power sector.

(a) Investigation into Fatal Accidents in DISCOs

Proceedings initiated in previous fiscal years regarding fatal accidents in the respective territories of all DISCOs, excluding TESCO, were concluded during FY 2024-25, resulting in the imposition of fines totalling Rs. 228.50 million. In TESCO's case, the fatality was determined as due to the victim's own negligence, and the company was consequently exonerated.

Subsequently, three DISCOs i.e. FESCO, LESCO, and PESCO filed motions seeking leave to review the Authority's decisions. After due consideration, the motions filed by FESCO and LESCO were rejected, while PESCO's case remains under review and will be decided in due course.

(b) Investigation into LESCO Fatalities During the 2023 Monsoon Season

The Authority launched an investigation against LESCO following 12 fatal accidents during the July, 2023 monsoon. A Show Cause Notice was issued for 09 fatalities attributed to LESCO's negligence. After a hearing and review of LESCO's response, and imposed a fine of Rs. 23 million. LESCO was also directed to:

(i) Compensate victims' families equivalent to benefits provided to its own employees
(ii) Offer employment to the next of kin of each deceased

LESCO later filed a review petition against the Authority's August 09, 2024 order. After a hearing, the Authority rejected the petition and upheld its original decision.

6.4.6 Earthing/Grounding of DISCOs:

During investigations conducted by NEPRA into fatal accidents occurring across various DISCOs over different time periods, it was observed that the distribution infrastructure, particularly poles and structures, lacked proper earthing/grounding. This deficiency was identified as a major contributing factor to the occurrence of fatal accidents.

The Authority took serious notice of this issue and directed all DISCOs to submit a comprehensive plan, including specific timelines, for executing 100% earthing/grounding of their distribution systems. Subsequently, NEPRA initiated legal proceedings against all DISCOs for failing to implement earthing/grounding of HT/LT poles and structures within their respective service territories.

After following due legal process, the Authority imposed fines of Rs. 10 million on all DISCOs except SEPCO, whose proceedings are still ongoing and will be decided in due course. As a regulatory body, NEPRA continues to monitor the progress of earthing/grounding of HT/LT structures and poles on a periodic basis.

While imposing fines, the Authority directed the DISCOs to complete the earthing of all remaining steel structures within three months from the issuance of the order. However, most DISCOs were unable to meet the approved timelines. Consequently, the Authority initiated further proceedings against the DISCOs for continuous violations, as the prescribed timelines for completing the earthing of HT/LT steel structures had lapsed. These proceedings are still ongoing and will be concluded in due course.

It is noteworthy that IESCO, FESCO, and MEPCO have successfully completed the earthing of their respective steel structures and have submitted their completion certificates to the Authority.

6.5 SUMMARY OF ACTIONS TAKEN AND FINE IMPOSED ON LICENSEES WITH RESPECT TO NON-COMPLIANCE OF NEPRA'S APPLICABLE DOCUMENTS

NEPRA has remained vigilant and has taken strict actions against licensees for non-compliance of NEPRA rules, regulations, standards, codes and other applicable documents. The process of initiating and concluding legal proceedings against any violations of applicable regulations is cumbersome and time-consuming, often taking more than a year to resolve. Once concluded, the decisions are frequently challenged through reviews at the regulatory level, appeals to the NEPRA Appellate Tribunal, and further litigation, which undermines deterrence measures.

It is pertinent to mention here that recovery rate of fines is notably low which shows disregard for regulatory decisions by public sector entities which contributes to financial, technical and regulatory indiscipline within power sector.

Below table present a summary of cases, fines imposed, challenging in high forums, under review in NEPRA and vis-à-vis amount (Rs. in Million) deposited with effect from FY 2015-16 till June 30, 2025:

Description		Generation	Transmission	Distribution	Total
Fine Proceeding Concluded	No.	41	09	62	**112**
	Amount	849.50	66.00	1,482.00	**2,397.50**
Fine Deposited by Licensees in Compliance with the Authority's Decision	No.	--	01	09	**10**
	Amount	--	05	224.50	**229.50**
Fine Not Deposited in NEPRA	No.	41	08	53	**102**
	Amount	849.50	61	1,275.50	**2,168.00**

Source: NEPRA

MAJOR REGULATORY ACTIVITIES

07

Pursuant to Section 7 of the NEPRA Act, the Authority has established a comprehensive regulatory framework to ensure provision of safe, reliable, sustainable, and affordable electric power in Pakistan. This market-oriented, performance-based regime promotes efficiency, transparency, and consumer welfare.

The framework includes Rules [1], Regulations, Codes, Guidelines, Manuals, and SOPs enabling effective oversight of generation, transmission, distribution, and supply licensees.

NEPRA's core mandate is to regulate the power sector in a just, prudent and transparent manner. The functions performed by NEPRA include licensing and registration, tariff determination and adjustment thereof, monitoring and enforcement of licensees, resolution of consumer complaints, and development of competitive electricity market.

7.1 GRANT OF LICENSES, CONCURRENCES AND REGISTRATIONS

The Regulation of Generation, Transmission and Distribution of Electric Power (Amendment) Act, 2018 marked a pivotal shift in Pakistan's power sector, expanding the scope of regulated activities and setting the stage for market liberalization. Previously, only generation, transmission, and distribution were licensed functions. The amendments introduced new categories, electric power supply, trade, market operations, and system operations, designed to facilitate open access, encourage competition, and enable the gradual evolution of the sector from a vertically integrated structure to a competitive electricity market.

Following the completion of the period provided in Section 14B of the Act, with effect from April 2023, the traditional licensing regime for generation has been replaced by a concurrence regime, under which generation companies now require concurrence from the Authority instead of a licence.

NEPRA also issues registrations to entities providing electric power services that do not require a licence or concurrence under the Act. This approach ensures that all participants within the electricity value chain operate under an appropriate regulatory framework. The key activities undertaken by NEPRA under the licensing, concurrence, and registration regimes are outlined in the following sections:

7.1.1 Generation Licences:

During the period under review, five (05) generation licence applications, with a combined capacity of 831.90 MW, remained at various stages of processing. Of these, three (03) licences, with an aggregate installed capacity of 810.90 MW, were issued, while the remaining two (02) applications remained under consideration. The detail of the generation licences issued during FY 2024-25 is provided below:

[1] Under NEPRA Amendment Act of 2018, the eligibility criteria rules are to be prescribed by the Federal Government.

S. No.	Name of Licensee	Installed Cap. (MW)	Fuel	Licence/ Concurrence No.	Date of Issuance
1	Nestle Pakistan Limited	12.50	Furnace/ Diesel Oil	SGC/174/2024	December 13, 2024
2	Nestle Pakistan Limited	21.70	Furnace Oil	SGC/175/2024	December 13, 2024
3	Central Power Generation Company Limited*	776.70	Natural Gas	GL/29/2025	June 23, 2025
Total		**810.90**			

** The earlier granted licence of CPGCL was modified through LPM and 747 MW Guddu was excluded from the existing licence and provided new licence for privatisation.*
Source: NEPRA

7.1.2 Generation Concurrence:

The first proviso to Section 14B(5) of the NEPRA Act mandates that "a generation company intending to set up a generating facility shall prepare and submit a detailed scheme covering all financial, geological, hydrological, technical, safety, and environmental aspects to the Authority for its concurrence". The five-year transition period under this provision concluded on April 26, 2023.

Since the mechanism for the gradual cessation of generation licences for different classes of licensees had not yet been notified, the Authority continued issuing generation licences up to April, 2023. Thereafter, the regulatory regime transitioned to the issuance of concurrences in accordance with the Act. During the period under review, a total of twelve (12) applications, representing an installed capacity of 2,096.256 MW, were under consideration for concurrence. Out of these, two (02) concurrences were granted to:

(a) Burj Solar Energy (Pvt.) Limited
(b) Fazal Solar Energy (Pvt.) Limited

Additionally, Kot Addu Power Company Limited (KAPCO) submitted an application on June 21, 2024, seeking renewal of its generation licence for a revised capacity of 550 MW, down from its previous 1,600 MW. The Authority noted that KAPCO's PPA had expired and that the plant's effective capacity had been significantly reduced. Accordingly, the project was treated, for all practical purposes, as a new generation facility.

Through its determination dated April 18, 2025, the Authority granted a concurrence to KAPCO under Section 14B (5) of the NEPRA Act for its 550 MW generation facility. The details of generation concurrences issued during FY 2024-25 are presented below:

S. No.	Name of Company	Installed Cap. (MW)	Fuel	Concurrence No.	Date of Issuance
1	Fazal Solar Energy (Pvt.) Limited	1.00	Solar	SGC/C/02/2024	September 29, 2024
2	Burj Solar Energy (Pvt.) Limited	3.006	Solar	SGC/C/03/2024	September 29, 2024
3	Kot Addu Power Company Limited	550	Natural Gas/ RLNG/LSFO	IGSP/C/01/2025	April 18, 2025

Source: NEPRA

7.1.3 Pending Applications for Grant of Generation Concurrence and Supply Licenses:

NEPRA has received several applications for the grant of licences or concurrence for generation facilities intending to sell electric power from their generation plants to Bulk Power Consumers (BPCs). In such cases, the processing of applications for generation concurrence, standalone, generally faces no hindrance and is concluded through the grant of the requisite concurrence. However, under the overall regulatory framework, the sale of electric power by such generation concurrence holders to BPCs also requires a valid supply licence.

Furthermore, under Regulation 6 of the NEPRA Consumer Eligibility Criteria (Electric Power Suppliers) Regulations, 2022, it is, inter alia, mentioned that a consumer shall not be eligible to receive supply of electric power from the Supplier of Last Resort if it has a valid arrangement for the supply of electric power from any competitive supplier. From this provision, it appears that a consumer cannot simultaneously maintain electricity connections from both the Supplier of Last Resort (SoLR) and a competitive supplier.

It has been observed that, in the majority of cases pending before NEPRA, BPCs currently maintain active electricity connections with their respective host SoLRs. Consequently, under the prevailing regulatory provisions, applications for the grant of concurrence and supply licences to sale electric power to BPCs, having electric connection from host SoLR, face procedural challenges, resulting in many such applications for generation concurrence and supply licences remaining inconclusive. An amendment to the aforementioned Regulations is currently under process but has not yet been finalized.

7.1.4 Distribution Licences:

During FY 2024-25, in accordance with Sections 20 and 21 of the NEPRA Act, the Authority granted one (01) Distribution Licence to Hazara Electric Supply Company Limited (HAZECO) (Licence No. DL/10/2025, dated May 23, 2025) to provide distribution services in the districts of Abbottabad, Haripur, Mansehra, Battagram, and Torghar in Khyber Pakhtunkhwa. Consequently, the Authority approved a Licensee Proposed Modification (LPM) in the distribution licence of PESCO, carving out the aforementioned areas from its jurisdiction.

Several distribution licence applications remained under process during the year, including those of (i). Rashakai Special Economic Zone Development & Operations Company (Pvt.) Limited; (ii). six projects of the Punjab Industrial Estates Development and Management Company (PIEDMC) located in Sundar, Bhalwal, Rahim Yar Khan, Quaid-e-Azam Business Park (Sheikhupura), Vehari, and Bahawalpur; (iii). Bahria Town (Pvt.) Limited for Rawalpindi/Islamabad and Lahore; and (iv). Pakistan Expatriates Cooperative Housing Society (PECHS–Valancia), Lahore.

7.1.5 Supplier Licences:

During FY 2024-25, the Authority, in exercise of its powers under Section 23E of the NEPRA Act, granted one (01) Electric Power Supply Licence to Hazara Electric Supply Company Limited (HAZECO) to operate as the Supplier of Last Resort (SoLR) within its designated service territory. Consequently, the Electric Power Supplier Licence of PESCO was modified to exclude these areas from its jurisdiction. Furthermore, a significant number of applications for the grant of Supplier Licences to sell electric power to BPCs remain pending before NEPRA.

7.1.6 Net-Metering Concurrences:

During FY 2024-25, a total of 9,150 net-metering concurrences were granted, representing an aggregate installed capacity of 1,250.90 MW. This continued growth in distributed generation highlights the increasing public participation in Pakistan's clean energy transition. The details of the net-metering concurrences issued during the period are presented below:

S. No.	Name of DISCO	No. of Net-Metering Concurrences Issued	Installed Capacity (MW)
1	PESCO	775	109.80
2	TESCO	69	9.24
3	IESCO	890	100.71
4	GEPCO	910	116.11
5	LESCO	1,745	303.70
6	FESCO	1,871	205.55
7	MEPCO	1,631	240.50

S. No.	Name of DISCO	No. of Net-Metering Concurrences Issued	Installed Capacity (MW)
8	HESCO	121	27.55
9	SEPCO	68	18.58
10	QESCO	44	9.74
11	KE	1,026	109.41
Total		**9,150**	**1,250.90**

Source: NEPRA

7.1.7 Modifications in the Existing Licences:

During the period under review, the Authority maintained its regulatory oversight to ensure the timely renewal, modification, and cancellation of generation licences in accordance with the NEPRA Licensing (Application, Modification, Extension and Cancellation) Procedure Regulations, 2021. The Authority processed twenty-eight (28) applications for LPMs to existing generation licences. Of these, ten (10) applications were finalized, and the corresponding licence modifications were duly issued, while the remaining applications are currently under process. The details of the finalized cases are presented in the table below:

S. No.	Name of Licensee	Licence Number	Modification/ Decision Issued
1	Western Energy (Pvt.) Limited	WPGL/37/2017	October 30, 2024
2	Dadu Energy (Pvt.) Limited	SGC/62/2010	January 10, 2025
3	Omni Power (Pvt.) Limited	SGC/63/2010	January 10, 2025
4	Shikarpur Power (Pvt.) Limited	SGC/64/2010	January 10, 2025
5	Thatta Power (Pvt.) Limited	SGC/76/2011	January 10, 2025
6	Chiniot Power Limited	IGSPL/41/2014	May 27, 2025
7	Central Power Generation Company Limited	GL/02/2002	June 23, 2025
8	Shahtaj Sugar Mills Limited	IGSPL/72/2016	June 26, 2025
9	Peshawar Electric Supply Company Limited	DL/07/2023	May 23, 2025
10	Peshawar Electric Supply Company Limited	SOLR/07/2023	May 23, 2025

Source: NEPRA

7.1.8 Transfer of Generation Licences:

During the reporting period, NPW Solar (Pvt.) Limited acquired three generation facilities of the Solis Group, while Smart PV Solar (Pvt.) Limited acquired two generation facilities. Consequently, the respective Generation Licences, with a combined installed capacity of 14.00 MW, were transferred to the acquiring companies in accordance with Section 27 of the NEPRA Act. The details of these transferred facilities are provided below:

S. No.	Generation Licence No.	Installed Capacity	Transfer of Generation Licence		Licence Transfer Date
			From	To	
1	SGC/136/2020	03 MW	Solis Charlie Energy (Pvt.) Limited	Smart PV Solar (Pvt.) Limited	September 18, 2024
2	SGC/137/2020	2.50 MW	Solis Alpha Energy (Pvt.) Limited	NPW Solar (Pvt.) Limited	September 18, 2024
3	SGC/141/2020	03 MW	Solis Bravo Energy (Pvt.) Limited	Smart PV Solar (Pvt.) Limited	September 18, 2024
4	SGC/138/2020	01 MW	Solis Alpha Energy (Pvt.) Limited	NPW Solar (Pvt.) Limited	September 18, 2024
5	SGC/142/2020	4.50 MW	Solis Alpha Energy (Pvt.) Limited	NPW Solar (Pvt.) Limited	September 18, 2024

Source: NEPRA

7.1.9 Expired and Cancelled Licences:

During the reporting period, two (02) generation licences, with a cumulative installed capacity of approximately 94 MW, expired, while nine (09) generation licences, with a combined capacity of 289 MW, were cancelled at the request of the respective licensees. The details of all such processed cases are provided below:

Expired Licences				
S. No.	**Name of Licensee**	**Installed Capacity**	**Licence No.**	**Expiry Date**
1	Engro Polymer and Chemicals Limited	79.02	SGC/26/2004	November 10, 2024
2	Al-Abbas Sugar Mills Limited	15.00	SGC/58/2010	May 18, 2025
Cancelled Licences				
1	Two Star Energy (Pvt.) Limited	49.80	IGSPL/91/2017	August 08, 2024
2	The Thal Industries Corporation Limited (Safina Sugar Mills Limited)	41.00	IGSPL/54/2015	August 08, 2024
3	RYK Energy Limited	25.00	IGSPL/80/2017	August 08, 2024
4	Indus Energy Limited	31.00	IGSPL/86/2017	August 08, 2024
5	Asia Energy (Pvt.) Limited	30.00	SPGL/28/2019	August 08, 2024
6	Alliance Power (Pvt.) Limited	30.00	IGSPL/46/2014	August 08, 2024
7	YDE SA (SMC-Pvt.) Limited	5.0058	SGC/173/2023	October 02, 2024
8	K1 Solar Power Lahore (Pvt.) Limited	15.00	SPGL/32/2020	October 02, 2024
9	P&G Energy (Pvt.) Limited	62.20	SPGL/34/2020	October 02, 2024

Source: NEPRA

7.1.10 Transfer and Assignment of System Operator and Market Operator Licence to Independent System and Market Operator of Pakistan:

The Authority approved the transfer of System Operator (SO) and Market Operator (MO) licences from NGC and CPPA-G to the newly established Independent System and Market Operator of Pakistan (Guarantee) Limited (ISMO). This approval, granted through the Authority's determination dated April 30, 2025, is in accordance with the decision of Federal Government dated October 29, 2024. The establishment of ISMO marks a major structural reform, consolidating system operation and market operation functions under a single independent entity. ISMO will henceforth be responsible for system dispatch, long-term planning, and development as well as effective implementation of the CTBCM framework.

7.1.11 Progress on Integrated System Plan 2024-34 comprising of Indicative Generation Capacity Expansion Plan (IGCEP) and Transmission System Expansion Plan (TSEP):

In compliance with PC-4 of the Grid Code, the NGC submitted, on April 30, 2024, the Integrated System Plan for the years 2024-2034 (ISP-2024) for review and approval of the Authority. The ISP-2024 comprised the following components:

(i) Indicative Generation Capacity Expansion Plan (IGCEP-2024); and
(ii) Transmission System Expansion Plan (TSEP-2024)

Upon consideration of the submission, the Authority decided to seek comments from relevant stakeholders. To facilitate a broader understanding of the ISP formulation process among stakeholders, the Authority organized a full-day workshop on May 24, 2024.

In response to the notices issued, the Authority received comments from various stakeholders and subsequently decided to conduct a public hearing on the matter. During the course of reviewing the ISP-2024, and prior to the hearing, the Authority directed NGC to submit an addendum to the ISP-2024 addressing certain aspects, including (inter alia) the incorporation of a scenario with an increased system load factor from 60% to 70%.

Despite the lapse of considerable time and issuance of multiple reminders, NGC failed to submit the required addendum. Consequently, the Authority initiated legal proceedings against NGC in accordance with the NEPRA (Fine) Regulations. In view of the above, the ISP-2024 has neither been approved nor returned as of June 30, 2025.

7.1.12 Regulatory Framework for Tariff Determination and Notification:

Pursuant to Section 7(3) of the NEPRA Act, the Authority holds exclusive jurisdiction to determine tariffs, rates, charges, and associated terms and conditions for generation, transmission, distribution, and supply licensees. These determinations are subsequently communicated to the Federal Government for notification in the Official Gazette.

Section 31(3) of the Act sets out the guiding principles for tariff determination and revision. Additionally, under Section 31(7) of the NEPRA (Amendment) Act, 2021, the Federal Government is required to either notify the Authority's approved tariff or refer it back for reconsideration within thirty days of intimation. If no action is taken within this period, the Authority may direct immediate implementation of the approved tariff, subject to subsequent adjustments if warranted upon reconsideration by the Federal Government.

Tariff determinations by the Authority are carried out in accordance with the NEPRA Tariff (Standards and Procedure) Rules, 1998, through a transparent process involving public hearings and stakeholder consultations. Each determination is supported by rigorous financial and technical analysis to ensure that only prudent costs and a reasonable rate of return are allowed for licensees or project sponsors.

7.2 TARIFF REGULATION AND MARKET TRANSITION UNDER THE CTBCM FRAMEWORK

Although a limited segment of the electricity market is currently exposed to price competition through the CTBCM, the majority of electricity supply remains governed by tariffs determined by the Authority. In this context, the Authority plays a central role in ensuring that regulated tariffs are established in a transparent, consistent, and balanced manner, allowing licensees to recover prudently incurred costs while protecting consumers from excessive charges. Through a consultative and stakeholder-participatory process, the Authority provides price discipline in areas where competition is limited, while also fostering the regulatory certainty necessary to sustain investor confidence and facilitate a gradual transition toward greater market liberalization.

During FY 2024-25, the Authority processed numerous tariff petitions and review motions, issuing one-time and periodic determinations on tariff components. These determinations were made based on prescribed mechanisms for adjustments, indexation, and variations, following a transparent consultative process with stakeholders and public participation.

7.2.1 Major Tariff Determinations Issued in FY 2024-25:

During the financial year ended June 30, 2025, the Authority issued a series of significant decisions relating to tariff approvals, modifications, and adjustments across multiple generation companies. These determinations reflect the Authority's ongoing commitment to transparency, regulatory compliance, and financial sustainability in the power sector.

The decisions addressed key matters, including the approval of interim and provisional tariffs, modifications to provide operational flexibility, and the reduction of tariff components through joint applications submitted by the CPPA-G and various IPPs.

S. No.	Matter	Company/Applicant	Type of Decision	Issuance Date
1	Request for approval of Jetty O&M Tariff	China Power Hub Generation Company (Pvt.) Limited	Approval of Jetty O&M Tariff	July 25, 2024
2	Grant of Interim Tariff for EPC Stage (660 MW Coal Project)	Jamshoro Power Company Limited	Interim Tariff (EPC Stage)	September 13, 2024
3	Tariff Modification Petition for inclusion of Open Cycle Operations on Gas (Block-I & II)	Central Power Generation Company Limited	Tariff Modification	March 11, 2025
4	Request for Provisional Tariff	Kot Addu Power Company Limited	Provisional Tariff	April 09, 2025
5	Joint application for reduction in Tariff Components	CPPA-G and Nishat Power Limited	Tariff Reduction	May 27, 2025
6	Joint application for reduction in Tariff Components	CPPA-G and Nishat Chunian Power Limited	Tariff Reduction	May 27, 2025
7	Joint application for reduction in Tariff Components	CPPA-G and Liberty Power Tech. Limited	Tariff Reduction	May 27, 2025
8	Joint application for reduction in Tariff Components	CPPA-G and Narowal Energy Limited	Tariff Reduction	May 27, 2025
9	Joint application for reduction in Tariff Components	CPPA-G and Engro Powergen Qadirpur Limited	Tariff Reduction	May 27, 2025
10	Joint application for reduction in Tariff Components	CPPA-G and Saif Power Limited	Tariff Reduction	May 27, 2025
11	Joint application for reduction in Tariff Components	CPPA-G and Sapphire Electric Company Limited	Tariff Reduction	May 27, 2025
12	Joint application for reduction in Tariff Components	CPPA-G and Attock Gen Limited	Tariff Reduction	May 27, 2025
13	Joint application for reduction in Tariff Components	CPPA-G and Foundation Power Company Daharki Limited	Tariff Reduction	May 27, 2025
14	2nd Tariff Modification Petition for 747 MW CCPP Guddu	Central Power Generation Company Limited	Tariff Modification	July 02, 2025

Source: NEPRA

7.2.2 Review Motions on Fuel Price Adjustments:

The Authority also considered review motions filed by power generation companies challenging earlier decisions relating to FPA. These review motions were carefully examined to ensure that due regulatory process was observed and the principles of transparency and fairness were upheld.

S. No.	Matter	Company/Applicant	Issuance Date
1	Motion for leave for review against Decisions of the Authority in the matter of FPA	Port Qasim Electric Power Company (Pvt.) Limited	February 12, 2025
2	Motion for leave for review against Fuel Price Adjustment for May, 2025	Huaneng Shandong Ruyi (Pakistan) Energy (Pvt.) Limited	May 26, 2025

Source: NEPRA

7.2.3 Tariff Determinations Relating to KE:

During the reporting period, the Authority also adjudicated upon tariff matters relating specifically to KE. These included evaluation of KE's write-off claims under the Multi-Year Tariff (MYT) framework, as well as determination of tariff petitions for KE's generation plants.

S. No.	Matter	Issuance Date
1	Tariff Petition for Power Generation Plants	October 22, 2024
2	Write-off Claims under MYT 2017-2023	June 05, 2025

Source: NEPRA

7.2.4 Periodic Adjustments and Indexations of Tariff Components:

In addition to the above decisions, the Authority issued monthly, quarterly, and annual adjustments and indexations pertaining to various components of tariffs, including fuel prices, insurance, and withholding tax, applicable to IPPs. These adjustments ensured that tariffs remained reflective of prevailing market and financial realities.

7.2.5 Periodic Tariff Adjustments for Hydropower Projects during FY 2024-25:

The Authority processed periodic adjustments for multiple hydropower projects during the year ended June 30, 2025.

S. No.	Project	Decision Date
1	Laraib Energy	31-07-2024, 26-09-2024, 10-12-2024, 30-04-2025, 14-05-2025
2	Karot Hydropower	10-09-2024, 19-11-2024, 27-05-2025
3	Gulpur Hydropower	29-08-2024, 04-03-2025, 22-05-2025
4	Patrind Hydropower	10-07-2024, 07-08-2024, 27-03-2025, 22-05-2025
5	Malakand-III Hydropower	10-09-2024, 10-12-2024, 23-04-2025, 14-05-2025
6	Jagran-I Hydropower	06-11-2024
7	Chianwali Hydropower	08-08-2024, 06-11-2024, 04-03-2025, 23-04-2025
8	Marala Hydropower	31-07-2024, 06-11-2024, 04-03-2025, 23-04-2025
9	Pak Pattan Hydropower	31-07-2024, 06-11-2024, 04-03-2025, 23-04-2025
10	Suki Kinari Hydropower	02-01-2025, 11-03-2025

Source: NEPRA

7.2.6 Determinations and Review Decisions for Hydropower Projects:

The Authority also issued fresh determinations and review decisions in respect of other hydropower projects.

S. No.	Project	Capacity	Determination Date	Decision Sought
1	Gorkin Matiltan	84 MW	December 11, 2024	Tariff Petition filed by PEDO for Tariff Determination of 84 MW Gorkin Matiltan Hydropower Project.
2	Daral Khwar	36.6 MW	January 13, 2025	Suo Moto Proceedings for change in COD.

Source: NEPRA

7.2.7 RE Tariff Adjustments (Wind and Solar):

Pursuant to the indexation mechanism stipulated in the Authority's earlier determinations, adjustments in tariff components for wind and solar projects were issued on quarterly, bi-annual, and annual bases. Adjustments were primarily on account of Consumer Price Indices, Currency Exchange Rates, and KIBOR/LIBOR/SOFR variations. The following projects were covered under these periodic adjustments.

S. No.	Name of IPPs	S. No.	Name of IPPs
1	Quaid-e-Azam Solar Power	25	Three Gorges 3rd Wind Farm Pakistan
2	Apollo Solar Development Pakistan	26	Tricon Boston Consulting Corporation-A
3	Best Green Energy Pakistan	27	Tricon Boston Consulting Corporation-B
4	Crest Energy Pakistan	28	Tricon Boston Consulting Corporation-C
5	Harappa Solar	29	Zephyr Power
6	AJ Power	30	FFC Energy
7	Oursun Pakistan	31	Three Gorges 1st Wind Farm Pakistan
8	Gharo Solar	32	Zorlu Enerji Pakistan
9	Atlas Solar	33	Foundation Wind Energy-I
10	HNDS Energy	34	Foundation Wind Energy-II
11	Meridian Energy	35	Metro Power Company
12	Helios Power	36	Sachal Energy Development

S. No.	Name of IPPs	S. No.	Name of IPPs
13	Act Wind	37	Master Green Energy
14	Yunus Energy	38	Lucky Renewables
15	Sapphire Wind Power	39	Act 2 Din Wind
16	Hydro China Dawood Power	40	Metro Wind Power
17	UEP Wind Power	41	Gul Ahmed Electric
18	Master Wind Energy	42	Indus Wind Energy
19	Gul Ahmed Wind Power	43	Din Energy
20	Tenaga Generasi	44	Artistic Wind Power
21	Hawa Energy	45	Liberty Wind Power-1
22	Jhimpir Power	46	Liberty Wind Power-2
23	Artistic Energy	47	Lakeside Energy
24	Three Gorges 2nd Wind Farm Pakistan	48	NASDA Green Energy

Source: NEPRA

In line with the approved indexation framework, periodic tariff adjustments for the above RE projects were carried out on quarterly, bi-annual, and annual bases. Adjustments were made primarily on account of variations in Consumer Price Indices, Currency Exchange Rates, and Reference Interest Rates (KIBOR, LIBOR, and SOFR). In addition, the Authority:

(a) Allowed reimbursement of 7.5% withholding tax on dividends to eligible IPPs.
(b) Issued annual adjustments of insurance components for wind and solar projects.
(c) Implemented the transition from LIBOR to SOFR (vide decisions dated December 05, 2024 and December 13, 2024), resulting in revised indexation of the foreign interest component of tariffs for the relevant projects.

7.2.8 Development and Enforcement of Performance Standards:

To ensure better service quality and reliability of electric power, the Authority has developed specific Performance Standards for generation, transmission, distribution and supply licensees. These standards provide minimum benchmarks for operational safety, system reliability, and service delivery.

Compliance is ensured through site visits, performance evaluations, and legal actions where required. The Authority continuously reviews these standards to incorporate emerging technologies, international best practices, and evolving system requirements, maintaining alignment with modern utility performance benchmarks. Currently, the Performance Standards for Distribution Licencees are under review and consideration.

7.2.9 Transition from LIBOR to SOFR:

The Ministry of Energy (Power Division) through letter dated June 12, 2024, forwarded the decision of Economic Coordination Committee (ECC) on February 01, 2024 to NEPRA, wherein ECC directed seventy-two (72) power projects with foreign financing, advising them to formally file tariff modification petitions with NEPRA for the transition from LIBOR to SOFR, in accordance with the NEPRA (Tariff Standards and Procedure) Rules, 1998. As per the ECC decision, all the project lenders were allowed to opt for any of the following options:

(a) Daily Simple SOFR plus relevant ISDA recommended CAS (0.26161% for quarterly payment and 0.42826% for semi-annual payment); or
(b) Term SOFR plus relevant ISDA recommended CAS.

Accordingly, NEPRA sent letters on June 12, 2024 to power projects with foreign financing, advising them to formally file tariff modification petitions for the transition from LIBOR to SOFR, in accordance with the NEPRA Tariff (Standards and Procedure) Rules, 1998. After considering the requests received

from numerous stakeholders, the Authority decided to initiate suo moto proceedings in the matter. Accordingly, Advertisement/Notice of Hearing was published in the national daily newspapers on August 17, 2024, inviting intervention request or comments in the matter. Separate notices were also sent to all the stakeholders on August 20, 2024 for participation in the hearing. The hearing was conducted on September 05, 2024 at NEPRA Headquarters. Following issues were framed for discussion during the proceedings:

(a) What should be the agreed-upon lookback period? Should there be a uniform lookback period for all relevant power projects, or would it be justified to have different lookback periods for different plants?
(b) Any other issues that may arise during the hearing with the approval of the Authority.

Further written consents were also obtained from IPPs for adoption of following options:

(a) **Option 1:** Daily Simple SOFR plus the relevant ISDA recommended CAS.
(b) **Option 2:** Term SOFR plus the relevant ISDA recommended CAS.

Out of total 41 RE projects (wind and Solar); 36 IPPs opted Term SOFR, 04 IPPs opted Daily SOFR and 01 IPP opted both Term and Daily SOFR partially. The Authority issued decision of transition from LIBOR to SOFR decision on December 05, 2024 for revision of foreign interest component of RE projects and review decision was issued on December 13, 2024.

7.3 HEALTH, SAFETY, AND ENVIRONMENT

During FY 2024-25, NEPRA achieved notable progress in strengthening Health, Safety, and Environment (HSE) practices across the power sector through a series of targeted and strategic initiatives. These efforts aimed to embed HSE as a core organizational priority, ensuring the protection of human and animal life, preservation of the environment, and safeguarding of critical power infrastructure. The Authority reinforced strict compliance with the NEPRA Power Safety Code 2024 and other applicable legal requirements among its licensees, underscoring its commitment to achieving a zero-incident culture through proactive risk management, continuous monitoring, and industry-wide capacity building. Following key activities were undertaken during the reporting period:

(a) NEPRA published the 3rd edition of Power Safety Code 2024, a comprehensive framework establishing safety requirements for the power sector. The Code is designed to protect employees, contractors, and the general public, while safeguarding critical national infrastructure.
(b) NEPRA published the HSE PER 2023-24, providing a comprehensive review of HSE practices across the power sector. The evaluation covered all NEPRA licensees, regardless of size, capacity, or technology engaged in generation, transmission, and distribution activities, whether in construction or operational phases.
(c) NEPRA published a safety flyer containing important safety advisories, designed to raise awareness and prevent electrical accidents across the country.
(d) As part of its "Power with Safety" initiative, NEPRA held a full-day online awareness session on March 18, 2025, through Zoom. The session brought together power sector professionals to explain the main points of the NEPRA Power Safety Code 2024 and help them understand how to apply it and follow its requirements.
(e) As part of its commitment to "Power with Safety", NEPRA directed all licensees and power sector companies to launch the "Safety Awareness Campaign 2025" and "Monsoon and Flood Preparedness Safety Guidelines". The campaign provides clear safety guidelines for the general public, private electricians, and line staff, which are available on the HSE page of the NEPRA website.

7.4 CONSUMER COMPLAINT HANDLING AND RESOLUTION

NEPRA is responsible for receiving and resolving complaints from electricity consumers against DISCOs/Licensees. To enhance consumer satisfaction, NEPRA has established ten (10) Regional Offices in various cities specifically dedicated to the receipt and processing of these complaints. Additionally, a substantial number of complaints are also received through Pakistan's Citizens Portal for resolution. The table below provides a DISCO-wise breakup of complaints received, processed, and resolved at both the NEPRA Head Office and its Regional Offices for FY 2024-25:

Status of Consumer Complaints (Head Office and Regional Offices) (July, 2024 to June, 2025)

DISCO	Total Complaints Received/Processed	Total Complaints Disposed Of	Total No. of Complaints under Process	Hearings Conducted
PESCO	629	459	170	383
TESCO	6	2	4	2
IESCO	412	386	26	163
GEPCO	731	704	27	184
LESCO	4,534	4,170	364	1,308
FESCO	900	852	48	422
MEPCO	2,088	1,940	148	421
HESCO	1,688	1,657	31	803
SEPCO	1,396	1,070	326	878
QESCO	189	127	62	75
KE	6,504	6,044	460	2,273
Pakistan Citizen Portal	598	598	0	0
Total	**19,675**	**18,009**	**1,666**	**6,912**
NEPRA Asaan Approach (Mobile App)	76,373	76,184	189	
Grand Total	**96,048**	**94,193**	**1,855**	**6,912**

Source: NEPRA

7.4.1 NEPRA Consumer Complaint Management – FY 2024-25:

NEPRA (Head Office and Provincial/Regional Offices) has received/processed a total No. of 19,675 complaints during the period July 01, 2024 to June 30, 2025 out of which 18,009 complaints have been redressed/disposed of and 1,666 complaints are under process. Moreover, a total No. of 6,912 hearings were also conducted (including online, Head Office and in Regional Offices) by Consumer Affairs Department and directions were issued accordingly. In addition, 76,373 complaints were received on NEPRA Asaan Approach mobile application during the reporting period, out of which 76,184 have been redressed.

7.4.2 Resolution of Court-Referred Cases and Major Complaints:

The Consumer Affairs Department has processed/disposed of forty-six (46) Complaints/Cases/Writ Petitions referred by various Courts of law during the period July, 2024 to June, 2025. A number of one hundred seventy-eight (178) major cases/complaints have also been decided by Complaints Resolution Committee(s) during the reporting period and directions/speaking orders were issued accordingly.

7.4.3 Other Major Activities:

(a) In order to facilitate the electricity consumers of Pakistan for their complaints; NEPRA launched a mobile application namely "NEPRA ASAAN APPROACH" on July 31, 2024.

(b) The DISCOs including KE were also directed to print details regarding "NEPRA ASAAN APPROACH" mobile application on the electricity bills and display Pana flexes at all field offices (sub divisions, divisions etc.) for awareness of general public.

(c) On receipt of numerous consumer complaints regarding prolonged load-shedding in the service territory of KE, particularly during the heat wave in Karachi; the Authority considering the severity of the conditions, directed KE to adopt the following immediately:

(i) Load-shedding should be carried out if it is absolutely essential and in strict accordance with NEPRA's applicable documents.
(ii) If load-shedding is necessary and compliant with NEPRA's applicable documents, it should be avoided during night hours to the greatest extent possible.
(iii) Any required, lawful load-shedding should be limited to maximum duration of one hour per occurrence.

(d) The Authority issued an Explanation to KE with regard to non-adherence to the directions of the Authority with respect to provision of information on the pretext that a large number of net-metering applications were rejected by KE on the basis of overloading of Common Distribution System/PMTs. Besides, directed KE to entertain all the applications without any delay and promptly process all net-metering application in accordance with NEPRA (Alternative and Renewable Energy) Distribution Generation and Net-Metering Regulations, 2015 and where transformer upgrades are necessary, KE shall fulfill its responsibility by carrying out the required upgrades and maintenance as part of its obligations for the proper management of the CDS and to ensure that net-metering consumers are not unjustly deprived of their rightful services.

(e) NEPRA conducted an inquiry, pursuant to reports from various sources, including print, electronic, and social media whereby it was highlighted that electricity consumers received inflated bills for the month of June, 2024. Accordingly, legal proceedings have been initiated against all the DISCOs on account of misuse of pro-rata mechanism and against KE for not implementing pro-rata adjustments for cases where meter readings were carried out for more than 30 days, which resulted inflated electricity bills for the period April to June, 2024.

(f) The Authority also issued directive/directions to all the DISCOs including KE for adjustment of bills for the period from April, 2024 to June, 2024 along with waiver of LPS where pro-rata billing was carried out in violation of earlier directions of the Authority. In response, the directions of the Authority have been complied by DISCOs by adjusting a total amount of Rs. 6.189 billion to 2.4158 million number of consumers on account of overbilling established by the NEPRA team during the inquiries.

(g) On the directions of the Prime Minister received through Ministry of Energy (Power Division); the Authority constituted an Investigation Committee (IC) for investigation into the issue of overbilling by DISCOs and manipulation of MDI by industrial sector.

(h) On the recommendation of Inquiry Committee, constituted under Section 27A of the NEPRA Act, to investigate issuance of fake/detection bills in Narowal-I under the territory of GEPCO in pursuance of decision of the President Secretariat (Public) received from Wafaqi Mohtasib (Ombudsman)'s Secretariat Regional Office, Gujranwala; directions were issued to GEPCO to provide credit to all the consumers who were charged bill adjustments/ detection bill in lump sum during the period from April, 2021 to December, 2021 in Narowal-I sub division and to take action against the delinquent officials under GEPCO service rules. In response, GEPCO reported that credit/relief has been provided to 8,531 affected consumers, involving a total adjustment of 1,298,823 units besides action taken against the delinquents.

(i) On receipt of several complaints regarding imposition of fixed charges on account of MDI; all the DISCOs have been directed to scrutinize the record and correct the wrongly charged MDI in the historical data/master file to avoid excessive charging of fixed charges on MDI basis.

(j) In order to ensure transparency and timely communication, DISCOs and PITC have been directed to make changes in billing system for printing geo-tagging on each meter photo on electricity bills and notifying consumers via SMS after capturing the meter reading.

(k) In compliance with the directives of the Authority and Show Cause Notices issued to LESCO, FESCO and MEPCO, due credit/relief has been provided by the said DISCOs to the affected consumers who were charged detection bills on account of slowness of energy meters for more than two billing cycles in violation of provisions of CSM.

(l) The Authority has approved amendment in CSM regarding facility of installment for payment of electricity bill and the same was conveyed to all the DISCOs including KE and other stakeholders.

7.5 NEPRA APPELLATE BOARD

The Authority has established an Appellate Board to adjudicate appeals submitted to NEPRA against decisions made by the Provincial Offices of Inspection under Section 38 of the NEPRA Act, 1997. The table below presents the status of appeals and review petitions considered by the Appellate Board during FY 2024-25:

7.5.1 Appeals Filed Before the NEPRA Appellate Board:

During the period from July 01, 2024 to June 30, 2025, the NEPRA Appellate Board processed appeals filed by various DISCOs. At the beginning of the period, a total of 79 appeals were pending. An additional 181 appeals were filed during the year, bringing the cumulative total to 260 appeals.

Of these, 159 appeals were decided during the reporting period, while 101 appeals remained under process as of June 30, 2025. Among the DISCOs, LESCO recorded the highest number of new appeals (82), followed by PESCO (25), and FESCO (24). Most entities demonstrated steady progress in disposing of cases, with several DISCOs, TESCO and HESCO, clearing their entire pending caseload by the end of the year. The detailed breakup of appeals, covering pending cases, new filings, disposals, and closing balance, has been compiled by the NEPRA Appellate Board:

DISCO	Pending as on 01 July, 2024	Filed from 01st July, 2024 to 30th June, 2025	Total	Decided	Balance as on 30th June, 2025
PESCO	8	25	33	20	13
TESCO	1	0	1	1	0
IESCO	10	3	13	4	9
GEPCO	12	15	27	23	4
LESCO	16	82	98	53	45
FESCO	10	24	34	26	8
MEPCO	12	19	31	22	9
HESCO	1	1	2	2	0
KE	9	12	21	8	13
Total	**79**	**181**	**260**	**159**	**101**

Source: NEPRA Appellate Board

7.5.2 Review Petitions before NEPRA:

In accordance with the provisions of the NEPRA (Review Procedure) Regulations, 2009, any party aggrieved by the decision of the NEPRA Appellate Board has the right to file a review petition before NEPRA. These review petitions are duly examined and adjudicated by the Appellate Board in accordance with the prescribed regulatory framework. During FY 2024-25, several parties exercised this right and submitted review petitions challenging the decisions made by the Appellate Board.

The following table provides a summary of the review petitions filed during the said period, the parties involved, and the current status of each petition:

DISCO	Pending as on 01 July, 2024	Filed from 01st July, 2024 to 30th June, 2025	Total	Decided	Balance as on 30th June, 2025
PESCO	2	0	2	2	0
IESCO	4	0	4	4	0
LESCO	2	4	6	6	0
FESCO	0	1	1	1	0
MEPCO	3	1	4	4	0
KE	1	0	1	1	0
Total	**12**	**6**	**18**	**18**	**0**

Source: NEPRA Appellate Board

7.5.3 Status Summary of Appeals before the NEPRA Appellate Tribunal under Section 12G of the NEPRA Act:

The NEPRA Appellate Tribunal was constituted by the Federal Government under Section 12 of the NEPRA (Amendment) Act, 2018, to serve as an independent forum for the adjudication of appeals against decisions of the NEPRA Appellate Board. In accordance with Section 12(G) of the NEPRA Act, any party aggrieved by a decision or order of the NEPRA Appellate Board may prefer an appeal before the Appellate Tribunal.

During the period from 2022 to June 30, 2025, a total of 67 appeals were filed before the NEPRA Appellate Tribunal. Of these, 26 appeals were disposed of, while 41 appeals remained pending as of June 30, 2025. Among the DISCOs, FESCO and LESCO accounted for the highest number of appeals filed, with 26 and 18 appeals respectively, followed by GEPCO with 10 appeals and PESCO with 6 appeals. Several entities, including IESCO and MEPCO, concluded the period with no pending appeals, reflecting complete clearance of their respective caseloads.

Out of the 26 appeals decided during the reporting period, 17 were decided in favour of NEPRA, while 9 appeals were remanded to NEPRA for review or for a fresh decision. The table below presents the status of appeals filed before the NEPRA Appellate Tribunal during FY 2024-25 against decisions of the NEPRA Appellate Board, providing an overview of appeals received, cases disposed of, and those currently under adjudication:

DISCO	Total Filed during 2022 to June, 2025	Decided	Net Balance as on 30th June, 2025
PESCO	6	2	4
IESCO	1	1	0
GEPCO	10	6	4
LESCO	18	2	16
FESCO	26	11	15
MEPCO	1	1	0
HESCO	3	2	1
KE	2	1	1
Total	**67**	**26**	**41**

Source: NEPRA Appellate Board

7.5.4 High Court Judgments in NEPRA Appellate Board Cases:

Decisions of the NEPRA Appellate Board are occasionally challenged before the Honourable High Courts by DISCOs or consumers seeking judicial review of the Board's determinations. Such petitions are generally filed under the constitutional jurisdiction of the High Courts, primarily on questions of law, procedural fairness, or interpretation of regulatory provisions.

During the reporting period, the High Courts issued judgments in a total of six (06) cases pertaining to decisions of the NEPRA Appellate Board. Out of these, four (04) judgments were decided in favour of NEPRA, upholding the Appellate Board's determinations. The remaining two (02) cases were remanded

back to NEPRA for review or fresh decision. This outcome reflects a strong validation of NEPRA's appellate processes, with the majority of decisions sustained by the judiciary.

7.6 MARKET DEVELOPMENT

In light of the amendments in NEPRA Act in 2018, to move single buyer regime towards a competitive regime, NEPRA approved the High-Level Market Design in 2019 and the Detailed Design and Implementation Roadmap in 2020, providing a clear framework for transitioning to the CTBCM. Later on, the National Electricity Policy and National Electricity Plan endorsed the CTBCM design and provided policy support for this transition towards a competitive electricity market.

7.7 COMPETITIVE TRADING BILATERAL CONTRACT MARKET

Pakistan's power sector has historically been shaped by a centralized, single-buyer model that created inefficiencies, capacity surpluses, and lack of choice for consumers. The Power Sector Strategic Plan for Restructuring and Reform was the first blueprint for unbundling and corporatization of the sector. This Plan initiated reforms by unbundling generation, transmission, and distribution functions to improve accountability and efficiency. However, despite progress, the single-buyer model persisted, concentrating market power and preventing competitive discipline.

Over time, this lack of competitive discipline contributed to systemic issues such as rising capacity payments, inefficiencies in dispatch, and accumulation of circular debt.

Recognizing these structural barriers, the NEPRA Act amendments of 2018 provided the legal mandate to move beyond the single-buyer model toward a competitive, multi-buyer framework. Building on this foundation, NEPRA approved the High-Level Market Design in 2019 and the Detailed Design and Implementation Roadmap in 2020, providing a clear framework for transitioning to the CTBCM. Later on, the National Electricity Policy and National Electricity Plan endorsed the CTBCM design and provided policy support for this transition towards a competitive electricity market.

7.7.1 Key Milestones in FY 2024-25:

(a) **Establishment of ISMO:** On April 30, 2025, NEPRA transferred the Market Operator and System Operator licenses to the ISMO. Ensuring ISMO's independence in governance and decision-making is critical to avoid conflicts of interest, enhance transparency, and strengthen investor confidence.

(b) **KE Integration Plan:** NEPRA approved KE's integration into CTBCM on May 26, 2025, ensuring integration of Pakistan's largest private utility into central economic dispatch and paving the way for participation of Bulk Power Consumers (BPCs) located in the territory of KE in the CTBCM.

(c) **Supplier-to-Supplier Sales Allowed:** The Authority approved Amendments to the NEPRA Licensing (Electric Power Supplier) Regulations, 2022, allowing supplier-to-supplier sales. This step enhances market liquidity and strengthens the competitive structure.

(d) **Test Run of Market Commercial Code (MCC):** Market Operator completed the six-month test run of the MCC, validating processes, IT systems, and rules. The Final Test Run (FTR) Report remained under regulatory review and is at advanced stage of approval.

7.7.2 Key Market Instruments under Regulatory Process:

(a) Final Test Run and Market Commercial Code

During FY 2022-23 and FY 2023-24, the Market Operator completed the six-month Test Run of the CTBCM. This exercise was a critical milestone, as it validated the operational processes, methodologies, IT systems, and governance rules required for market functioning. The Test Run demonstrated the

technical readiness of systems and identified refinements necessary to ensure smooth commercial operations.

Following the Test Run, the Market Operator submitted the FTR report along with proposed amendments to the MCC, covering adjustments to formulas, settlement methodologies, and operational labelling. These submissions are currently under NEPRA's regulatory review and have reached an advanced stage of approval. The MCC, once approved, will serve as the foundational rulebook of the wholesale electricity market, ensuring transparency, accountability, and non-discriminatory participation.

(b) Use of System Charges for Wheeling/Open Access

The operationalization of CTBCM has been constrained primarily due to challenges associated with the determination of wheeling or open-access charges, particularly the treatment of stranded cost components. The inclusion of stranded costs, intended to compensate for underutilised generation capacity procured under legacy power purchase arrangements, has, however, remained a critical impediment to market participation, as the number and allocation of such costs could significantly influence the economic feasibility of bilateral contracting and erode confidence in the reform process and stall the very market liberalization it seeks to promote.

Wheeling charges determination was initially issued by NEPRA on January 01, 2021. DISCOs challenged the same in Islamabad High Court (IHC), and the IHC vide its order dated March 03, 2023, directed NEPRA to decide the matter within period of 10 weeks from the date of receipt of order. Pursuant thereto, DISCOs filed wheeling petitions for FY 2022-23. However, the matter lingered on due to a number of requests from DISCOs and the Ministry of Energy (Power Division), to align with the rebasing of consumer-end tariffs.

However, recognizing the issue that without treatment of stranded cost component, the wheeling charges may be too high to support market transactions, the Ministry of Energy (Power Division) has initiated a process for amendments in the NE Plan and Supplier Eligibility Criteria Rules.

(c) Agency Code

The Agency Code, submitted by CPPA-G, provides for its roles and responsibilities as a Special Purpose Agent on behalf DISCOs and KE. Under the CTBCM regime, CPPA-G will be responsible for administering and settling legacy contracts, including PPAs and Energy Purchase Agreements (EPAs) executed prior to the CMOD.

The Agency Code defines the rights, obligations, and operational procedures for managing these residual functions, thereby ensuring continuity of contractual commitments while enabling a smooth transition towards a competitive market. The document has undergone stakeholder consultations and is at an advanced stage of regulatory approval. Once in place, the Agency Code will safeguard the integrity of legacy arrangements while preventing conflicts of interest between competitive and non-competitive segments of the power sector.

(d) Connection Agreements (CAs)

There are three types of Connection Agreements, i.e., NGC-Generator, NGC-DISCOs, and DISCO-BPC. DISCOs have submitted draft Connection Agreements with BPCs, in line with CTBCM requirements for defining roles, responsibilities, and obligations of interconnected parties. The submitted agreement is under regulatory review to ensure consistency with the Grid and Distribution Codes, as well as to embed enforceable provisions that strengthen contractual clarity and reduce disputes.

(e) Use of System Agreement (UoSA)

Draft UoSA was submitted by DISCOs and KE under the NEPRA Open Access (Interconnection and Wheeling of Electric Power) Regulations, 2022. The draft UoSA set out the rights and responsibilities of market participants for using the network under open access. The submitted draft is under regulatory review and approval process to ensure that UoSA not only ensure non-discriminatory access but also stipulates the rights and obligations of the parties.

(f) Distribution Code

The revised Distribution Code, submitted by DISCOs, addresses critical aspects such as open access, operational coordination with the System Operator, RE integration, and improved demand forecasting. The draft is undergoing regulatory review, supported by international benchmarking exercise, to ensure the Code provides robust, transparent, and enforceable framework for distribution sector. Its finalization is expected to enhance operational discipline, forecasting accuracy, and the integration of distributed and renewable resources.

(g) Performance Standards (Distribution)

The Distribution Performance Standards are currently under public consultation. The proposed revisions are focused on raising benchmarks for service quality, operational efficiency, and consumer satisfaction. Once finalized, the Standards will embed measurable indicators that improve DISCO performance, enhance consumer protection, and create stronger accountability frameworks across the distribution sector.

(h) Market Participation Agreements/Service Provider Agreement

During FY 2024-25, CPPA-G submitted drafts of the Market Participation Agreements (MPA) and Service Provider Agreements (SPA).

(a) MPA set out the rights, obligations, and compliance requirements for all market participants, ensuring a transparent and enforceable framework for entry and participation in CTBCM.

(b) SPA govern the engagement of service providers to support CTBCM such as open access, provision of metering data, etc., ensuring accountability and alignment with regulatory standards.

As of June 2025, both agreements are under NEPRA's regulatory review, being refined through stakeholder consultations and international benchmarking.

7.7.3 Submissions Pending from Stakeholders:

(a) Security Package Documents (SPDs)

To be developed and submitted by PPIB. These documents are critical for bankable bilateral contracts between DISCOs and generators. Delay in PPIB submission may restrict the ability of DISCOs and generators to sign bilateral contracts, impacts the transition from the single-buyer model.

(b) Connection Agreements (Generators, NGC, DISCOs)

Agreements defining technical and commercial rights for interconnection between network licensees and generators are yet to be submitted by relevant licensees. Delay in submission risks creating uncertainty in interconnection rights and obligations, undermining investor confidence and limiting bulk power consumer access. Timely submission of these instruments is critical to sustain reform momentum and ensure Pakistan's readiness for competitive market operations.

7.8 LEGAL

The Legal Department of NEPRA provides comprehensive support to the Authority through legal vetting and interpretation of regulatory matters, drafting of subordinate legislation, and representation before courts and tribunals. It ensures that regulatory actions, enforcement proceedings, licensing processes, tariff determinations, and policy directions are fully aligned with the governing statutory framework.

The Department also plays a key role in litigation management, preparation of compliance reports, and the defense of Authority decisions before judicial and quasi-judicial forums. Additionally, it contributes to sectoral studies and regulatory reports by examining relevant legal issues, identifying gaps within existing regulatory frameworks, and recommending measures to strengthen compliance and governance across the power sector. The following activities were undertaken by the Legal Department in support of the Authority's discharge of its mandate:

7.8.1 Promulgation of New Regulations/Guidelines and Amendments in NEPRA Rules/ Regulations/Guidelines/Codes:

In accordance with Section 47 of the NEPRA Amended Act, 2018, NEPRA is tasked with developing Regulations that govern the conduct, procedures, duties, responsibilities, and terms and conditions of licensees or registered entities, provided they do not conflict with the Act and Rules. In the FY 2024-25, NEPRA notified the following amendments in the existing Regulations in the Official Gazette of Pakistan:

(a) Amendment in NEPRA (Electric Power Procurement) Regulations, 2022 notified vide SRO 2070(I)/2024 dated December 24, 2024; and
(b) Amendment in NEPRA Licensing (Electric Power Suppliers) Regulations, 2022 notified vide SRO 1098(I)/2025 dated June 19, 2025.

7.8.2 Status of Pending Legal Cases:

As of June 30, 2025, a total of 1,296 legal cases were pending before various Honourable Courts of Pakistan and the NEPRA Appellate Tribunal, in which either the decisions of the Authority were challenged or NEPRA was impleaded as a proper and necessary party. During FY 2024-25, 316 cases were filed, while 89 cases were decided or disposed of during the same period.

INITIATIVES BY STAKEHOLDERS

08

8.1 GENERAL

This section presents an overview of key institutions that collectively shape the development landscape of the power sector of Pakistan. At the federal level, the Private Power and Infrastructure Board (PPIB) serves as the one-window facilitation body for private sector investment in the generation and transmission segment in alignment with policies of the GoP. PPIB deals with both conventional as well as RE projects (following the merger of AEDB into PPIB). Further, National Energy Efficiency & Conservation Authority (NEECA) plays a pivotal role in advancing energy efficiency across Pakistan's power sector.

At the provincial level, the Punjab Power Development Board, Pakhtunkhwa Energy Development Organization (PEDO), and the Energy Departments of Sindh and Balochistan continue to play an important role in promoting energy development and investment within their respective jurisdictions.

During FY 2024-25, these institutions submitted comprehensive briefs outlining their progress, ongoing initiatives, and strategic plans aimed at strengthening the national power sector. The following sections provide a summary of their key activities and priorities as reported to the Authority.

8.2 PRIVATE POWER AND INFRASTRUCTURE BOARD

The Private Power and Infrastructure Board (PPIB) is mandated to promote, encourage, and facilitate private sector investment in Pakistan's power sector. Its primary objective is to not only attract new investments but also safeguard the interests of existing investors. PPIB serves as a one-window facilitator, streamlining all approvals and coordination processes related to the development of generation, transmission, and distribution projects across the country.

In addition to supporting conventional power generation, PPIB actively promotes the development of alternative and RE projects, along with the necessary supporting infrastructure. These efforts are aimed at achieving sustainable economic growth, fostering technology transfer, and building a robust indigenous technological base through a diversified energy mix. The key functions of PPIB are broadly categorized as follows:

Category	Key Functions / Activities
Approvals	(i) Letter of Intent (LOI) (ii) Letter of Support (LOS)/Tripartite LOS (TLOS) (iii) Financial Close (iv) Feasibility Studies
Facilitation and Implementation	(i) Facilitates development of generation (RE & conventional) and transmission projects. (ii) Implements power policies and promotes private investment. (iii) Supports formulation of generation and transmission policies.
Certification	(i) Ensures quality standards in renewable (wind/solar) projects under AEDB Certification Regulations.
Coordination	(i) Coordinates with provincial/local governments, regulators, and sponsors. (ii) Acts as agent for projects in GB and AJ&K. (iii) Liaises with banks, IFIs, and provincial entities. (iv) Assists in off-grid electrification initiatives.

Category	Key Functions / Activities
Security Package Agreements	(i) Drafts, negotiates, and executes IA, DIA, GoP/Sovereign Guarantees. (ii) Oversees implementation and dispute resolution under power policies. (iii) Obtains security instruments from sponsors/IPPs.
Independent Auction Administrator	(i) Conducts competitive bidding for new generation capacity for DISCOs/SOLRs. (ii) Prepare plans for competitive auctions for generation projects Facilitates DISCOs in the development of security package documents and securing GoP guarantees.
Post-COD Facilitation for IPPs	(i) Ensures enforceability of security documents and GoP obligations. (ii) Supports IPPs in consents, refinancing, force majeure, and dispute settlements. (iii) Issues NOCs for financing, forex facilitation, and shareholding changes. (iv) Resolves issues related to gas, fuel, resettlement, and expert re-engagement.
Compliance Monitoring	(i) Review project reports, financial statements, SECP filings, and debt repayments. (ii) Monitors project performance, BoD/CEO changes, and offshore payments. (iii) Ensures compliance with IA and regulatory requirements.
Approvals and Governance	(i) Secures Federal Cabinet and Board approvals on IPP-related matters.
Support to Power Division /GoP	(i) Provides technical and policy support to the Power Division. (ii) Leads Energy Planning Expert Panel (EPEP) under CPEC and supports JEWG/JCC forums. (iii) Engages with SIFC, international partners (UAE, KSA, China, etc.), and organizations (ECO, SCO, IRENA, USAID). (iv) Represents GoP in committees such as CCoP, Power Sector Reform Task Forces, NAB Prevention Committee, and World Bank's EDEIP. (v) Provides legal and policy opinions.

(a) Track Record:

During FY 2024-25, PPIB continued to manage a broad portfolio of IPP and CPEC-related projects, including hydropower, renewable, and indigenous fuel-based initiatives. The key highlights of PPIB's performance and ongoing initiatives are summarized below:

Category	Technology Type	No. of IPPs	Capacity (MW)
RE IPPs	Hydro	5	1,937
	Solar	10	680
	Wind	36	1,838
	Bagasse	8	259
Sub-Total (RE)		**59**	**4,721**
Conventional Fuel-Based IPPs	Thar Coal	5	3,300
	Indigenous Gas	14	3,333
	Imported Coal	3	3,960
	RLNG	4	4,896
	RFO	15	3,993
	Multi-fuel	1	1,638
Sub-Total (Conventional)		**42**	**21,120**
Grand Total		**101**	**25,841**

(b) Certification of Solar and Wind System Installers:

In line with its expanded mandate following the merger of the AEDB, the PPIB undertakes the certification of service providers and installers of solar and wind energy systems under the AEDB (Certification) Regulations. This certification framework ensures the safe, secure, and quality-assured deployment of RE systems across Pakistan, encompassing all aspects of product standards, installation practices, and maintenance services.

As of June, 2025, PPIB has certified a total of 743 installers and vendors who are actively engaged in the deployment of distributed solar photovoltaic (PV) systems nationwide. These certified entities play a critical role in supporting the expansion of clean and sustainable energy through net-metering installations.

(c) Performance Highlights during FY 2024-25:

During FY 2024-25, the PPIB continued to perform its role in accordance with the mandate given under the PPIB Act, 2012. The major activities and accomplishments are summarized below:

(a) The 884 MW Suki Kinari Hydropower Project achieved Commercial Operation Date (COD) on 14 September, 2024, becoming Pakistan's largest hydropower IPP under the CPEC energy portfolio, with a total investment of US$ 1.707 billion.
(b) A 32 MW bagasse-based power project entered the commissioning phase and is expected to begin commercial operations by July, 2025, supplying approximately 126 million clean energy units annually, sufficient to power over 50,000 households.
(c) PPIB spearheaded the extension of the Power Policy 2015 and actively facilitated the development of the Gilgit-Baltistan power sector through targeted legislative measures and investment support mechanisms.
(d) Under the AEDB (Certification) Regulations, PPIB ensured quality assurance in RE deployment, with 354,852 net-metered solar PV systems totalling 5,484 MW and 743 certified installers as of May, 2025.
(e) Enabled the installation of around 200,000 new net-metered solar PV systems (adding approximately 3,000 MW) and certified over 200 additional installers between July, 2024 and June, 2025.
(f) Obtained Federal Cabinet approval for standardized security documents related to small hydropower projects, paving the way for increased private sector participation.
(g) Completed feasibility studies for 1,200 MW of solar PV projects in Kot Addu/Muzaffargarh and Jhang, aimed at attracting private investment under the IGCEP.
(h) Facilitated the solarization of key public buildings, including the Prime Minister's Office (475 kW), Prime Minister's House (175 kW), and several federal ministries and agencies in Islamabad.
(i) Contributed to the solar electrification of 322 health facilities nationwide through partnerships with GAVI and UNICEF, supporting improved healthcare service delivery in off-grid areas.
(j) Developed standardized Request for Proposal (RFP) documents for hydropower, solar, and wind projects to streamline the process for international competitive bidding.
(k) Finalized a framework agreement with the Kingdom of Saudi Arabia to strengthen cooperation in RE, energy efficiency, artificial intelligence applications, and sustainable energy development.

8.3 NATIONAL ENERGY EFFICIENCY AND CONSERVATION AUTHORITY

National Energy Efficiency and Conservation Authority (NEECA) play a pivotal role in advancing energy efficiency and conservation across Pakistan's power sector. Focusing on demand-side improvements, NEECA's initiatives aim to reduce generation costs, manage peak electricity demand, and improve the overall efficiency and sustainability of the energy system.

The FY 2024-25 marked a period of strategic advancement for NEECA. Under its mandate defined by the National Energy Efficiency and Conservation Act, 2016, the authority launched several pioneering programs to enhance energy efficiency, reduce reliance on costly energy imports, and empower consumers. Since its first budget allocation in 2021 and with a dedicated team of 45 professionals, NEECA has worked to integrate energy efficiency measures into the National Electricity Plan, the 5E Framework, and the Prime Minister's Uraan Pakistan Initiative. Key achievements during the year include:

(a) Development and implementation of the Energy Conservation Building Code (ECBC)
(b) Enactment of the Pakistan Energy Label Regulations, 2023
(c) Launch of the Energy Auditors and Managers Certification Program
(d) Implementation of Demand-Side Management (DSM) programs

These initiatives have strengthened policy and regulatory frameworks, facilitated private sector participation, encouraged consumer engagement, and laid a solid foundation for long-term energy sustainability in Pakistan.

Key Function	Description
Policy and Regulatory Framework	Formulate and enforce regulations like ECBC and MEPS to ensure efficient end-use energy consumption.
Demand Side Management (DSM)	Design programs for peak load shaving, demand shifting, and load optimization to reduce grid pressure and delay new generation investments.
Appliance and Equipment Efficiency	Implement labeling and certification programs for appliances to lower energy intensity in residential, commercial, and industrial sectors.
Power Sector Efficiency Programs	Support DISCOs and utilities in reducing losses, improving generation efficiency, and promoting cogeneration.
Renewable and Distributed Energy Integration	Promote solar pumping, rooftop solar, and distributed generation to reduce fossil fuel reliance.
Monitoring and Validation	Track and validate the impact of interventions using internal metrics and international benchmarks like the World Bank RISE Report

(a) Strategic Priorities and Performance Review:

Program/Initiative	Planned Activity	Progress	Achievement
Energy Auditors and Managers Certification Program	Create a structured certification for energy professionals	Framework approved; training, exams, and fee structure finalized; pilot sessions prepared for 2025	Set national benchmark aligned with international standards
Smart and Sustainable Buildings Initiative	Conduct energy audits of public buildings	Audit of NEECA completed; sub-meters and energy loggers installed; retrofit opportunities identified	NEECA HQ established as model for sustainable buildings
Monitoring, Compliance, and Enforcement	Strengthen compliance with NEECA standards in power sector	Surveys and pilot audits conducted with DISCOs; data on consumption and efficiency collected	Enhanced collaboration between DISCOs, regulators, and NEECA
Global Recognition – RISE Report 2024	Validate Pakistan's energy efficiency progress internationally	Progress tracked under World Bank RISE indicators	Pakistan's score improved to 48 (2019:28, 2021:36), showing steady energy efficiency gains
EV Charging Infrastructure Regulations, 2024	Establish single-window facility for EV charging approvals	72 licenses issued; 136 applications in process	Strengthened investor confidence and support for National EV Policy targets
Energy Conservation Building Code	Integrate ECBC into provincial building bye-laws	Advanced integration with CDA, Sindh BCA, PDA	Enabling framework for nationwide energy-efficient construction
Pakistan Energy Label Regulations, 2023	Implement labeling for appliances to ensure compliance with MEPS	62 fan product applications processed; 32 LED applications under review	Raised consumer awareness and ensured industry compliance
Nationwide Energy Efficient Fan Replacement Program	Replace inefficient ceiling fans nationwide	Preparations finalized	Program to replace 88 million fans, reducing electricity demand and promoting certified appliances

(b) Measures Taken to Deliver Results:

(i) Engaged international and local consultants to integrate global best practices.
(ii) Conducted inclusive stakeholder consultations across major cities.
(iii) Designed consumer-focused financial models with risk-sharing guarantees.
(iv) Deployed real-time monitoring tools for accurate data and decision-making.
(v) Organized training workshops and awareness sessions for capacity building.
(vi) Ensured alignment with national laws and regulatory frameworks.

(c) Future Plans for Power Sector:

Building on the progress made in FY 2024-25, NEECA has outlined a comprehensive set of initiatives across priority sectors. These initiatives are aimed at unlocking efficiency potential, reducing import dependence, and driving cost-effective decarbonization.

(i) **Incentive-Based Demand Management**: Pilot incentive schemes with DISCOs to encourage load shifting.
(ii) **T&D Loss Reduction:** Work with utilities to reduce technical and commercial losses.
(iii) **Thermal Generation Efficiency Improvement:** Support retrofits in existing power plants to enhance heat rates.
(iv) **Unaccounted-for Gas (UFG) Loss Reduction**: Collaborate with gas utilities for targeted efficiency improvements.
(v) **Projected Annual Impact:** US$ 3,185 million in avoided costs.

(d) Way Forward for NEECA's Energy Efficiency and Conservation Initiatives (2025-26):

To accelerate Pakistan's transition toward a low-carbon and energy-secure future, NEECA must move beyond planning and demonstrate implementation leadership. The following way forward outlines key priorities:

(i) Finalize ESCO licensing and accreditation to enable market entry of professional service providers.
(ii) Launch pilot ESCO projects in large public institutions to demonstrate financial and energy savings.
(iii) Mobilize concessional financing and guarantees to reduce risk for early movers.
(iv) Launch National Certification of Energy Auditors and Managers to create a credible professional pool.
(v) Collaborate with universities, training institutes, and international partners for standardized curriculum.
(vi) Establish continuous professional development to ensure quality and relevance of certified professionals.
(vii) Scale energy audits and retrofits to provincial secretariats, municipal offices, and public schools.
(viii) Introduce Building Energy Management Systems and smart meters for real-time monitoring.
(ix) Align building initiatives with the National Building Rating System for performance benchmarking.
(x) Implement monitoring frameworks with DISCOs for demand-side efficiency compliance.
(xi) Institutionalize penalties and incentives under the Voluntary Agreement Regime for designated consumers.
(xii) Expand NEECA's energy efficiency regulatory framework to cover transport, agriculture, and SMEs.
(xiii) Establish rules for mandatory energy audits in industrial and commercial sectors.
(xiv) Implement national fuel economy standards and MEPS for gas appliances to ensure efficient consumption.
(xv) Create a National Energy Efficiency Registry System to track compliance, investments, and savings.
(xvi) Conduct nationwide energy audits of public buildings to build a retrofit pipeline.
(xvii) Undertake audits of captive power plants to optimize fuel use, reduce emissions, and ensure integration.

8.4 PUNJAB POWER DEVELOPMENT BOARD

The Punjab Power Development Board (PPDB), a statutory body of the Government of Punjab, functions as a one-window facilitator for the development of IPP–based power projects within the province. PPDB has continued to expand its project portfolio to support both provincial and national energy and investment goals.

To date, PPDB has contributed approximately 1,820 MW of electricity to the National Grid, playing a significant role in Pakistan's overall capacity addition. Notably, out of the 680 MW of grid-connected solar projects developed nationwide, 500 MW have been successfully facilitated under PPDB's supervision in Punjab.

During the FY 2024-25, PPDB actively provided policy inputs and technical feedback to various forums, including provincial standing committees of the Cabinet and federal-level institutions such as the Council of Common Interests (CCI), Cabinet Committee on Energy (CCoE), and the Special Investment Facilitation Council (SIFC) and NEPRA.

(a) Key Achievements FY 2024-25:

PPDB is facilitating 100 MW Zorlu Solar Power Project at Quaid-e-Azam Solar Park, Bahawalpur, being developed by Zorlu Solar Pakistan Limited (ZSPL).

A TLOS has been executed among PPDB, AEDB (now PPIB), and ZSPL, and the Punjab Board of Revenue has leased 500 acres of land for the project. ZSPL has submitted a tariff modification petition, requesting an extension for financial closure and COD. A hearing on the petition was held on 18 February, 2025, with PPDB actively supporting the facilitation process to ensure timely project execution.

(b) PPDB Facilitated Projects and Progress Status:

PPDB has actively issued Letters of Interest (LOIs) to promote the development of solar and wind power projects in the province. The following table summarizes the completed projects and the pipeline projects being facilitated by PPDB:

Name of Project	Capacity (MW)	Location	Remarks
Project(s) Achieved COD – Completed Projects			
Quaid-e-Azam Solar Power (Pvt.) Limited	100	QA Solar Park, Bahawalpur	COD achieved in May, 2015. Approx. 1.55 billion units injected into the national grid from COD till June 30, 2025.
Zonergy Company Limited (CPEC Project)	3x100	QA Solar Park, Bahawalpur	COD achieved in July, 2016. Approx.4.41 billion units injected into the national grid from COD till June 30, 2025.
Zhenfa Pakistan New Energy Company (Pvt.) Limited	100	Rakh Chaubara, Layyah	COD achieved in April, 2022. Approx. 0.62 billion units injected into the national grid from COD till June 30, 2025.
VESTAS Asia Pacific Wind Technology (Pvt.) Limited	250	Rojhan, Rajanpur	Competitive bidding to be held by GoP
Pipeline Projects			
Zonergy Company Limited (CPEC Project)	6x100	QA Solar Park, Bahawalpur	Competitive bidding to be held by GoP
Solution De Energy	100	Chishtian	Competitive bidding to be held by GoP
CWE & Welt Konnect (Pvt.) Limited (Joint Venture)	50	QA Solar Park, Bahawalpur	Competitive bidding to be held by GoP (Matter Sub-Judicious)

A wind corridor with an estimated potential of 1,000 MW has been identified at Rojhan, Rajanpur, with technical support from Vestas Denmark. Additionally, the World Bank VRE Locational Study (2022) indicates a wind-solar hybrid potential of 800 MW at the same site.

Under the facilitation of PPDB, a 250 MW wind power project by Vestas has been categorized under Category-III of the Federal Cabinet Committee on Energy (CCOE) decision dated 04 April, 2019. The first round of competitive bidding for this project is yet to be initiated by PPIB, marking a key upcoming step in harnessing the RE potential of the region.

The Sahiwal Coal-Fired Power Project (CFPP), developed by Huaneng Shandong Ruyi (Pakistan) Energy (Pvt.) Limited, is a flagship CPEC project with a generation capacity of 1,320 MW. The project has been operating successfully and has contributed approximately 47.3 billion units of electricity to the national grid.

PPDB is facilitating the development of 12 hydropower projects with a cumulative capacity of 104 MW in IPP mode. These projects, located on canals, barrages, and streams, are aimed at delivering clean and sustainable energy to the national grid, contributing to both energy security and environmentally responsible power generation in the province.

Name/Site of the Project	Name of Company/Sponsor	Capacity (MW)
Lucky HPP, Marala Barrage, District Sialkot	Olympus Energy (Pvt.) Limited	20
Alka HPP, Jhang Branch Canal, RD. 0+000 to 69+000, District Hafizabad	Alka Power (Private) Limited	1.8
C.J. HPP, Chashma Jhelum Link Tail Canal Fall, RD.316+622, District Khushab (Generation Licenses issued by NEPRA)	C.J. Hydro (Haseeb Khan & Co.)	25
Gugera HPP, Upper Gugera Branch Canal, RD 214+000 to RD 220+750, District Nankana (Generation Licenses issued by NEPRA)	Gugera Power Company	3.6
Mehar HPP, B.S. Link-I Canal, RD. 106+250, District Kasur (Generation Licenses issued by NEPRA)	Associated Technologies (Pvt.) Limited	10.49
Mandi Baha-ud-din HPP, Lower Jhelum Feeder Canal, RD. 8+626, District Mandi Baha-Ud-Din (Generation Licenses issued by NEPRA)	Mandi Baha-ud-din Energy Limited	3.3
Rasul HPP, Rasul Barrage, District Mandi Baha-Ud-Din (Generation Licenses issued by NEPRA)	S2 Hydro Limited (Suraj Cotton Mills Limited)	18
Khanewal HPP, LBDC RD. 602+000, District Khanewal (Applied for Generation License to NEPRA)	Hassan Sohaib Murad	1.00
Kasur HPP, BRBD Link Canal RD. 509+712, District Kasur (Applied for Generation License to NEPRA)	Packages Power (Pvt.) Limited	2.54
D.G. Khan Link – III Canal HPP RD. 0+000 to RD. 14+000, District DG Khan (Applied for power purchase consent of DISCOs)	Engro Energy Limited	4.63
Chichawatni HPP, RD. 489 + 000, District Sahiwal (Applied for power purchase consent of DISCOs)	Saigols (Pvt.) Limited & Associates	1.6
Murree HPP, River Jhalum Tributary (Applied for power purchase consent of DISCOs)	Murree Hydropower Limited	12

The 12 small hydropower projects facilitated by PPDB, with a cumulative capacity of 104 MW, are at an advanced stage of development. However, due to federal policy interventions, the projects have been temporarily held up. NEPRA has determined the tariff for the first two projects, and a request for Terms and Letters of Support has been forwarded to PPIB.

In parallel, PPDB has explored alternative approaches to facilitate private sector investment in the province's hydropower potential. In 2022, the Punjab Cabinet approved Guidelines for Development of Hydropower Projects in Captive Mode, formulated by PPDB. These Guidelines are expected to:

(i) Promote the development of hydropower potential in the province.
(ii) Facilitate the establishment of new industries, generating employment and stimulating economic activity in rural areas.
(iii) Replace expensive imported fuel-based energy, reducing energy costs.
(iv) Contribute to foreign exchange earnings through carbon credits under the Clean Development Mechanism (CDM).

Currently, 6 hydropower projects with a cumulative capacity of 15 MW are under active development, while the issuance of 03 additional LOSs, totalling approximately 11 MW, is in progress. Under the Guidelines, LOS have been awarded to following projects with a cumulative capacity of 13.20 MW.

Name/Site of the Project	Name of Company/Sponsor	Capacity (MW)
Ravi HPP, Lower Bari Doab Canal, RD. 260+000, District Sahiwal	Trident Power JB (Pvt.) Limited	4.6
Lower Chenab Canal HPP, RD. 0 + 000, District Gujranwala	Trident Power GR (Pvt.) Limited	7.55
Khanan HPP, Lower Gugera Branch Canal, RD. 27+000, District Faisalabad	Wajid Iqbal & Co.	1.069

Furthermore, LOIs have been issued for following projects totalling 07 MW to enable the execution of feasibility studies, supporting the development of small hydropower potential in the province.

Name/Site of the Project	Name of Company/Sponsor	Capacity (MW)
BBC Burala Branch Canal – RD. 166+000, District Faisalabad	Punjab Power Company	0.75
NB of LJC RD 11+000, District Mandi Bahauddin	Grow More Energy (Pvt.) Limited	1.4
Hafizabad HPP, LCC ML-L RD 19+850, District Hafizabad	Munir & Sons Co.	0.200
Innovative HPP, Lower Gugera Canal, RD. 65+000, District Faisalabad	Innovative Energy (Pvt.) Limited	1
Khokhra HPP, Gujrat Branch Canal, RD 0+000 to 2+000, District Gujrat	Blue Star (Pvt.) Limited	3.6
Chitral HPP, Distributary 1 LBC Khanpur Channel	Chitral Engineers	0.070

(c) Planned RE Projects:

(i) Punjab RE Portfolio - Future RE Projects

PPDB in collaboration with the Energy Department, Government of Punjab, has prepared a comprehensive RE portfolio for the province. This portfolio was developed based on the findings of the World Bank RE Locational Study (2022), which identified suitable sites for solar, wind, and hybrid renewable projects by evaluating resource potential and grid availability.

The Punjab RE portfolio envisions an aggregate capacity of approximately 6,500 MW by 2030, encompassing a diverse mix of technologies, including solar, wind, solar-wind hybrid, Waste-to-Energy (WtE), biomass, and Concentrated Solar Power (CSP). The portfolio has been forwarded to the Ministry of Energy (Power Division)/AEDB, now PPIB for consideration and approval, with the objective of facilitating the integration of clean and sustainable energy into the national grid, thereby contributing to Pakistan's RE targets and sustainable development goals.

Projects	Capacity (MW)	Fuel
Participation of private sponsors in tariff-based bidding	625	Solar
	250	Wind
Future bidding on Solar and Wind (2nd round) by Provincial Facilitating Agency (PPDB)	1,510	Solar/Wind
	1,390	Solar
	2,300	Solar/Wind
New Technology	370	WtE/Biomass/CSP
Current Portfolio	**6,445**	

(ii) WtE Potential in Punjab

The Government of Punjab (GoPb) has established Waste Management Companies (WMCs) in major cities, including Lahore, Gujranwala, Faisalabad, Multan, Rawalpindi, Sialkot, and Bahawalpur, to manage municipal solid waste (MSW) through collection, transportation, and handling services. Currently, a significant portion of the collected solid waste is disposed of unscientifically, resulting in environmental and public health challenges.

PPDB has engaged with all WMCs across the province and developed a comprehensive database of MSW collection. During these consultations, WMCs have expressed willingness to supply collected solid waste for the development of Waste-to-Energy (WtE) projects.

Based on the data provided by the WMCs, Punjab has an estimated WtE potential of approximately 150 MW, which could be harnessed through dedicated power generation projects. Detailed information regarding waste generation, collection, and availability for energy production has been compiled to guide planning and implementation of future WtE initiatives.

Waste Management Companies (WMC)	Total Waste Generation (t/d)	Waste Collection (t/d)	Willingness to supply MSW for WtE Project (t/d)	Estimated Potential (MW)
Lahore	7,000	5,500	3,000	60
Faisalabad	1,600	1,280	700	15
Gujranwala	1,218	956	1218	25
Multan	1,000	750	750	16
Rawalpindi	875	859	850	18
Sialkot	440	410	410	9
Bahawalpur	325	325	325	7
Total (Estimated Potential)				**150 MW**

Source: Information/data shared by respective Waste Management Companies.

(d) Other Initiatives being undertaken by PPDB:

(i) Establishment of Provincial Grid Company

The Punjab Grid Company Limited (PGC) was officially registered with the Securities and Exchange Commission of Pakistan (SECP) on January 03, 2023, and subsequently acquired a license to provide electricity transmission services in Punjab in November, 2023.

To facilitate the operationalization of PGC and fulfil regulatory requirements, the Punjab Cabinet, during its 13th meeting on August 13, 2024, approved an equity injection of Rs. 500 million into the company.

Since its inception, PGC has been actively exploring diverse business models, including transmission services in B2G, B2B, and G2B modes. The proposed transmission network will comprise 500 kV, 220 kV, and 132 kV overhead transmission lines and grids across Punjab, designed to support current and future Solar, Waste-to-Energy (WtE), Hydropower, and other renewable and conventional power

projects. The company is also in the process of preparing the Transmission Line Investment Policy. Key initiatives planned for the near term include:

- Hiring of the first External Auditor
- Appointment of a Legal Advisor
- Engagement with public and private stakeholders to commence transmission business operations

(ii) Study on Canal Top Solar

PPDB in collaboration with a consultant, has completed a detailed feasibility study to identify the most suitable reaches for small-scale solar photovoltaic (PV) power plants on canal tops and urban nullahs in the Gujranwala Division and along the Rakh Branch Canal, Faisalabad. The study aimed to pinpoint canal spans suitable for the installation of solar PV plants on the irrigation canal network, targeting electricity supply for commercial, industrial, agricultural, and residential purposes. Following detailed assessments and in consultation with the Irrigation Department regarding operational feasibility and canal safety, six (06) sites, each with a 01 MW capacity, were selected. These include locations on the Upper Chenab Canal and Qadirabad-Balloki Link Canal, with modular PV configurations designed for efficient operation while ensuring the integrity and safety of the canal system.

8.5 ENERGY DEPARTMENT, GOVERNMENT OF BALOCHISTAN

In FY 2024-25, the Energy Department, Government of Balochistan (GoB) achieved significant milestones in enhancing energy access, strengthening infrastructure, and promoting RE across the province. Through a combination of strategic planning, targeted investments, and efficient execution, the department successfully addressed critical energy needs, particularly in underserved rural and remote areas, thereby supporting both social development and economic growth. These initiatives reflect the GoB's commitment to ensuring reliable, sustainable, and inclusive energy services, while laying the foundation for long-term energy security and regional development.

(a) Key Achievements during FY 2024-25:

Initiative	Objective	Scope/Budget	Impact/Outcomes
Solar Home Systems (SHS)	Address energy poverty in off-grid rural areas	Rs. 1,400 Million; 7,500 households in Chagai, Washuk, Awaran, etc.	Reduced kerosene/diesel use; improved productivity and education
Solarization of Public Buildings	Provide reliable power to public institutions	200 schools, 214 BHUs, 3 district hospitals; 5–120 kW solar + batteries	Enhanced operational capacity and service delivery
Village Electrification (34 Districts)	Electrify unserved villages	Rs. 1,200 Million; 11 kV feeders, grid extensions, low voltage mitigation	Enabled schools, BHUs, water schemes, small businesses
Grid Infrastructure Development	Strengthen Transmission Network	Rs. 1,500 Million; 9 new grid stations in Pishin, Ziarat, Chaman, Awaran, Kech, Jafferabad	Improved reliability, reduced losses, supported industrial and renewable integration
Strategic Impact	Align with Energy Policy and SDGs	—	Supports UN SDG 7, Pakistan's Energy Policy 2021, Balochistan Vision 2025; shift to RE systems

(b) Future Outlook during FY 2025-26:

(i) Expand SHS program to 20,000 additional households.
(ii) Establish solar mini/micro rids in Balochistan.
(iii) Commission new grid stations and plan substations for mining and agricultural zones.
(iv) Launch hybrid solar-wind feasibility studies in Chagai and coastal areas.
(v) Provide solar power access to industrial zones.

STATE OF THE INDUSTRY REPORT 2025

STATISTICAL DATA

National Electric Power Regulatory Authority

TABLE 1
Primary Energy Supplies by Source (TOE)

Source	Unit	2019-20	2020-21	2021-22	2022-23	2023-24
Oil [1]	TOE	18,188,487	22,577,047	27,970,739	20,106,167	16,886,993
	% share	22.56	25.94	29.76	24.33	20.96
Gas	TOE	26,658,176	25,500,568	24,810,015	23,879,362	23,584,415
	% share	33.07	29.30	26.40	28.90	29.27
LPG [2]	TOE	1,026,048	1,116,597	1,522,345	1,561,764	1,826,995
	% share	1.27	1.28	1.62	1.89	2.27
Coal	TOE	14,711,973	16,530,528	16,202,444	12,574,353	12,208,347
	% share	18.25	18.99	17.24	15.22	15.15
Hydro Electricity [3]	TOE	8,016,386	8,007,673	7,806,686	8,746,313	9,528,563
	% share	9.94	9.20	8.31	10.59	11.83
Nuclear Electricity [3]	TOE	2,581,494	2,230,835	4,576,563	6,196,042	5,966,756
	% share	3.20	2.56	4.87	7.50	7.41
Renewable Electricity [4]	TOE	991,041	1,031,857	1,478,685	1,393,950	1,359,817
	% share	1.23	1.19	1.57	1.69	1.69
LNG Import [4]	TOE	8,320,497	9,920,947	9,499,119	8,051,421	9,113,583
	% share	10.32	11.40	10.11	9.74	11.31
Imported Electricity [5]	TOE	122,625	118,957	110,485	114,242	90,225
	% share	0.15	0.14	0.12	0.14	0.11
Total	**TOE**	**80,616,727**	**87,035,009**	**93,977,081**	**82,623,614**	**80,565,694**
	% share	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**
Annual Growth Rate (%)		**-3.81**	**7.96**	**7.98**	**-12.08**	**-2.49**

[1] Excluding petroleum products exports and bunkering.
[2] Include imports and production from field plants.
[3] Converted @ 10,000 Btu/kWh to represent primary energy equivalent of hydro and nuclear electricity as if this was generated by using fossil fuels.
[4] LNG Imports and Renewable Generation reported for the first time in FY 2014-15.
[5] WAPDA importing electricity from Iran since October, 2002.
Source: Pakistan Energy Yearbook, HDIP, Islamabad

TABLE 2
Final Energy Consumption by Source (TOE)

Source	Unit	2019-20	2020-21	2021-22	2022-23	2023-24
Oil [1]	TOE	16,364,304	18,569,102	20,224,963	15,967,266	15,478,065
	% share	31.37	30.84	36.30	34.96	36.24
Gas [2]	TOE	15,944,781	18,346,902	16,577,599	14,239,041	13,611,848
	% share	30.56	30.47	29.75	31.18	31.87
LPG	TOE	1,196,005	1,371,416	1,381,531	1,497,906	1,543,962
	% share	2.29	2.28	2.48	3.28	3.61
Coal [2]	TOE	9,836,671	12,407,520	8,470,931	4,655,350	3,030,413
	% share	18.86	20.61	15.20	10.19	7.09
Electricity [3]	TOE	8,825,770	9,513,502	9,061,238	9,308,581	9,048,793
	% share	16.92	15.80	16.26	20.38	21.19
Total	**TOE**	**52,167,531**	**60,208,442**	**55,716,262**	**45,668,144**	**42,713,081**
	% share	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**
Annual Growth Rate (%)		**-5.14**	**15.41**	**-7.46**	**-18.03**	**-6.47**

[1] Excluding consumption for power generation.
[2] Excluding consumption for power generation and feedstock.
[3] @ 3412 Btu/kWh being the actual energy content of electricity.
Source: Pakistan Energy Yearbook, HDIP, Islamabad

TABLE 3
Fuel Consumption for Thermal Power Generation (TOE)

Source	Unit	2019-20	2020-21	2021-22	2022-23	2023-24
Gas	TOE	8,426,767	8,648,124	7,292,032	7,308,466	7,481,690
	% share	56.98	57.34	39.14	43.37	43.36
Furnace Oil	TOE	1,474,895	2,206,605	3,346,890	1,561,085	551,077
	% share	9.97	14.63	17.97	9.26	3.19
Diesel Oil	TOE	12,683	103,427	258,652	64,759	43,252
	% share	0.09	0.69	1.39	0.38	0.25
Coal	TOE	4,875,302	4,123,008	7,731,514	7,919,004	9,177,934
	% share	32.96	27.34	41.50	46.99	53.19
Total	**TOE**	**14,789,647**	**15,081,164**	**18,629,088**	**16,853,314**	**17,253,953**
	% share	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**
Annual Growth Rate (%)		**-3.83**	**1.97**	**23.53**	**-9.53**	**2.38**

Source: Pakistan Energy Yearbook, HDIP, Islamabad

TABLE 4
Installed Capacity by Type (MW)

As on 30th June	2021	2022	2023	2024	2025
HYDEL					
WAPDA Hydel	9,389	9,389	9,389	9,389	9,389
IPPs Hydel	526	1,246	1,246	1,246	2,111
Sub-Total	**9,915**	**10,635**	**10,635**	**10,635**	**11,500**
% Share (Hydel Installed Capacity)	24.93	24.29	23.25	23.18	27.97
THERMAL					
GENCOs: CPPA-G System	4,881	4,731	4,587	4,587	3,572
KE Own	2,084	2,345	2,816	2,816	2,396
IPPs: CPPA-G System	17,276	18,750	20,563	20,563	16,632
IPPs: KE System	366	366	366	366	104
SPPs/CPPs/N-CPPs: CPPA-G System	340	340	340	340	340
SPPs/CPPs/N-CPPs: KE System	151	151	94	94	90
Sub-Total	**25,098**	**26,683**	**28,766**	**28,766**	**23,134**
% Share (Thermal Installed Capacity)	63.11	60.95	62.89	62.69	56.26
NUCLEAR					
CHASNUPP (I, II, III and IV)	1,330	1,330	1,330	1,330	1,330
KANUPP (I, II & III)	1,282	2,290	2,290	2,290	2,290
Sub-Total	**2,612**	**3,620**	**3,620**	**3,620**	**3,620**
% Share (Nuclear Installed Capacity)	6.57	8.27	7.91	7.89	8.80
RENEWABLE ENERGY (WIND, SOLAR AND BAGASSE)					
Wind Power Plants	1,248	1,838	1,838	1,838	1,838
Solar Power Plants	430	530	530	680	680
Bagasse based Power Plants	369	369	249	249	249
RE Power Plants: CPPA-G System	**2,047**	**2,737**	**2,617**	**2,767**	**2,767**
Solar Power Plants: KE System	100	100	100	100	100
RE Power Plants: KE System	**100**	**100**	**100**	**100**	**100**
Sub-Total	**2,147**	**2,837**	**2,717**	**2,867**	**2,867**
% Share (RE Installed Capacity)	5.40	6.48	5.94	6.25	6.97
Total Installed Capacity of the Country	**39,772**	**43,775**	**45,738**	**45,888**	**41,121**

Source: WAPDA/GENCOs/IPPs/KE/CPPA-G

TABLE 5
Plant-wise Installed Capacity (MW) as on 30th June

Power Station	Plant Location	Type of Power Station	2021	2022	2023	2024	2025	Dependable Capacity as on 30-06-2025
A1: Hydel (WAPDA)								
Major Hydropower Units								
Tarbela	Tarbela, KPK	Reservoir	3,478	3,478	3,478	3,478	3,478	3,474
Tarbela 4th Ext.	Tarbela, KPK	Reservoir	1,410	1,410	1,410	1,410	1,410	1,407
Ghazi Barotha	Ghazi Barotha, Punjab	Run of River	1,450	1,450	1,450	1,450	1,450	1,447
Mangla	Mangla, AJ&K	Reservoir	1,000	1,000	1,000	1,000	1,000	997
Warsak	Warsak, KPK	Run of River	243	243	243	243	243	242
Chashma	Chashma, Punjab	Run of River	184	184	184	184	184	183
Khan Khwar	Shangla, KPK	Reservoir	72	72	72	72	72	72
Allai Khwar	Battagram, KPK	Reservoir	121	121	121	121	121	121
Jinnah Hydel	Mianwali, Punjab	Run of River	96	96	96	96	96	95
Duber Khwar	Kohistan, KPK	Reservoir	130	130	130	130	130	130
Neelum Jhelum	Muzaffarabad, AJ&K	Run of River	969	969	969	969	969	965
Golen Gol	Chitral, KPK	Run of River	108	108	108	108	108	108
Small Hydropower Units								
Dargai	Dargai, KPK	Run of Canal	20	20	20	20	20	20
Rasul	Rasul, Punjab	Run of Canal	22	22	22	22	22	22
Shadiwal	Shadiwal, Punjab	Run of Canal	14	14	14	14	14	13
Chichoki Mallian	Chichoki Mallian, Punjab	Run of Canal	13	13	13	13	13	13
Nandipur	Nandipur, Punjab	Run of Canal	14	14	14	14	14	14
Kurram Garhi	Kurram Garhi, KPK	Run of Canal	4	4	4	4	4	4
Renala	Renala, Punjab	Run of Canal	1	1	1	1	1	1
Chitral	Chitral, KPK	Run of Canal	1	1	1	1	1	1
Gomal Zam	South Waziristan Agency, KPK	Reservoir	17	17	17	17	17	17
Malakand/Jabban	Malakand, KPK	Run of River	22	22	22	22	22	22
Total Hydel (WAPDA)			**9,389**	**9,389**	**9,389**	**9,389**	**9,389**	**9,368**
A2: Hydel (IPPs)								
Jagran (AJ&K)	Jagran, AJ&K	Hydro	30	30	30	30	30	30
Malakand-III (PEDO)	Malakand, KPK	Run of River/Canal	84	84	84	84	84	82
Pehur (PEDO)	Swabi, KPK	Canal Fall/Run of River	18	18	18	18	0	0
Laraib Energy (AJ&K)	Jhelum River, AJ&K	Hydro	84	84	84	84	84	84
Garam Chashma	Chitral, KPK	Hydro	1	1	1	1	0	0
Marala Hydro (PPDCL)	Sialkot, Punjab	Canal Fall/Run of River	8	8	8	8	8	8
Patrind Hydro (AJ&K)	Muzaffarabad, AJ&K	Run of River	147	147	147	147	147	147
Gulpur Hydropower Project	Gulpur, Kotli, AJK	Run of River	100	100	100	100	100	101
Daral Khwar	Swat, KPK	Run of River	37	37	37	37	37	36
Ranolia Hydropower	Kohistan, KPK	High Head	17	17	17	17	17	17
Karot Power Company	Karot, Dist. Rawalpindi	Run of River	--	720	720	720	720	713
SK Hydropower	Kaghan, Mansehra	Run of River	--	--	--	--	884	862
Total Hydel (IPPs)			**526**	**1,246**	**1,246**	**1,246**	**2,111**	**2,080**
Total Hydel (A1+A2)			**9,915**	**10,635**	**10,635**	**10,635**	**11,500**	**11,448**
B1: Thermal (GENCOs: CPPA-G System)								
TPS Jamshoro	Jamshoro, Sindh	STs	880	880	880	880	880	649
TPS Guddu (Units 5-10)	Guddu, Sindh	GTs+CCPPs	600	600	600	600	0	0
TPS Guddu (Units 11-13)	Guddu, Sindh	GTs+OCPPs	415	415	415	415	0	0
TPS Guddu (747 MW)	Guddu, Sindh	GTs+ST+CCPPs	747	747	747	747	747	721
TPS Quetta	Quetta, Balochistan	GT	28	28	28	28	28	0
TPS Muzaffargarh	Muzaffargarh, Punjab	STs	1,350	1,350	1,350	1,350	1,350	839
GTPS Faisalabad	Faisalabad, Punjab	GTs+CCPPs	144	144	0	0	0	0
TPS Nandipur	Gujranwala, Punjab	GTs+CCPPs	567	567	567	567	567	499
FBC Lakhra	Lakhra, Sindh	STs	150	0	0	0	0	0
Total Thermal (GENCOs: CPPA-G System)			**4,881**	**4,731**	**4,587**	**4,587**	**3,572**	**2,708**
B2: Thermal (IPPs: CPPA-G System)								
Lal Pir Power	Mehmood Kot, Punjab	ST	362	362	362	362	0	0
Pak Gen. Power	Mehmood Kot, Punjab	ST	365	365	365	365	0	0
Altern Energy	Fateh Jang, Punjab	GEs	31	0	0	0	0	0
Fauji Kabirwala	Kabirwala, Punjab	GTs+CCPP	170	170	170	170	170	151
Habibullah Coastal	Quetta, Balochistan	GTs+CCPP	155	155	0	0	0	0
Hub Power	Hub, Balochistan	STs	1,292	1,292	1,292	1,292	0	0
Japan Power	Raiwind, Punjab	DE	120	0	0	0	0	0
KAPCO	Kot Addu, Punjab	GTs+CCPPs	1,600	1,600	1,600	1,600	498	498
Kohinoor Energy	Raiwind, Punjab	DEs+ST	131	131	131	131	131	124
Rousch Power	Sidhnai, Punjab	GTs+ST	450	450	450	450	0	0
Saba Power	Farooqabad, Punjab	ST	136	136	136	136	0	0
Southern Electric	Raiwind, Punjab	DEs	117	0	0	0	0	0
Liberty Daharki Power	Daharki, Sindh	GTs+CCPP	235	235	235	235	235	212

Power Station	Plant Location	Type of Power Station	2021	2022	2023	2024	2025	Dependable Capacity as on 30-06-2025
Uch Power	Murad Jamali, Balochistan	GTs+ST	586	586	586	586	586	547
Attock Gen.	Attock Morgah, Punjab	DGs+ST	165	165	165	165	165	156
Atlas Power	Sheikhupura, Punjab	REs+ST	224	224	224	224	0	0
Engro Power Gen. Qadirpur	Qadirpur, Sindh	GT+ST	227	227	227	227	227	212
Saif Power	Sahiwal, Punjab	GTs+ST	225	225	225	225	225	204
Orient Power	Balloki, Punjab	GTs+ST	225	225	225	225	225	203
Nishat Power	Qasur, Punjab	REs+ST	202	202	202	202	202	195
Nishat Chunian	Qasur, Punjab	DEs+ST	202	202	202	202	202	196
Sapphire Electric	Muridke, Punjab	GTs+ST	235	235	235	235	235	202
Halmore Power	Bhikki, Punjab	GTs+ST	225	225	225	225	225	200
Narowal Energy	Narowal, Punjab	DEs+ST	214	214	214	214	214	214
Liberty Power Tech.	Faisalabad, Punjab	DEs+ST	202	202	202	202	202	196
Foundation Power	Daharki, Sindh	GT+ST	179	179	179	179	179	165
Davis Energen.	Jhang, Punjab	GEs	12	12	0	0	0	0
Uch-II Power	Murad Jamali, Balochistan	GTs+ST	404	404	404	404	404	360
QATPL (Bhikki)	Bhikki, Punjab	GTs+HRSGs+ST	1,231	1,231	1,231	1,231	1,231	1,120
NPPMCL (Haveli Bahadur Shah)	HBS, Punjab	GTs+HRSGs+ST	1,277	1,277	1,277	1,277	1,277	1,172
NPPMCL (Balloki)	Balloki, Punjab	GTs+HRSGs+ST	1,276	1,276	1,276	1,276	1,276	1,165
Reshma Power	Raiwind, Punjab	Reciprocating Engine	97	0	0	0	0	0
Gulf Powergen	Gujranwala, Punjab	Reciprocating Engine	84	0	0	0	0	0
Punjab Thermal Power	Trimmu, Punjab	GTs+HRSGs+ST	--	1,263	1,263	1,263	1,263	1,243
Huaneng Shandong Ruyi (Sahiwal Imported Coal)	Sahiwal, Punjab	STs	1,320	1,320	1,320	1,320	1,320	1,244
Port Qasim Electric Power	Port Qasim, Sindh	ST+CB	1,320	1,320	1,320	1,320	1,320	1,243
China Power Hub	Lasbella, Balochistan	ST+CB	1,320	1,320	1,320	1,320	1,320	1,249
Lucky Electric Power	Bin Qasim Town, Karachi	ST+CB	--	660	660	660	660	607
Engro Powergen Thar	Tharparkar, Sindh	ST+CB	660	660	660	660	660	603
Thar Coal Block-1 Power	Tharparkar, Sindh	ST+CB	--	--	1,320	1,320	1,320	1,230
Thar Energy	Tharparkar, Sindh	ST+CB	--	--	330	330	330	300
ThalNova Power	Tharparkar, Sindh	ST+CB	--	--	330	330	330	303
Total Thermal (IPPs: CPPA-G System)			**17,276**	**18,750**	**20,563**	**20,563**	**16,632**	**15,514**
Total Thermal in CPPA-G System (B1+B2)			**22,157**	**23,481**	**25,150**	**25,150**	**20,204**	**18,222**
C: Nuclear								
CHASNUPP-I	Chashma, Punjab	STs	325	325	325	325	325	300
CHASNUPP-II	Chashma, Punjab	STs	325	325	325	325	325	300
CHASNUPP-III	Chashma, Punjab	STs	340	340	340	340	340	315
CHASNUPP-IV	Chashma, Punjab	STs	340	340	340	340	340	315
KANUPP	Karachi, Sindh	STs	137	0	0	0	0	0
KANUPP-II	Karachi, Sindh	STs	1,145	1,145	1,145	1,145	1,145	1,018
KANUPP-III	Karachi, Sindh	STs	--	1,145	1,145	1,145	1,145	1,018
Total Nuclear (C)			**2,612**	**3,620**	**3,620**	**3,620**	**3,620**	**3,266**
D: Renewable Energy (CPPA-G System)								
D1: Wind Power Projects								
Zorlu Enerji Pakistan	Thatta, Sindh	WTs	56	56	56	56	56	56
FFC Energy	Thatta, Sindh	WTs	50	50	50	50	50	50
Three Gorges First Wind Farm	Thatta, Sindh	WTs	60	50	50	50	50	50
Foundation Wind Energy-I	Thatta, Sindh	WTs	50	50	50	50	50	50
Foundation Wind Energy-II	Thatta, Sindh	WTs	50	50	50	50	50	50
Sapphire Wind	Thatta, Sindh	WTs	53	53	53	53	53	53
Yunus Energy	Thatta, Sindh	WTs	50	50	50	50	50	50
Metro Power Company	Thatta, Sindh	WTs	50	50	50	50	50	50
Gul Ahmad Wind	Thatta, Sindh	WTs	50	50	50	50	50	50
Master Wind Energy	Thatta, Sindh	WTs	50	50	50	50	50	50
Tenaga Generasi	Thatta, Sindh	WTs	50	50	50	50	50	50
HydroChina Dawood Power	Thatta, Sindh	WTs	50	50	50	50	50	50
Sachal Energy Development	Thatta, Sindh	WTs	50	50	50	50	50	50
UEP Wind Power	Thatta, Sindh	WTs	99	99	99	99	99	99
Artistic Wind Power	Thatta, Sindh	WTs	50	50	50	50	50	50
Act Wind (formerly Tapal Wind Energy)	Thatta, Sindh	WTs	30	30	30	30	30	30
Hawa Energy	Thatta, Sindh	WTs	50	50	50	50	50	50
Jhimpir Power	Thatta, Sindh	WTs	50	50	50	50	50	50
Three Gorges Second Wind Farm	Thatta, Sindh	WTs	50	50	50	50	50	50
Three Gorges Third Wind Farm	Thatta, Sindh	WTs	50	50	50	50	50	50
Tricon Boston Consulting-A	Thatta, Sindh	WTs	50	50	50	50	50	50
Tricon Boston Consulting-B	Thatta, Sindh	WTs	50	50	50	50	50	50
Tricon Boston Consulting-C	Thatta, Sindh	WTs	50	50	50	50	50	50
Zephyr Power	Thatta, Sindh	WTs	50	50	50	50	50	50
Lucky Renewables	Thatta, Sindh	WTs	--	50	50	50	50	50
Master Green Energy	Thatta, Sindh	WTs	--	50	50	50	50	50
Act 2 Din Wind	Thatta, Sindh	WTs	--	50	50	50	50	50
Artistic 2 Wind Power	Thatta, Sindh	WTs	--	50	50	50	50	49
Indus Wind Energy	Thatta, Sindh	WTs	--	50	50	50	50	50
Lakeside Energy	Thatta, Sindh	WTs	--	50	50	50	50	50
Liberty Wind Power-I	Thatta, Sindh	WTs	--	50	50	50	50	50
Din Energy	Thatta, Sindh	WTs	--	50	50	50	50	50

Power Station	Plant Location	Type of Power Station	2021	2022	2023	2024	2025	Dependable Capacity as on 30-06-2025
Gul Ahmed Electric	Thatta, Sindh	WTs	--	50	50	50	50	50
Liberty Wind Power-II	Thatta, Sindh	WTs	--	50	50	50	50	50
NASDA Green Energy	Thatta, Sindh	WTs	--	50	50	50	50	50
Metro 2 Wind Power	Thatta, Sindh	WTs	--	50	50	50	50	60
Total Wind Power Projects			**1,248**	**1,838**	**1,838**	**1,838**	**1,838**	**1,847**
D2: Solar Power Projects								
Quaid-e-Azam Solar Park	Bahawalpur, Punjab	Solar	100	100	100	100	100	100
Appolo Solar Development	Bahawalpur, Punjab	Solar	100	100	100	100	100	100
Best Green Energy	Bahawalpur, Punjab	Solar	100	100	100	100	100	100
Crest Energy	Bahawalpur, Punjab	Solar	100	100	100	100	100	100
AJ Power	Khushab, Punjab	Solar	12	12	12	12	12	12
Harappa Solar	Sahiwal, Punjab	Solar	18	18	18	18	18	18
Atlas Solar	Layyah, Punjab	Solar	--	100	100	100	100	100
Helios Power	Sukkur, Sindh	Solar	--	--	--	50	50	50
Meridian Energy	Sukkur, Sindh	Solar	--	--	--	50	50	50
HNDS Energy	Sukkur, Sindh	Solar	--	--	--	50	50	50
Total Solar Power Projects			**430**	**530**	**530**	**680**	**680**	**680**
D3: Bagasse/Biomass Power Projects								
Jamal Din Wali-II	Rahim Yar Khan, Punjab	Bagasse+Biomass	26	26	26	26	26	24
Jamal Din Wali-III	Rahim Yar Khan, Punjab	Bagasse+Biomass	27	27	27	27	27	24
RYK Mills	Rahim Yar Khan, Punjab	Bagasse	40	40	40	40	40	40
Chiniot Power	Chiniot, Punjab	Bagasse	63	63	63	63	63	63
Fatima Energy	Muzaffargarh, Punjab	Biomass/Coal	120	120	0	0	0	0
Hamza Sugar Mills	Rahim Yar Khan, Punjab	Bagasse+Biomass	15	15	15	15	15	15
The Thal Industries Corporation	Layyah, Punjab	Bagasse	20	20	20	20	20	22
Almoiz Industries	Mianwali, Punjab	Bagasse	36	36	36	36	36	21
Chanar Energy	Faisalabad, Punjab	Bagasse+Biomass	22	22	22	22	22	22
Total Bagasse/Biomass Power Projects			**369**	**369**	**249**	**249**	**249**	**231**
Total Renewable Energy (D1+D2+D3) (CPPA-G system) (D)			**2,047**	**2,737**	**2,617**	**2,767**	**2,767**	**2,758**
E1: Thermal (KE Own)								
Bin Qasim TPS-I	Karachi, Sindh	STs	1,050	840	840	840	420	380
Bin Qasim TPS-II	Karachi, Sindh	GTs	572	572	572	572	572	526
Bin Qasim TPS-III	Karachi, Sindh	GTs	--	471	942	942	942	918
Korangi Town GTPS-II	Karachi, Sindh	GTs	107	107	107	107	107	96
SITE GTPS-II	Karachi, Sindh	GTs	107	107	107	107	107	96
Korangi CCPP	Karachi, Sindh	GTs	248	248	248	248	248	237
Total Thermal (KE Own)			**2,084**	**2,345**	**2,816**	**2,816**	**2,396**	**2,253**
E2: Thermal (IPPs connected with KE System)								
Gul Ahmed	Karachi, Sindh	DE+ST	136	136	136	136	0	0
Tapal Energy	Karachi, Sindh	DE+ST	126	126	126	126	0	0
SNPCL-I (IPP-2002)	Jamshoro, Sindh	GEs+STs	52	52	52	52	52	51
SNPCL-II (IPP-2002)	Jamshoro, Sindh	GEs+STs	52	52	52	52	52	51
Total Thermal (IPPs connected with KE System)			**366**	**366**	**366**	**366**	**104**	**101**
E3: Thermal (Others connected with KE System)								
Anoud Power (IGC)	Karachi, Sindh	DGs	12	12	0	0	0	0
Intl. Steel Limited (CPP)	Karachi, Sindh	GEs+DGs	19	19	19	19	19	19
Intl. Ind. Limited (CPP)	Karachi, Sindh	GEs+ST	4	4	4	4	0	0
FFBL Power (Distributed Gen.)	Karachi, Sindh	CFB+STs	52	52	52	52	52	52
Lotte Chemicals	Karachi, Sindh	RLNG	48	48	14	14	14	14
Lucky Cement	Lakki Marwat, KPK	Waste Heat Recovery	16	16	5	5	5	5
Total Thermal (Others connected with KE System)			**151**	**151**	**94**	**94**	**90**	**90**
Total Thermal KE (E1+E2+E3)			**2,601**	**2,862**	**3,276**	**3,276**	**2,590**	**2,444**
E4: Renewable Energy (KE System)								
Oursun Pakistan	Thatta, Sindh	Solar	50	50	50	50	50	39
Gharo Solar	Thatta, Sindh	Solar	50	50	50	50	50	40
Total RE (KE System)			**100**	**100**	**100**	**100**	**100**	**79**
Total KE (KE own and others connected with KE System)			**2,701**	**2,962**	**3,376**	**3,376**	**2,690**	**2,523**
F: SPPs/CPPs/N-CPPs: CPPA-G System [Contract Capacity (MW)]								
Total SPPs/CPPs/N-CPPs: CPPA-G System (F)			**340**	**340**	**340**	**340**	**340**	**257**
Grand Total (A+B+C+D+E+F)			**39,772**	**43,775**	**45,738**	**45,888**	**41,121**	**38,474**

Source: WAPDA/GENCOs/IPPs/KE/CPPA-G

TABLE 6
Installed Capacity by Systems and by Sectors (MW)

As on 30th June	2021	2022	2023	2024	2025
BY SYSTEM					
Total Installed Capacity: CPPA-G System	**36,934**	**40,813**	**42,362**	**42,512**	**38,431**
% Share (Installed Capacity: CPPA-G System)	92.86	93.23	92.62	92.64	93.46
Total Installed Capacity: KE System	**2,838**	**2,962**	**3,376**	**3,376**	**2,690**
% Share (Installed Capacity: KE System)	7.14	6.77	7.38	7.36	6.54
BY SECTOR					
Total Installed Capacity in Public Sector	**20,733**	**22,991**	**22,847**	**22,847**	**21,832**
% Share (Installed Capacity in Public Sector)	52.13	52.52	49.95	49.79	53.09
Total Installed Capacity in Private Sector	**19,039**	**20,784**	**22,891**	**23,041**	**19,289**
% Share (Installed Capacity in Private Sector)	47.87	47.48	50.05	50.21	46.91
Total Installed Capacity in the Country	**39,772**	**43,775**	**45,738**	**45,888**	**41,121**

Note: See tables 4 and 5 for breakup details.
Source: WAPDA/GENCOs/IPPs/KE/CPPA-G

TABLE 7
Electricity Generation by Type (GWh) (Net)

As on 30th June	2020-21	2021-22	2022-23	2023-24	2024-25
HYDEL					
WAPDA Hydel	36,856.88	32,522.88	31,399.16	35,032.87	33,518.60
IPPs Hydel	1,943.66	3,023.40	4,863.15	4,869.47	6,454.39
Sub-Total	**38,800.54**	**35,546.28**	**36,262.31**	**39,902.34**	**39,972.98**
% Share (Hydel Electricity Generation)	27.02	23.07	26.17	29.11	29.59
THERMAL					
GENCOs: CPPA-G System	6,802.93	6,349.56	5,957.03	3,489.59	3,673.70
KE Own	10,185.60	7,889.96	7,093.09	7,471.32	6,432.62
IPPs: CPPA-G System	68,708.63	76,280.90	56,208.19	54,463.99	54,906.74
IPPs Connected with KE	2,184.57	2,130.46	1,606.80	1,156.19	599.99
SPPs/CPPs/N-CPPs: CPPA-G System	216.80	136.31	150.02	314.19	264.48
SPPs/CPPs/N-CPPs connected with KE	578.90	482.94	406.90	348.33	293.40
Sub-Total	**88,677.43**	**93,270.13**	**71,422.04**	**67,243.62**	**66,170.92**
% Share (Thermal Electricity Generation)	61.76	60.54	51.55	49.06	48.99
NUCLEAR					
CHASNUPP (I, II, III and IV)	9,172.09	9,450.30	9,709.21	9,309.52	9,340.88
KANUPP (I, II and III)	1,917.96	8,843.25	14,345.35	13,845.29	13,111.21
Sub-Total	**11,090.05**	**18,293.55**	**24,054.56**	**23,154.81**	**22,452.08**
% Share (Nuclear Electricity Generation)	7.72	11.87	17.36	16.89	16.62
IMPORT					
Import from Iran	498.37	514.36	478.62	377.58	453.92
Sub-Total	**498.37**	**514.36**	**478.62**	**377.58**	**453.92**
% Share (Imported Electricity Generation)	0.35	0.33	0.35	0.28	0.34
RENEWABLE ENERGY (WIND, SOLAR AND BAGASSE)					
Wind Power Plants	2,899.94	4,584.17	4,086.05	3,941.07	3,843.36
Solar Power Plants	711.63	785.41	1,091.87	1,467.36	1,186.09
Bagasse based Power Plants	710.56	826.06	845.36	726.85	670.37
RE Power Plants: CPPA-G System	**4,322.13**	**6,195.64**	**6,023.28**	**6,135.28**	**5,699.82**
Solar Power Plants: KE System	199.56	236.22	298.19	264.38	328.82
RE Power Plants connected with KE	**199.56**	**236.22**	**298.19**	**264.38**	**328.82**
Sub-Total	**4,521.69**	**6,431.86**	**6,321.47**	**6,399.66**	**6,028.64**
% Share (RE Electricity Generation)	3.15	4.18	4.56	4.67	4.46
Total Electricity Generation of the Country	**143,588.08**	**154,056.18**	**138,539.00**	**137,078.00**	**135,078.54**

Source: WAPDA/GENCOs/IPPs/KE/CPPA-G

TABLE 8
Plant-wise Electricity Generation (GWh) (Net)

Power Station	Primary Fuel	Alternate Fuel	2020-21	2021-22	2022-23	2023-24	2024-25
A1: Hydel (WAPDA)							
Major Hydropower Units							
Tarbela	Hydel	Hydel	12,565.74	10,955.73	12,445.84	13,292.86	14,085.22
Tarbela 4th Ext.	Hydel	Hydel	3,418.78	3,276.12	4,426.93	4,642.31	5,154.03
Ghazi Barotha	Hydel	Hydel	6,810.91	6,761.55	6,813.18	6,465.78	6,708.52
Mangla	Hydel	Hydel	5,313.83	4,200.26	3,838.38	5,173.26	4,241.19
Warsak	Hydel	Hydel	1,064.99	933.85	898.59	775.37	794.22
Chashma	Hydel	Hydel	772.32	795.68	876.34	973.58	932.38
Khan Khwar	Hydel	Hydel	231.19	162.44	263.29	245.76	169.62
Allai Khwar	Hydel	Hydel	438.78	373.03	485.37	457.40	318.10
Jinnah Hydel	Hydel	Hydel	235.02	256.06	206.70	205.12	135.65
Duber Khwar	Hydel	Hydel	640.78	616.96	494.96	453.75	432.51
Neelum Jhelum	Hydel	Hydel	4,784.16	3,620.23	107.72	1,774.04	0.00
Golen Gol	Hydel	Hydel	82.40	138.14	131.94	174.76	194.64
Small Hydropower Units							
Dargai	Hydel	Hydel	108.72	87.40	71.27	63.11	42.89
Rasul	Hydel	Hydel	76.63	58.90	54.12	72.24	36.53
Shadiwal	Hydel	Hydel	31.90	28.06	32.45	36.34	40.09
Chichoki Mallian	Hydel	Hydel	27.38	22.46	30.88	30.38	25.05
Nandipur	Hydel	Hydel	32.48	29.21	36.13	36.11	32.15
Kurram Garhi	Hydel	Hydel	19.71	10.95	14.45	15.83	15.20
Renala	Hydel	Hydel	1.96	1.81	1.74	1.61	1.77
Chitral	Hydel	Hydel	2.65	2.15	2.69	1.88	2.14
Gomal Zam	Hydel	Hydel	62.09	57.15	41.20	25.34	18.72
Malakand/Jabban	Hydel	Hydel	134.46	134.74	124.99	116.03	137.98
Total Hydel (WAPDA)			**36,856.88**	**32,522.88**	**31,399.16**	**35,032.87**	**33,518.60**
A2: Hydel (IPPs)							
Jagran (AJ&K)	Hydel	Hydel	113.23	121.27	103.61	113.18	113.61
Malakand-III (PEDO)	Hydel	Hydel	321.57	353.87	267.77	221.59	254.53
Laraib Energy (AJ&K)	Hydel	Hydel	465.29	412.66	345.00	415.97	353.60
Marala Hydro (PPDCL)	Hydel	Hydel	36.59	26.61	22.79	0.00	0.00
Patrind Hydro (AJ&K)	Hydel	Hydel	624.45	1,160.15	548.60	564.85	550.64
Gulpur Hydropower	Hydel	Hydel	256.88	230.99	304.69	268.07	175.66
Daral Khwar	Hydel	Hydel	91.84	117.37	127.29	124.37	159.05
Ranolia Hydropower	Hydel	Hydel	33.81	54.06	12.73	0.00	0.00
Karot Power Company	Hydel	Hydel	--	546.42	3,130.67	3,161.45	2,738.19
SK Hydropower	Hydel	Hydel	--	--	--	--	2,109.10
Total Hydel (IPPs)			**1,943.66**	**3,023.40**	**4,863.15**	**4,869.47**	**6,454.39**
Total Hydel (A1+A2)			**38,800.54**	**35,546.28**	**36,262.31**	**39,902.34**	**39,972.98**
B1: Thermal (GENCOs: CPPA-G System)							
TPS Jamshoro	RFO+Gas	RFO	199.55	245.53	25.40	0.00	0.00
Jamshoro - Coal Imported	Coal	Coal	--	--	--	--	368.28
TPS Guddu (Units 5-10)	Gas	-	1,477.11	1,385.84	1,948.96	341.73	0.00
TPS Guddu (Units 11-13)	Gas	-	223.96	148.16	19.42	0.00	0.00
TPS Guddu (747 CC)	Gas	HSD	3,123.82	2,609.95	2,635.92	2,209.13	2,355.88
TPS Muzaffargarh	Gas	RFO	282.26	220.43	50.91	15.23	0.00
GTPS Faisalabad	Gas	HSD	14.26	98.83	0.00	0.00	0.00
TPS Nandipur	Gas	HSD	1,481.98	1,640.82	1,276.42	923.50	949.54
Total Thermal (GENCOs: CPPA-G System)			**6,802.93**	**6,349.56**	**5,957.03**	**3,489.59**	**3,673.70**
B2: Thermal (IPPs: CPPA-G System)							
Lal Pir Power	RFO	-	620.78	1,022.68	397.59	358.99	0.00
Pak Gen. Power	RFO	-	445.54	1,304.35	443.74	211.00	7.75
Altern Energy	Gas	-	12.40	0.00	0.00	0.00	0.00
Fauji Kabirwala	Gas	HSD	389.96	357.21	66.33	92.01	68.96
Hub Power	RFO	-	112.91	1,219.58	204.78	0.00	15.05
KAPCO	Gas	RFO+HSD	3,562.24	5,142.00	587.84	0.00	52.71
Kohinoor Energy	RFO	-	337.07	515.84	329.16	207.62	76.16
Rousch Power	Gas	HSD	284.36	495.78	179.04	9.71	62.52
Saba Power	RFO	-	121.65	329.95	148.54	54.18	0.00
Liberty Daharki Power	Gas	HSD	983.33	1,054.06	1,001.19	903.87	817.72
Uch Power	Gas	HSD	4,088.44	4,300.52	3,901.33	3,965.85	3,885.78
Attock Gen.	RFO	-	384.03	721.93	483.59	206.64	92.42
Atlas Power	RFO	-	517.08	1,007.25	521.94	252.87	15.22
Engro Powergen. Qadirpur	Gas	HSD	648.50	791.03	935.42	813.48	774.31
Saif Power	Gas	HSD	639.40	734.99	538.22	220.59	234.41
Orient Power	Gas	HSD	597.92	836.38	604.79	541.20	459.13
Nishat Power	RFO	-	523.40	794.25	537.90	453.69	86.66
Nishat Chunian	RFO	-	537.57	882.46	386.13	240.45	57.21

Power Station	Primary Fuel	Alternate Fuel	2020-21	2021-22	2022-23	2023-24	2024-25
Sapphire Electric	Gas	HSD	568.04	780.50	452.52	479.36	268.93
Halmore Power	Gas	HSD	509.79	675.93	287.05	207.55	364.55
Narowal Energy	RFO	-	496.06	867.49	469.88	200.96	37.93
Liberty Power Tech.	RFO	-	606.66	925.44	556.15	239.94	77.84
Foundation Power	Gas	-	1,000.37	1,272.89	1,190.38	1,087.56	1,122.64
Uch-II Power	Low BTU Gas	-	2,339.37	2,828.67	2,776.43	2,025.72	2,233.47
QATPL (Bhikki)	RLNG	HSD	7,118.80	6,090.92	4,697.55	3,660.15	6,098.15
NPPMCL (Haveli Bahadur Shah)	RLNG	HSD	7,682.35	7,488.57	6,520.55	7,930.78	6,515.65
NPPMCL (Balloki)	RLNG	HSD	6,032.81	7,186.71	6,863.66	6,684.63	5,479.91
Punjab Thermal Power	RLNG		--	77.56	152.62	3,197.29	1,757.27
Huaneng Shandong Ruyi (Sahiwal Imported Coal)	Bituminous Coal		7,342.70	6,881.38	2,876.85	2,075.55	4,255.19
Port Qasim Electric Power	Bituminous Coal	HSD	8,372.38	7,478.64	3,203.00	782.26	2,751.20
China Power Hub	Imported Coal		7,923.41	6,764.89	1,546.82	476.55	671.65
Lucky Electric Power	Coal		--	1,774.10	3,316.14	1,688.68	1,018.76
Engro Powergen Thar	Thar Coal		3,909.30	3,676.95	3,646.06	3,766.21	3,852.91
Thar Coal Block-1 Power	Thar Coal		--	--	4,255.92	7,500.33	8,315.01
Thar Energy	Thar Coal		--	--	1,205.57	1,948.50	1,601.32
ThalNova Power	Thar Coal		--	--	923.53	1,979.84	1,778.36
Total Thermal (IPPs/SPPs/CPPs: CPPA-G System)			**68,708.63**	**76,280.90**	**56,208.19**	**54,463.99**	**54,906.74**
Total Thermal: CPPA-G System (B1+B2)			**75,511.56**	**82,630.46**	**62,165.22**	**57,953.59**	**58,580.44**
C: Nuclear							
CHASNUPP-I	NUC	NUC	2,244.33	2,512.58	2,298.98	1,959.76	2,164.03
CHASNUPP-II	NUC	NUC	2,067.98	2,437.86	2,437.89	2,520.36	2,268.78
CHASNUPP-III	NUC	NUC	2,403.62	2,320.38	2,500.37	2,331.33	2,377.84
CHASNUPP-IV	NUC	NUC	2,456.15	2,179.48	2,471.98	2,498.06	2,530.23
KANUPP	NUC	NUC	219.04	45.77	0.00	0.00	0.00
KANUPP-II	NUC	NUC	1,698.92	6,830.42	7,562.27	5,900.77	7,453.42
KANUPP-III	NUC	NUC	--	1,967.06	6,783.07	7,944.52	5,657.79
Total Nuclear (C)			**11,090.05**	**18,293.55**	**24,054.56**	**23,154.81**	**22,452.08**
D: Import							
Import from Iran (Tavanir)			498.37	514.36	478.62	377.58	453.92
Total Import: CPPA-G System (D)			**498.37**	**514.36**	**478.62**	**377.58**	**453.92**
E: Renewable Energy (CPPA-G System)							
E1: Wind Power Projects							
Zorlu Enerji Pakistan	Wind	Wind	109.66	128.63	95.69	115.96	98.68
FFC Energy	Wind	Wind	90.90	114.54	76.55	97.19	76.39
Three Gorges First Wind Farm	Wind	Wind	99.14	123.79	88.43	108.36	85.65
Foundation Wind Energy-I	Wind	Wind	123.24	127.14	88.92	110.98	93.25
Foundation Wind Energy-II	Wind	Wind	73.18	141.83	97.68	122.97	105.45
Sapphire Wind	Wind	Wind	104.01	129.94	81.42	79.43	78.91
Yunus Energy	Wind	Wind	108.84	135.73	89.81	83.29	84.73
Metro Power Company	Wind	Wind	120.11	147.63	106.75	125.17	105.36
Gul Ahmad Wind	Wind	Wind	110.38	137.87	87.18	83.27	86.03
Master Wind Energy	Wind	Wind	110.13	137.64	89.93	85.08	82.34
Tenaga Generasi	Wind	Wind	104.07	133.08	76.23	93.17	89.17
HydroChina Dawood Power	Wind	Wind	101.60	132.45	71.44	89.41	86.20
Sachal Energy Development	Wind	Wind	107.79	130.88	95.70	115.08	87.76
UEP Wind Power	Wind	Wind	203.64	254.06	172.73	169.57	153.05
Artistic Wind Power	Wind	Wind	166.05	192.09	127.06	168.09	145.79
Act Wind	Wind	Wind	74.68	88.39	53.80	72.55	56.12
Hawa Energy	Wind	Wind	140.96	169.85	117.07	100.50	106.00
Jhimpir Power	Wind	Wind	143.91	166.01	115.78	102.25	107.17
Three Gorges Second Wind Farm	Wind	Wind	108.43	138.80	93.90	86.43	83.64
Three Gorges Third Wind Farm	Wind	Wind	112.54	142.76	97.67	88.43	87.06
Tricon Boston Consulting-A	Wind	Wind	149.90	181.46	125.44	111.16	119.50
Tricon Boston Consulting-B	Wind	Wind	144.15	177.71	121.04	108.15	114.47
Tricon Boston Consulting-C	Wind	Wind	143.56	178.69	121.42	107.63	114.32
Zephyr Power	Wind	Wind	149.07	189.43	110.75	121.77	123.89
Lucky Renewables	Wind	Wind	--	127.50	140.29	110.69	113.97
Master Green Energy	Wind	Wind	--	145.41	132.31	103.97	108.08
Act 2 Din Wind	Wind	Wind	--	86.89	138.67	115.20	121.13
Artistic 2 Wind Power	Wind	Wind	--	83.61	132.45	110.97	118.18
Indus Wind Energy	Wind	Wind	--	86.32	137.66	117.74	131.95
Lakeside Energy	Wind	Wind	--	73.55	139.46	114.95	123.60
Liberty Wind Power-I	Wind	Wind	--	69.85	123.89	109.25	108.89
Din Energy	Wind	Wind	--	72.89	131.07	108.96	111.42
Gul Ahmed Electric	Wind	Wind	--	84.43	143.93	118.72	129.54
Liberty Wind Power-II	Wind	Wind	--	42.92	125.06	110.90	111.43
NASDA Green Energy	Wind	Wind	--	62.56	143.10	115.86	122.32
Metro 2 Wind Power	Wind	Wind	--	47.84	195.76	157.97	171.91
Total Wind Power Projects			**2,899.94**	**4,584.17**	**4,086.05**	**3,941.07**	**3,843.36**

Power Station	Primary Fuel	Alternate Fuel	2020-21	2021-22	2022-23	2023-24	2024-25
E2: Solar Power Projects							
Quaid-e-Azam Solar Park	Solar	Solar	165.56	164.69	160.47	155.11	157.69
Appolo Solar Development	Solar	Solar	164.90	168.68	165.83	162.00	165.62
Best Green Energy	Solar	Solar	164.25	167.34	166.17	158.95	164.50
Crest Energy	Solar	Solar	166.97	169.18	169.83	163.24	167.53
AJ Power	Solar	Solar	18.50	65.37	18.35	17.59	18.01
Harappa Solar	Solar	Solar	31.45	18.78	31.07	30.28	30.68
Atlas Solar	Solar	Solar	--	31.37	197.12	191.87	189.53
Helios Power	Solar	Solar	--	--	--	49.48	97.51
Meridian Energy	Solar	Solar	--	--	--	50.76	98.16
HNDS Energy	Solar	Solar	--	--	--	49.62	96.87
Net-Metering	Solar	Solar	--	--	183.04	438.46	0.00
Total Solar Power Projects			**711.63**	**785.41**	**1,091.87**	**1,467.36**	**1,186.09**
E3: Bagasse/Biomass Power Projects							
Jamal Din Wali-II	Bagasse + Biomass		177.17	169.48	190.76	168.30	191.65
Jamal Din Wali-III	Bagasse + Biomass		144.44	136.74	186.04	180.44	183.43
RYK Mills	Bagasse	Bagasse	73.94	97.27	100.99	76.27	58.59
Chiniot Power	Bagasse	Bagasse	160.56	222.54	186.81	140.91	132.87
Hamza Sugar Mills	Bagasse + Biomass		39.99	61.06	53.48	59.19	30.01
The Thal Industries Corporation	Bagasse	FO	46.37	73.67	61.22	56.27	45.11
Almoiz Industries	Bagasse	Bagasse	29.83	17.38	25.02	29.10	22.67
Chanar Energy	Bagasse	Bagasse	38.26	47.92	41.05	16.37	3.27
Shahtaj Sugar Mills	Bagasse	Bagasse	0.00	0.00	0.00	0.00	2.76
Total Bagasse/Biomass Power Projects			**710.56**	**826.06**	**845.36**	**726.85**	**670.37**
Total Renewable Energy (E1+E2+E3) (CPPA-G System) (E)			**4,322.13**	**6,195.64**	**6,023.28**	**6,135.28**	**5,699.82**
F1: Thermal (KE Own)							
Bin Qasim TPS-I	Dual	RLNG	4,730.00	3,289.10	1,851.70	622.22	386.13
Bin Qasim TPS-II	Dual	RLNG	3,926.00	3,587.52	2,634.48	2,557.08	1,580.54
Bin Qasim TPS-III	RLNG	RLNG	--	243.50	2,522.58	4,178.13	4,329.65
Korangi Town GTPS-II	Gas	RLNG	365.23	114.52	10.18	1.59	4.26
SITE GTPS-II	Gas	RLNG	215.67	102.86	24.41	0.17	0.00
Korangi CCPP	Gas	RLNG	948.70	552.46	49.74	112.13	132.03
Total Thermal (KE Own)			**10,185.60**	**7,889.96**	**7,093.09**	**7,471.32**	**6,432.62**
F2: Thermal (IPPs connected with KE System)							
Gul Ahmed	RFO	-	673.00	705.43	508.68	268.59	73.27
Tapal Energy	RFO	-	737.00	715.86	518.43	288.33	0.00
SNPCL-I (IPP-2002)	Gas	-	394.35	363.36	292.66	301.73	254.29
SNPCL-II (IPP-2002)	Gas	-	380.22	345.81	287.03	297.54	272.43
Total Thermal (IPPs connected with KE System)			**2,184.57**	**2,130.46**	**1,606.80**	**1,156.19**	**599.99**
F3: Thermal (Others connected with KE System)							
Anoud Power (IGC)	RFO/Gas	DO	12.00	0.00	0.00	0.00	0.00
Intl. Steel Limited (CPP)	Gas	-	43.00	28.54	26.89	15.77	10.46
Intl. Ind. Limited (CPP)	Gas	-	10.00	9.29	10.41	1.58	0.00
FFBL Power (Distributed Gen.)	Imported/Local Coal		452.88	406.69	346.26	324.54	278.99
Lotte Chemicals	Gas	Gas	61.00	35.44	21.08	3.08	0.00
Lucky Cement	Gas	Gas	0.02	2.98	2.26	3.36	3.96
Total Thermal (Others connected with KE System)			**578.90**	**482.94**	**406.90**	**348.33**	**293.40**
Total Thermal KE (F1+F2+F3)			**12,949.07**	**10,503.36**	**9,106.79**	**8,975.84**	**7,326.01**
F4: Renewable Energy (connected with KE System)							
Oursun Pakistan	Solar	Solar	90.87	89.58	89.32	88.08	89.68
Gharo Solar	Solar	Solar	108.69	102.64	101.69	99.30	99.69
Net-Metering	Solar	Solar	--	44.00	107.18	77.00	139.46
Total RE (connected with KE System)			**199.56**	**236.22**	**298.19**	**264.38**	**328.82**
Total KE (KE own and others connected with KE System)			**13,148.63**	**10,739.58**	**9,404.98**	**9,240.22**	**7,654.83**
G: SPPs/CPPs/N-CPPs: CPPA-G System							
Total SPPs/CPPs/N-CPPs: CPPA-G System (G)			**216.80**	**136.31**	**150.02**	**314.19**	**264.48**
Grand Total (A+B+C+D+E+F+G)			**143,588.08**	**154,056.18**	**138,539.00**	**137,078.00**	**135,078.54**

Source: WAPDA/GENCOs/IPPs/KE/CPPA-G

TABLE 9
Electricity Generation by Systems and by Sectors (GWh) (Net)

As on 30th June	2020-21	2021-22	2022-23	2023-24	2024-25
BY SYSTEM					
Total Electricity Generation: CPPA-G System*	**130,220.41**	**143,270.83**	**129,134.02**	**127,837.78**	**127,423.71**
% Share (Generation: CPPA-G System)	90.69	93.00	93.21	93.26	94.33
Total Electricity Generation: KE System	**13,367.67**	**10,785.35**	**9,404.98**	**9,240.22**	**7,654.83**
% Share (Generation: KE System)	9.31	7.00	6.79	6.74	5.67
BY SECTOR					
Total Electricity Generation in Public Sector	**76,803.28**	**79,352.20**	**80,863.89**	**84,282.08**	**80,633.68**
% Share (Generation in Public Sector)	53.49	51.51	58.37	61.48	59.69
Total Electricity Generation in Private Sector	**66,784.80**	**74,703.98**	**57,675.10**	**52,795.92**	**54,444.86**
% Share (Generation in Private Sector)	46.51	48.49	41.63	38.52	40.31
Total Electricity Generation of the Country	**143,588.08**	**154,056.18**	**138,539.00**	**137,078.00**	**135,078.54**

*Note: See tables 7 and 8 for details and explanations. * Include Import from Iran.*
Source: WAPDA/GENCOs/KE/IPPs/CPPA-G

TABLE 10
Month-wise CPPA-G Electricity Generation Data (Net) (GWh) (2024-25)

Power Producers	July	August	September	October	November	December	January	February	March	April	May	June	Total
WAPDA	3,818.491	3,831.918	3,470.663	2,453.497	2,302.731	1,453.817	677.091	1,593.800	931.895	1,440.901	2,961.700	3,428.056	**28,364.56**
Tarbela 4th Ext.	929.660	1,028.913	787.169	396.255	302.864	136.305	53.643	124.391	-	0.957	568.778	825.101	**5,154.03**
Jagram	17.89	14.48	15.08	7.18	3.79	2.06	1.33	0.84	3.44	13.66	15.78	18.08	**113.61**
Malakand-III	47.45	23.75	-	8.89	14.22	9.27	1.08	2.90	19.35	37.68	48.50	41.44	**254.53**
Laraib Energy	19.29	5.41	34.78	53.92	47.41	27.70	2.27	40.04	27.87	28.63	38.45	27.84	**353.60**
Patrind Hydro	78.92	78.72	47.86	27.89	19.02	15.93	13.36	11.52	21.39	59.90	107.58	68.56	**550.64**
Neelum Jhelum	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Gulpur Hydropower	20.73	43.92	27.73	6.23	0.66	0.02	0.49	3.95	16.60	20.25	16.10	18.98	**175.66**
Daral Khwar	26.72	16.56	10.11	7.23	5.09	3.51	2.97	2.69	10.19	24.69	26.18	23.12	**159.05**
Karot Power	382.07	280.14	227.04	101.55	75.28	60.15	56.48	58.60	201.36	413.32	504.54	377.68	**2,738.19**
Suki Kinari Hydropower	-	37.76	217.56	124.76	88.94	69.52	57.68	44.65	64.68	266.44	556.25	580.87	**2,109.10**
Total Hydel	**5,341.22**	**5,361.56**	**4,837.98**	**3,187.39**	**2,859.99**	**1,778.28**	**866.39**	**1,883.39**	**1,296.77**	**2,306.43**	**4,843.86**	**5,409.73**	**39,972.98**
GENCO-I (Coal-Imported)	-	-	-	-	0.01	40.79	61.38	-	11.26	245.11	9.73	-	**368.28**
GENCO-II (747 MW)	276.30	233.95	143.95	164.65	151.51	196.54	260.97	168.37	190.10	185.87	153.06	230.61	**2,355.88**
GENCO-III (Unit 3&5)	-	8.51	-	-	-	-	6.72	-	-	-	-	-	**15.23**
GENCO-III (Nandipur)	236.51	142.27	109.49	28.02	-	-	-	-	85.93	139.03	75.57	132.72	**949.54**
KAPCO	-	-	-	-	-	-	-	-	-	-	-	52.71	**52.71**
Pak Gen. Power	1.81	-	-	-	-	-	5.94	-	-	-	-	-	**7.75**
Fauji Kabirwala	29.65	5.39	1.42	-	-	-	-	-	-	8.87	7.74	15.89	**68.96**
Hub Power	-	-	15.05	-	-	-	-	-	-	-	-	-	**15.05**
Kohinoor Energy	16.72	1.30	4.70	-	-	0.78	18.23	-	1.54	15.85	4.27	12.76	**76.16**
Rousch Power	44.35	1.87	15.41	-	-	0.88	-	-	-	-	-	-	**62.52**
Liberty Deharki	118.99	89.41	119.00	102.12	62.89	81.87	79.54	62.06	-	4.32	66.65	30.87	**817.72**
Uch Power	363.80	299.27	350.29	138.26	309.97	350.48	342.33	325.63	377.20	355.02	341.14	332.37	**3,885.78**
Attock Gen.	15.17	0.72	6.83	0.79	0.00	0.54	22.09	-	1.06	21.05	3.91	20.25	**92.42**
Atlas Power	10.88	-	4.34	-	-	-	-	-	-	-	-	-	**15.22**
Engro Powergen Qadirpur	67.90	73.51	71.11	60.56	70.36	67.93	66.82	64.82	80.36	66.25	19.18	65.50	**774.31**
Saif Power	46.03	13.08	41.29	14.80	-	-	3.17	-	18.37	49.33	18.32	30.01	**234.41**
Orient Power	91.68	45.97	49.28	24.47	-	-	28.93	4.55	52.38	79.65	38.21	44.02	**459.13**
Nishat Power	22.60	0.94	4.86	1.21	-	0.64	20.98	-	0.18	16.61	3.27	15.38	**86.66**
Nishat Chunian	7.63	-	0.43	-	-	0.40	11.89	-	0.42	18.32	1.35	16.78	**57.21**
Sapphire Electric	72.69	17.80	47.98	-	-	-	13.83	-	17.51	53.47	14.31	31.35	**268.93**
Halmore Power	85.88	61.17	31.22	12.01	-	-	24.64	3.36	36.66	59.02	16.49	34.12	**364.55**
Narowal Energy	7.61	0.42	1.34	-	-	0.24	12.56	-	0.26	4.79	1.04	9.67	**37.93**
Liberty Power	19.67	2.28	1.64	-	-	0.04	17.42	-	0.15	6.85	6.23	23.54	**77.84**
Foundation Power	101.73	95.03	99.32	109.39	79.48	91.12	99.59	39.83	107.78	109.06	91.40	98.91	**1,122.64**
Uch-II Power	221.74	159.02	204.43	250.95	183.81	171.87	219.80	55.78	223.21	121.32	211.77	209.79	**2,233.47**
Punjab Thermal	480.06	145.84	35.50	152.59	-	54.68	257.01	17.36	41.58	252.10	154.11	166.45	**1,757.27**
Quaid-e-Azam Thermal	604.70	501.35	548.22	679.20	157.38	261.03	688.07	447.35	540.89	657.87	505.45	506.66	**6,098.15**
HBS	694.00	664.07	617.59	382.78	481.07	705.48	4.31	135.57	734.77	735.53	708.79	651.69	**6,515.65**
Balloki	613.84	506.89	541.87	708.77	268.06	592.61	522.33	372.06	-	122.16	628.52	602.81	**5,479.91**
Total Thermal	**4,251.94**	**3,070.08**	**3,066.54**	**2,830.55**	**1,764.54**	**2,617.92**	**2,788.56**	**1,696.73**	**2,521.63**	**3,327.43**	**3,080.49**	**3,334.84**	**34,351.27**
Huaneng Shandong Ruyi	465.13	345.41	396.24	287.57	3.36	82.84	601.10	-	363.19	663.03	485.62	561.71	**4,255.19**
Port Qasim Electric	566.10	118.48	448.47	330.48	395.23	-	32.95	-	13.78	145.80	115.88	584.02	**2,751.20**
China Power Hub	62.36	-	78.42	133.34	-	-	-	108.27	156.41	-	59.12	73.73	**671.65**
Lucky Electric	43.38	216.92	225.78	151.16	78.38	-	-	-	-	-	125.83	177.31	**1,018.76**
Engro PowerGen Thar	383.51	350.53	241.29	428.05	382.52	200.00	294.23	187.72	280.42	370.15	342.79	391.70	**3,852.91**
Thar Coal Block-I	738.30	625.95	794.97	857.73	302.30	412.25	724.56	677.10	803.08	826.26	784.24	768.28	**8,315.01**
Thar Energy	190.37	169.28	45.03	195.76	162.15	9.89	128.95	45.81	159.60	167.58	155.94	170.96	**1,601.32**
ThalNova Power	193.67	159.78	179.94	36.71	171.70	162.14	120.94	132.67	150.20	160.98	130.53	179.10	**1,778.36**
Total Coal	**2,642.83**	**1,986.35**	**2,410.12**	**2,420.79**	**1,495.64**	**867.12**	**1,902.74**	**1,151.56**	**1,926.68**	**2,333.80**	**2,199.94**	**2,906.82**	**24,244.40**
CHASNUPP-I	221.13	214.57	213.42	221.46	214.89	224.05	224.34	202.48	223.02	204.33	0.34	-	**2,164.03**
CHASNUPP-II	-	36.33	223.27	229.75	217.69	216.74	233.64	209.45	230.99	223.38	226.86	220.68	**2,268.78**
CHASNUPP-III	229.68	223.97	201.29	49.81	105.77	216.55	232.72	210.39	232.25	225.06	227.42	222.94	**2,377.84**

Power Producers	July	August	September	October	November	December	January	February	March	April	May	June	Total
CHASNUPP-IV	124.53	221.66	223.91	233.44	215.67	216.30	232.23	210.41	231.80	224.23	187.79	208.26	**2,530.23**
KANUPP-II	650.91	731.69	640.09	707.48	700.42	633.96	681.72	618.06	744.08	732.38	612.63	0.01	**7,453.42**
KANUPP-III	761.47	762.08	93.68	-	200.77	557.51	564.73	396.15	560.65	273.05	756.74	730.95	**5,657.79**
Total Nuclear	**1,987.72**	**2,190.31**	**1,595.67**	**1,441.94**	**1,655.20**	**2,065.10**	**2,169.37**	**1,846.94**	**2,222.79**	**1,882.43**	**2,011.78**	**1,382.84**	**22,452.08**
Tavanir Iran	**47.76**	**35.77**	**40.29**	**42.38**	**36.80**	**32.76**	**33.59**	**29.63**	**39.28**	**32.46**	**36.19**	**46.99**	**453.92**
Zorlu Enerji	11.21	12.56	8.62	4.11	2.29	7.83	5.52	4.43	5.51	11.76	11.01	13.84	**98.68**
FFC Energy	8.67	9.73	5.80	2.64	1.29	7.40	5.33	3.65	3.97	9.00	8.40	10.51	**76.39**
Three Gorges First	10.18	11.50	7.15	3.35	1.95	7.62	4.69	3.78	4.60	9.56	10.10	11.17	**85.65**
Foundation Wind-I	10.72	12.37	10.46	4.39	1.31	5.49	4.67	3.95	5.57	11.31	10.64	12.39	**93.25**
Foundation Wind-II	12.13	13.32	10.97	4.85	1.45	8.16	7.06	4.81	5.93	11.82	11.43	13.52	**105.45**
Sapphire Wind	9.38	7.45	6.76	3.31	1.66	5.23	5.18	3.68	4.76	10.58	9.13	11.81	**78.91**
Younus Energy	9.44	7.96	7.17	3.64	2.05	6.39	5.97	4.29	5.56	11.27	9.51	11.50	**84.73**
Metro Power	11.01	12.96	8.05	3.83	2.34	11.78	8.87	5.52	6.43	11.79	10.69	12.10	**105.36**
Gul Ahmad Wind	9.36	7.90	7.23	3.72	2.08	6.42	6.35	4.59	5.75	11.50	9.54	11.59	**86.03**
Master Wind	9.81	8.20	7.48	3.57	1.73	5.88	4.52	3.48	4.54	10.18	10.23	12.71	**82.34**
Tenaga Generasi	10.30	9.05	10.63	4.90	1.45	4.71	4.98	4.11	5.70	11.26	10.02	12.07	**89.17**
HydroChina Dawood	10.25	8.71	9.99	4.77	1.44	4.18	4.38	3.95	5.34	11.42	9.93	11.82	**86.20**
Sachal Energy	10.31	12.06	7.08	3.53	2.23	9.36	5.24	4.03	4.70	8.69	9.67	10.85	**87.76**
UEP Wind	19.28	15.98	15.17	7.75	3.96	9.15	8.30	7.21	9.25	19.82	16.81	20.36	**153.05**
Artistic Wind	15.37	17.29	14.34	6.56	3.45	13.11	9.86	6.36	8.44	17.60	16.38	17.03	**145.79**
Act Wind	6.76	7.54	5.68	2.58	1.19	4.35	2.44	2.09	2.93	6.27	6.95	7.34	**56.12**
Hawa Energy	12.77	9.62	9.41	4.84	2.87	9.69	8.04	4.82	5.47	11.19	11.98	15.30	**106.00**
Jhimpir Wind	12.93	10.12	10.24	4.94	2.83	7.86	6.84	4.60	5.65	12.26	12.83	16.07	**107.17**
Three Gorges Second	10.28	8.17	7.47	3.89	2.16	6.14	5.22	3.90	5.05	10.36	9.38	11.63	**83.64**
Three Gorges Third	10.54	8.49	7.85	4.06	2.33	6.50	5.69	4.19	5.36	10.86	9.55	11.65	**87.06**
Tricon Boston-A	14.25	11.48	12.25	6.05	3.38	5.71	5.40	5.45	8.11	17.10	13.75	16.57	**119.50**
Tricon Boston-B	13.59	10.86	11.52	5.68	3.04	6.54	5.82	5.24	7.48	15.62	13.21	15.88	**114.47**
Tricon Boston-C	13.31	10.69	11.32	5.60	2.92	7.29	6.50	5.47	7.44	16.09	12.79	14.90	**114.32**
Zephyr Power	15.51	13.58	14.69	7.07	2.74	6.79	6.37	5.68	7.49	15.08	12.73	16.17	**123.89**
Lucky Renewables	14.53	11.97	12.21	5.95	3.64	7.56	6.39	4.41	5.42	11.93	13.01	16.95	**113.97**
Master Green	14.62	11.57	10.29	5.09	3.60	7.02	6.01	4.28	5.18	9.31	12.58	18.54	**108.08**
Act 2 Din	14.07	11.81	14.26	6.59	3.38	6.69	4.97	4.78	7.62	15.31	14.84	16.80	**121.13**
Artistic 2 Wind	13.03	11.24	13.45	6.42	3.22	7.52	5.41	5.06	7.05	15.87	14.14	15.76	**118.18**
Indus Wind	13.54	11.77	15.65	7.39	3.73	7.16	6.54	6.45	8.66	18.14	14.85	18.07	**131.95**
Lakeside Energy	13.55	11.38	13.70	6.44	3.57	7.03	6.50	5.45	7.86	16.83	14.07	17.23	**123.60**
Liberty Wind-1	12.45	10.55	12.19	6.05	2.92	7.06	6.05	4.75	6.70	14.11	11.96	14.10	**108.89**
Din Energy	12.21	10.32	12.84	6.15	2.94	8.59	6.98	5.12	6.68	13.66	11.77	14.16	**111.42**
Gul Ahmad Electric	13.96	11.45	14.52	7.22	4.26	6.83	6.06	6.17	9.35	17.71	14.70	17.33	**129.54**
Liberty Wind-2	13.01	10.94	12.49	6.32	2.99	6.49	5.50	4.85	6.70	14.43	12.62	15.10	**111.43**
NASDA Green	13.60	11.71	14.08	6.64	3.49	7.37	6.44	5.23	7.24	16.32	13.49	16.71	**122.32**
Metro 2 Wind	19.07	15.98	22.45	10.10	6.13	8.73	7.96	7.68	11.01	22.40	17.90	22.48	**171.91**
Total Wind	**445.01**	**398.25**	**395.45**	**189.98**	**98.00**	**261.62**	**218.04**	**173.54**	**230.50**	**478.38**	**432.58**	**522.02**	**3,843.36**
Quid-e-Azam Solar	14.12	12.65	13.50	13.91	9.58	10.62	12.23	12.04	16.02	15.25	14.73	13.05	**157.69**
Appolo Solar	14.87	13.50	14.31	14.50	10.20	11.41	12.91	12.53	16.57	15.94	15.31	13.59	**165.62**
Best Green Energy	14.87	13.59	13.83	14.41	10.21	11.47	12.97	12.44	16.46	15.64	15.08	13.51	**164.50**
Crest Energy	15.09	13.69	14.52	14.67	10.34	11.53	13.13	12.63	16.86	15.83	15.53	13.70	**167.53**
Harappa	3.12	2.81	2.88	2.37	1.33	1.56	1.83	1.96	3.25	3.33	3.30	2.93	**30.68**
AJ Solar	1.59	1.46	1.64	1.52	0.98	1.20	1.31	1.30	1.87	1.81	1.74	1.58	**18.01**
Atlas Solar	18.19	15.50	16.53	14.69	8.28	10.89	12.18	12.91	20.05	21.29	20.33	18.69	**189.53**
Helios Power	9.58	8.38	9.26	7.73	6.12	5.63	6.43	6.24	9.59	8.78	10.00	9.77	**97.51**
Meridian Energy	9.59	8.43	9.28	7.68	6.06	5.83	6.55	6.35	9.72	8.83	10.04	9.79	**98.16**
HNDS Energy	9.46	8.37	9.17	7.59	5.98	5.67	6.48	6.31	9.56	8.69	9.95	9.63	**96.87**
Total Solar	**110.49**	**98.37**	**104.93**	**99.07**	**69.08**	**75.82**	**86.02**	**84.72**	**119.94**	**115.38**	**116.02**	**106.24**	**1,186.09**
JDW-II	18.04	18.05	16.61	17.55	12.23	15.36	15.29	13.54	16.88	16.68	13.95	17.48	**191.65**
JDW-III	13.67	12.37	17.04	17.72	12.57	15.46	15.80	13.54	17.03	17.08	13.93	17.22	**183.43**
RYK Mills	1.45	5.74	1.96	-	1.62	14.00	14.28	12.47	7.09	-	-	-	**58.59**
Chiniot Power	20.21	10.56	-	6.35	13.96	26.30	27.22	21.81	6.46	-	-	-	**132.87**
Hamza Sugar Mills	-	-	-	8.64	8.77	9.64	2.96	-	-	-	-	-	**30.01**
The Thal Industries	-	-	-	-	2.18	13.44	14.48	11.85	3.15	-	-	-	**45.11**

Power Producers	July	August	September	October	November	December	January	February	March	April	May	June	Total
Almoiz Industries	-	-	0.00	0.00	0.84	4.12	5.24	3.08	0.71	3.16	5.31	0.22	**22.67**
Chanar Energy	-	-	-	-	0.06	2.75	-	-	-	-	0.46	-	**3.27**
Shahtaj Sugar Mills	-	-	-	-	-	-	0.03	2.59	-	-	0.10	0.04	**2.76**
Total Bagasse	**53.37**	**46.71**	**35.60**	**50.27**	**52.23**	**101.07**	**95.30**	**78.88**	**51.33**	**36.91**	**33.75**	**34.96**	**670.37**
Net-Metering	51.50	46.72	70.35	97.44	80.78	62.44	59.00	105.76	183.70	307.80	222.46	142.82	**1,430.77**
Mixed-Captives	17.08	17.80	19.17	21.93	18.22	18.54	13.25	18.15	26.43	31.24	32.24	30.44	**264.48**
Total	**14,948.91**	**13,251.93**	**12,576.11**	**10,381.75**	**8,130.50**	**7,880.66**	**8,232.26**	**7,069.29**	**8,619.05**	**10,852.25**	**13,009.31**	**13,917.68**	**128,869.71**

TABLE 11
Monthly Source-wise Actual and Projected Generation (GWh) (2024-25)

Source	July	August	September	October	November	December	January	February	March	April	May	June
Hydel	5,341.22	5,361.56	4,837.98	3,187.39	2,859.99	1,778.28	866.39	1,883.39	1,296.77	2,306.43	4,843.86	5,409.73
Coal (Local)	1,505.85	1,305.54	1,261.22	1,518.25	1,018.66	784.28	1,268.68	1,043.29	1,393.31	1,524.97	1,413.49	1,510.05
Coal (Imported)	1,136.98	680.81	1,148.90	902.55	476.99	123.63	695.43	108.27	544.64	1,053.94	796.18	1,396.77
RFO	102.10	5.66	39.19	2.00	0.00	2.64	109.12	-	3.62	83.46	20.08	151.08
Gas	1,180.10	950.21	988.10	825.94	858.02	959.82	1,069.05	716.49	978.65	841.84	883.18	968.05
RLNG	2,969.74	2,105.69	2,039.26	2,002.62	906.51	1,614.68	1,542.29	980.25	1,528.10	2,157.02	2,167.50	2,215.71
Nuclear	1,987.72	2,190.31	1,595.67	1,441.94	1,655.20	2,065.10	2,169.37	1,846.94	2,222.79	1,882.43	2,011.78	1,382.84
Import Iran	47.76	35.77	40.29	42.38	36.80	32.76	33.59	29.63	39.28	32.46	36.19	46.99
Wind	445.01	398.25	395.45	189.98	98.00	261.62	218.04	173.54	230.50	478.38	432.58	522.02
Bagasse	53.37	46.71	35.60	50.27	52.23	101.07	95.30	78.88	51.33	36.91	33.75	34.96
Solar	110.49	98.37	104.93	99.07	69.08	75.82	86.02	84.72	119.94	115.38	116.02	106.24
Total	**14,880.33**	**13,178.90**	**12,486.59**	**10,262.37**	**8,031.50**	**7,799.69**	**8,153.28**	**6,945.39**	**8,408.93**	**10,513.22**	**12,754.61**	**13,744.43**
Sale to IPPs	(36.24)	(31.95)	(31.10)	(29.91)	(51.28)	(27.96)	(27.24)	(32.21)	(27.36)	(35.67)	(32.68)	(26.02)
Transmission Losses	(429.29)	(391.24)	(333.85)	(249.83)	(263.69)	(253.42)	(308.19)	(245.28)	(267.62)	(280.14)	(350.30)	(403.21)
Net Delivered	**14,414.81**	**12,755.71**	**12,121.63**	**9,982.63**	**7,716.54**	**7,518.31**	**7,817.84**	**6,667.90**	**8,113.95**	**10,197.41**	**12,371.63**	**13,315.21**

Source: CPPA-G

TABLE 12
Monthly Source-wise Actual and Projected Energy Purchase (Rs. in Million) (2024-25)

Source	July	August	September	October	November	December	January	February	March	April	May	June
Coal (Local)	17,060.67	16,024.00	15,498.12	16,981.93	14,630.18	13,855.46	15,911.15	14,376.51	17,055.13	17,097.22	16,834.15	17,383.82
Coal (Imported)	18,422.44	10,776.51	19,070.55	15,263.02	7,118.40	2,367.90	14,500.59	2,046.81	9,660.59	17,249.13	12,739.09	21,175.01
RFO	3,161.47	171.70	1,187.15	58.29	-	80.14	3,305.52	-	106.87	2,401.07	561.96	4,351.11
Gas	16,279.02	12,714.69	13,513.99	11,769.91	11,532.77	12,869.58	14,123.60	9,570.26	11,644.24	9,947.66	11,279.24	11,746.39
RLNG	73,907.65	54,238.26	50,893.69	45,312.77	21,031.25	36,075.45	34,655.52	21,904.39	35,321.17	52,336.22	46,716.26	48,461.12
Nuclear	2,943.30	3,266.85	2,460.09	2,180.56	2,865.16	3,506.61	3,934.80	3,378.51	4,445.37	3,960.27	4,519.97	3,386.30
Import Iran	1,201.57	974.69	1,045.72	1,073.52	999.55	919.13	884.86	838.05	982.07	822.72	814.82	1,058.06
Bagasse	319.25	582.88	444.27	293.86	312.43	604.59	570.07	470.77	307.04	220.82	201.86	344.92
Total	**133,295.37**	**98,749.59**	**104,113.57**	**92,933.84**	**58,489.74**	**70,278.87**	**87,886.11**	**52,585.29**	**79,522.48**	**104,035.12**	**93,667.36**	**107,906.73**
Arrears/Previous Adjustments	(845.86)	12,648.82	1,404.32	1,002.48	(421.01)	2,448.74	(352.86)	3,811.95	(3,291.32)	(11,396.96)	(4,775.77)	(4,833.93)
Sale to IPPs	(2,345.81)	(2,013.45)	(1,402.23)	(1,643.54)	(2,473.93)	(1,197.25)	(1,581.25)	(1,672.31)	(1,378.98)	(1,648.06)	(1,718.58)	(1,113.30)
Grand Total	**130,103.71**	**109,384.97**	**104,115.67**	**92,292.78**	**55,594.80**	**71,530.35**	**85,952.00**	**54,724.93**	**74,852.18**	**90,990.10**	**87,173.02**	**101,959.50**

Source: CPPA-G

TABLE 13
Month-wise KE Electricity Generation Data (GWh) (2024-25)

	July	August	September	October	November	December	January	February	March	April	May	June	Total
BQPS-I (RFO) Unit-1	40.94	0.85	-	-	-	-	-	-	-	-	-	-	**41.79**
BQPS-I (RFO) Unit-2	41.36	0.78	1.62	4.13	-	-	-	-	-	-	-	-	**47.88**
BQPS-I (RFO) Unit-5	58.49	10.37	20.73	3.24	1.46	-	-	0.02	-	-	-	0.23	**94.55**
BQPS-I (RFO) Unit-6	3.73	1.21	5.24	5.20	-	-	-	-	-	-	-	0.17	**15.55**
BQPS-I (Gas) Unit-5	-	-	-	-	-	-	-	-	-	-	16.35	44.87	**61.22**
BQPS-I (Gas) Unit-6	-	-	-	-	-	-	-	-	-	-	0.19	24.04	**24.23**
BQPS-I (RLNG) Unit-1	1.06	-	-	-	-	-	-	-	-	-	-	-	**1.06**
BQPS-I (RLNG) Unit-2	2.86	0.02	-	0.28	-	-	-	-	-	-	-	-	**3.16**
BQPS-I (RLNG) Unit-5	30.29	7.22	0.55	12.78	0.33	-	-	0.07	-	-	3.96	19.96	**75.15**
BQPS-I (RLNG) Unit-6	0.97	1.52	0.26	4.99	-	-	-	-	-	-	0.05	13.74	**21.53**
BQPS-II (Gas)	41.53	39.83	27.00	23.56	-	-	-	-	-	7.82	167.27	116.75	**423.76**
BQPS-II (RLNG)	270.82	250.69	171.90	220.71	72.14	7.30	-	14.24	0.37	0.80	37.92	109.91	**1,156.79**
BQPS-III (RLNG) (Unit-1)	285.49	248.07	250.22	231.45	113.47	44.09	42.08	104.32	187.03	209.55	285.76	288.01	**2,289.54**
BQPS-III (RLNG) (Unit-2)	257.41	216.26	215.14	265.45	181.11	136.11	0.00	0.74	78.67	172.93	262.92	253.36	**2,040.11**
BQPS-III (HSD)	-	-	-	-	-	-	-	-	-	-	0.00	0.17	**0.17**
Korangi Town GTPS-II (Gas)	-	-	0.01	-	-	-	-	-	-	-	-	-	**0.01**
Korangi Town GTPS-II (RLNG)	1.36	0.05	0.42	2.11	0.31	-	-	-	-	-	-	-	**4.25**
Korangi CCPP (Gas)	-	-	0.83	1.24	-	-	-	-	-	5.62	-	-	**7.70**
Korangi CCPP (RLNG)	36.21	28.91	25.65	25.46	1.00	-	-	-	-	0.17	0.16	1.78	**119.34**
Korangi CCPP (HSD)	3.31	0.21	-	1.31	-	-	-	-	-	-	-	-	**4.83**
Gul Ahmed (RFO)	39.20	10.70	10.75	12.30	0.31	-	-	-	-	-	-	-	**73.27**
CPPA-G (Mix)	783.38	755.49	733.65	791.28	967.43	740.84	871.44	822.20	981.96	1,017.81	963.45	805.34	**10,234.27**
ISL (Gas)	0.98	1.57	2.17	2.43	1.43	0.16	0.16	0.40	0.87	0.15	0.02	0.13	**10.46**
FFBL (Coal)	38.57	36.32	35.02	39.50	32.10	3.18	-	1.50	20.31	27.09	25.61	19.81	**279.00**
SNPCL-I (Gas)	24.37	26.16	24.81	21.07	25.42	20.85	12.05	14.41	23.23	21.58	21.53	14.72	**250.20**
SNPCL-II (Gas)	30.81	31.00	23.04	21.20	25.49	19.42	12.16	14.58	23.44	21.30	27.98	17.58	**268.00**
Oursun Pakistan (Solar)	6.24	5.24	7.53	7.73	7.20	7.19	7.66	7.12	9.25	9.20	8.48	6.85	**89.68**
Gharo Solar (Solar)	6.74	5.63	8.55	8.44	7.45	7.09	7.75	7.54	10.83	11.45	10.55	7.68	**99.68**
Lucky Cement (Gas)	0.45	0.36	0.32	0.37	0.26	0.21	0.22	0.20	0.26	0.37	0.47	0.48	**3.96**
Net-Metering	4.22	1.53	5.18	7.34	5.23	12.15	16.00	19.42	16.84	24.90	15.42	11.23	**139.46**
Total	**2,010.79**	**1,679.97**	**1,570.56**	**1,713.59**	**1,442.14**	**998.57**	**969.51**	**1,006.75**	**1,353.06**	**1,530.73**	**1,848.10**	**1,756.81**	**17,880.59**

Source: KE

TABLE 14
Monthly Variation in Maximum Hydel Generating Capability (MW)

Month	Year	Tarbela	Tarbela 4th Ext.	Ghazi Barotha	Mangla	Warsak	Chashma	Khan Khwar	Allai Khwar	Jinnah Hydel	Duber Khwar	Neelum Jhelum	Golen Gol	Small Hydels	Total Hydel (WAPDA)	Jagran	Malakand III	Laraib	Patrind Hydro	Daral Khwar	Gulpur	Karot Power	SK Hydro	Total Hydel (IPPs)	Total Hydel (WAPDA+ IPPs)
July	2020	3844		988	602	194	99	32	74	23	129	963	4	71	**7023**	25	61	43	121	34	38	-		322	**7344**
	2021	2977		1013	424	196	91	33	75	25	130	951	24	58	**5997**	26	52	33	146	23	59	-		340	**6337**
	2022	3500	1413	1071	491	211	119	60	122	37	132	973	28	59	**8216**	29	66	55	149	34	102	702		1137	**9353**
	2023	3493	1414	1055	290	176	146	71	121	21	131	0	89	54	**7061**	29	43	10	148	28	102	717		1077	**8138**
	2024	3495	1414	1077	759	136	146	55	106	20	105	0	9	58	**7380**	29	68	58	148	37	63	718	-	1121	**8501**
August	2020	4217		999	416	209	86	30	65	21	130	887	4	45	**7108**	26	64	25	109	22	45	-		291	**7400**
	2021	4340		1038	597	189	86	28	87	22	113	712	19	62	**7295**	26	62	44	75	11	47	-		266	**7561**
	2022	3506	1415	1084	271	217	94	70	122	9	131	0	31	55	**7005**	28	65	20	146	36	102	707		1104	**8109**
	2023	3497	1414	1085	845	182	150	63	122	24	131	902	70	57	**8542**	28	43	56	139	16	97	716		1095	**9637**
	2024	3504	1416	1051	280	18	132	68	121	13	105	0	80	59	**6847**	28	63	12	147	36	100	508	338	1232	**8079**
September	2020	3555		1008	905	148	96	32	72	15	56	602	4	65	**6556**	17	32	66	77	20	51	-		263	**6819**
	2021	4102		1036	755	148	101	5	51	36	82	453	32	67	**6869**	20	55	59	61	8	35	-		238	**7107**
	2022	3499	1415	1114	710	204	152	55	114	27	65	0	40	56	**7451**	20	35	58	94	10	95	429		741	**8192**
	2023	3219	1356	1107	960	182	159	45	70	35	80	567	55	69	**7904**	24	43	68	75	11	42	282		545	**8449**
	2024	3504	1412	1172	992	146	156	23	95	15	105	0	57	54	**7731**	28	0	71	103	34	94	530	433	1293	**9024**
October	2020	1799		895	842	78	107	11	29	41	46	222	15	10	**4095**	10	21	63	40	6	10	-		149	**4244**
	2021	1408		816	505	82	109	11	36	37	42	275	18	61	**3400**	8	32	35	41	6	25	-		148	**3547**
	2022	2363	971	1103	956	119	157	43	44	41	69	0	38	137	**6041**	9	22	79	47	9	36	209		411	**6452**
	2023	1585	1256	1096	960	93	160	41	53	39	38	288	28	66	**5703**	11	34	71	40	12	41	208		417	**6120**
	2024	1882	953	1046	1095	126	160	44	62	24	43	0	27	52	**5514**	17	30	77	53	20	21	220	301	739	**6253**
November	2020	1772		958	797	73	122	14	24	50	33	153	15	55	**4065**	4	16	62	29	5	-	-		116	**4181**
	2021	1550		980	821	51	122	8	20	43	24	143	10	45	**3817**	5	16	72	25	4	5	-		128	**3945**
	2022	1215	698	1038	900	85	136	33	64	40	36	0	23	60	**4328**	5	21	80	44	13	41	222		426	**4754**
	2023	1335	642	1057	960	60	140	22	71	43	24	242	18	51	**4665**	7	24	75	43	7	29	226		411	**5076**
	2024	1706	678	1056	1023	70	138	28	37	29	0	0	17	49	**4831**	10	28	82	36	13	8	120	222	519	**5350**
December	2020	729		523	590	74	66	17	27	38	30	163	11	5	**2272**	4	14	48	26	4	5	-		101	**2374**
	2021	899		678	423	21	88	5	16	31	17	90	8	32	**2308**	4	14	40	22	3	0	-		82	**2390**
	2022	1020	536	905	495	65	120	13	27	45	27	0	15	55	**3323**	6	21	48	27	6	10	140		240	**3563**
	2023	1032	415	916	707	50	120	13	23	42	19	173	13	48	**3571**	6	12	60	31	5	0	143		257	**3828**
	2024	1044	583	1000	655	57	134	9	17	29	12	0	10	41	**3591**	6	16	59	30	7	1	93	157	353	**3944**
January	2021	534		393	95	73	59	8	7	11	21	135	8	23	**1367**	4	14	7	21	3	23	-		71	**1439**
	2022	203		153	22	73	51	10	2	6	15	52	8	24	**620**	3	20	0	21	3	29	-		77	**697**
	2023	1061	411	893	130	78	104	15	29	14	21	0	11	34	**2801**	5	21	14	26	5	40	162		273	**3074**
	2024	1152	0	859	614	53	115	4	0	11	11	102	9	25	**2955**	4	19	58	20	3	0	93		197	**3152**
	2025	825	352	883	222	73	114	10	27	11	13	0	7	32	**2569**	5	16	25	22	6	8	97	113	292	**2861**
February	2021	1056		833	683	57	89	15	0	16	30	109	8	25	**2918**	5	12	67	24	6	15	-		128	**3047**
	2022	782		673	350	51	83	14	18	16	16	77	7	19	**2105**	3	17	43	20	3	24	-		110	**2215**
	2023	1147	450	986	651	68	128	63	0	36	36	0	8	45	**3618**	7	28	71	30	8	34	320		498	**4116**
	2024	922	0	686	725	54	115	56	66	32	24	0	7	40	**2727**	4	16	76	23	5	77	382		583	**3310**
	2025	1017	325	915	761	88	122	46	63	21	28	0	4	32	**3422**	4	25	82	30	8	94	373	148	764	**4186**
March	2021	397		343	592	87	47	41	56	18	57	460	6	39	**2143**	4	25	63	40	13	39	-		184	**2327**
	2022	401		365	473	60	58	45	68	25	55	484	6	58	**2098**	10	36	59	42	19	43	-		210	**2307**
	2023	1117	378	1023	603	109	126	50	72	41	58	0	8	64	**3649**	13	45	65	46	20	24	348		561	**4210**
	2024	851	81	728	682	121	116	71	121	44	109	960	6	58	**3948**	15	39	74	68	34	92	672		994	**4942**
	2025	544	0	456	510	139	98	59	88	24	82	0	8	37	**2045**	11	45	63	43	35	44	409	203	853	**2898**
April	2021	657		572	643	106	77	51	96	31	87	923	7	73	**3323**	15	46	67	76	20	41	-		266	**3588**
	2022	620		574	541	96	82	29	58	40	103	849	7	67	**3066**	23	56	66	83	34	21	5		287	**3354**
	2023	895	291	892	729	169	135	70	122	33	131	0	9	67	**3543**	22	49	75	133	31	102	717		1129	**4672**
	2024	721	0	654	586	139	149	71	122	37	105	869	7	62	**3522**	25	42	54	137	35	100	718		1111	**4633**
	2025	1202	43	941	743	143	137	69	121	26	105	0	35	44	**3609**	26	67	74	146	37	59	719	863	1991	**5600**
May	2021	1073		947	654	180	112	44	92	37	128	950	18	40	**4275**	25	65	73	140	16	40	-		361	**4636**
	2022	1114		1004	546	158	119	23	48	41	126	925	20	66	**4192**	24	57	66	121	34	17	327		648	**4840**
	2023	1571	372	1069	738	182	148	71	122	35	133	0	7	70	**4518**	28	51	77	148	36	86	716		1142	**5660**
	2024	2921	1193	1066	954	134	158	71	121	30	106	35	7	62	**6858**	29	75	81	148	37	100	717		1187	**8045**
	2025	2985	1226	1093	753	165	138	34	79	24	106	0	76	46	**6725**	28	71	72	149	37	53	720	889	2019	**8744**
June	2021	2294		1000	609	191	104	29	70	30	130	967	17	68	**5507**	24	68	57	147	34	45	-		376	**5883**
	2022	1095		1038	415	160	107	15	38	37	121	860	32	48	**3966**	20	65	49	109	29	27	414		713	**4679**
	2023	3096	1331	1080	789	183	156	67	121	33	132	0	79	67	**7134**	29	60	76	148	36	90	716		1155	**8289**
	2024	2940	1204	1050	960	133	158	43	87	20	105	0	8	61	**6769**	29	70	80	148	37	46	718		1128	**7897**
	2025	3180	1322	1031	821	137	134	35	56	22	105	0	90	46	**6979**	34	68	72	149	36	68	641	891	1959	**8938**

Source: Independent System and Market Operator

TABLE 15
Auxiliary Consumption and other Factors of Hydel Power Stations

Power Station	Year	Auxiliary Consumption		Maximum Load (MW)	Load Factor (%)	Capacity Factor (%)	Utilization Factor (%)	Availability Factor (%)
		(GWh)	(%)					
Tarbela	2020-21	15.13	0.12	3506	41.06	41.39	41.39	82.54
	2021-22	27.79	0.25	3536	35.37	35.96	35.96	89.22
	2022-23	14.30	0.11	3478	40.98	100.00	40.98	87.42
	2023-24	73.05	0.55	3478	43.87	100.00	43.87	88.14
	2024-25	91.14	0.64	3478	46.53	100.00	46.53	93.37
Tarbela 4th Ext.	2020-21	10.35	0.30	1410	27.75	27.75	27.75	37.51
	2021-22	6.77	0.21	1410	26.52	26.52	26.52	87.50
	2022-23	10.49	0.24	1410	35.93	100.00	35.93	89.30
	2023-24	10.83	0.23	1410	37.67	100.00	37.67	82.31
	2024-25	12.22	0.24	1410	41.83	100.00	41.83	88.53
Ghazi Barotha	2020-21	7.30	0.11	1450	54.25	54.25	54.25	91.12
	2021-22	75.88	1.11	1450	53.23	53.23	53.23	91.53
	2022-23	6.45	0.09	1450	54.22	100.00	54.36	90.75
	2023-24	65.07	1.00	1450	51.42	100.00	51.42	51.31
	2024-25	70.99	1.05	1450	53.37	100.00	53.37	53.37
Mangla	2020-21	91.41	1.69	915	67.44	77.13	77.13	96.19
	2021-22	82.88	1.93	920	52.12	47.95	47.95	92.42
	2022-23	51.41	1.32	960	46.25	110.34	51.04	93.73
	2023-24	80.57	1.53	960	62.47	0.96	59.98	92.79
	2024-25	48.35	1.13	1160	42.21	116.00	48.97	96.44
Warsak	2020-21	10.47	0.97	233	52.69	50.53	50.53	68.30
	2021-22	9.46	1.00	229	46.55	43.88	43.88	75.05
	2022-23	9.33	1.03	218	47.54	89.73	42.66	79.64
	2023-24	4.12	0.53	187	47.48	0.77	36.62	69.63
	2024-25	4.95	0.62	147	62.06	60.50	37.55	56.17
Chashma	2020-21	4.21	0.54	125	70.92	72.92	72.92	68.11
	2021-22	4.60	0.57	138	65.82	49.36	49.36	67.78
	2022-23	5.12	0.58	161	62.50	87.50	74.06	79.31
	2023-24	5.28	0.54	161	69.41	0.88	60.73	79.31
	2024-25	4.96	0.53	161	66.46	87.50	58.15	79.58
Khan Khwar	2020-21	2.09	0.89	72	37.43	35.97	35.97	92.34
	2021-22	3.81	2.29	72	25.76	25.76	25.76	92.61
	2022-23	3.81	2.29	72	26.36	27.64	26.36	90.83
	2023-24	4.94	1.97	72	39.75	1.00	39.75	91.97
	2024-25	3.78	2.18	72	27.49	100.00	27.49	91.46
Allai Khwar	2020-21	1.19	0.26	121	42.27	42.27	42.27	81.74
	2021-22	5.52	1.46	121	35.19	35.19	35.19	91.34
	2022-23	1.28	0.26	121	45.91	45.91	45.91	87.53
	2023-24	5.84	1.26	121	43.70	1.00	43.70	93.53
	2024-25	2.17	0.68	121	30.22	100.00	30.22	91.53
Jinnah Hydel	2020-21	3.32	1.40	64	43.41	65.96	65.96	59.07
	2021-22	6.98	2.65	55	53.34	30.45	30.45	58.32
	2022-23	3.17	1.48	48	50.59	50.00	25.30	57.00
	2023-24	17.37	7.80	46	54.86	0.48	26.46	45.72
	2024-25	6.23	4.39	31	52.76	31.98	16.87	34.52
Duber Khwar	2020-21	2.45	0.38	130	56.49	56.49	56.49	95.10
	2021-22	2.07	0.33	130	54.18	54.18	54.18	93.50
	2022-23	2.07	0.34	130	54.36	54.36	54.36	88.80
	2023-24	1.84	0.40	130	40.01	1.00	40.01	56.15
	2024-25	1.60	0.37	105	47.20	80.77	38.12	54.35
Golen Gol	2020-21	2.48	2.92	71	13.70	8.97	8.97	73.64
	2021-22	3.14	2.22	52	30.33	14.60	14.60	93.70
	2022-23	2.89	2.14	90	63.49	14.25	43.06	93.00
	2023-24	3.32	1.87	108	18.82	1.00	18.82	95.27
	2024-25	3.48	1.76	46	48.85	42.87	20.94	92.22
Dargai	2020-21	0.30	0.28	18	69.18	62.27	62.27	88.27
	2021-22	0.35	0.40	18	54.52	49.89	49.89	79.82
	2022-23	0.24	0.34	12	71.14	57.70	40.91	87.92
	2023-24	0.89	1.38	12	63.53	0.58	36.53	91.25
	2024-25	0.17	0.40	11	46.82	52.50	24.58	94.23

Power Station	Year	Auxiliary Consumption		Maximum Load (MW)	Load Factor (%)	Capacity Factor (%)	Utilization Factor (%)	Availability Factor (%)
		(GWh)	(%)					
Rasul	2020-21	0.73	0.92	15	60.48	41.24	41.24	86.75
	2021-22	2.88	4.67	13	51.72	30.56	30.56	67.80
	2022-23	2.78	4.89	13	49.97	59.09	29.53	76.94
	2023-24	2.65	3.54	13	65.77	0.59	38.86	71.15
	2024-25	2.54	6.50	12	37.16	54.55	20.27	42.91
Shadiwal	2020-21	0.49	1.52	6	62.00	27.56	27.56	94.22
	2021-22	0.63	2.21	6	58.24	23.73	23.73	94.40
	2022-23	0.69	1.37	7	58.20	48.15	28.02	94.72
	2023-24	0.78	2.09	6	69.46	0.45	31.39	94.68
	2024-25	0.77	1.89	8	61.38	56.30	34.56	94.66
Chichoki Malian	2020-21	0.53	1.89	8	42.48	24.14	24.14	89.21
	2021-22	0.44	1.92	6	42.72	19.42	19.42	72.90
	2022-23	0.48	1.54	9	39.78	68.18	27.12	88.18
	2023-24	0.41	1.32	9	39.05	0.68	26.63	94.26
	2024-25	1.30	4.93	7	42.97	53.03	22.78	93.81
Nandipur	2020-21	0.53	1.58	9	42.48	27.71	27.71	94.00
	2021-22	1.06	3.50	8	40.17	24.16	24.16	94.50
	2022-23	1.08	2.89	9	49.97	61.59	30.78	91.33
	2023-24	0.95	2.56	8	50.36	0.61	30.66	72.00
	2024-25	0.91	2.76	8	46.59	58.70	27.35	92.11
Kurram Garhi	2020-21	0.16	0.78	4	61.42	58.35	58.35	79.72
	2021-22	1.63	12.98	4	32.89	31.24	31.24	85.39
	2022-23	0.18	1.14	4	61.90	68.01	73.33	91.10
	2023-24	0.49	3.01	4	46.60	1.00	46.60	46.53
	2024-25	0.34	2.20	4	44.35	100.00	44.35	44.23
Renala	2020-21	0.05	2.50	1	42.44	20.83	20.83	79.01
	2021-22	0.05	2.76	1	41.36	18.80	18.80	79.00
	2022-23	0.06	3.54	1	41.17	45.45	18.71	94.61
	2023-24	0.07	4.41	0	42.52	0.41	17.40	94.00
	2024-25	0.07	3.73	0	43.70	43.64	19.07	92.00
Chitral	2020-21	0.01	0.23	1	48.46	85.37	85.37	97.02
	2021-22	0.01	0.27	1	38.70	24.58	24.58	98.96
	2022-23	0.01	0.21	1	43.78	30.88	92.07	99.18
	2023-24	0.01	0.30	1	34.12	0.63	21.53	82.01
	2024-25	0.01	0.24	1	41.99	58.20	24.44	94.70
Gomal Zam	2020-21	0.11	0.17	9	83.87	42.01	42.01	86.90
	2021-22	0.74	1.27	9	76.75	37.49	37.49	88.30
	2022-23	0.23	0.30	9	77.74	50.00	75.95	57.09
	2023-24	0.78	2.97	9	34.27	0.50	17.14	18.80
	2024-25	0.51	2.66	8	29.27	43.10	12.62	18.10
Malakand/ Jabban	2020-21	1.60	1.22	22	77.33	69.82	69.82	72.20
	2021-22	1.36	1.00	22	69.91	69.91	69.91	93.70
	2022-23	1.28	1.02	22	67.04	98.18	65.50	93.50
	2023-24	1.26	1.08	21	64.01	0.95	60.81	88.02
	2024-25	1.41	0.01	22	72.66	99.55	72.33	88.45
Neelum Jhelum	2023-24	4.77	0.01	977	20.38	0.21	100.83	52.74
	2024-25	0.00	0.00	0	0.00	0.00	0.00	0.00

Source: WAPDA

TABLE 16
Month-Wise WAPDA Hydroelectric Invoice for Capacity Charges and Cost Data (2024-25)

Month	Export (GWh)	Import (GWh)	NEO (GWh)	Variable Energy Charges (Mln. Rs.)	Capacity Charges (Mln. Rs.)	Water Use/NHP Charges Verified by WAPDA (Rs.)	IRSA Charge Amount (Mln. Rs.)	GST @ 17% (NEOxRatexGST Rate) (Mln. Rs.)
3,478 MW Tarbela								
July	3,322,570,312	-	2,392,910,342.0	101,247,056	1,580,121,584	2,632,201,376	11,964,552	18,224,470
August	2,566,841,514	-	2,566,841,514.0	101,903,608	2,049,347,687	3,973,470,664	12,834,208	18,342,649
September	1,914,451,186	-	1,914,451,186.0	76,003,712	2,049,347,687	2,963,570,436	9,572,256	13,680,668
October	831,337,088	12,394,000	818,943,088.0	32,512,041	2,049,347,687	1,267,723,900	4,094,715	5,852,167
November	841,900,548	2,569,000	839,331,548.0	33,321,462	2,049,347,687	1,299,285,236	4,196,658	5,997,863
December	632,831,197	116,561,000	516,270,197.0	20,495,927	2,049,347,687	799,186,265	2,581,351	3,689,267
January	531,687,066	247,428,000	284,259,066.0	11,285,085	2,049,347,687	440,033,034	1,421,295	2,031,315
February	613,789,936	38,135,000	575,654,936.0	22,853,501	2,049,347,687	891,113,841	2,878,275	4,113,630
March	462,664,321	172,220,000	290,444,321.0	11,530,640	2,049,347,687	449,607,809	1,452,222	2,075,515
April	534,915,765	98,196,000	436,719,765.0	17,337,775	2,049,347,687	676,042,196	2,183,599	3,120,799
May	1,437,017,407	7,327,000	1,429,690,407.0	56,758,709	2,049,347,687	2,213,160,750	7,148,452	10,216,568
June	2,019,704,668	-	2,019,704,668.0	80,182,275	2,049,347,687	3,126,502,826	10,098,523	14,432,810
Total	**15,709,711,008**	**694,830,000**	**14,085,221,038**	**565,431,790**	**24,122,946,146**	**20,731,898,334**	**70,426,105**	**101,777,722**
1,410 MW Tarbela 4th Extension								
July	929,659,970	-	929,659,970	122,398,579	1,155,537,811	1,022,625,967	4,648,300	22,031,744
August	1,028,913,130	-	1,028,913,130	126,659,206	1,376,075,688	1,592,757,525	5,144,566	22,798,657
September	787,168,620	-	787,168,620	96,900,457	1,376,075,688	1,218,537,024	3,935,843	17,442,082
October	396,254,660	-	396,254,660	48,778,949	1,376,075,688	613,402,214	1,981,273	8,780,211
November	302,863,800	-	302,863,800	37,282,534	1,376,075,688	468,833,162	1,514,319	6,710,856
December	136,304,940	-	136,304,940	16,779,138	1,376,075,688	211,000,047	681,525	3,020,245
January	53,643,110	-	53,643,110	6,603,467	1,376,075,688	83,039,534	268,216	1,188,624
February	124,390,530	-	124,390,530	15,312,474	1,376,075,688	192,556,540	621,953	2,756,245
March	-	-	-	-	1,376,075,688	-	-	-
April	956,990	-	956,990	117,805	1,376,075,688	1,481,421	4,785	21,205
May	568,777,820	-	568,777,820	70,016,550	1,376,075,688	880,468,065	2,843,889	12,602,979
June	825,101,360	-	825,101,360	101,569,977	1,376,075,688	1,277,256,905	4,125,507	18,282,596
Total	**5,154,034,930**	**-**	**5,154,034,930**	**642,419,136**	**16,292,370,376**	**7,561,958,405**	**25,770,175**	**115,635,445**
1,450 MW Ghazi Barotha								
July	1,795,002,000	1,070,747,000	724,255,000.000	56,418,840.400	1,164,860,120.942	796,680,500	3,621,275.000	10,155,391.272
August	2,014,610,000	1,301,509,000	713,101,000.000	52,270,303	1,318,637,498.200	1,051,110,874	3,565,505.000	9,408,654.594
September	1,686,996,000	967,882,000	719,114,000.000	52,711,056	1,318,637,498.200	1,059,974,036	3,595,570.000	9,487,990.116
October	954,628,000	302,377,000	652,251,000.000	47,809,998	1,318,637,498.200	961,417,974	3,261,255.000	8,605,799.694
November	953,783,000	268,189,000	685,594,000.000	50,254,040	1,318,637,498.200	1,010,565,556	3,427,970.000	9,045,727.236
December	659,587,000	217,983,000	441,604,000.000	32,369,573	1,318,637,498.200	650,924,296	2,208,020.000	5,826,523.176
January	520,704,000	291,978,000	228,726,000.000	16,765,616	1,318,637,498.200	337,142,124	1,143,630.000	3,017,810.844
February	652,785,000	119,928,000	532,857,000.000	39,058,418	1,318,637,498.200	785,431,218	2,664,285.000	7,030,515.258
March	431,488,000	183,245,000	248,243,000.000	18,196,212	1,318,637,498.200	365,910,182	1,241,215.000	3,275,318.142
April	462,603,000	106,570,000	356,033,000.000	26,097,219	1,318,637,498.200	524,792,642	1,780,165.000	4,697,499.402
May	1,295,841,000	587,935,000	707,906,000.000	51,889,510	1,318,637,498.200	1,043,453,444	3,539,530.000	9,340,111.764
June	1,611,904,000	913,072,000	698,832,000.000	51,224,386	1,318,637,498.200	1,030,078,368	3,494,160.000	9,220,389.408
Total	**13,039,931,000**	**6,331,415,000**	**6,708,516,000**	**495,065,172**	**15,669,872,601**	**9,617,481,214**	**33,542,580**	**89,111,731**
1,000 MW Mangla								
July	582,298,000.0	255,714,000.0	326,584,000.0	23,533,328.0	772,978,118.0	48,987,600.0	1,632,920.0	4,235,999.0
August	491,949,000.0	306,665,000.0	185,284,000.0	19,825,388	1,014,178,609.1	213,076,600	926,420.0	3,568,569.8
September	680,801,000.0	189,536,000.0	491,265,000.0	52,565,355	1,014,178,609.1	540,391,500	2,456,325.0	9,461,763.9
October	771,222,000.0	68,202,000.0	703,020,000.0	75,223,140	1,014,178,609.1	773,322,000	3,515,100.0	13,540,165.2
November	613,877,000.0	57,374,000.0	556,503,000.0	59,545,821	1,014,178,609.1	612,153,300	2,782,515.0	10,718,247.8
December	391,626,000.0	63,021,000.0	328,605,000.0	35,160,735	1,014,178,609.1	361,465,500	1,643,025.0	6,328,932.3
January	180,293,000.0	139,114,000.0	41,179,000.0	4,406,153	1,014,178,609.1	45,296,900	205,895.0	793,107.5
February	404,211,000.0	52,923,000.0	351,288,000.0	37,587,816	1,014,178,609.1	386,416,800	1,756,440.0	6,765,806.9
March	252,374,000.0	74,983,000.0	177,391,000.0	18,980,837	1,014,178,609.1	195,130,100	886,955.0	3,416,550.7
April	352,088,000.0	66,273,000.0	285,815,000.0	30,582,205	1,014,178,609.1	314,396,500	1,429,075.0	5,504,796.9
May	572,628,000.0	144,422,000.0	428,206,000.0	45,818,042	1,014,178,609.1	471,026,600	2,141,030.0	8,247,247.6
June	533,134,000.0	167,083,000.0	366,051,000.0	39,167,457	1,014,178,609.1	402,656,100	1,830,255.0	7,050,142.3
Total	**5,826,501,000**	**1,585,310,000**	**4,241,191,000**	**442,396,277**	**11,928,942,818**	**4,364,319,500**	**21,205,955**	**79,631,330**
242.96 MW Warsak								
July	89,144,000	1,329,000	87,815,000	9,420,270	193,538,171	96,596,500	439,075	1,695,649
August	91,583,000	886,000	90,697,000	9,831,555	242,521,444	140,398,956	453,485	1,769,680
September	88,351,000	2,455,000	85,896,000	9,311,126	242,521,444	132,967,008	429,480	1,676,003
October	64,726,000	1,843,000	62,883,000	6,816,517	242,521,444	97,342,884	314,415	1,226,973
November	48,323,000	6,302,000	42,021,000	4,555,076	242,521,444	65,048,508	210,105	819,914
December	49,869,000	10,556,000	39,313,000	4,261,529	242,521,444	60,856,524	196,565	767,075
January	52,206,000	5,828,000	46,378,000	5,027,375	242,521,444	71,793,144	231,890	904,928
February	29,668,000	17,098,000	12,570,000	1,362,588	242,521,444	19,458,360	62,850	245,266
March	57,312,000	4,268,000	53,044,000	5,749,970	242,521,444	82,112,112	265,220	1,034,995
April	94,780,000	29,000	94,751,000	10,271,008	242,521,444	146,674,548	473,755	1,848,782
May	91,104,000	205,000	90,899,000	9,853,452	242,521,444	140,711,652	454,495	1,773,621
June	89,019,000	1,062,000	87,957,000	9,534,539	242,521,444	136,157,436	439,785	1,716,217
Total	**846,085,000**	**51,861,000**	**794,224,000**	**85,995,005**	**2,861,274,055**	**1,190,117,632**	**3,971,120**	**15,479,101**
184 MW Chashma								
July	89,929,000	-	89,929,000	17,352,375	293,848,283	98,921,900	449,645	3,123,428
August	54,121,000	5,000	54,116,000	11,028,841	349,485,478	79,766,984	270,580	1,985,191
September	102,441,000	-	102,441,000	20,877,476	349,485,478	150,998,034	512,205	3,757,946
October	102,464,000	-	102,464,000	20,882,163	349,485,478	151,031,936	512,320	3,758,789
November	97,618,000	1,000	97,617,000	19,894,345	349,485,478	143,887,458	488,085	3,580,982
December	68,904,000	-	68,904,000	14,042,635	349,485,478	101,564,496	344,520	2,527,674

Month	Export (GWh)	Import (GWh)	NEO (GWh)	Variable Energy Charges (Mln. Rs.)	Capacity Charges (Mln. Rs.)	Water Use/NHP Charges Verified by WAPDA (Rs.)	IRSA Charge Amount (Mln. Rs.)	GST @ 17% (NEOxRatexGST Rate) (Mln. Rs.)
January	45,800,000	1,040,000	44,760,000	9,122,088	349,485,478	65,976,240	223,800	1,641,976
February	71,658,000	3,000	71,655,000	14,603,289	349,485,478	105,619,470	358,275	2,628,592
March	50,228,000	2,172,000	48,056,000	9,793,813	349,485,478	70,834,544	240,280	1,762,886
April	74,633,000	693,000	73,940,000	15,068,972	349,485,478	108,987,560	369,700	2,712,415
May	94,545,000	470,000	94,075,000	19,172,485	349,485,478	138,666,550	470,375	3,451,047
June	87,208,000	2,784,000	84,424,000	17,205,611	349,485,478	124,440,976	422,120	3,097,010
Total	**939,549,000**	**7,168,000**	**932,381,000**	**189,044,093**	**4,138,188,546**	**1,340,696,148**	**4,661,905**	**34,027,937**
				72 MW Khan Khwar				
July	55,257,088	34,016,560	21,240,528	4,768,991	120,998,379	23,364,581	106,203	858,418
August	56,530,944	27,632,500	28,898,444	8,423,896	147,466,791	44,734,791	144,492	1,516,301
September	30,835,200	20,506,100	10,329,100	3,010,933	147,466,791	15,989,447	51,646	541,968
October	17,106,474	7,764,700	9,341,774	2,723,127	147,466,791	14,461,066	46,709	490,163
November	7,816,362	206,120	7,610,242	2,218,386	147,466,791	11,780,655	38,051	399,309
December	5,210,608	2,352,440	2,858,168	833,156	147,466,791	4,424,444	14,291	149,968
January	5,120,294	3,401,150	1,719,144	501,130	147,466,791	2,661,235	8,596	90,203
February	9,388,004	2,552,430	6,835,574	1,992,570	147,466,791	10,581,469	34,178	358,663
March	32,588,286	8,002,360	24,585,926	7,166,797	147,466,791	38,059,013	122,930	1,290,024
April	53,402,112	25,885,800	27,516,312	8,021,005	147,466,791	42,595,251	137,582	1,443,781
May	50,688,768	33,271,000	17,417,768	5,077,279	147,466,791	26,962,705	87,089	913,910
June	28,663,396	17,394,120	11,269,276	3,284,994	147,466,791	17,444,839	56,346	591,299
Total	**352,607,536**	**182,985,280**	**169,622,256**	**48,022,264**	**1,743,133,078**	**253,059,496**	**848,111**	**8,644,008**
				121 MW Allai Khwar				
July	131,687,000	90,794,880	40,892,120	8,851,288	187,866,678	44,981,332	204,461	1,593,232
August	138,506,000	88,453,340	50,052,660	10,906,475	209,922,038	77,481,518	250,263	1,963,165
September	81,335,000	49,754,880	31,580,120	6,881,308	209,922,038	48,886,026	157,901	1,238,635
October	41,965,800	23,742,100	18,223,700	3,970,944	209,922,038	28,210,288	91,119	714,770
November	21,603,170	6,937,170	14,666,000	3,195,721	209,922,038	22,702,968	73,330	575,230
December	15,907,070	7,654,430	8,252,640	1,798,250	209,922,038	12,775,087	41,263	323,685
January	9,777,510	8,262,000	1,515,510	330,230	209,922,038	2,346,009	7,578	59,441
February	22,961,460	12,481,590	10,479,870	2,283,564	209,922,038	16,222,839	52,399	411,041
March	70,442,240	41,665,430	28,776,810	6,270,467	209,922,038	44,546,502	143,884	1,128,684
April	135,502,000	84,374,210	51,127,790	11,140,745	209,922,038	79,145,819	255,639	2,005,334
May	122,010,040	84,663,160	37,346,880	8,137,885	209,922,038	57,812,970	186,734	1,464,819
June	78,128,920	52,945,240	25,183,680	5,487,524	209,922,038	38,984,337	125,918	987,754
Total	**869,826,210**	**551,728,430**	**318,097,780**	**69,254,401**	**2,497,009,094**	**474,095,694**	**1,590,489**	**12,465,792**
				96 MW Jinnah Hydel				
July	12,201,630	245,770	11,955,860	3,501,449	150,975,969	13,151,446	59,779	630,261
August	8,815,280	1,490,620	7,324,660	3,055,848	171,530,507	10,796,549	36,623	550,053
September	7,397,900	1,087,860	6,310,040	2,632,549	171,530,507	9,300,999	31,550	473,859
October	13,952,622	52,440	13,900,182	5,799,156	171,530,507	20,488,868	69,501	1,043,848
November	17,256,790	2,940	17,253,850	7,198,306	171,530,507	25,432,175	86,269	1,295,695
December	15,862,440	23,840	15,838,600	6,607,864	171,530,507	23,346,096	79,193	1,189,416
January	4,306,070	2,584,820	1,721,250	718,106	171,530,507	2,537,123	8,606	129,259
February	8,110,700	1,006,180	7,104,520	2,964,006	171,530,507	10,472,062	35,523	533,521
March	13,438,230	25,890	13,412,340	5,595,628	171,530,507	19,769,789	67,062	1,007,213
April	15,621,890	-	15,621,890	6,517,453	171,530,507	23,026,666	78,109	1,173,141
May	13,009,430	199,750	12,809,680	5,344,198	171,530,507	18,881,468	64,048	961,956
June	12,617,880	217,070	12,400,810	5,173,618	171,530,507	18,278,794	62,004	931,251
Total	**142,590,862**	**6,937,180**	**135,653,682**	**55,108,181**	**2,037,811,546**	**195,482,036**	**678,268**	**9,919,473**
				130 MW Duber Khwar				
July	77,052,780	-	77,052,780	18,179,770	243,511,063	84,758,058	385,264	3,272,359
August	66,610,170	-	66,610,170	21,508,424	300,319,992	103,112,543	333,051	3,871,516
September	45,132,830	-	45,132,830	14,573,391	300,319,992	69,865,621	225,664	2,623,210
October	18,223,580	324,210	17,899,370	5,779,707	300,319,992	27,708,225	89,497	1,040,347
November	926,280	957,760	(31,480)	(10,165)	300,319,992	(48,731)	(157)	(1,830)
December	4,312,100	345,610	3,966,490	1,280,780	300,319,992	6,140,127	19,832	230,540
January	6,312,430	180,130	6,132,300	1,980,120	300,319,992	9,492,800	30,662	356,422
February	6,187,700	410,870	5,776,830	1,865,338	300,319,992	8,942,533	28,884	335,761
March	23,706,870	431,670	23,275,200	7,515,562	300,319,992	36,030,010	116,376	1,352,801
April	62,883,990	-	62,883,990	20,305,240	300,319,992	97,344,417	314,420	3,654,943
May	74,333,550	4,830	74,328,720	24,000,744	300,319,992	115,060,859	371,644	4,320,134
June	49,664,280	181,650	49,482,630	15,977,941	300,319,992	76,599,111	247,413	2,876,029
Total	**435,346,560**	**2,836,730**	**432,509,830**	**132,956,851**	**3,547,030,979**	**635,005,571**	**2,162,549**	**23,932,233**
				108 MW Golen Gol				
July	5,265,662	-	5,265,662	2,930,837	285,306,251	5,792,228	26,328	527,551
August	31,961,870	92,317	31,869,553	50,908,424	373,139,746	49,334,068	159,348	9,163,516
September	27,276,461	565	27,275,896	43,570,516	373,139,746	42,223,087	136,379	7,842,693
October	15,233,050	1,264	15,231,786	24,331,255	373,139,746	23,578,805	76,159	4,379,626
November	9,399,410	45,511	9,353,899	14,941,919	373,139,746	14,479,836	46,769	2,689,545
December	7,088,469	1,354,215	5,734,254	9,159,897	373,139,746	8,876,625	28,671	1,648,782
January	5,521,530	1,758,467	3,763,063	6,011,117	373,139,746	5,825,222	18,815	1,082,001
February	5,301,312	3,296,338	2,004,973	3,202,744	373,139,746	3,103,699	10,025	576,494
March	5,798,251	3,900,773	1,897,478	3,031,032	373,139,746	2,937,296	9,487	545,586
April	11,464,111	44,364	11,419,747	18,241,904	373,139,746	17,677,768	57,099	3,283,543
May	37,811,611	44,143	37,767,467	60,329,752	373,139,746	58,464,039	188,837	10,859,355
June	43,086,860	35,455	43,051,405	68,770,314	373,139,746	66,643,575	215,257	12,378,657
Total	**205,208,596**	**10,573,412**	**194,635,184**	**305,429,711**	**4,389,843,461**	**298,936,248**	**973,176**	**54,977,348**
				20 MW Dargai				
July	6,737,549	-	6,737,549	719,396	18,744,863	7,411,304	33,688	129,491
August	6,001,707	2,000	5,999,707	1,109,946	27,950,796	9,287,546	29,999	199,790
September	6,417,000	-	6,417,000	1,187,145	27,950,796	9,933,516	32,085	213,686
October	6,400,000	-	6,400,000	1,184,000	27,950,796	9,907,200	32,000	213,120

Month	Export (GWh)	Import (GWh)	NEO (GWh)	Variable Energy Charges (Mln. Rs.)	Capacity Charges (Mln. Rs.)	Water Use/NHP Charges Verified by WAPDA (Rs.)	IRSA Charge Amount (Mln. Rs.)	GST @ 17% (NEOxRatexGST Rate) (Mln. Rs.)
November	6,238.000	1.000	6,237.000	1,153.845	27,950.796	9,654.876	31.185	207.692
December	3,032.000	19.000	3,013.000	557.405	27,950.796	4,664.124	15.065	100.333
January	4,837.000	-	4,837.000	894.845	27,950.796	7,487.676	24.185	161.072
February	3,287.000	14.000	3,273.000	605.505	27,950.796	5,066.604	16.365	108.991
March	-	22.000	(22.000)	(4.070)	27,950.796	(34.056)	(110)	(733)
April	-	-	-	-	27,950.796	-	-	-
May	-	-	-	-	27,950.796	-	-	-
June	-	-	-	-	27,950.796	-	-	-
Total	**42,950,256**	**58,000**	**42,892,256**	**7,408,017**	**326,203,615**	**63,378,790**	**214,461**	**1,333,443**
				22 MW Rasul				
July	6,881.884	492.000	6,389.884	1,086.695	21,205.192	7,028.872	31.949	195.605
August	5,401.506	771.000	4,630.506	1,060.849	27,468.076	6,825.366	23.153	190.953
September	4,308.905	961.000	3,347.905	767.005	27,468.076	4,934.812	16.740	138.061
October	3,585.287	261.000	3,324.287	761.594	27,468.076	4,899.999	16.621	137.087
November	3,448.634	200.000	3,248.634	744.262	27,468.076	4,788.487	16.243	133.967
December	4,275.000	519.000	3,756.000	860.500	27,468.076	5,536.344	18.780	154.890
January	1,796.422	1,952.000	(155.578)	(35.643)	27,468.076	(229.322)	(778)	(6.416)
February	2,288.853	590.000	1,698.853	389.207	27,468.076	2,504.109	8.494	70.057
March	3,191.542	552.000	2,639.542	604.719	27,468.076	3,890.685	13.198	108.849
April	3,353.246	2,030.000	1,323.246	303.156	27,468.076	1,950.465	6.616	54.568
May	4,066.438	990.000	3,076.438	704.812	27,468.076	4,534.670	15.382	126.866
June	4,915.469	1,668.000	3,247.469	743.995	27,468.076	4,786.769	16.237	133.919
Total	**47,513,186**	**10,986,000**	**36,527,186**	**7,991,151**	**323,354,031**	**51,451,256**	**182,636**	**1,438,407**
				13.5 MW Shadiwal				
July	2,918.574	-	2,918.574	596.342	12,981.207	3,210.431	14.593	107.342
August	3,051.659	-	3,051.659	924.653	20,166.630	4,498.145	15.258	166.437
September	3,139.600	-	3,139.600	951.299	20,166.630	4,627.770	15.698	171.234
October	3,802.788	-	3,802.788	1,152.245	20,166.630	5,605.310	19.014	207.404
November	3,768.663	-	3,768.663	1,141.905	20,166.630	5,555.009	18.843	205.543
December	3,582.622	-	3,582.622	1,085.534	20,166.630	5,280.785	17.913	195.396
January	1,147.947	42.000	1,105.947	335.102	20,166.630	1,630.166	5.530	60.318
February	2,278.868	21.000	2,257.868	684.134	20,166.630	3,328.097	11.289	123.144
March	4,548.611	-	4,548.611	1,378.229	20,166.630	6,704.653	22.743	248.081
April	4,161.421	-	4,161.421	1,260.911	20,166.630	6,133.935	20.807	226.964
May	4,290.856	-	4,290.856	1,300.129	20,166.630	6,324.722	21.454	234.023
June	3,466.302	-	3,466.302	1,050.290	20,166.630	5,109.329	17.332	189.052
Total	**40,157,911**	**63,000**	**40,094,911**	**11,860,772**	**234,814,137**	**58,008,352**	**200,475**	**2,134,939**
				13.20 MW Chichoki Mallian				
July	3,659.956	217.000	3,442.956	763.646	12,846.620	3,787.252	17.215	137.456
August	3,491.342	186.000	3,305.342	943.345	18,713.897	4,872.074	16.527	169.802
September	3,173.894	308.000	2,865.894	817.926	18,713.897	4,224.328	14.329	147.227
October	3,026.938	55.000	2,971.938	848.191	18,713.897	4,380.637	14.860	152.674
November	1,741.556	519.000	1,222.556	348.917	18,713.897	1,802.048	6.113	62.805
December	1,619.080	1,600.000	19.080	5.445	18,713.897	28.124	95	980
January	1,644.954	1,674.000	(29.046)	(8.290)	18,713.897	(42.814)	(145)	(1.492)
February	1,587.908	536.000	1,051.908	300.215	18,713.897	1,550.512	5.260	54.039
March	2,370.212	236.000	2,134.212	609.104	18,713.897	3,145.828	10.671	109.639
April	2,494.542	103.000	2,391.542	682.546	18,713.897	3,525.133	11.958	122.858
May	2,590.688	89.000	2,501.688	713.982	18,713.897	3,687.488	12.508	128.517
June	3,284.466	116.000	3,168.466	904.280	18,713.897	4,670.319	15.842	162.770
Total	**30,685,536**	**5,639,000**	**25,046,536**	**6,929,308**	**218,699,488**	**35,630,929**	**125,233**	**1,247,275**
				13.8 MW Nandipur				
July	4,272.640	-	4,272.640	721.619	13,619.889	4,699.904	21.363	129.891
August	4,565.557	-	4,565.557	1,401.626	22,422.591	6,729.631	22.828	252.293
September	3,988.501	1.000	3,987.501	1,224.163	22,422.591	5,877.576	19.938	220.349
October	3,333.810	-	3,333.810	1,023.480	22,422.591	4,914.036	16.669	184.226
November	1,530.945	10.000	1,520.945	466.930	22,422.591	2,241.873	7.605	84.047
December	179.027	46.000	133.027	40.839	22,422.591	196.082	665	7.351
January	117.885	51.000	66.885	20.534	22,422.591	98.588	334	3.696
February	1,034.045	19.000	1,015.045	311.619	22,422.591	1,496.176	5.075	56.091
March	1,974.244	8.000	1,966.244	603.637	22,422.591	2,898.244	9.831	108.655
April	2,815.906	-	2,815.906	864.483	22,422.591	4,150.645	14.080	155.607
May	4,072.411	2.000	4,070.411	1,249.616	22,422.591	5,999.786	20.352	224.931
June	4,398.357	-	4,398.357	1,350.296	22,422.591	6,483.178	21.992	243.053
Total	**32,283,328**	**137,000**	**32,146,328**	**9,278,841**	**260,268,395**	**45,785,720**	**160,732**	**1,670,191**
				4 MW Kurram Garhi				
July	3,726.416	2,147.300	1,579.116	498.866	8,796.367	1,737.028	7.896	89.796
August	3,672.655	1,939.800	1,732.855	933.662	13,365.211	2,682.460	8.664	168.059
September	3,551.840	1,897.300	1,654.540	891.466	13,365.211	2,561.228	8.273	160.464
October	3,651.295	1,909.400	1,741.895	938.533	13,365.211	2,696.453	8.709	168.936
November	3,793.481	2,239.300	1,554.181	837.393	13,365.211	2,405.872	7.771	150.731
December	4,521.413	2,902.300	1,619.113	872.378	13,365.211	2,506.387	8.096	157.028
January	4,743.364	3,934.500	808.864	435.816	13,365.211	1,252.121	4.044	78.447
February	3,835.917	2,931.300	904.617	487.408	13,365.211	1,400.347	4.523	87.733
March	3,653.971	2,533.700	1,120.271	603.602	13,365.211	1,734.180	5.601	108.648
April	3,330.811	2,362.800	968.011	521.564	13,365.211	1,498.481	4.840	93.882
May	3,594.618	2,517.300	1,077.318	580.459	13,365.211	1,667.688	5.387	104.483
June	3,849.047	3,410.400	438.647	236.343	13,365.211	679.026	2.193	42.542
Total	**45,924,828**	**30,725,400**	**15,199,428**	**7,837,490**	**155,813,693**	**22,821,271**	**75,997**	**1,410,748**
				1.1 MW Renala Khurd				
July	166.011	-	166.011	113.051	2,715.247	182.612	830	20.349
August	199.396	-	199.396	331.695	5,632.486	293.910	997	59.705

Month	Export (GWh)	Import (GWh)	NEO (GWh)	Variable Energy Charges (Mln. Rs.)	Capacity Charges (Mln. Rs.)	Water Use/NHP Charges Verified by WAPDA (Rs.)	IRSA Charge Amount (Mln. Rs.)	GST @ 17% (NEOxRatexGST Rate) (Mln. Rs.)
September	180,819	-	180,819	300,792	5,632,486	266,527	904	54,143
October	175,673	-	175,673	292,232	5,632,486	258,942	878	52,602
November	115,263	-	115,263	191,740	5,632,486	169,898	576	34,513
December	95,950	2,810	93,140	154,938	5,632,486	137,288	466	27,889
January	15,274	29,700	(14,426)	(23,998)	5,632,486	(21,264)	(72)	(4,320)
February	109,509	-	109,509	182,168	5,632,486	161,416	548	32,790
March	150,853	-	150,853	250,944	5,632,486	222,357	754	45,170
April	207,956	-	207,956	345,935	5,632,486	306,527	1,040	62,268
May	183,414	-	183,414	305,109	5,632,486	270,352	917	54,920
June	201,466	-	201,466	335,139	5,632,486	296,961	1,007	60,325
Total	**1,801,584**	**32,510**	**1,769,074**	**2,779,746**	**64,672,596**	**2,545,527**	**8,845**	**500,354**
				1 MW Chitral				
July	82,718	-	82,718	44,713	3,007,256	90,990	414	8,048
August	217,308	-	217,308	283,131	6,516,904	336,393	1,087	50,964
September	172,794	-	172,794	225,133	6,516,904	267,485	864	40,524
October	138,640	-	138,640	180,634	6,516,904	214,615	693	32,514
November	161,089	-	161,089	209,883	6,516,904	249,366	805	37,779
December	196,921	-	196,921	256,568	6,516,904	304,834	985	46,182
January	197,885	-	197,885	257,824	6,516,904	306,326	989	46,408
February	179,345	-	179,345	233,669	6,516,904	277,626	897	42,060
March	197,484	-	197,484	257,302	6,516,904	305,705	987	46,314
April	149,871	-	149,871	195,267	6,516,904	232,000	749	35,148
May	203,863	-	203,863	265,613	6,516,904	315,580	1,019	47,810
June	237,793	-	237,793	309,820	6,516,904	368,104	1,189	55,768
Total	**2,135,711**	**-**	**2,135,711**	**2,719,557**	**74,693,205**	**3,269,023**	**10,679**	**489,520**
				17.40 MW Gomal Zam				
July	1,118,000	34,800	1,083,200	681,088	60,124,177	1,191,520	5,416	122,596
August	171,800	66,800	105,000	129,801	86,449,831	162,540	525	23,364
September	1,854,500	36,000	1,818,500	2,248,030	86,449,831	2,815,038	9,093	404,645
October	4,428,800	1,800	4,427,000	5,472,657	86,449,831	6,852,996	22,135	985,078
November	4,309,000	2,400	4,306,600	5,323,819	86,449,831	6,666,617	21,533	958,287
December	2,884,900	24,500	2,860,400	3,536,026	86,449,831	4,427,899	14,302	636,485
January	-	39,200	(39,200)	(48,459)	86,449,831	(60,682)	(196)	(8,723)
February	275,200	55,700	219,500	271,346	86,449,831	339,786	1,098	48,842
March	-	42,100	(42,100)	(52,044)	86,449,831	(65,171)	(211)	(9,368)
April	177,100	45,500	131,600	162,684	86,449,831	203,717	658	29,283
May	2,030,900	21,900	2,009,000	2,483,526	86,449,831	3,109,932	10,045	447,035
June	1,860,700	23,200	1,837,500	2,271,518	86,449,831	2,844,450	9,188	408,873
Total	**19,110,900**	**393,900**	**18,717,000**	**22,479,992**	**1,011,072,323**	**28,488,642**	**93,585**	**4,046,399**
				27 MW Jabban				
July	13,917,900	-	13,917,900	3,829,701	63,231,712	15,309,690	69,590	689,346
August	13,316,290	480	13,315,810	3,673,832	62,562,704	20,612,874	66,579	661,290
September	13,283,360	450	13,282,910	3,664,755	62,562,704	20,561,945	66,415	659,656
October	13,023,560	40	13,023,520	3,593,189	62,562,704	20,160,409	65,118	646,774
November	10,676,740	-	10,676,740	2,945,713	62,562,704	16,527,594	53,384	530,228
December	7,197,190	-	7,197,190	1,985,705	62,562,704	11,141,250	35,986	357,427
January	10,159,640	-	10,159,640	2,803,045	62,562,704	15,727,123	50,798	504,548
February	6,863,810	-	6,863,810	1,893,725	62,562,704	10,625,178	34,319	340,871
March	10,076,020	-	10,076,020	2,779,974	62,562,704	15,597,679	50,380	500,395
April	12,923,060	-	12,923,060	3,565,472	62,562,704	20,004,897	64,615	641,785
May	13,840,490	280	13,840,210	3,818,514	62,562,704	21,424,645	69,201	687,333
June	12,709,890	6,380	12,703,510	3,504,898	62,562,704	19,665,033	63,518	630,882
Total	**137,987,950**	**7,630**	**137,980,320**	**38,058,523**	**751,421,455**	**207,358,316**	**689,902**	**6,850,534**
Grand Total	**43,921,942,892**	**9,473,687,472**	**33,518,595,450**	**3,148,466,279**	**92,649,435,637**	**47,181,788,103**	**167,592,977**	**566,723,930**

Source: WAPDA

TABLE 17
Thermal Electricity Generation by Sector and by Fuel (GWh) (Net)

			2020-21	2021-22	2022-23	2023-24	2024-25
Thermal Generation by:							
GENCOs (I, II, III and IV)			6,802.93	6,349.56	5,957.03	3,489.59	3,673.70
KE Own Power Plants			10,185.60	7,889.96	7,093.09	7,471.32	6,432.62
IPPs: CPPA-G System			68,708.63	76,280.90	56,208.19	54,463.99	54,906.74
IPPs: KE System			2,184.57	2,130.46	1,606.80	1,156.19	599.99
Others (SPPs/CPPs/N-CPPs): CPPA-G System			216.80	136.31	150.02	314.19	264.48
Others (SPPs/CPPs/N-CPPs): KE System			578.90	482.94	406.90	348.33	293.40
Total Thermal Generation			**88,677.43**	**93,270.13**	**71,422.04**	**67,243.62**	**66,170.92**
Thermal Generation using:							
Gas	CPPA-G System [1]	Generation on Gas (GWh)	14,496.44	14,527.43	14,559.06	11,661.53	11,454.27
		Share of Gas Generation (%)	16.35	15.58	20.38	17.34	17.31
	KE System [2]	Generation on Gas (GWh)	3,420.59	1,353.51	931.70	762.89	1,043.64
		Share of Gas Generation (%)	3.86	1.45	1.30	1.13	1.58
	Total	**Generation on Gas (GWh)**	**17,917.03**	**15,880.94**	**15,490.76**	**12,424.42**	**12,497.91**
		Share of Gas Generation (%)	**20.20**	**17.03**	**21.69**	**18.48**	**18.89**
RLNG	CPPA-G System	Generation on RLNG (GWh)	26,983.52	27,156.62	21,532.51	23,845.10	22,259.01
		Share of RLNG Generation (%)	30.43	29.12	30.15	35.46	33.64
	KE System	Generation on RLNG (GWh)	4,777.93	4,449.66	4,968.91	6,966.61	5,710.93
		Share of RLNG Generation (%)	5.39	4.77	6.96	10.36	8.63
	Total	**Generation on RLNG (GWh)**	**31,761.45**	**31,606.28**	**26,501.42**	**30,811.71**	**27,969.94**
		Share of RLNG Generation (%)	**35.82**	**33.89**	**37.11**	**45.82**	**42.27**
RFO	CPPA-G System	Generation on RFO (GWh)	6,331.07	13,276.18	5,033.96	2,441.40	518.95
		Share of RFO Generation (%)	7.14	14.23	7.05	3.63	0.78
	KE System [3]	Generation on RFO (GWh)	4,264.85	4,024.28	2,831.61	897.00	287.45
		Share of RFO Generation (%)	4.81	4.31	3.96	1.33	0.43
	Total	**Generation on RFO (GWh)**	**10,595.92**	**17,300.46**	**7,865.57**	**3,338.40**	**806.40**
		Share of RFO Generation (%)	**11.95**	**18.55**	**11.01**	**4.96**	**1.22**
HSD	CPPA-G System	Generation on HSD (GWh)	369.25	1,153.02	216.27	101.67	0.00
		Share of HSD Generation (%)	0.42	1.24	0.30	0.15	0.00
	KE System	Generation on HSD (GWh)	33.00	269.22	28.29	24.89	5.00
		Share of HSD Generation (%)	0.04	0.29	0.04	0.04	0.01
	Total	**Generation on HSD (GWh)**	**402.25**	**1,422.24**	**244.56**	**126.56**	**5.00**
		Share of HSD Generation (%)	**0.45**	**1.52**	**0.34**	**0.19**	**0.01**
Coal	CPPA-G System	Generation on Coal (GWh)	27,547.78	26,653.52	20,973.90	20,217.91	24,612.60
		Share of Coal Generation (%)	31.07	28.58	29.37	30.07	37.20
	KE System	Generation on Coal (GWh)	453.00	406.69	346.26	324.54	278.99
		Share of Coal Generation (%)	1.62	1.50	1.62	1.58	1.12
	Total	**Generation on Coal (GWh)**	**28,000.78**	**27,060.21**	**21,320.16**	**20,542.45**	**24,891.59**
		Share of Coal Generation (%)	**31.58**	**29.01**	**29.85**	**30.55**	**37.62**
Total Thermal Generation			**88,677.43**	**93,270.13**	**71,422.47**	**67,243.54**	**66,170.84**

[1] Including generation of SPPs/CPPs/N-CPPs in CPPA-G System. [2] Including generation of IPPs in KE system. [3] Including generation of IPPs/CPPs in KE System.
Source: GENCOs/IPPs/KE

TABLE 18
Fuel Consumption and Cost of Generation Data of GENCOs (Net)

Year	Gen. on Gas (GWh)	Gas Consumption		Gen. on RFO (GWh)	RFO Consumption		Cost of Generation (Paisa/kWh)	Overall Fuel Cost of Generation (Rs. Million)
		Total (MMCFT)	Cft/kWh (Average)		(000 M.Ton)	(Kg/kWh)		
TPS Jamshoro (GENCO-I)								
2020-21	0.00	0.00	0.00	199.55	64.94	0.33	1,952.40	3,895.94
2021-22	0.00	0.00	0.00	245.53	78.42	0.31	3,345.94	8,360.02
2022-23	0.00	0.00	0.00	25.40	8.75	0.34	5,462.88	1,387.79
TPS Muzaffargarh (GENCO-III)								
2020-21	(7.62)	0.00	0.00	289.84	82.75	0.26	1,918.63	6,012.81
2021-22	0.00	0.00	0.00	220.43	61.31	0.27	3,256.00	6,711.39
2022-23	0.00	0.00	0.00	50.91	14.86	0.29	5,001.00	2,471.62
2023-24	0.00	0.00	0.00	15.23	5.10	0.29	5,998.58	848.23

Power Station	Year	Gen. on Gas (GWh)	Gas Consumption		Cost of Generation (Paisa/kWh)	Overall Fuel Cost of Generation (Rs. Million)
			Total (MMCFT)	Cft/kWh (Average)		
TPS Guddu (Units 5-10) (GENCO-II)	2020-21	1,477.11	23,253.11	15.74	991.80	14,650.08
	2021-22	1,385.84	21,394.19	15.44	1,023.71	14,185.59
	2022-23	1,948.96	27,164.96	13.94	1,118.55	21,800.07
	2023-24	341.73	5,954.82	17.43	1,331.00	4,548.43
TPS Guddu (Units 11-13) (GENCO-II)	2020-21	223.96	4,673.71	20.87	1,160.08	2,598.15
	2021-22	148.16	2,411.30	16.26	1,129.09	1,674.39
	2022-23	19.42	307.63	0.02	1,153.85	224.08
TPS Guddu (Units 14-16) 747 MW (GENCO-II)	2020-21	3,123.82	30,291.33	9.70	695.86	21,737.45
	2021-22	2,609.95	25,472.57	9.76	687.11	17,933.18
	2022-23	2,635.92	36,421.06	13.82	1,036.59	27,323.74
	2023-24	2,209.13	30,528.93	13.82	1,185.69	26,193.39
	2024-25	2,355.88	32,377.65	13.75	1,177.64	27,734.00

Power Station	Year	Gen. on RLNG (GWh)	RLNG Consumption		Cost of Generation (Paisa/kWh)	Overall Fuel Cost of Generation (Rs. Million)
			Total (MMCFT)	Cft/kWh (Average)		
GTPS Faisalabad (GENCO-III)	2020-21	14.26	197.48	12.66	2,067.37	321.76
	2021-22	98.83	197.48	12.66	3,503.00	2,879.76
	2022-23	Plant de-licensed.				
TPS Nandipur (GENCO-III)	2020-21	1,481.98	0.00	0.00	9,620.00	14,813.81
	2021-22	1,640.82	13,383.40	8.12	2,039.00	33,615.00
	2022-23	1,276.42	10,809.07	8.21	2,797.00	36,842.00
	2023-24	923.50	7,979.41	8.28	4,638.00	27,240.00
	2024-25	949.54	8,140.66	8.26	3,505.00	

Power Station	Year	Gen. on Coal (GWh)	Coal/RFO Consumption		Cost of Generation (Paisa/kWh)	Overall Fuel Cost of Generation (Rs. Million)
			Total (M. Tons)	(Kg/kWh)		
*660 MW Coal Fired Power Plant Jamshoro	2024-25	368.28	158,031.00	0.43	1,800.34	6,795.33

** The data represents unit testing period only. COD of unit has been achieved on 01-05-2025.*

Source: GENCOs

TABLE 19

Auxiliary Consumption and other Factors of GENCOs

Power Station	Year	Auxiliary Consumption		Maximum Load (MW)	Load Factor (%)	Capacity Factor (%)	Utilization Factor (%)	Availability Factor (%)
		(GWh)	(%)					
TPS Jamshoro (GENCO-I)	2020-21	24.17	10.28	290	66.01	40.85	0.88	95.83
	2021-22	23.29	8.35	355	84.87	50.00	4.40	90.25
	2022-23	4.35	14.31	125	100.00	62.50	2.70	91.78
	2023-24	0.00	0.00	0	0.00	0.00	0.00	77.78
	2024-25	0.00	0.00	0	0.00	0.00	0.00	45.90
660 MW Coal Fired Power Plant Jamshoro (GENCO-I)	2024-25	24.93	6.31	660	7.83	7.83	7.83	100.00
TPS Guddu (Units 5-10) (GENCO-II)	2020-21	19.20	0.60	440	38.82	28.47	31.06	66.82
	2021-22	27.61	0.12	393	41.05	26.89	28.76	78.95
	2022-23	30.38	0.80	390	57.94	37.66	41.08	93.11
	2023-24	3.74	0.67	235	16.74	6.55	7.15	n.p.
TPS Guddu (Units 11-13) (GENCO-II)	2020-21	2.45	0.34	160	16.15	6.23	6.46	21.42
	2021-22	0.88	0.59	95	17.93	6.55	6.55	28.22
	2022-23	0.18	0.61	95	2.35	0.54	0.56	2.54

Power Station	Year	Auxiliary Consumption		Maximum Load (MW)	Load Factor (%)	Capacity Factor (%)	Utilization Factor (%)	Availability Factor (%)
		(GWh)	(%)					
TPS Guddu (Units 14-16) (GENCO-II)	2020-21	77.98	1.70	748	47.67	48.93	48.93	69.92
	2021-22	76.72	2.03	600	51.12	41.06	42.55	57.07
	2022-23	23.09	7.00	690	43.61	40.63	40.63	50.64
	2023-24	21.76	0.73	486	52.27	34.34	34.34	n.p.
	2024-25	23.19	0.72	486	55.71	36.60	36.60	n.p.
TPS Muzaffargarh (GENCO-III)	2020-21	37.08	0.43	700	5.11	51.85	3.02	77.48
	2021-22	15.27	6.63	340	8.25	4.45	4.45	81.86
	2022-23	3.47	6.81	170	3.65	3.38	3.38	59.26
	2023-24	1.25	7.22	170	1.18	1.15	1.15	63.76
GTPS Faisalabad (GENCO-III)	2020-21	6.17	39.54	80	2.23	55.56	1.62	96.25
	2021-22	10.74	10.01	85	14.42	59.03	8.51	91.00
	2022-23	Plant de-licensed.						
TPS Nandipur (GENCO-III)	2020-21	57.51	2.87	541	32.48	31.10	33.73	95.03
	2021-22	50.53	3.07	541	35.84	34.31	37.21	90.81
	2022-23	50.55	3.96	557	26.99	26.61	28.86	94.85
	2023-24	31.23	3.24	506	21.73	19.46	21.11	93.17
	2024-25	28.46	2.89	551	20.42	19.89	21.62	98.30

Source: GENCOs

TABLE 20
Heat Rate and Plant Efficiency Data of GENCOs

Power Station	Year	Heat Rate (Btu/kWh)		Plant Efficiency (%)	
		On Gross Generation	On Net Export to NGC	On Gross Generation	On Net Export to NGC
TPS Jamshoro (GENCO-I)	2020-21	11,186.50	12,468.66	30.51	27.37
	2021-22	11,380.83	12,706.56	29.98	26.86
	2022-23	11,670.06	13,946.19	29.24	24.47
660 MW Coal Fired Power Plant Jamshoro (GENCO-I)	2024-25	8,961.66	9,565.36	38.08	35.68
TPS Guddu (Units 5-10) (GENCO-II)	2020-21	10,526.00	10,663.00	32.42	32.01
	2021-22	9,687.00	9,880.00	35.23	34.54
	2022-23	9,200.00	9,343.00	37.09	36.52
	2023-24	9,374.00	9,477.00	36.40	36.00
TPS Guddu (Units 11-13) (GENCO-II)	2020-21	15,165.00	15,331.00	22.51	22.26
	2021-22	12,176.00	12,248.00	28.03	27.87
	2022-23	9,341.00	9,426.00	36.53	36.20
TPS Guddu (Units 14-16) (GENCO-II)	2020-21	5,994.00	6,144.00	56.94	55.55
	2021-22	6,091.00	9,270.00	56.03	54.43
	2022-23	6,279.00	6,334.00	54.34	53.87
	2023-24	9,374.00	9,470.00	36.39	36.03
	2024-25	9,422.00	9,515.00	36.21	35.86
TPS Muzaffargarh (GENCO-III)	2020-21	10,181.59	10,496.14	33.52	32.51
	2021-22	9,618.10	10,255.31	35.49	31.45
	2022-23	10,597.33	11,321.69	32.22	30.16
	2023-24	10,558.08	11,319.09	32.33	30.15
GTPS Faisalabad (GENCO-III)	2020-21	12,755.00	14,105.00	26.76	21.01
	2021-22	12,754.00	14,285.00	26.76	23.89
	2022-23	Plant de-licensed.			
TPS Nandipur (GENCO-III)	2020-21	7,060.00	7,334.00	48.34	46.53
	2021-22	6,831.00	7,037.00	48.50	49.96
	2022-23	6,609.00	6,848.00	51.63	49.83
	2023-24	6,636.00	6,858.00	51.43	49.76
	2024-25	6,754.00	6,955.00	50.52	49.06

Source: GENCOs

TABLE 21
Fuel Consumption and Cost of Generation Data of IPPs (Net)
(Residual Furnace Oil based Power Plant)

Power Station	Year	Units Generated (GWh) (Net)	Quantity of RFO used (000 M. Tons)	Cost of Fuel (Rs. in Million)	Average Fuel Cost (Rs./kWh)	Overall Generation Cost (Rs./kWh)
Lal Pir Power	2020-21	620.78	151.87	n.p.	14.53	n.p.
	2021-22	1,022.68	244.37	28,504.67	27.87	n.p.
	2022-23	397.59	95.67	15,291.86	38.46	56.41
	2023-24	358.99	86.41	13,264.88	36.95	n.p.
	2024-25	PPA has been terminated with Lalpir Power Limited and CPPA-G with effect from 1st October, 2024.				
Pak Gen. Power	2020-21	445.54	109.16	n.p.	15.05	n.p.
	2021-22	1,304.35	312.92	35,926.41	27.54	n.p.
	2022-23	443.74	107.96	16,788.38	37.83	53.94
	2023-24	211.00	51.12	8,202.19	38.87	n.p.
	2024-25	PPA has been terminated with Pakgen Power Limited and CPPA-G with effect from 31st January, 2025.				
Hub Power	2020-21	112.91	47.59	n.p.	17.32	19.50
	2021-22	1,219.58	303.62	29,837.88	24.28	26.71
	2022-23	204.78	50.73	8,276.07	40.41	43.13
	2023-24	0.00	0.00	0.00	0.00	0.00
	2024-25	PPA has been terminated with HUB Power Company Limited and CPPA-G with effect from 1st October, 2024.				
Saba Power	2020-21	121.65	33.15	n.p.	17.89	28.12
	2021-22	329.95	88.24	10,329.68	31.33	35.94
	2022-23	149.00	40.24	5,826.97	39.11	52.16
	2023-24	54.18	15.37	2,607.31	48.12	86.10
	2024-25	PPA has been terminated with Saba Power Company Limited and CPPA-G with effect from 1st October, 2024.				
Kohinoor Energy	2020-21	337.07	64.82	n.p.	11.99	16.00
	2021-22	515.84	99.68	11,515.57	22.33	25.27
	2022-23	329.16	63.55	9,139.91	27.77	33.46
	2023-24	207.62	39.71	6,445.68	31.05	42.72
	2024-25	76.16	14.74	2,140.70	28.11	47.19
Attock Gen.	2020-21	384.03	71.94	n.p.	11.56	20.75
	2021-22	721.93	131.11	16,154.65	21.62	33.18
	2022-23	483.59	91.63	11,600.69	23.42	29.47
	2023-24	206.47	38.95	5,923.53	29.47	59.80
	2024-25	92.42	17.84	2,469.24	26.41	62.36
Atlas Power	2020-21	517.08	102.33	n.p.	n.p.	n.p.
	2021-22	1,007.25	199.22	22,527.00	22.36	24.70
	2022-23	521.94	103.57	15,038.00	28.81	34.43
	2023-24	252.87	49.61	8,139.00	32.44	45.43
	2024-25	PPA has been terminated with Atlas Power Limited and CPPA-G with effect from 1st October, 2024.				
Nishat Power	2020-21	523.40	102.96	n.p.	12.50	12.50
	2021-22	794.25	156.23	18,127.06	22.82	22.82
	2022-23	537.90	105.81	16,062.55	29.86	29.86
	2023-24	453.69	89.24	14,733.87	32.48	32.48
	2024-25	86.66	17.05	2,561.23	29.55	29.55
Nishat Chunian	2020-21	537.57	105.74	n.p.	12.11	16.27
	2021-22	882.46	173.58	19,970.00	22.33	26.15
	2022-23	386.13	75.95	11,392.00	29.87	37.20
	2023-24	240.45	46.71	7,992.10	33.24	33.24
	2024-25	57.21	11.42	17,301.00	30.24	30.24
Liberty Power Tech.	2020-21	606.66	116.07	n.p.	n.p.	n.p.
	2021-22	925.44	178.17	21,073.84	23.12	28.27
	2022-23	556.15	105.12	15,346.24	29.00	37.02
	2023-24	239.94	46.30	169,819.00	33.09	36.15
	2024-25	77.84	15.33	n.p.	n.p.	
Narowal Energy	2020-21	496.06	98.00	n.p.	12.35	16.83
	2021-22	867.49	170.42	19,985.40	22.71	26.35
	2022-23	469.88	96.22	14,471.82	29.01	31.12
	2023-24	200.96	39.54	7,057.38	37.30	40.19
	2024-25	37.93	7.70	1,231.17	34.16	36.13

Power Station	Year	Units Generated (GWh) (Net)	Quantity of Gas used (MMBTU)	Cost of Fuel (Rs. in Million)	Average Fuel Cost (Rs./kWh)	Overall Generation Cost (Rs./kWh)
Liberty Daharki Power	2020-21	983.33	8,498,852	n.p.	9.00	12.00
	2021-22	1,054.06	8,815,307	11,632.00	11.04	13.19
	2022-23	1,001.19	8,430,136	22,024.00	22.00	26.19
	2023-24	903.87	7,693,127	22,717.00	25.13	31.65
	2024-25	817.72	6,735,784	18,934.81	23.16	27.27
Engro Powergen Qadirpur	2020-21	648.50	6,169,067	n.p.	7.15	8.57
	2021-22	791.03	6,634,350	6,694.00	7.90	9.10
	2022-23	935.42	8,264,005	8,352.00	7.93	9.64
	2023-24	813.48	7,356,031	7,728.00	9.52	10.03
	2024-25	774.31	7,006,028	7,362.00	9.52	10.13
Foundation Power	2020-21	1,000.37	8,258,762	n.p.	n.p.	n.p.
	2021-22	1,272.89	10,020,395	n.p.	6.76	8.47
	2022-23	1,190.38	9,610,632	9,546.90	8.02	10.38
	2023-24	1,087.56	9,087,394	9,848.95	9.05	11.59
	2024-25	1,122.64	9,261,513	9,724.57	8.66	10.86
Uch Power	2020-21	4,088.44	31,503,489	27,776.00	n.p.	n.p.
	2021-22	4,300.52	32,978,917	34,986.03	7.32	8.25
	2022-23	3,901.33	30,144,743	39,909.61	8.34	9.42
	2023-24	3,965.85	31,085,313	43,596.74	9.11	10.33
	2024-25	3,885.78	30,697,693	48,972.08	10.23	11.40
Uch-II Power	2020-21	2,339.37	17,715,815	22,505.00	n.p.	n.p.
	2021-22	2,828.67	21,106,347	19,306.31	6.06	7.97
	2022-23	2,776.43	20,673,942	25,436.11	8.00	10.41
	2023-24	2,025.72	15,128,943	28,666.36	8.86	11.55
	2024-25	2,233.47	16,910,239	28,658.65	8.88	11.13

(RLNG based Power Plant)

Power Station	Year	Units Generated (GWh) (Net)	Quantity of RLNG used (MMBTU)	Cost of Fuel (Rs. in Million)	Average Fuel Cost (Rs./kWh)	Overall Generation Cost (Rs./kWh)
Fauji Kabirwala	2020-21	389.96	3,518,311	n.p.	9.35	12.24
	2021-22	357.21	3,183,962	8,690.00	24.33	26.60
	2022-23	66.33	586,352	2,135.29	32.19	42.71
	2023-24	92.01	822,360	2,919.00	31.72	42.11
	2024-25	68.96	643,315	2,188.00	31.73	43.14
Rousch Power	2020-21	284.36	2,403,898	n.p.	12.25	23.61
	2021-22	495.78	4,249,152	12,525.50	25.26	31.81
	2022-23	179.04	1,586,681	5,543.26	30.96	51.57
	2023-24	9.71	79,734	285.80	29.45	36.06
	2024-25	PPA has been terminated with Rousch (Pakistan) Power Limited and CPPA-G with effect from 13th November, 2024.				
Punjab Thermal Power	2021-22	77.56	782,592	3,077.00	0.00	0.00
	2022-23	152.62	1,003,965	3,395.00	22.24	22.55
	2023-24	3,197.29	20,834,853	72,615.19	22.92	34.32
	2024-25	1,757.27	12,307,970	41,868.90	23.83	35.26

(Coal based Power Plant)

Power Station	Year	Units Generated (GWh) (Net)	Quantity of Coal used (000 M. Tons)	Cost of Fuel (Rs. in Million)	Average Fuel Cost (Rs./kWh)	Overall Generation Cost (Rs./kWh)
(Imported Coal)						
Huaneng Shandong Ruyi (Sahiwal Imported Coal)	2020-21	7,342.70	2,750.14		7.87	n.p.
	2021-22	6,881.38	1,443.97		20.16	26.15
	2022-23	2,876.85	1,180.00		27.25	34.19
	2023-24	2,075.55	774.00	43,132.41	21.12	27.32
	2024-25	4,255.19	1,560.00	74,375.60	18.42	27.19
Port Qasim Electric Power	2020-21	8,372.34	3,618.00		5.39	13.14
	2021-22	7,478.64	3,318.74		13.09	25.12
	2022-23	3,203.00	1,751.77	154,459.66	16.70	48.22
	2023-24	782.26	368.09	157,986.68	16.00	27.41
	2024-25	2,751.20	1,204.60	42,858.22	15.19	25.48
China Power Hub	2020-21	7,923.41	3,129.71		5.48	n.p.
	2021-22	6,764.89	2,619.61		12.26	12.79
	2022-23	1,546.82	620.28	43,027.72	29.55	37.74
	2023-24	476.55	131.77	9,536.82	21.63	34.83
	2024-25	671.65	313.68	10,487.97	15.39	27.76
Lucky Electric Power	2021-22	1,774.10	1,428.92		16.27	16.49
	2022-23	3,316.14	2,787.12	53,441.96	14.11	14.43
	2023-24	1,688.68	1,366.00	24,823.04	13.87	14.25
	2024-25	1,018.68	800.35	15,174.64	14.34	15.04
(Local Coal)						
Engro Powergen Thar	2020-21	3,909.30	3,612.93		5.94	11.89
	2021-22	3,676.95	3,347.68		2.50	3.59
	2022-23	3,646.06	3,270.64		3.33	4.52
	2023-24	3,766.20	3,429.20	53,164.82	12.56	13.85
	2024-25	3,852.90	3,471.04	48,031.52	12.77	14.21
Thar Coal Block-I Power	2022-23	4,255.92	2,795.45	51,109.78	16.29	17.49
	2023-24	7,500.33	6,372.81	114,160.78	15.22	16.41
	2024-25	8,315.01	6,851.22	117,080.84	14.08	15.29
Thar Energy	2022-23	1,205.57	921.03	16,575.00	13.38	21.34
	2023-24	1,948.50	1,702.98	24,647.00	12.65	28.26
	2024-25	1,601.32	1,397.04	23,547.00	10.67	24.03
ThalNova Power	2022-23	923.54	682.75	10,862.00	11.50	27.53
	2023-24	1,979.84	1,733.37	25,030.00	12.64	27.42
	2024-25	1,778.36	1,554.77	27,859.00	10.67	24.07

Power Station	Year	RLNG			HSD			Average Fuel Cost (Rs./kWh)	Overall Generation Cost (Rs./kWh)
		Units Generated (GWh)	Quantity of RLNG used (MMBTU)	Cost of Fuel (Rs. in Million)	Units Generated (GWh) (Net)	Quantity of HSD used (000 Liters)	Cost of Fuel (Rs. in Million)		
Sapphire Electric	2020-21	437.99	3,544,896	4,727.40	130.05	28,700	2,573.97	12.85	14.71
	2021-22	700.18	5,568,946	15,644.76	80.32	17,477	1,327.77	21.75	23.35
	2022-23	452.52	3,758,333	13,145.05	0.00	0	0.00	29.05	32.73
	2023-24	479.36	3,887,675	13,649.93	0.00	0	0.00	28.48	35.77
	2024-25	268.93	2,232,639	7,714.18	0.00	0	0.00	28.68	38.05
Halmore Power	2020-21	471.67	3,816,584	4,717.45	38.12	11,088	941.84	10.89	13.52
	2021-22	627.95	4,986,056	14,539.00	47.98	10,385	1,062.00	23.08	25.81
	2022-23	287.05	2,380,956	8,116.00	0.00	0	0.00	28.27	34.93
	2023-24	207.55	1,745,118	5,968.00	0.00	0	0.00	28.75	39.19
	2024-25	364.55	3,024,543	10,451.00	0.00	0	0.00	28.67	35.15
Saif Power	2020-21	605.62	4,757,884	5,969.31	33.79	7,167	637.88	10.52	15.2385
	2021-22	652.41	5,105,963	14,649.56	82.58	17,951	2,061.73	23.58	28.13
	2022-23	538.22	4,275,013	15,190.85	0.00	0	0.00	28.44	35.42
	2023-24	220.59	1,835,685	6,388.89	0.00	0	0.00	28.84	47.28
	2024-25	234.41	1,916,880	6,577.99	0.00	0	0.00	28.29	36.49
Orient Power	2020-21	540.74	4,334,139	1,618.00	57.18	18,413	5,670.00	11.69	14.58
	2021-22	774.29	6,167,599	17,318.00	62.09	13,634	1,432.00	22.42	28.45
	2022-23	604.79	4,978,592	17,204.00	0.00	0	0.00	28.45	33.08
	2023-24	541.20	4,361,469	15,317.00	0.00	0	0.00	28.31	33.12
	2024-25	459.13	3,756,498	12,887.00	0.00	0	0.00	28.07	34.41
QATPL (Bhikki)	2020-21	7,118.80	45,974,433		0.82	2,019		7.79	8.36
	2021-22	5,680.52	37,289,685	102,320.00	410.41	82,602	9,123.00	15.87	18.53
	2022-23	4,637.23	30,817,773	104,659.02	60.32	11,960	1,649.96	21.08	28.42
	2023-24	3,564.79	23,392,754	80,679.16	95.36	18,666	4129.49	22.04	30.69
	2024-25	6,098.15	40,256,706	161,021.04	0.00	0	0.00	21.02	29.02
NPPMCL (HBS)	2020-21	7,682.35	48,283,250	61,167.00	0.12	113	8.00	7.96	8.13
	2021-22	7,367.77	46,730,135	123,819.00	120.79	23,431	2,025.00	16.80	17.02
	2022-23	6,437.19	40,888,370	137,239.00	83.36	16,342	2,228.00	20.35	20.67
	2023-24	7,930.78	50,545,992	176,145.51	0.00	0	0.00	22.21	22.61
	2024-25	6,515.65	41,536,438	141,330.16	0.00	0	0.00	21.69	22.10
NPPMCL (Balloki)	2020-21	6,032.81	38,407,023	46,834.00	51.45	9,945	768.00	7.92	8.11
	2021-22	6,896.86	44,274,716	118,610.00	289.85	57,818	6,702.00	17.44	17.68
	2022-23	6,791.06	44,024,060	148,957.00	72.59	13,642	1,897.00	20.51	20.86
	2023-24	6,678.32	43,432,342	151,103.00	6.31	1,212	176.00	22.63	23.07
	2024-25	5,479.91	35,554,291	119,831.56	0.00	0	0.00	21.87	22.32

Power Station	Year	RLNG			RFO			HSD			Average Fuel Cost (Rs./kWh)	Overall Generation Cost (Rs./kWh)
		Units Generated (GWh) (Net)	Quantity of RLNG used (MMBTU)	Cost of Fuel (Rs. in Million)	Units Generated (GWh) (Net)	Quantity of RFO used (000 M.Tons)	Cost of Fuel (Rs. in Million)	Units Generated (GWh) (Net)	Quantity of HSD used (000 Liters)	Cost of Fuel (Rs. in Million)		
KAPCO	2020-21	2,313.21	20,013,290	23,701.00	1,138.92	223.25	n.p.	110.11	29,553.45	2,660.00	11.33	12.84
	2021-22	1,864.00	16,158,851	46,396.00	3,219.00	638.09	74,579.00	59.00	21,027.50	2,255.00	24.75	25.72
	2022-23	110.05	1,059,159	3,782.00	477.79	100.36	17,617.00	0.00	1,775.79	247.00	36.82	44.24
	2023-24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2024-25	0.00	0.00	0.00	52.71	11.03	1,563.32	0.00	1,045.93	150.82	32.52	37.97

TABLE 22
Auxiliary Consumption and other Factors of IPPs

Power Station	Year	Auxiliary Consumption		Maximum Load (MW)	Load Factor (%)	Capacity Factor (%)	Utilization Factor (%)	Availability Factor (%)
		(GWh)	(%)					
Lal Pir Power	2020-21	41.26	6.23	350	63.31	20.25	n.p.	96.91
	2021-22	68.38	6.27	350	77.85	33.36	100.00	92.61
	2022-23	27.08	6.38	350	78.68	12.97	100.00	79.30
	2023-24	23.62	6.17	350	69.61	11.68	12.10	96.17
	2024-25	PPA has been terminated with Lalpir Power Limited and CPPA-G with effect from 1st October, 2024.						
Pak Gen. Power	2020-21	31.32	6.57	350	63.99	14.53	n.p.	96.10
	2021-22	85.85	6.18	350	78.91	42.54	100.00	91.82
	2022-23	31.03	6.54	350	74.04	14.47	100.00	89.79
	2023-24	14.19	6.30	350	67.40	6.86	7.00	84.81
	2024-25	PPA has been terminated with Pakgen Power Limited and CPPA-G with effect from 31st January, 2025.						
Fauji Kabirwala	2020-21	13.13	3.26	147	48.86	30.54	31.16	96.25
	2021-22	12.22	3.31	147	45.30	27.96	28.25	92.69
	2022-23	2.28	3.32	151	19.51	5.12	5.22	91.36
	2023-24	3.00	3.15	151	69.48	7.29	7.37	83.16
	2024-25	2.32	3.26	151	15.74	5.44	5.55	92.76
Hub Power	2020-21	17.74	9.41	1,200	1.79	1.79	1.96	n.p.
	2021-22	104.03	7.81	1,200	11.69	11.69	12.84	91.04
	2022-23	18.20	8.16	1,200	1.94	1.94	2.17	92.34
	2023-24	-	-	1,200	-	-	-	92.57
	2024-25	PPA has been terminated with HUB Power Company Limited and CPPA-G with effect from 1st October, 2024.						
KAPCO	2020-21	105.00	2.90	1,422	30.30	85.60	35.40	85.60
	2021-22	168.00	3.30	1,525	42.40	90.00	47.00	90.00
	2022-23	29.00	4.80	1,102	5.00	97.00	15.70	97.00
	2023-24	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2024-25	1.83	3.40	467	16.43	100.00	16.43	100.00
Kohinoor Energy	2020-21	10.60	3.05	124	86.03	31.04	33.85	97.71
	2021-22	16.35	3.07	124	90.82	47.49	51.76	92.38
	2022-23	10.49	3.09	124	90.20	30.30	32.94	98.19
	2023-24	6.73	3.14	124	88.85	19.06	21.09	98.07
	2024-25	2.46	3.13	124	86.88	7.01	7.83	99.44
Rousch Power	2020-21	12.80	4.51	413	9.05	8.20	8.70	97.00
	2021-22	17.74	4.00	429	28.40	14.30	27.80	91.00
	2022-23	9.98	5.57	421	5.90	5.17	5.66	84.79
	2023-24	0.17	1.78	409	0.42	0.28	0.40	93.90
	2024-25	PPA has been terminated with Rousch (Pakistan) Power Limited and CPPA-G with effect from 13th November, 2024.						
Saba Power	2020-21	9.08	6.92	123	12.95	11.32	11.32	87.43
	2021-22	21.99	6.44	125	35.25	30.10	30.10	85.41
	2022-23	10.66	6.68	125	16.45	14.54	14.54	88.06
	2023-24	4.24	7.23	125	5.57	4.93	4.93	88.59
	2024-25	PPA has been terminated with Saba Power Company Limited and CPPA-G with effect from 1st October, 2024.						
Liberty Daharki Power	2020-21	20.49	2.03	220	74.46	53.06	81.42	91.05
	2021-22	18.36	1.71	225	87.82	56.78	57.34	99.03
	2022-23	19.16	1.87	226	79.66	53.79	66.59	80.78
	2023-24	18.97	2.05	241	70.35	46.54	51.32	90.69
	2024-25	15.66	1.87	246	77.50	41.93	51.14	82.00
Uch Power	2020-21	72.60	1.74	550	84.97	86.38	90.17	94.54
	2021-22	75.80	1.73	551	89.17	90.22	94.87	94.20
	2022-23	70.80	1.79	547	81.48	82.03	92.45	90.02
	2023-24	71.15	1.76	548	82.45	83.47	91.08	90.57
	2024-25	71.08	1.80	548	80.95	82.21	89.02	90.93
Attock Gen.	2020-21	11.28	2.85	158	28.00	38.00	38.00	98.19
	2021-22	19.63	2.65	157	52.00	53.00	69.00	90.28
	2022-23	13.32	2.68	158	35.00	35.00	46.00	95.95
	2023-24	5.75	2.71	157	15.00	15.00	21.00	98.33
	2024-25	2.66	2.79	157	7.00	7.00	11.00	99.93

Power Station	Year	Auxiliary Consumption		Maximum Load (MW)	Load Factor (%)	Capacity Factor (%)	Utilization Factor (%)	Availability Factor (%)
		(GWh)	(%)					
Atlas Power	2020-21	19.55	3.83	215	27.27	27.27	30.34	n.p.
	2021-22	37.99	3.77	215	53.77	53.77	58.11	91.67
	2022-23	18.94	3.63	210	27.86	27.86	30.89	86.79
	2023-24	8.63	3.41	215	13.47	13.47	15.03	90.80
	2024-25	PPA has been terminated with Atlas Power Limited and CPPA-G with effect from 1st October, 2024.						
Engro Power Gen. Qadirpur	2020-21	31.12	4.58	151	40.29	97.03	41.81	90.00
	2021-22	32.95	4.00	209	50.00	84.00	60.00	78.00
	2022-23	39.67	4.20	163	50.00	100.00	50.00	99.00
	2023-24	36.78	4.38	162	42.81	98.23	42.81	100.00
	2024-25	36.77	4.65	217	41.38	95.10	41.38	100.00
Saif Power	2020-21	18.51	2.81	214	37.09	34.65	35.87	94.00
	2021-22	21.04	2.78	212	43.36	39.75	41.45	94.77
	2022-23	17.79	3.20	224	30.81	29.11	30.03	94.44
	2023-24	7.75	3.40	207	12.71	11.86	12.29	84.45
	2024-25	7.46	3.08	214	13.73	12.73	13.28	93.88
Orient Power	2020-21	20.04	3.21	214	33.21	33.46	48.57	93.00
	2021-22	24.14	2.89	218	43.87	44.89	59.37	92.00
	2022-23	19.84	3.28	217	31.87	32.46	50.44	92.00
	2023-24	17.03	3.15	223	27.70	29.04	40.85	93.00
	2024-25	16.21	3.53	220	23.83	24.64	37.40	93.00
Nishat Power	2020-21	14.93	2.77	195	32.65	30.73	32.65	96.37
	2021-22	22.41	2.74	195	51.33	46.61	51.33	93.70
	2022-23	15.03	2.72	195	32.51	31.56	32.51	94.00
	2023-24	12.36	2.65	195	28.70	26.24	28.70	95.49
	2024-25	2.28	2.56	195	5.29	5.02	5.29	98.80
Nishat Chunian	2020-21	14.58	2.64	196	66.26	31.35	47.95	95.89
	2021-22	23.41	2.58	196	71.77	51.47	56.04	91.54
	2022-23	10.44	2.63	196	83.88	22.52	23.13	91.40
	2023-24	6.39	2.59	196	55.92	13.99	25.13	93.77
	2024-25	1.43	2.43	196	60.45	3.34	5.54	99.74
Sapphire Electric Power	2020-21	20.28	3.57	221	35.73	30.57	31.47	88.89
	2021-22	24.30	3.11	222	48.08	42.01	43.19	91.14
	2022-23	16.97	3.75	223	26.75	24.35	25.13	95.41
	2023-24	17.17	3.58	210	28.69	25.80	26.59	92.06
	2024-25	11.75	4.19	222	16.41	14.47	14.92	93.85
Halmore Power	2020-21	19.06	3.67	215	32.06	32.06	33.54	82.67
	2021-22	20.27	3.00	211	39.73	39.73	41.94	89.00
	2022-23	11.93	4.15	221	21.56	21.56	19.29	88.94
	2023-24	9.50	4.58	197	13.19	13.19	11.88	89.09
	2024-25	13.73	0.13	214	21.96	21.96	21.51	89.85
Narowal Energy	2020-21	10.03	1.98	214	26.41	26.41	27.97	n.p.
	2021-22	15.68	1.78	214	46.31	46.31	52.75	87.80
	2022-23	8.09	1.69	214	25.09	25.09	27.58	90.97
	2023-24	3.42	1.67	214	91.12	10.70	10.89	98.22
	2024-25	0.70	1.80	214	87.41	2.03	2.06	98.38
Liberty Power Tech.	2020-21	13.88	2.24	196	95.30	35.50	37.24	96.85
	2021-22	20.18	2.13	196	95.70	53.86	56.50	91.70
	2022-23	11.61	2.09	196	94.90	31.69	33.50	97.56
	2023-24	5.09	2.08	196	93.16	13.93	33.50	95.96
	2024-25	1.76	2.21	196	92.67	4.53	5.82	99.52
Foundation Power	2020-21	28.99	2.63	196	n.p.	71.86	70.81	97.84
	2021-22	32.31	2.39	195	81.40	88.51	88.31	91.75
	2022-23	31.56	2.52	182	86.00	81.20	99.10	83.60
	2023-24	31.95	2.84	185	76.98	71.82	92.56	93.50
	2024-25	32.33	2.78	185	83.22	77.26	92.57	92.89
Uch-II Power	2020-21	57.00	2.37	371	71.96	72.97	76.05	94.58
	2021-22	65.30	2.25	362	89.18	89.83	95.81	93.99
	2022-23	67.00	2.34	360	87.97	88.17	91.13	98.01
	2023-24	52.90	2.54	359	64.21	64.45	73.49	87.60
	2024-25	58.00	2.50	356	71.69	74.97	75.84	95.45

Power Station	Year	Auxiliary Consumption		Maximum Load (MW)	Load Factor (%)	Capacity Factor (%)	Utilization Factor (%)	Availability Factor (%)
		(GWh)	(%)					
QATPL (Bhikki)	2020-21	188.62	2.58	1,181	77.27	71.84	77.27	93.74
	2021-22	171.40	2.74	1,127	67.11	61.80	67.11	94.68
	2022-23	142.58	2.95	1,164	55.03	47.89	56.64	87.01
	2023-24	110.30	2.93	1,144	37.78	37.29	38.22	98.71
	2024-25	163.71	2.61	1,165	63.93	61.59	66.42	96.34
NPPMCL (Haveli Bahadur Shah)	2020-21	191.82	2.44	1,246	78.58	77.07	80.35	95.92
	2021-22	181.94	2.37	1,221	87.16	74.40	87.74	84.35
	2022-23	158.00	2.36	1,210	83.19	64.37	83.19	77.26
	2023-24	186.43	2.30	1,202	78.32	77.29	81.49	96.13
	2024-25	161.79	2.42	1,207	79.77	64.72	83.83	78.35
NPPMCL (Balloki)	2020-21	223.89	3.58	1,217	75.77	58.73	75.83	81.09
	2021-22	255.57	3.43	1,207	81.47	70.38	81.45	89.66
	2022-23	240.83	3.39	1,203	71.60	67.48	71.59	96.22
	2023-24	243.81	3.52	1,184	69.63	65.76	70.36	95.04
	2024-25	195.79	3.45	1,182	71.21	53.50	71.65	77.53
Punjab Thermal Power	2022-23	4.73	2.63	1,203	73.00	64.00	88.00	88.00
	2023-24	103.23	2.80	1,232	35.08	29.07	35.16	85.79
	2024-25	70.98	3.88	1,167	19.96	16.12	26.98	80.76
Huaneng Shandong Ruyi (Sahiwal Imported Coal)	2020-21	76.48	5.79	1,244	67.38	63.50	94.09	96.00
	2021-22	76.48	5.79	1,244	63.18	59.01	99.25	100.00
	2022-23	163.64	5.38	1,244	26.41	26.31	51.37	100.00
	2023-24	115.04	5.25	1,244	19.05	17.56	45.73	81.23
	2024-25	223.44	4.99	1,244	39.06	36.10	69.33	89.67
Port Qasim Electric Power	2020-21	483.97	5.47	1,243	89.44	94.16	72.41	98.96
	2021-22	444.94	5.62	1,243	84.27	94.16	64.68	88.00
	2022-23	247.61	7.22	1,243	70.45	94.16	27.70	92.27
	2023-24	93.35	11.08	1,243	57.89	94.16	6.77	93.24
	2024-25	206.45	6.96	1,243	67.26	94.16	23.79	98.76
China Power Hub	2020-21	465.01	5.55	660	72.41	72.49	93.74	94.57
	2021-22	376.74	5.28	660	61.83	61.65	94.88	73.00
	2022-23	127.47	7.73	660	14.14	14.25	22.55	91.00
	2023-24	24.50	7.18	660	2.90	2.90	13.90	99.99
	2024-25	60.73	6.25	660	8.32	8.32	8.36	91.64
Lucky Electric Power	2021-22	88.36	7.63	607	71.97	71.97	71.64	75.74
	2022-23	284.27	8.57	607	62.53	91.89	73.73	85.13
	2023-24	141.36	8.37	614	31.73	100.00	35.77	92.03
	2024-25	83.37	7.56	617	19.16	100.00	28.06	91.33
Engro Powergen Thar	2020-21	360.97	9.00	608	74.10	91.71	90.00	81.40
	2021-22	335.73	9.00	606	69.66	77.87	96.22	71.88
	2022-23	359.60	9.00	611	69.15	95.50	86.14	80.26
	2023-24	371.50	9.00	611	71.15	98.02	82.86	85.86
	2024-25	393.20	9.00	615	72.99	99.56	80.12	90.84
Thar Coal Block-I Power	2022-23	231.59	6.87	660	72.69	73.44	85.56	88.32
	2023-24	540.07	6.72	660	69.26	69.27	67.47	91.75
	2024-25	616.73	6.90	660	77.10	78.76	87.93	89.29
Thar Energy	2022-23	95.13	8.30	301	53.34	53.01	63.60	83.87
	2023-24	183.07	8.59	301	73.76	73.53	78.60	93.55
	2024-25	150.88	8.61	301	60.78	60.61	69.20	87.83
ThalNova Power	2022-23	70.68	8.48	301	78.90	78.55	84.69	92.75
	2023-24	180.99	8.38	301	74.96	73.53	80.23	93.43
	2024-25	167.57	8.61	301	67.50	67.31	73.25	92.17

Source: IPPs

TABLE 23
Heat Rate and Plant Efficiency Data of IPPs

Power Station	Year	Heat Rate (Btu/kWh)		Plant Efficiency (%)	
		On Gross Generation	On Net Export to NGC	On Gross Generation	On Net Export to NGC
Lal Pir Power	2020-21	8,855.96	9,444.58	38.53	36.13
	2021-22	8,653.68	9,232.32	39.43	36.96
	2022-23	8,680.85	9,272.01	39.31	36.80
	2023-24	8,648.02	9,217.13	39.46	37.02
	2024-25	PPA has been terminated with Lalpir Power Limited and CPPA-G with effect from 1st October, 2024.			
Pak Gen. Power	2020-21	8,835.67	9,456.69	38.62	36.09
	2021-22	8,697.58	9,270.03	39.24	36.81
	2022-23	8,757.70	9,370.18	38.97	36.42
	2023-24	8,723.11	9,309.71	39.12	36.66
	2024-25	PPA has been terminated with Pak Gen. Power Limited and CPPA-G with effect from 31st January, 2025.			
Fauji Kabirwala	2020-21	7,863.36	8,128.24	43.39	41.98
	2021-22	7,764.49	8,030.02	43.94	42.49
	2022-23	7,700.36	7,964.25	44.31	42.84
	2023-24	7,797.42	8,051.77	43.75	42.37
	2024-25	8,129.07	8,470.38	41.97	40.28
Hub Power	2020-21	8,206.18	8,832.85	41.58	38.63
	2021-22	8,385.67	8,853.67	40.69	38.54
	2022-23	8,175.46	8,767.03	41.74	38.92
	2023-24	0.00	0.00	0.00	0.00
	2024-25	PPA has been terminated with HUB Power Company Limited and CPPA-G with effect from 1st October, 2024.			
KAPCO	2020-21	7,882.00	8,095.00	45.70	44.50
	2021-22	8,039.00	8,301.00	44.80	43.40
	2022-23	8,187.00	8,301.00	44.00	43.40
	2023-24	0.00	0.00	0.00	0.00
	2024-25	8,191.00	8,475.00	41.67	40.27
Kohinoor Energy	2020-21	7,743.37	7,986.85	44.07	42.72
	2021-22	7,741.49	7,986.85	44.08	42.72
	2022-23	7,740.29	7,986.85	44.08	42.72
	2023-24	7,736.12	7,986.85	44.11	42.72
	2024-25	7,736.85	7,986.85	44.10	42.72
Rousch Power	2020-21	7,305.60	7,635.36	46.75	44.73
	2021-22	7,453.00	7,719.00	45.83	44.25
	2022-23	7,562.71	7,984.08	45.16	42.78
	2023-24	7,271.73	7,401.11	46.97	46.15
	2024-25	PPA has been terminated with Rousch (Pakistan) Power Limited and CPPA-G with effect from 13th November, 2024.			
Saba Power	2020-21	10,131.69	10,894.47	33.68	31.32
	2021-22	10,018.35	10,707.41	34.06	31.87
	2022-23	10,203.95	10,934.32	33.44	31.20
	2023-24	10,680.12	11,513.19	31.95	29.64
	2024-25	PPA has been terminated with Saba Power Company Limited and CPPA-G with effect from 1st October, 2024.			
Liberty Daharki Power	2020-21	8,428.61	8,627.99	40.48	39.55
	2021-22	8,201.29	8,363.17	41.60	40.80
	2022-23	8,231.55	8,415.30	41.45	40.55
	2023-24	8,305.90	8,509.06	41.08	40.10
	2024-25	8,057.72	8,237.25	42.34	41.42
Uch Power	2020-21	6,826.12	6,950.83	49.98	49.09
	2021-22	6,806.00	6,921.00	50.14	49.30
	2022-23	6,882.00	6,975.00	49.58	48.92
	2023-24	6,953.00	7,077.00	49.07	48.21
	2024-25	7,066.00	7,214.00	48.29	47.30
Attock Gen.	2020-21	7,360.00	7,582.00	46.37	45.00
	2021-22	7,376.00	7,582.00	46.27	45.00
	2022-23	7,373.00	7,582.00	46.29	45.00
	2023-24	7,371.00	7,582.00	46.30	45.00
	2024-25	7,364.00	7,582.00	46.34	45.00
Atlas Power	2020-21	7,400.00	7,584.00	46.10	45.00
	2021-22	7,400.00	7,584.00	46.10	45.00
	2022-23	7,400.00	7,584.00	46.10	45.00
	2023-24	7,400.00	7,584.00	46.10	45.00
	2024-25	PPA has been terminated with Atlas Power Limited and CPPA-G with effect from 1st October, 2024.			

Power Station	Year	Heat Rate (Btu/kWh)		Plant Efficiency (%)	
		On Gross Generation	On Net Export to NGC	On Gross Generation	On Net Export to NGC
Engro Power Gen. Qadirpur	2020-21	7,260.00	7,743.06	47.00	44.07
	2021-22	7,260.00	7,713.00	47.00	44.20
	2022-23	7,260.00	7,627.00	47.00	44.74
	2023-24	7,836.07	8,195.71	43.59	41.68
	2024-25	7,801.32	8,182.51	41.68	41.73
Nishat Power	2020-21	7,372.00	7,582.00	46.25	45.00
	2021-22	7,374.00	7,582.00	46.24	45.00
	2022-23	7,376.00	7,582.00	46.22	45.00
	2023-24	7,381.00	7,582.00	46.19	45.00
	2024-25	7,388.00	7,582.00	46.15	45.00
Nishat Chunian	2020-21	7,420.00	7,582.00	46.00	45.00
	2021-22	7,420.00	7,582.00	46.00	45.00
	2022-23	7,420.00	7,582.00	46.00	45.00
	2023-24	7,420.00	7,582.00	46.19	45.00
	2024-25	7,420.00	7,580.00	46.00	45.00
Narowal Energy	2020-21	7,744.22	7,887.14	46.48	45.64
	2021-22	7,747.91	7,884.41	46.48	45.68
	2022-23	7,767.58	7,900.89	46.42	45.63
	2023-24	7,753.32	7,885.25	46.44	45.66
	2024-25	7,754.60	7,897.05	46.43	45.59
Liberty Power Tech.	2020-21	7,417.70	7,582.54	46.00	46.00
	2021-22	7,417.70	7,582.54	46.00	45.00
	2022-23	7,417.70	7,582.54	46.00	45.00
	2023-24	7,417.70	7,582.54	46.00	45.00
	2024-25	7,417.70	7,582.54	46.00	45.00
Foundation Power	2020-21	7,141.27	7,359.02	47.78	46.36
	2021-22	6,899.48	7,090.02	49.45	48.12
	2022-23	7,083.00	7,289.55	48.17	46.81
	2023-24	7,307.88	7,512.68	46.69	45.42
	2024-25	7,224.35	7,476.58	47.23	45.64
Uch-II Power	2020-21	6,670.00	6,861.00	51.15	49.73
	2021-22	6,558.00	6,737.00	52.03	50.64
	2022-23	6,540.00	6,730.00	52.17	50.70
	2023-24	6,562.00	6,762.00	52.00	50.46
	2024-25	7,617.00	6,913.00	50.81	49.36
QATPL (Bhikki)	2020-21	5,428.99	5,539.16	62.85	61.60
	2021-22	5,426.43	5,537.62	62.88	61.62
	2022-23	5,424.71	5,537.32	62.90	61.62
	2023-24	5,425.57	5,538.29	62.89	61.61
	2024-25	5,431.61	5,538.29	62.82	61.61
NPPMCL (Haveli Bahadur Shah)	2020-21	5,530.16	5,668.24	61.72	60.21
	2021-22	5,416.00	5,551.00	63.00	61.47
	2022-23	5,420.00	5,535.00	62.95	61.65
	2023-24	5,409.00	5,527.00	63.10	61.76
	2024-25	5,480.66	5,613.73	62.26	60.78
NPPMCL (Balloki)	2020-21	5,593.32	5,795.28	61.00	58.86
	2021-22	5,486.00	5,661.00	62.19	60.27
	2022-23	5,507.00	5,677.00	61.96	60.11
	2023-24	5,479.85	5,638.59	62.28	60.53
	2024-25	5,474.47	5,662.11	62.33	60.26
Punjab Thermal Power	2022-23	5,488.32	5,579.00	62.17	61.16
	2023-24	5,488.32	5,579.00	62.17	61.16
	2024-25	5,488.32	5,579.00	62.17	61.16
Huaneng Shandong Ruyi (Sahiwal Imported Coal)	2020-21	8,749.08	n.p.	39.00	n.p.
	2021-22	8,749.08	n.p.	39.00	42.94
	2022-23	8,749.08	n.p.	39.00	40.69
	2023-24	8,749.08	n.p.	39.00	n.p.
	2024-25	8,749.08	n.p.	39.00	n.p.
Port Qasim Electric Power	2020-21	8,246.83	8,716.90	41.33	39.10
	2021-22	8,703.02	8,726.83	41.34	39.06
	2022-23	9,249.16	9,900.80	36.85	34.42
	2023-24	8,608.49	9,268.43	39.59	36.77
	2024-25	8,382.05	9,038.62	40.66	37.71

Power Station	Year	Heat Rate (Btu/kWh)		Plant Efficiency (%)	
		On Gross Generation	On Net Export to NGC	On Gross Generation	On Net Export to NGC
China Power Hub	2020-21	8,186.81	8,660.72	41.68	39.40
	2021-22	8,226.89	8,669.52	41.18	39.36
	2022-23	8,352.14	8,900.16	40.08	38.34
	2023-24	8,411.43	8,521.70	37.56	36.98
	2024-25	8,506.60	8,648.90	38.57	37.94
Lucky Electric Power	2021-22	8,042.02	8,706.66	42.43	39.19
	2022-23	8,658.21	9,400.44	40.55	37.35
	2023-24	8,545.43	9,260.87	41.13	37.95
	2024-25	8,395.67	9,082.77	40.64	37.57
Engro Powergen Thar	2021-22	8,881.20	9,692.10	38.40	35.20
	2022-23	8,799.70	9,716.10	38.80	35.10
	2023-24	9,012.70	9,807.10	37.90	34.80
	2024-25	8,357.00	9,160.00	40.82	37.25
Thar Coal Block-I Power	2022-23	8,749.00	8,648.63	39.00	39.31
	2023-24	8,749.00	8,648.63	39.00	39.31
	2024-25	8,749.08	n.p.	39.00	
Thar Energy	2022-23	8,575.10	9,378.76	39.67	36.38
	2023-24	8,594.81	9,401.53	39.70	36.29
	2024-25	8,547.45	9,353.46	39.92	36.48
ThalNova Power	2022-23	8,722.24	9,530.08	39.12	35.80
	2023-24	8,644.90	9,436.37	39.47	36.16
	2024-25	8,660.26	9,475.54	39.40	36.01

Power Station	Year	Heat Rate (Btu/kWh)				Plant Efficiency (%)			
		On Gross Generation		On Net Export to NGC		On Gross Generation		On Net Export to NGC	
		Gas	HSD	Gas	HSD	Gas	HSD	Gas	HSD
Saif Power	2020-21	6,466.00	6,825.00	6,666.00	7,037.00	52.78	50.01	51.20	48.50
	2021-22	6,466.00	6,825.00	6,666.00	7,037.00	52.78	50.01	51.20	48.50
	2022-23	6,466.00	6,825.00	6,666.00	7,037.00	52.78	50.01	51.20	48.50
	2023-24	6,466.00	6,825.00	6,666.00	7,037.00	52.78	50.01	51.20	48.50
	2024-25	6,466.00	6,825.00	6,666.00	7,037.00	52.78	50.01	51.20	48.50
Orient Power	2020-21	6,504.00	6,866.00	6,666.00	7,037.00	52.48	49.71	51.20	48.50
	2021-22	6,504.00	6,866.00	6,666.00	7,037.00	52.48	49.71	51.20	48.50
	2022-23	6,504.00	6,866.00	6,666.00	7,037.00	52.48	49.71	51.20	48.50
	2023-24	6,504.00	6,866.00	6,666.00	7,037.00	52.48	49.71	51.20	48.50
	2024-25	6,504.00	6,866.00	6,666.00	7,037.00	52.48	49.71	51.20	48.50
Sapphire Electric Power	2020-21	n.p.	6,834.00	n.p.	7,037.00	n.p.	49.93	n.p.	48.50
	2021-22	6,474.00	6,834.00	6,666.00	7,037.00	52.71	49.93	51.20	48.50
	2022-23	6,474.00	6,834.00	6,666.00	7,037.00	52.71	49.93	51.20	48.50
	2023-24	6,474.00	6,834.00	6,666.00	7,037.00	52.71	49.93	51.20	48.50
	2024-25	6,474.00	6,834.00	6,666.00	7,037.00	52.71	49.93	51.20	48.50
Halmore Power	2020-21	6,478.00	6,839.00	7,367.00	7,248.00	52.69	49.91	46.33	47.09
	2021-22	6,478.00	6,839.00	6,666.00	7,037.00	52.69	49.91	n.p.	n.p.
	2022-23	6,478.00	6,839.00	6,666.00	7,037.00	52.69	49.91	n.p.	n.p.
	2023-24	6,478.00	6,839.00	6,666.00	7,037.00	52.69	49.91	n.p.	n.p.
	2024-25	6,478.00	6,839.00	6,666.00	7,037.00	52.69	49.91	n.p.	n.p.

Source: IPPs

TABLE 24
Monthly Source-wise Power Sent Out and Fuel Cost Data (2024-25)

			July	August	September	October	November	December	January	February	March	April	May	June	Total
Hydel	Generation	GWh	5,341.22	5,361.56	4,837.98	3,187.39	2,859.99	1,778.28	866.39	1,883.39	1,296.77	2,306.43	4,843.86	5,409.73	**39,972.98**
		%	35.89	40.68	38.75	31.06	35.61	22.80	10.63	27.12	15.42	21.94	37.98	39.36	**31.44**
	Fuel Cost	Mln. Rs.	-	-	-	-	-	-	-	-	-	-	-	-	**-**
		Rs./kWh	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Coal (Local)	Generation	GWh	1,505.85	1,305.54	1,261.22	1,518.25	1,018.66	784.28	1,268.68	1,043.29	1,393.31	1,524.97	1,413.49	1,510.05	**15,547.60**
		%	10.12	9.91	10.10	14.79	12.68	10.06	15.56	15.02	16.57	14.51	11.08	10.99	**12.23**
	Fuel Cost	Mln. Rs.	17,060.67	16,024.00	15,498.12	16,981.93	14,630.18	13,855.46	15,911.15	14,376.51	17,055.13	17,097.22	16,834.15	17,383.82	**192,708.36**
		Rs./kWh	11.33	12.27	12.29	11.19	14.36	17.67	12.54	13.78	12.24	11.21	11.91	11.51	**12.39**
Coal (Imported)	Generation	GWh	1,136.98	680.81	1,148.90	902.55	476.99	123.63	695.43	108.27	544.64	1,053.94	796.18	1,396.77	**9,065.08**
		%	7.64	5.17	9.20	8.79	5.94	1.59	8.53	1.56	6.48	10.02	6.24	10.16	**7.13**
	Fuel Cost	Mln. Rs.	18,422.44	10,776.51	19,070.55	15,263.02	7,118.40	2,367.90	14,500.59	2,046.81	9,660.59	17,249.13	12,739.09	21,175.01	**150,390.03**
		Rs./kWh	16.20	15.83	16.60	16.91	14.92	19.15	20.85	18.90	17.74	16.37	16.00	15.16	**16.59**
RFO	Generation	GWh	102.10	5.66	39.19	2.00	0.00	2.64	109.12	-	3.62	83.46	20.08	151.08	**518.95**
		%	0.69	0.04	0.31	0.02	0.00	0.03	1.34	-	0.04	0.79	0.16	1.10	**0.41**
	Fuel Cost	Mln. Rs.	3,161.47	171.70	1,187.15	58.29	-	80.14	3,305.52	-	106.87	2,401.07	561.96	4,351.11	**15,385.29**
		Rs./kWh	30.97	30.32	30.30	29.14	-	30.39	30.29	#DIV/0!	29.51	28.77	27.98	28.80	**29.65**
Gas	Generation	GWh	1,180.10	950.21	988.10	825.94	858.02	959.82	1,069.05	716.49	978.65	841.84	883.18	968.05	**11,219.45**
		%	7.93	7.21	7.91	8.05	10.68	12.31	13.11	10.32	11.64	8.01	6.92	7.04	**8.82**
	Fuel Cost	Mln. Rs.	16,279.02	12,714.69	13,513.99	11,769.91	11,532.77	12,869.58	14,123.60	9,570.26	11,644.24	9,947.66	11,279.24	11,746.39	**146,991.35**
		Rs./kWh	13.79	13.38	13.68	14.25	13.44	13.41	13.21	13.36	11.90	11.82	12.77	12.13	**13.10**
RLNG	Generation	GWh	2,969.74	2,105.69	2,039.26	2,002.62	906.51	1,614.68	1,542.29	980.25	1,528.10	2,157.02	2,167.50	2,215.71	**22,229.36**
		%	19.96	15.98	16.33	19.51	11.29	20.70	18.92	14.11	18.17	20.52	16.99	16.12	**17.48**
	Fuel Cost	Mln. Rs.	73,907.65	54,238.26	50,893.69	45,312.77	21,031.25	36,075.45	34,655.52	21,904.39	35,321.17	52,336.22	46,716.26	48,461.12	**520,853.75**
		Rs./kWh	24.89	25.76	24.96	22.63	23.20	22.34	22.47	22.35	23.11	24.26	21.55	21.87	**23.43**
Nuclear	Generation	GWh	1,987.72	2,190.31	1,595.67	1,441.94	1,655.20	2,065.10	2,169.37	1,846.94	2,222.79	1,882.43	2,011.78	1,382.84	**22,452.08**
		%	13.36	16.62	12.78	14.05	20.61	26.48	26.61	26.59	26.43	17.91	15.77	10.06	**17.66**
	Fuel Cost	Mln. Rs.	2,943.30	3,266.85	2,460.09	2,180.56	2,865.16	3,506.61	3,934.80	3,378.51	4,445.37	3,960.27	4,519.97	3,386.30	**40,847.79**
		Rs./kWh	1.48	1.49	1.54	1.51	1.73	1.70	1.81	1.83	2.00	2.10	2.25	2.45	**1.82**
Import Iran	Generation	GWh	47.76	35.77	40.29	42.38	36.80	32.76	33.59	29.63	39.28	32.46	36.19	46.99	**453.92**
		%	0.32	0.27	0.32	0.41	0.46	0.42	0.41	0.43	0.47	0.31	0.28	0.34	**0.36**
	Fuel Cost	Mln. Rs.	1,201.57	974.69	1,045.72	1,073.52	999.55	919.13	884.86	838.05	982.07	822.72	814.82	1,058.06	**11,614.75**
		Rs./kWh	25.16	27.25	25.95	25.33	27.16	28.06	26.35	28.28	25.00	25.35	22.52	22.52	**25.59**
Wind Power	Generation	GWh	445.01	398.25	395.45	189.98	98.00	261.62	218.04	173.54	230.50	478.38	432.58	522.02	**3,843.36**
		%	2.99	3.02	3.17	1.85	1.22	3.35	2.67	2.50	2.74	4.55	3.39	3.80	**3.02**
	Fuel Cost	Mln. Rs.	-	-	-	-	-	-	-	-	-	-	-	-	**-**
		Rs./kWh	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Solar Power	Generation	GWh	110.49	98.37	104.93	99.07	69.08	75.82	86.02	84.72	119.94	115.38	116.02	106.24	**1,186.09**
		%	0.74	0.75	0.84	0.97	0.86	0.97	1.06	1.22	1.43	1.10	0.91	0.77	**0.93**
	Fuel Cost	Mln. Rs.	-	-	-	-	-	-	-	-	-	-	-	-	**-**
		Rs./kWh	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Bagasse	Generation	GWh	53.37	46.71	35.60	50.27	52.23	101.07	95.30	78.88	51.33	36.91	33.75	34.96	**670.37**
		%	0.36	0.35	0.29	0.49	0.65	1.30	1.17	1.14	0.61	0.35	0.26	0.25	**0.53**
	Fuel Cost	Mln. Rs.	319.25	582.88	444.27	293.86	312.43	604.59	570.07	470.77	307.04	220.82	201.86	344.92	**4,672.76**
		Rs./kWh	5.98	12.48	12.48	5.85	5.98	5.98	5.98	5.97	5.98	5.98	5.98	9.87	**6.97**
Total	**Generation**	**GWh**	**14,880.33**	**13,178.90**	**12,486.59**	**10,262.37**	**8,031.50**	**7,799.69**	**8,153.28**	**6,945.39**	**8,408.93**	**10,513.22**	**12,754.61**	**13,744.43**	**127,159.23**
		%	**1,595.73**	**1,395.64**	**1,351.12**	**1,603.45**	**1,105.98**	**874.23**	**1,353.12**	**1,128.27**	**1,476.74**	**1,610.46**	**1,502.41**	**1,599.06**	**100.00**
	Fuel Cost	**Mln. Rs.**	**133,295.37**	**98,749.59**	**104,113.57**	**92,933.84**	**58,489.74**	**70,278.87**	**87,886.11**	**52,585.29**	**79,522.48**	**104,035.12**	**93,667.36**	**107,906.73**	**1,083,464.07**
		Rs./kWh	**8.96**	**7.49**	**8.34**	**9.06**	**7.28**	**9.01**	**10.78**	**7.57**	**9.46**	**9.90**	**7.34**	**7.85**	**8.52**

Note: As per data provided by CPPA-G.

TABLE 25
Electricity Statistics of K-Electric Limited

1	Units Generated by KE Own (GWh)					
	Name of Plant	Year	Units Generated (Gross)	Auxiliary Consumption		Units Sent Out (GWh)
				GWh	%	
1.1	Bin Qasim Thermal Power Station-I (BQTPS-I)	2020-21	5,130.00	400.00	7.80	4,730.00
		2021-22	3,590.67	301.57	8.40	3,289.10
		2022-23	2,033.37	181.67	8.93	1,851.70
		2023-24	675.80	53.58	7.93	622.22
		2024-25	421.67	35.55	8.43	386.13
1.2	Bin Qasim Thermal Power Station-II (BQTPS-II)	2020-21	4,173.00	247.00	5.92	3,926.00
		2021-22	3,820.55	233.03	6.10	3,587.52
		2022-23	2,806.95	172.47	6.14	2,634.48
		2023-24	2,700.58	143.49	5.31	2,557.09
		2024-25	1,691.85	111.31	6.58	1,580.54
1.3	Bin Qasim Thermal Power Station-III (BQTPS-III)	2021-22	256.10	12.60	4.92	243.50
		2022-23	2,595.58	72.75	2.80	2,522.83
		2023-24	4,283.48	105.35	2.46	4,178.13
		2024-25	4,450.12	120.47	2.71	4,329.65
1.4	Korangi Town Gas Turbine Power Station-II (KTGTPS-II)	2020-21	381.00	15.77	4.14	365.23
		2021-22	122.01	7.49	6.14	114.52
		2022-23	12.31	2.13	17.30	10.18
		2023-24	1.68	0.09	5.52	1.59
		2024-25	4.45	0.18	4.12	4.26
1.5	SITE Gas Turbine Power Station-II (SGTPS-II)	2020-21	227.00	11.33	4.99	215.67
		2021-22	110.42	7.56	6.85	102.86
		2022-23	27.29	2.88	10.55	24.41
		2023-24	0.21	0.01	4.76	0.20
		2024-25	0.00	0.00	0.00	0.00
1.6	Korangi Combined Cycle Power Plant	2020-21	1,027.00	78.30	7.62	948.70
		2021-22	596.15	43.69	7.33	552.46
		2022-23	58.74	9.00	15.32	49.74
		2023-24	126.06	13.93	11.05	112.13
		2024-25	150.49	18.46	12.27	132.03
1.7	Total Units Generated from KE's Own Power Plants	2020-21	10,938.00	752.40	6.88	10,185.60
		2021-22	8,495.90	605.94	7.13	7,889.96
		2022-23	7,534.24	440.90	5.85	7,093.34
		2023-24	7,787.81	316.46	4.06	7,471.36
		2024-25	6,718.58	285.97	4.26	6,432.61

2	Units Purchased by KE (GWh) (Net)					
		2020-21	2021-22	2022-23	2023-24	2024-25
2.1	KANUPP [1]	219.00	45.77	0.00	0.00	0.00
2.2	Gul Ahmed [6]	673.00	705.43	508.68	268.59	73.27
2.3	Tapal Energy [7]	737.00	715.86	518.43	288.33	0.00
2.4	NTDC (Mixed Generation) [8]	5,764.40	8,897.54	8,960.81	8,538.07	10,234.27
2.5	Anoud Power	12.00	0.00	0.00	0.00	0.00
2.6	International Steel Limited	43.00	28.54	26.89	15.77	10.46
2.7	International Industries Limited	10.00	9.29	10.41	1.58	0.00
2.8	FFBL Power	452.88	406.69	346.26	324.54	278.99
2.9	SNPCL-I	394.35	363.36	292.66	301.73	254.29
2.10	SNPCL-II	380.22	345.81	287.03	297.54	272.43
2.11	Oursun Pakistan	90.87	89.58	89.32	88.08	89.68
2.12	NTDC - 150 MW (Wind) [2]	353.64	139.00	0.00	0.00	0.00
2.13	Gharo Solar	108.69	102.64	101.69	99.30	99.69
2.14	Lotte Chemicals	61.00	35.44	21.08	3.08	0.00
2.15	Lucky Cement	0.02	2.98	2.26	3.36	3.96
2.16	Net-Metering Import	0.00	44.00	107.18	77.03	136.07
2.17	**Total**	**9,300.07**	**11,931.93**	**11,272.70**	**10,307.00**	**11,453.10**

			2020-21	2021-22	2022-23	2023-24	2024-25
3	**Total Units Purchased by KE including Own Generation (GWh)**		**20,238.07**	**20,427.83**	**18,806.94**	**18,094.81**	**11,769.55**
4	**Units Available for Distribution (GWh)**		**19,485.67**	**19,821.89**	**18,366.04**	**17,778.36**	**19,240.91**
5	**Units Sold (GWh)**		**16,068.85**	**16,763.23**	**15,553.83**	**14,908.51**	**15,248.59**
6	**T&D Losses (excluding Auxiliary Consumption)**	**GWh**	**3,416.82**	**3,058.66**	**2,812.21**	**2,869.84**	**3,992.32**
		%	**17.54**	**15.43**	**15.31**	**16.14**	**20.75**
7	**Average Fuel Price**						
7.1	Gas (Rs./MMBTU) [3]		846.00	857.00	911.19	1,050.00	**1,050.00**
7.2	RLNG (Rs./MMBTU) - SSGC		1,358.00	2,877.91	3,749.75	3,876.59	**3,696.00**
7.3	RLNG (Rs./MMBTU) - PLL [5]		--	5,253.00	3,347.65	3,409.10	**3,103.00**
7.4	Furnace Oil (Rs./M. Ton.)		60,285.00	121,886.72	154,077.73	156,079.39	**155,491.00**
7.5	HSD (Rs./Liters)		98.00	132.65	230.90	278.54	**265.00**
8	**Cost of Fuel in KE Own System**						
8.1	Cost of Fuel (Rs. in Million) [3]		126,409.00	212,615.00	212,132.18	201,270.00 [9]	**148,520.00**
8.2	Cost of Fuel (Paisa/kWh) [3] & [4]		1,241.00	2,695.00	2,990.72	2,693.90	**2,309.00**

[1] *Supply from KANUPP discontinued from August, 2021.*

[2] *Supply from WPPs discontinued from September, 2021.*

[3] *Exclusive of GIDC which is under litigation.*

[4] *Based on per unit sent out.*

[5] *Supply from PLL initiated from February 08, 2022.*

[6] *Supply from Gul Ahmed Energy discontinued due to expiry of Tariff and PPA with KE on November 02, 2024.*

[7] *Supply from Tapal Energy discontinued due to expiry of Tariff and PPA with KE on June 19, 2024.*

[8] *Increased drawl from the National Grid due to the energization of the KKI Grid in November, 2024.*

[9] *Fuel cost for HSD commissioning of BQPS-III 900 MW has been excluded and is to be treated separately as part of project cost.*

Source: KE

TABLE 26
Fuel Consumption and Cost of Generation Data of K-Electric and their IPPs (Net)

(Gas+RFO+RLNG based Power Plant)									
Year	**Gen. on Gas (GWh) (Net)**	**Gas Consumption**		**Residual Furnace Oil**		**Gen. on RLNG (GWh) (Net)**	**RLNG Consumption**		**Overall Generation Cost (Rs./kWh) [1] & [2]**
		Total MMCFT	**CFT/kWh (Average)**	**Gen. on RFO (GWh) (Net)**	**Quantity of RFO used (000 M. Tons)**		**Total MMCFT**	**CFT/kWh (Average)**	
Bin Qasim TPS-I									
2020-21	695.00	7,618.00	10.96	2,843.00	787.00	1,192.00	12,974.00	10.04	15.02
2021-22	156.12	1,744.33	11.17	2,526.74	694.71	606.24	6,784.63	11.19	31.46
2022-23	41.14	478.34	11.63	1,743.86	483.28	66.68	792.40	11.88	42.06
2023-24	16.51	189.22	11.46	316.29	87.21	289.48	3,297.68	11.35	42.05
2024-25	85.45	1,073.97	12.57	199.77	55.41	100.91	1,223.21	12.12	36.03

(Gas+RLNG based Power Plant)								
Power Station	Year	Gen. on Gas (GWh) (Net)	Gas Consumption		Gen. on RLNG (GWh) (Net)	RLNG Consumption		Overall Generation Cost (Rs./kWh) [1] & [2]
			Total MMCFT	CFT/kWh (Average)		Total MMCFT	CFT/kWh (Average)	
Bin Qasim TPS-II	2020-21	1,277.00	10,448.00	8.18	2,649.00	21,671.00	8.18	9.87
	2021-22	375.68	3,094.83	8.24	3,211.84	26,470.14	8.24	23.05
	2022-23	299.56	2,505.14	8.36	2,334.92	19,134.44	8.19	27.27
	2023-24	145.26	1,219.87	8.40	2,411.82	19,834.24	8.22	30.62
	2024-25	423.76	3,844.40	9.07	1,156.78	9,792.85	8.47	24.09
Korangi Town GTPS-II	2020-21	130.00	1,261.00	9.70	235.00	2,269.00	9.66	10.75
	2021-22	24.58	251.12	10.22	89.94	923.66	10.27	22.26
	2022-23	2.53	29.31	11.60	7.65	89.12	11.64	34.59
	2023-24	0.00	0.00	0.00	1.59	17.03	10.71	40.28
	2024-25	0.01	0.13	10.48	4.25	44.29	10.42	35.37
SITE GTPS-II	2020-21	79.00	744.00	9.42	137.00	1,303.00	9.51	11.28
	2021-22	20.90	203.03	9.71	81.96	796.61	9.72	23.31
	2022-23	4.93	49.11	9.96	19.48	195.21	10.02	32.07
	2023-24	0.00	0.00	0.00	0.20	1.71	9.92	41.15
	2024-25	0.00	0.00	0.00	0.00	0.00	0.00	0.00

(Gas+RLNG+HSD based Power Plant)									
Year	Gen. on Gas (GWh) (Net)	Gas Consumption		Gen. on RLNG (GWh) (Net)	RLNG Consumption		Gen. on HSD (GWh) (Net)	Quantity of HSD used (000 liters) [3]	Overall Generation Cost (Rs./kWh) [1] & [2]
		Total MMCFT	CFT/kWh (Average)		Total MMCFT	CFT/kWh (Average)			
Korangi CCPP [3]									
2020-21	351.00	2,903.00	8.27	565.00	4,677.00	8.28	33.00	7,949.00	10.08
2021-22	67.06	558.85	8.33	216.18	1,809.51	8.37	269.22	62,853.96	24.03
2022-23	3.85	39.13	10.18	17.60	180.89	10.28	28.29	8,442.00	53.85
2023-24	1.85	18.23	9.85	99.32	913.58	9.20	10.96	2,980.95	39.38
2024-25	7.70	73.02	9.49	119.34	73.02	9.49	5.00	1,293.02	36.70

(HSD+RLNG based Power Plant)							
Power Station	Year	Gen. on HSD (GWh) (Net)	Quantity of HSD used (000 liters) [3]	Gen. on RLNG (GWh) (Net)	RLNG Consumption		Overall Generation Cost (Rs./kWh) [1] & [2]
					Total MMCFT	CFT/kWh (Average)	
Bin Qasim TPS-III [4]	2021-22	0.00	0.00	243.50	1,891.55	7.75	36.27
	2022-23	0.00	0.00	2,522.58	15,907.54	6.31	23.23
	2023-24	13.93	4,306.74	4,164.20	25,940.47	6.23	22.10
	2024-25	0.00	0.00	4,329.65	27,754.18	6.41	21.14

(Residual Furnace Oil based Power Plant)					
Power Station	Year	Gen. on RFO (GWh) (Net)	Quantity of RFO used (000 M. Tons)	Average Fuel Cost (Rs./kWh)	Overall Generation Cost (Rs./kWh) [1] & [2]
Gul Ahmed	2020-21	673.00	145.00	13.71	15.96
	2021-22	705.43	153.97	24.8	27.59
	2022-23	508.68	110.30	29.88	31.85
	2023-24	268.59	58.59	36.98	41.14
	2024-25	73.27	0.00	0.00	0.00
Tapal Energy	2020-21	737.00	160.18	13.73	14.87
	2021-22	715.86	156.37	24.84	26.70
	2022-23	518.43	115.03	29.51	33.00
	2023-24	288.33	63.41	36.89	41.45
	2024-25	0.00	0.00	0.00	0.00

(Gas based Power Plant)					
Power Station	Year	Gen. on Gas (GWh) (Net)	Quantity of Gas used (MMBTU)	Average Fuel Cost (Rs./kWh)	Overall Generation Cost (Rs./kWh) [1] & [2]
Sindh Nooriabad-I	2020-21	394.35	3232553	6.68	7.64
	2021-22	363.36	2954899	6.94	11.17
	2022-23	292.66	2432691	7.81	9.18
	2023-24	301.73	2525701	8.60	10.46
	2024-25	254.29	2107505	n.p.	10.62
Sindh Nooriabad-II	2020-21	380.22	3105772	6.68	7.64
	2021-22	345.81	2872374	6.61	11.12
	2022-23	287.03	2397322	7.76	9.13
	2023-24	297.54	2475991	8.55	10.41
	2024-25	272.43	2289027	n.p.	10.57

[1] Based on Units Sent Out.

[2] Increase in cost per unit sentout mainly due to significant increase in fuel prices and non-provision of indigenous gas.

[3] Due to non-provision of indigenous gas, KE was forced to utilize HSD to ensure continuity of power supply.

[4] BQPS-III was commissioned in FY 2022-23 (Unit-1 commissioned on May 10, 2023 and Unit-2 commissioned on March 9, 2023) and commissioned on HSD in FY 2023-24.

Source: KE/IPPs

TABLE 27
Auxiliary Consumption and other Factors of K-Electric and their IPPs

Power Station	Year	Auxiliary Consumption [9]		Maximum Load (MW) [1]	Load Factor (%) [2]	Capacity Factor (%) [3]	Utilization Factor (%) [4]	Availability Factor (%) [5]
		(GWh)	(%)					
Bin Qasim TPS-I	2020-21	400.00	7.80	1,025	58.40	77.72	97.62	90.45
	2021-22	301.57	8.40	849	53.80	55.10	80.86	86.80
	2022-23	181.67	8.93	730	52.02	35.85	86.90	89.02
	2023-24	53.58	7.93	730	42.38 [6]	15.74	98.13	92.68
	2024-25	35.55	8.43	543	46.91 [6]	14.21 [8]	72.99	89.30 [8]
Bin Qasim TPS-II	2020-21	247.00	5.92	571	85.40	95.26	99.71	95.09
	2021-22	233.03	6.10	555	81.13	86.34	96.86	96.04
	2022-23	172.47	6.14	550	72.86	67.27	96.04	91.79
	2023-24	143.49	5.31	545	63.51	63.85	100.00	91.87
	2024-25	111.31	6.58	524	67.12	37.92	99.70	96.91
Bin Qasim TPS-III	2021-22	12.60	4.92	-	-	-	-	-
	2022-23	72.75	2.80	U1-455 U2-463	U1-95.8 U2-90.7	U1-94.5 U2-86.3	U1-96.6 U2-98.3	U1-99.8 U2-86.0
	2023-24	105.35	2.46	909	82.08 [6]	85.80	98.98	62.05 [7]
	2024-25	120.47	2.71	891	75.90 [6]	62.47	97.02	88.55
Korangi Town GTPS-II	2020-21	15.77	4.14	96	55.75	53.60	89.86	83.52
	2021-22	7.49	6.14	96	39.29	14.97	89.85	96.56
	2022-23	2.13	17.30	90	38.38	1.49	84.31	98.40
	2023-24	0.09	5.52	52	27.95	0.20	54.26	98.71
	2024-25	0.18	4.12	72	40.56	0.54	75.16	99.03
SITE GTPS-II	2020-21	11.33	4.99	97	39.34	27.72	90.28	97.09
	2021-22	7.56	6.85	97	41.17	13.29	90.28	98.56
	2022-23	2.88	10.55	90	43.22	3.29	84.15	98.46
	2023-24	0.01	4.76	16	62.40	0.02	16.36	99.09
	2024-25	0.00	0.00	0.00	0.00	0.00	0.00	97.15
Korangi CCPP	2020-21	78.30	7.62	229	57.42	56.72	92.51	91.38
	2021-22	43.69	7.33	225	54.81	34.15	90.73	87.86
	2022-23	9.00	15.32	212	38.22	3.02	85.66	97.90
	2023-24	13.93	11.05	211	30.71	6.54	89.00	97.00
	2024-25	18.46	12.27	224	24.89	7.55	94.48	95.98
Gul Ahmed Energy	2020-21	19.48	2.81	128	97.11	60.13	61.92	93.22
	2021-22	18.35	2.53	128	97.39	62.83	64.51	95.06
	2022-23	12.79	2.45	128	96.30	45.27	47.01	88.36
	2023-24	7.48	2.71	128	93.14	23.72	25.47	95.83
	2024-25	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tapal Energy	2020-21	11.23	1.50	124	69.14	68.10	66.89	96.30
	2021-22	11.11	1.53	124	67.20	66.17	62.57	92.02
	2022-23	8.89	1.69	124	48.74	47.92	43.88	92.77
	2023-24	5.43	1.85	124	27.92	27.40	22.40	93.55
	2024-25	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sindh Nooriabad-I	2020-21	7.51	1.85	51	87.93	89.09	96.51	88.21
	2021-22	7.13	1.96	51	98.91	79.49	83.27	80.37
	2022-23	6.32	2.16	51	96.30	65.31	71.40	67.82
	2023-24	6.59	2.19	51	95.34	67.33	73.94	70.63
	2024-25	5.98	2.35	51	71.56	56.75	88.67	79.30
Sindh Nooriabad-II	2020-21	5.90	1.54	51	84.77	85.90	93.00	84.62
	2021-22	5.87	1.70	52	97.25	76.61	83.45	78.78
	2022-23	5.20	1.81	52	96.56	63.59	70.15	65.85
	2023-24	5.50	1.85	52	94.62	65.92	74.02	74.02
	2024-25	5.23	1.92	52	74.68	60.36	86.40	80.82

[1] Gross Load with the maximum load achieved at Complex level for BQPS-I and III.

[2] Load Factor = Gross Generation/(Maximum Load x Operating Hours)

[3] Capacity Factor = Gross Generation/(Available Capacity x Period Hours)

[4] Utilization Factor = Maximum Gross Load/(Derated Installed Gross Capacity). Restated for FY 2024.

[5] Availability Factor = (Period Hours - Planned Outage Hours - Forced Outage Hours)/Period Hours

[6] BQPS-I - Unit-wise Load Factor of U-1, U-2, U-5 and U-6 are 39%, 55%, 69% and 60% respectively in FY 2023-24 whereas, 27%, 57%, 59% and 51% respectively in FY 2024-25. Complex Load Factor has been computed based on weighted operating hours. BQPS-III - Unit-wise Load Factor of U-1 and U-2 are 82% and 84% respectively in FY 2023-24 whereas, 77% and 73% respectively in FY 2024-25. Complex Load Factor has been computed based on weighted operating hours.

[7] Decrease in Availability Factor mainly due to HSD Commissioning and certain works as per OEM Recommendation.

[8] Available Capacity of U-1 and U-2 are not included.

[9] Includes Operational Auxiliary only.

Source: KE/IPPs

TABLE 28
Heat Rate and Plant Efficiency Data of K-Electric and their IPPs

Power Station	Year	Heat Rate (Btu/kWh) - LHV [1]		Plant Efficiency (%) - LHV	
		On Gross Basis	On Net Basis	On Gross Basis	On Net Basis
Bin Qasim TPS-I	2020-21	9,469.00	10,272.00	36.03	33.22
	2021-22	9,496.00	10,366.68	35.93	32.91
	2022-23	9,586.93	10,527.49	35.59	32.41
	2023-24	9,787.74	10,630.72	34.86	32.10
	2024-25	9,963.07	10,880.23	34.25	31.36
Bin Qasim TPS-II	2020-21	7,082.25	7,469.32	48.55	45.68
	2021-22	7,020.73	7,476.76	48.60	45.64
	2022-23	7,144.15	7,611.86	47.76	44.83
	2023-24	7,262.82	7,670.37	46.98	44.48
	2024-25	7,283.87	7,796.83	46.85	43.76
Bin Qasim TPS-III	2022-23	5,753.15	5,891.31	59.31	57.92
	2023-24 [2]	5,868.10	6,016.06	58.15	56.72
	2024-25	5,996.75	6,163.60	56.90	55.36
Korangi Town GTPS-II	2020-21	7,955.00	8,304.27	42.89	41.09
	2021-22	8,238.77	8,777.44	41.42	38.87
	2022-23	8,257.92	9,983.51	41.32	34.18
	2023-24	8,520.81	9,020.32	40.04	37.83
	2024-25	8,261.55	8,616.90	41.30	39.60
Site GTPS-II	2020-21	8,205.00	8,677.00	41.36	39.32
	2021-22	8,255.46	8,861.89	41.33	38.50
	2022-23	8,238.25	9,209.88	41.42	37.05
	2023-24	8,290.36	8,875.52	41.16	38.44
	2024-25	0.00	0.00	0.00	0.00
Korangi CCPP	2020-21	7,010.00	7,588.00	48.68	44.97
	2021-22	7,201.87	7,771.53	47.38	43.91
	2022-23	8,295.86	9,797.15	41.13	34.83
	2023-24	7,520.67	8,455.17	45.37	40.36
	2024-25	7,889.56	8,992.76	43.25	37.94
Gul Ahmed Energy	2020-21	8,535.26	8,782.17	39.97	38.85
	2021-22	8,163.78	8,376.09	41.79	40.74
	2022-23	8,154.73	8,359.80	41.84	40.81
	2023-24	8,105.06	8,330.72	42.10	40.96
	2024-25	0.00	0.00	0.00	0.00
Tapal Energy	2020-21	8,604.72	8,735.85	39.66	39.06
	2021-22	8,253.28	8,381.33	41.34	40.71
	2022-23	8,391.19	8,535.13	40.66	39.98
	2023-24	8,296.11	8,452.29	41.13	40.37
	2024-25	0.00	0.00	0.00	0.00
Sindh Nooriabad-I	2020-21	7,966.91	8,197.08	42.83	41.62
	2021-22	7,975.55	8,132.12	42.78	42.12
	2022-23	8,136.50	8,312.28	41.93	41.05
	2023-24	8,191.62	8,370.65	41.65	40.76
	2024-25	8,097.32	8,287.67	42.14	41.17
Sindh Nooriabad-II	2020-21	8,125.23	8,168.42	41.99	41.77
	2021-22	8,167.70	8,306.24	41.77	41.08
	2022-23	8,203.51	8,352.03	41.59	40.85
	2023-24	8,170.47	8,321.49	41.76	41.00
	2024-25	8,243.92	8,402.20	41.39	40.61

[1] Since most of the IPPs report heat rates on LHV basis, hence KE is also reporting on LHV using HHV-LHV factors for like to like comparison.
[2] Includes impact of HSD commissioning.
Source: KE/IPPs

TABLE 29
Energy Purchase Price (EPP) and Capacity Purchase Price (CPP) Data
[Amount verified on account of EPP and CPP (Rs. in Million)] of KE System

	2023-24			2024-25		
	Energy Delivered (GWh)	EPP*	CPP	Energy Delivered (GWh)	EPP*	CPP
Bin Qasim TPS-I	622.22	25,901.59	9,111.06	386.13	13,721.00	6,392.50
Bin Qasim TPS-II	2,557.08	79,953.12	16,327.01	1,580.54	38,630.17	14,394.55
Bin Qasim TPS-III	4,178.13	94,201.54	26,604.68	4,329.65	92,809.98	24,587.50
Korangi Town GTPS-II	1.59	60.88	361.82	4.26	155.00	832.91
SITE Town GTPS-II	0.17	6.61	288.54	0.00	0.00	180.91
Korangi CCPP	112.13	4,580.02	8,140.09	132.03	4,970.46	7,176.40
Total	**7,471.32**	**204,703.77**	**60,833.20**	**6,432.62**	**150,286.61**	**53,564.77**

**These numbers are provisional and unaudited, and includes part-load, heat rate degradation impact. Further, the number excludes revenue of startups and other items classified as Pass-through Cost.*
Source: KE

TABLE 30
Details of Non-Project Missed Volume of KE System

	2023-24		2024-25	
	(kWh)	(Million Rs.)	(kWh)	(Million Rs.)
Oursun Pakistan	169,312.00	5.91	Nil	
Gharo Solar	121,808.82	2.16	Nil	
Total	**291,120.82**	**8.07**	**Nil**	

Source: KE

TABLE 31

K-Electric (Source-wise Own Generation and Fuel Cost Adjustments) (2024-25)

Description	July	August	September	October	November	December	January	February	March	April	May	June	Total
Fuel Cost - RFO (Rs./M. Ton)	5,993.03	537.58	1,108.50	503.21	58.09	0.00	0.00	0.81	0.00	0.00	0.00	15.85	**8,217.07**
Fuel Cost - Gas (Rs./MMBTU)	365.41	350.42	245.04	215.75	0.00	0.00	0.00	0.00	0.00	117.71	1,660.27	1,841.41	**4,796.01**
Fuel Cost - RLNG (Rs./MMBTU)	21,898.32	18,559.77	15,744.16	17,257.35	7,770.80	3,503.68	787.35	2,388.80	5,002.01	7,227.56	11,449.74	14,199.98	**125,789.53**
Fuel Cost - HSD (Rs./MMBTU)	192.31	12.06	0.00	76.22	0.00	0.00	0.00	0.00	0.00	196.62	0.00	10.42	**487.63**
Bin Qasim Thermal Power Station - I													
Units Sent Out (GWh)	179.69	21.97	28.40	30.63	1.79	0.00	0.00	0.09	0.00	0.00	20.54	103.01	**386.13**
Fuel Cost (Rs./kWh)	40.64	39.32	40.09	37.23	38.68	0.00	0.00	34.57	0.00	0.00	16.05	19.49	**33.29**
Fuel Cost (Mln Rs.)	7,302.68	863.82	1,138.55	1,140.35	69.40	0.00	0.00	3.25	0.00	0.00	329.67	2,007.74	**12,855.47**
Bin Qasim Thermal Power Station - II													
Units Sent Out (GWh)	312.35	290.52	198.90	244.27	72.14	7.30	0.00	14.24	0.37	8.62	205.19	226.66	**1,580.55**
Fuel Cost (Rs./kWh)	26.78	27.27	27.09	25.31	27.74	23.46	0.00	29.28	23.86	10.09	11.70	16.39	**23.19**
Fuel Cost (Mln Rs.)	8,363.39	7,923.51	5,388.30	6,182.84	2,001.18	171.17	0.00	416.82	8.77	86.92	2,401.23	3,715.94	**36,660.07**
Bin Qasim Thermal Power Station - III													
Units Sent Out (GWh)	542.90	464.33	465.36	496.90	294.58	180.20	42.08	105.06	265.70	382.48	548.68	541.54	**4,329.82**
Fuel Cost (Rs./kWh)	21.03	20.96	20.92	19.78	19.41	18.49	18.71	18.75	18.79	18.83	18.91	19.00	**19.72**
Fuel Cost (Mln Rs.)	11,419.16	9,730.35	9,735.89	9,826.90	5,718.30	3,332.51	787.35	1,969.54	4,993.24	7,203.31	10,374.91	10,287.14	**85,378.61**
Korangi Town Gas Turbine Power Station - II													
Units Sent Out (GWh)	1.36	0.05	0.43	2.11	0.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**4.26**
Fuel Cost (Rs./kWh)	33.38	34.47	33.34	31.55	32.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**32.41**
Fuel Cost (Mln Rs.)	45.52	1.56	14.50	66.67	9.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**138.21**
Korangi Combined Cycle Power Plant													
Units Sent Out (GWh)	39.52	29.12	26.48	28.02	1.00	0.00	0.00	0.00	0.00	5.79	0.16	1.78	**131.86**
Fuel Cost (Rs./kWh)	33.36	32.30	30.99	29.83	30.20	0.00	0.00	0.00	0.00	9.51	26.00	31.93	**30.80**
Fuel Cost (Mln Rs.)	1,318.31	940.59	820.47	835.78	30.05	0.00	0.00	0.00	0.00	55.04	4.19	56.84	**4,061.26**
Total													
Units Sent Out (GWh)	1,075.83	805.98	719.56	801.93	369.82	187.50	42.08	119.39	266.07	396.89	774.57	872.99	**6,432.62**
Fuel Cost (Rs./kWh)	26.44	24.14	23.76	22.51	21.17	18.69	18.71	20.01	18.80	18.51	16.93	18.41	**21.62**
Fuel Cost (Mln Rs.)	28,449.06	19,459.83	17,097.71	18,052.54	7,828.89	3,503.68	787.35	2,389.62	5,002.01	7,345.26	13,110.01	16,067.66	**139,093.62**

Source: KE

TABLE 32
K-Electric (Source-wise Power Purchase and Fuel Costs) (2024-25)

		July	August	September	October	November	December	January	February	March	April	May	June	Total
CPPA-G														
Generation	GWh	783.38	755.49	733.65	791.28	967.43	740.84	871.44	822.20	981.96	1,017.81	963.45	805.34	**10,234.27**
	%	83.79%	86.44%	86.21%	86.80%	90.22%	91.34%	93.96%	92.66%	90.34%	89.77%	89.75%	91.12%	**89.40%**
Fuel Cost	Mln Rs.	7,070.56	6,478.59	6,301.46	7,315.58	6,969.95	7,048.52	9,580.85	6,764.37	9,058.69	9,081.85	7,220.13	6,185.02	**89,075.58**
	Rs./kWh	9.03	8.58	8.59	9.25	7.20	9.51	10.99	8.23	9.23	8.92	7.49	7.68	**8.70**
Gul Ahmed Energy Limited														
Generation	GWh	39.20	10.70	10.75	12.30	0.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**73.27**
	%	4.19%	1.22%	1.26%	1.35%	0.03%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	**0.64%**
Fuel Cost	Mln Rs.	1,322.13	361.57	349.57	381.70	9.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**2,424.77**
	Rs./kWh	33.73	33.78	32.53	31.03	31.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**33.09**
International Steel Limited														
Generation	GWh	0.98	1.57	2.17	2.43	1.43	0.16	0.16	0.40	0.87	0.15	0.02	0.13	**10.46**
	%	0.10%	0.18%	0.26%	0.27%	0.13%	0.02%	0.02%	0.05%	0.08%	0.01%	0.00%	0.01%	**0.09%**
Fuel Cost	Mln Rs.	15.51	13.03	11.81	22.34	1.94	0.00	0.00	0.00	0.00	0.00	0.00	0.02	**64.64**
	Rs./kWh	15.84	8.32	5.44	9.19	1.36	0.00	0.00	0.00	0.00	0.00	0.00	0.15	**6.18**
Sindh Nooriabad Power Company Limited (I & II) Including Impact of STDC Losses Cost														
Generation	GWh	55.18	57.16	47.85	42.28	50.91	40.27	24.21	28.99	46.67	42.88	49.52	32.30	**518.21**
	%	5.90%	6.54%	5.62%	4.64%	4.75%	4.96%	2.61%	3.27%	4.29%	3.78%	4.61%	3.65%	**4.53%**
Fuel Cost	Mln Rs.	620.95	490.18	410.44	362.60	436.67	345.43	207.62	248.67	405.42	372.12	436.81	284.40	**4,621.31**
	Rs./kWh	11.25	8.58	8.58	8.58	8.58	8.58	8.58	8.58	8.69	8.68	8.82	8.80	**8.92**
FFBL Power Company Limited														
Generation	GWh	38.57	36.32	35.02	39.50	32.10	3.18	0.00	1.50	20.31	27.09	25.61	19.81	**279.00**
	%	4.13%	4.16%	4.11%	4.33%	2.99%	0.39%	0.00%	0.17%	1.87%	2.39%	2.39%	2.24%	**2.44%**
Fuel Cost	Mln Rs.	767.44	413.88	657.69	415.12	590.52	58.50	-7.40	27.24	369.58	492.90	466.10	360.41	**4,611.98**
	Rs./kWh	19.90	11.40	18.78	10.51	18.40	18.40	0.00	18.20	18.20	18.20	18.20	18.19	**16.53**
Oursun Pakistan Limited														
Generation	GWh	6.24	5.24	7.53	7.73	7.20	7.19	7.66	7.12	9.25	9.20	8.48	6.85	**89.68**
	%	0.67%	0.60%	0.88%	0.85%	0.67%	0.89%	0.83%	0.80%	0.85%	0.81%	0.79%	0.78%	**0.78%**
Fuel Cost	Mln Rs.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**
	Rs./kWh	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**
Gharo Solar														
Generation	GWh	6.74	5.63	8.55	8.44	7.45	7.09	7.75	7.54	10.83	11.45	10.55	7.68	**99.68**
	%	0.72%	0.64%	1.00%	0.93%	0.69%	0.87%	0.84%	0.85%	1.00%	1.01%	0.98%	0.87%	**0.87%**
Fuel Cost	Mil Rs.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**
	Rs./kWh	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**
Lucky Cement														
Generation	GWh	0.45	0.36	0.32	0.37	0.26	0.21	0.22	0.20	0.26	0.37	0.47	0.48	**3.96**
	%	0.05%	0.04%	0.04%	0.04%	0.02%	0.03%	0.02%	0.02%	0.02%	0.03%	0.04%	0.05%	**0.03%**
Fuel Cost	Mln Rs.	11.82	9.39	8.33	9.65	6.86	6.30	6.75	6.36	8.22	12.93	14.75	12.86	**114.20**
	Rs./kWh	26.37	26.37	26.37	26.37	26.37	30.72	30.94	31.16	31.37	34.94	31.11	26.79	**28.85**
Net-Metering														
Generation	GWh	4.22	1.53	5.18	7.34	5.23	12.15	16.00	19.42	16.84	24.90	15.42	11.23	**139.46**
	%	0.45%	0.18%	0.61%	0.80%	0.49%	1.50%	1.73%	2.19%	1.55%	2.20%	1.44%	1.27%	**1.22%**
Cost	Mln Rs.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**
	Rs./kWh	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**
Total Generation														
Generation	GWh	934.96	873.99	851.00	911.66	1072.32	811.08	927.42	887.36	1086.99	1133.85	1073.53	883.82	**11,447.97**
	%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	**100.00%**
Fuel Cost	Mln Rs.	9,808.41	7,766.63	7,739.30	8,507.00	8,015.74	7,458.75	9,787.82	7,046.64	9,841.91	9,959.80	8,137.78	6,842.71	**100,912.48**
	Rs./kWh	10.49	8.89	9.09	9.33	7.48	9.20	10.55	7.94	9.05	8.78	7.58	7.74	**8.81**

Source: KE

TABLE 33

K-Electric (Fuel-wise Own Generation and Fuel Costs) (2024-25)

		July	August	September	October	November	December	January	February	March	April	May	June	Total
RFO														
Generation	GWh	144.51	13.21	27.59	12.57	1.46	0.00	0.00	0.02	0.00	0.00	0.00	0.40	**199.77**
	%	13.43%	1.64%	3.83%	1.57%	0.40%	0.00%	0.00%	0.02%	0.00%	0.00%	0.00%	0.05%	**3.11%**
Fuel Cost	Mln Rs.	5,993.03	537.58	1,108.50	503.21	58.09	0.00	0.00	0.81	0.00	0.00	0.00	15.85	**8,217.07**
	Rs./kWh	41.47	40.68	40.17	40.04	39.66	0.00	0.00	39.66	0.00	0.00	0.00	39.63	**41.13**
Gas														
Generation	GWh	41.53	39.83	27.84	24.80	0.00	0.00	0.00	0.00	0.00	13.44	183.81	185.66	**516.92**
	%	3.86%	4.94%	3.87%	3.09%	0.00%	0.00%	0.00%	0.00%	0.00%	3.39%	23.73%	21.27%	**8.04%**
Fuel Cost	Mln Rs.	365.41	350.42	245.04	215.75	0.00	0.00	0.00	0.00	0.00	117.71	1,660.27	1,841.41	**4,796.01**
	Rs./kWh	8.80	8.80	8.80	8.70	0.00	0.00	0.00	0.00	0.00	8.76	9.03	9.92	**9.28**
RLNG														
Generation	GWh	886.47	752.73	664.13	763.25	368.36	187.50	42.08	119.37	266.07	383.44	590.76	686.76	**5,710.93**
	%	82.40%	93.39%	92.30%	95.18%	99.60%	100.00%	100.00%	99.98%	100.00%	96.61%	76.27%	78.67%	**88.78%**
Fuel Cost	Mln Rs.	21,898.32	18,559.77	15,744.16	17,257.35	7,770.80	3,503.68	787.35	2,388.80	5,002.01	7,227.56	11,449.74	14,199.98	**125,789.53**
	Rs./kWh	24.70	24.66	23.71	22.61	21.10	18.69	18.71	20.01	18.80	18.85	19.38	20.68	**22.03**
HSD														
Generation	GWh	3.31	0.21	0.00	1.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	**5.00**
	%	0.31%	0.03%	0.00%	0.16%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.02%	**0.08%**
Fuel Cost	Mln Rs.	192.31	12.06	0.00	76.22	0.00	0.00	0.00	0.00	0.00	196.62	0.00	10.42	**487.63**
	Rs./kWh	58.13	58.13	0.00	58.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	61.29	**97.59**
Total Generation														
Generation	GWh	1,075.83	805.98	719.56	801.93	369.82	187.50	42.08	119.39	266.07	396.89	774.57	872.99	**6,432.62**
	%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	**100.00%**
Fuel Cost	Mln Rs.	28,449.06	19,459.83	17,097.71	18,052.54	7,828.89	3,503.68	787.35	2,389.62	5,002.01	7,541.89	13,110.01	16,067.66	**139,290.24**
	Rs./kWh	26.44	24.14	23.76	22.51	21.17	18.69	18.71	20.01	18.80	19.00	16.93	18.41	**21.65**

Source: KE

TABLE 34
K-Electric (Fuel-wise Power Purchases and Fuel Costs) (2024-25)

		July	August	September	October	November	December	January	February	March	April	May	June	Total
CPPA-G														
Generation	GWh	783.38	755.49	733.65	791.28	967.43	740.84	871.44	822.20	981.96	1017.81	963.45	805.34	**10,234.27**
	%	83.79%	86.44%	86.21%	86.80%	90.22%	91.34%	93.96%	92.66%	90.34%	89.77%	89.75%	91.12%	**89.40%**
Fuel Cost	Mln Rs.	7,070.56	6,478.59	6,301.46	7,315.58	6,969.95	7,048.52	9,580.85	6,764.37	9,058.69	9,081.85	7,220.13	6,185.02	**89,075.58**
	Rs./kWh	9.03	8.58	8.59	9.25	7.20	9.51	10.99	8.23	9.23	8.92	7.49	7.68	**8.70**
Gas/RLNG														
Generation	GWh	56.61	59.08	50.33	45.07	52.60	40.63	24.58	29.60	47.80	43.40	50.01	32.91	**532.63**
	%	6.05%	6.76%	5.91%	4.94%	4.91%	5.01%	2.65%	3.34%	4.40%	3.83%	4.66%	3.72%	**4.65%**
Fuel Cost	Mln Rs.	648.28	512.59	430.58	394.60	445.47	351.73	214.37	255.03	413.64	385.05	451.56	297.28	**4,800.16**
	Rs./kWh	11.45	8.68	8.55	8.75	8.47	8.66	8.72	8.62	8.65	8.87	9.03	9.03	**9.01**
RFO														
Generation	GWh	39.20	10.70	10.75	12.30	0.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**73.27**
	%	4.19%	1.22%	1.26%	1.35%	0.03%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	**0.64%**
Fuel Cost	Mln Rs.	1,322.13	361.57	349.57	381.70	9.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**2,424.77**
	Rs./kWh	33.73	33.78	32.53	31.03	31.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**33.09**
Coal														
Generation	GWh	38.57	36.32	35.02	39.50	32.10	3.18	0.00	1.50	20.31	27.09	25.61	19.81	**279.00**
	%	4.13%	4.16%	4.11%	4.33%	2.99%	0.39%	0.00%	0.17%	1.87%	2.39%	2.39%	2.24%	**2.44%**
Fuel Cost	Mln Rs.	767.44	413.88	657.69	415.12	590.52	58.50	-7.40	27.24	369.58	492.90	466.10	360.41	**4,611.98**
	Rs./kWh	19.90	11.40	18.78	10.51	18.40	18.40	0.00	18.20	18.20	18.20	18.20	18.19	**16.53**
Solar (including Net-Metering)														
Generation	GWh	17.20	12.40	21.26	23.51	19.88	26.42	31.41	34.07	36.92	45.55	34.45	25.76	**328.82**
	%	1.84%	1.42%	2.50%	2.58%	1.85%	3.26%	3.39%	3.84%	3.40%	4.02%	3.21%	2.91%	**2.87%**
Fuel Cost	Mln Rs.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**
	Rs./kWh	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**
STDC Losses														
Fuel Cost	Mln Rs.	9.58	9.64	7.70	5.91	7.23	4.96	2.12	2.77	5.59	5.60	0.00	0.00	**61.09**
Total Generation														
Generation	GWh	934.96	873.99	851.00	911.66	1072.32	811.08	927.42	887.36	1086.99	1133.85	1073.53	883.82	**11,447.97**
	%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	**100.00%**
Fuel Cost	Mln Rs.	9,817.98	7,776.27	7,747.00	8,512.91	8,022.97	7,463.71	9,789.94	7,049.41	9,847.49	9,965.40	8,137.78	6,842.71	**100,973.57**
	Rs./kWh	10.50	8.90	9.10	9.34	7.48	9.20	10.56	7.94	9.06	8.79	7.58	7.74	**8.82**

Source: KE

TABLE 35
Capacity and Energy Invoiced by Generators (Rs. in Million)

Fuel Type	2020-21		2021-22		2022-23		2023-24		2024-25	
	Capacity Charges	Energy Charges	Capacity Charges	Energy Charges	Capacity Charges	Energy Charges	Capacity Charges	Energy Charges	Capacity Charges	Energy Charges
WAPDA Hydel	95,826.00	2,650.00	121,186.97	2,446.74	100,219.33	2,650.14	105,203.25	2,769.28	180,453.37	3,082.84
Thermal	31,661.00	58,582.00	33,453.40	83,125.59	22,779.10	86,947.23	22,754.25	57,392.14	35,593.63	59,466.31
Coal	205,636.00	201,925.00	224,825.99	360,937.36	431,781.29	337,456.09	725,013.34	312,836.44	669,840.79	367,046.41
Nuclear	91,329.00	11,264.00	202,559.48	19,879.86	273,953.24	26,021.86	401,938.69	37,609.84	362,705.27	52,361.56
IPP Hydel	47,814.00	721.00	93,473.18	1,513.58	104,750.97	5,162.11	124,918.82	4,830.17	209,709.91	7,158.14
RFO	93,977.00	84,242.00	59,802.36	325,343.79	68,992.04	169,079.58	84,088.69	87,610.77	25,247.27	4,481.27
RLNG/Gas/HSD	126,091.00	304,278.00	114,285.47	607,394.87	149,872.64	632,863.59	221,984.30	667,715.82	148,107.92	624,271.25
Baggasse	5,718.00	4,989.00	4,466.71	5,603.52	5,215.12	5,970.52	5,334.75	5,472.48	3,378.54	19,322.28
Wind	75,975.00	0.00	94,788.33	0.00	119,529.43	0.00	172,859.88	0.00	132,774.24	0.00
Solar	18,150.00	0.00	19,309.83	0.00	31,349.63	0.00	35,555.98	0.00	38,380.80	0.00
Import	0.00	4,960.00	925.62	8,139.80	1,400.67	10,363.66	1,519.15	13,037.94	1,206.67	11,932.18
Mixed	753.00	1,260.00	587.52	686.49	551.42	757.96	(189.90)	(311.40)	0.00	0.00
Total	**792,930.00**	**674,871.00**	**969,664.85**	**1,415,071.59**	**1,310,394.89**	**1,277,272.74**	**1,900,981.20**	**1,188,963.48**	**1,807,398.40**	**1,149,122.24**

Note: The amount of EPP of Wind and Solar Power Plants have been included in CPP as per regulatory requirement.

Source: CPPA-G

TABLE 36

Energy Purchase Price (EPP) and Capacity Purchase Price (CPP) Data [Amount verified on account of EPP and CPP (Rs. in Million)] of CPPA-G System

Power Plant	2020-21			2021-22			2022-23			2023-24			2024-25		
	Energy Delivered (GWh)	EPP	CPP	Energy Delivered (GWh)	EPP	CPP	Energy Delivered (GWh)	EPP	CPP	Energy Delivered (GWh)	EPP	CPP	Energy Delivered (GWh)	EPP	CPP
WAPDA	28,654.17	2,135.57	57,421.72	25,614.00	2,007.68	68,702.07	31,284.91	2,650.14	100,219.33	33,258.73	2,769.28	105,203.25	33,518.60	3,082.84	180,453.37
Tarbela 4th Ext.	3,417.40	514.59	7,611.05	3,276.00	439.00	24,848.87	--	--	--	--	--	--	--	--	--
Neelum Jhelum	1,809.62	16,500.87	--	4,306.00	--	66,437.01	107.72	--	1,174.53	1,744.04	--	15,902.89	--	--	--
Total WAPDA	**33,881.19**	**19,151.03**	**65,032.77**	**33,196.00**	**2,446.68**	**159,987.95**	**31,392.62**	**2,650.14**	**101,393.86**	**35,002.77**	**2,769.28**	**121,106.14**	**33,518.60**	**3,082.84**	**180,453.37**
Jagran (AJ&K)	113.23	293.27	--	121.22	314.03	--	103.61	288.25	-4.28	113.18	1,522.96	4.28	113.61	425.87	0.00
Malakand-III	321.57	101.84	1,263.47	353.87	112.07	1,263.47	267.77	544.32	5,175.59	221.59	210.57	4,490.76	254.53	437.35	5,343.73
Pehur (PEDO)	--	--	--	--	--	--	--	--	--	--	--	--	--	1,078.80	--
Laraib Energy	465.29	6,216.27	223.76	412.67	142.56	4,135.12	345.00	763.82	7,345.12	415.97	426.14	11,312.00	353.60	534.65	8,110.54
Patrind Hydro	624.45	109.28	5,062.31	562.02	109.28	5,062.31	548.60	146.78	14,704.86	564.85	191.99	18,380.65	550.64	232.57	18,149.74
Gulpur Hydropower	256.89	49.86	8,664.38	243.95	47.35	7,724.46	304.69	71.23	9,809.41	268.07	125.21	17,522.72	175.66	98.07	16,248.06
Karot Hydropower	--	--	--	--	--	--	3,161.74	1,551.57	66,545.73	3,161.45	1,368.32	57,305.53	2,738.19	2,338.86	101,111.78
Ranolia Hydropower	--	--	--	17.42	69.93	--	6.90	28.29	--	--	--	--	--	24.07	--
Daral Khwar	--	--	--	130.66	1,074.15	--	127.29	1,767.83	--	124.37	984.99	--	159.05	1,394.07	--
SK Hydropower	--	--	--	--	--	--	--	--	--	0.03	0.00	0.11	2,109.10	593.83	60,746.06
Total Hydel IPPs	**1,781.43**	**6,770.52**	**15,213.92**	**1,841.81**	**1,869.37**	**18,185.36**	**4,865.60**	**5,162.11**	**103,576.44**	**4,869.51**	**4,830.17**	**109,016.04**	**6,454.39**	**7,158.14**	**209,709.91**
GENCO-I	199.55	3,229.15	3,432.44	245.51	7,385.84	3,381.92	24.38	1,084.11	3,409.83	--	39.82	3,204.87	--	15.54	759.11
GENCO-II	4,825.00	34,180.00	18,836.00	3,521.80	30,342.98	16,645.11	4,604.30	46,436.46	7,605.18	2,551.35	30,941.35	3,580.71	2,355.88	28,559.75	821.25
GENCO-III	1,777.00	21,012.00	10,546.00	685.56	45,432.17	13,511.39	1,313.36	39,426.66	11,764.09	938.73	26,410.96	15,968.67	949.54	26,497.72	34,013.27
Lal Pir Power	620.78	9,079.76	4,601.98	1,022.67	27,300.90	3,526.85	397.59	15,430.17	6,994.64	358.99	13,453.44	8,838.40	0.00	0.00	2,671.69
Pak Gen. Power	445.54	6,828.03	5,297.96	1,304.35	36,281.10	4,311.02	443.74	16,944.67	7,094.56	211.00	8,310.36	8,861.73	7.75	280.63	5,728.01
Altern Energy	11.60	164.84	32.87	--	--	--	--	--	--	--	--	--	0.00	6.21	--
Fauji Kabirwala	389.96	4,518.36	1,965.48	357.21	8,640.11	1,365.99	66.33	2,114.35	1,152.41	92.01	3,053.70	2,337.12	68.96	2,204.12	2,671.19
Habibullah Coastal	--	--	68.84	--	1,124.35	44.67	--	324.82	--	--	646.86	-62.29	0.00	46.40	0.00
Hub Power	174.51	3,587.31	22,938.88	1,219.71	29,875.00	25,537.00	200.66	7,763.91	29,470.63	--	-312.38	32,150.63	15.05	628.85	5,967.91
KAPCO	3,562.24	41,419.82	34,153.64	4,979.78	122,082.19	1,403.98	587.97	20,498.29	-175.10	--	--	352.03	52.71	1,749.67	0.00
Kohinoor Energy	342.85	4,634.70	1,752.83	515.81	12,731.17	1,631.83	329.16	10,131.12	2,041.91	207.62	7,218.64	2,525.64	76.16	1,990.51	1,990.57
Rousch Power	283.64	3,535.18	7,876.64	495.90	12,439.62	4,607.02	179.04	5,393.11	4,935.81	9.71	226.49	8,436.73	62.52	1,887.95	11,635.85
Saba Power	121.63	1,835.42	2,353.45	329.67	8,790.09	2,208.02	148.47	4,906.71	2,241.09	54.18	2,091.82	3,266.72	0.00	0.00	820.07
Liberty Daharki Power	985.03	11,076.22	2,661.82	1,054.06	13,196.00	2,213.00	1,001.19	25,863.46	3,290.24	903.87	25,084.49	4,801.52	817.72	21,406.58	3,597.98
Uch Power	4,090.44	30,533.43	6,987.60	4,300.52	38,859.71	6,613.33	3,901.33	37,565.36	8,687.94	3,965.85	54,788.51	8,033.18	3,885.78	53,403.75	6,756.93
Attock Gen.	383.98	4,934.20	1,929.71	721.82	18,569.22	2,378.96	483.65	13,164.29	2,332.06	206.64	6,259.58	3,377.28	92.42	1,790.11	-5,482.49
Atlas Power	418.57	5,768.60	3,033.20	1,007.74	20,722.56	3,543.77	521.94	16,155.70	4,093.78	252.87	8,970.58	4,630.65	15.22	-247.57	-2,830.77
Engro Powergen. Qadirpur	680.06	5,904.60	2,504.34	788.64	6,959.71	2,161.21	935.96	8,898.15	3,595.66	813.48	9,149.28	4,237.98	774.31	9,111.77	2,562.01
Saif Power	624.32	6,796.30	3,103.27	734.99	17,436.07	2,613.39	538.24	15,656.20	3,241.48	220.59	6,962.54	4,237.57	234.41	6,996.82	3,371.10
Orient Power	595.44	6,824.99	3,638.06	836.33	18,907.47	3,686.67	604.79	17,214.81	3,537.29	541.20	15,926.80	5,083.26	459.13	13,606.63	4,707.27
Nishat Power	523.36	7,315.01	2,736.17	794.25	16,385.73	2,904.35	537.90	17,671.16	3,606.40	453.69	16,229.38	4,542.18	86.66	-133.26	4,005.49
Nishat Chunian	537.46	7,318.53	2,640.65	882.45	18,071.26	2,639.02	386.13	12,610.93	3,422.24	240.45	8,947.18	4,488.05	57.21	-724.24	4,046.27
Sapphire Electric	550.54	7,234.66	3,454.73	780.51	17,866.76	1,746.06	452.53	13,388.90	3,328.02	479.36	14,367.56	4,106.16	268.93	8,253.69	2,119.35
Halmore Power	5,615.56	6,780.17	6,036.18	675.91	16,214.39	4,612.32	287.05	8,239.79	4,109.19	207.55	6,595.83	5,597.34	364.55	10,947.70	5,076.08
Narowal Energy	442.09	6,214.87	6,641.96	867.50	18,186.68	3,935.30	469.88	15,369.56	4,405.71	200.96	7,847.72	6,173.25	37.93	761.87	4,483.10
Liberty Power Tech.	606.59	8,563.92	4,529.22	925.43	23,032.97	3,674.65	544.54	17,041.38	3,464.12	239.94	8,590.39	4,799.64	77.84	-1,615.29	3,847.41
Foundation Power	997.11	7,912.48	4,810.39	1,269.59	9,727.85	2,433.20	1,196.12	10,387.10	3,709.38	1,087.56	10,923.80	4,320.27	1,122.64	10,838.81	3,107.62
Uch-II Power	2,339.30	17,905.61	11,640.03	2,827.98	22,281.07	12,722.15	2,776.44	29,744.42	21,594.77	2,025.72	32,275.24	24,917.86	2,233.47	31,732.14	19,315.15
Sahiwal Imported Coal	7,341.83	72,193.83	51,641.54	6,882.11	116,730.00	54,909.00	2,876.85	89,522.05	99,478.98	2,075.55	45,630.81	123,185.43	4,255.19	79,151.61	111,168.41

Power Plant	2020-21			2021-22			2022-23			2023-24			2024-25		
	Energy Delivered (GWh)	EPP	CPP	Energy Delivered (GWh)	EPP	CPP	Energy Delivered (GWh)	EPP	CPP	Energy Delivered (GWh)	EPP	CPP	Energy Delivered (GWh)	EPP	CPP
Quaid-e-Azam Thermal	7,118.80	62,720.36	19,160.78	6,090.89	110,729.86	21,383.22	4,697.55	126,545.52	36,180.40	3,660.15	69,991.40	45,217.40	6,098.15	141,487.65	18,063.58
NPPMCL – HBS	7,682.35	64,123.73	16,545.69	7,488.56	127,962.96	18,489.23	6,520.55	148,145.24	25,112.27	7,930.78	183,906.66	34,242.22	6,515.65	138,739.49	22,101.88
NPPMCL – Balloki	6,032.81	49,527.77	13,627.66	7,186.75	126,556.08	17,746.73	6,863.66	160,748.12	27,397.77	6,684.63	157,463.03	33,057.82	5,479.91	127,437.83	23,723.79
Port Qasim Electric	8,371.36	55,318.43	54,352.58	7,478.63	99,892.00	58,279.00	3,203.00	57,629.20	89,268.76	782.26	12,220.01	104,418.45	2,751.20	43,747.86	128,744.61
China Power Hub	7,923.40	55,406.50	62,849.94	6,764.90	85,199.00	58,011.00	1,546.92	43,873.36	118,982.57	476.55	11,998.49	136,662.99	671.65	13,288.91	124,460.55
Engro Powergen. Thar	3,902.65	53,533.38	31,073.58	3,676.97	46,979.00	33,770.00	3,646.06	49,069.18	52,013.95	3,766.21	50,537.77	63,372.30	3,852.91	46,574.53	59,993.84
Lucky Electric Power	--	--	--	1,774.10	14,826.00	7,415.00	3,323.89	53,545.52	42,966.03	1,688.68	20,233.51	56,686.50	1,018.76	18,968.44	49,413.27
Punjab Thermal Power	--	--	--	78.42	--	--	885.23	19,351.48	0.00	3,197.29	76,353.64	33,420.15	1,757.27	46,163.76	19,298.13
Thar Energy	--	--	--	--	--	--	1,238.50	14,786.68	7,752.33	1,948.50	27,738.50	38,816.40	1,601.32	26,356.83	39,441.38
Thar Coal Block-I	--	--	--	--	--	--	3,991.44	20,509.76	17,086.84	7,500.33	116,416.69	161,453.08	8,315.01	107,017.05	124,632.58
ThalNova Power	--	--	--	--	--	--	859.92	8,520.35	4,231.83	1,830.69	28,060.66	40,418.19	1,778.36	31,941.19	31,986.15
Total Thermal	**80,517.35**	**687,932.16**	**429,456.11**	**80,567.02**	**1,347,717.87**	**406,055.36**	**62,586.22**	**1,221,672.06**	**673,425.07**	**57,804.94**	**1,125,551.11**	**1,053,758.09**	**58,212.15**	**1,050,872.00**	**878,789.61**
CHASNUPP-I	2,244.33	2,182.16	11,612.27	2,512.57	3,062.07	11,709.75	2,298.98	2,801.75	11,324.05	1,959.76	3,239.60	20,894.09	2,164.03	4,899.53	19,979.59
CHASNUPP-II	2,067.98	2,263.23	18,146.56	2,437.85	2,752.33	19,710.79	2,437.89	3,602.91	22,107.61	2,520.36	5,601.74	30,019.66	2,268.78	6,174.99	46,777.38
CHASNUPP-III	2,404.32	2,281.76	30,692.06	2,320.37	3,271.41	30,425.67	2,500.37	3,633.54	36,174.19	2,331.33	4,010.82	47,782.07	2,377.84	6,085.78	21,658.31
CHASNUPP-IV	2,456.15	2,926.54	30,338.34	2,179.48	2,802.66	30,438.59	2,471.98	3,244.97	36,151.45	2,498.06	4,638.55	48,450.66	2,530.23	5,708.51	46,543.55
KANUPP	1,698.92	1,573.88	9,822.17	--	--	--	--	--	--	--	--	--	--	--	--
KANUPP-II	--	--	--	6,043.60	6,157.10	79,357.21	7,562.27	6,755.46	88,525.50	5,900.77	10,760.64	172,643.86	7,453.42	14,532.37	62,872.88
KANUPP-III	--	--	--	1,967.06	1,782.94	15,026.71	6,783.07	5,983.23	79,670.45	7,944.59	9,358.49	82,148.34	5,657.79	14,960.37	164,873.55
Total Nuclear	**10,871.70**	**11,227.57**	**100,611.40**	**17,460.92**	**19,828.51**	**186,668.72**	**24,054.56**	**26,021.86**	**273,953.24**	**23,154.88**	**37,609.84**	**401,938.69**	**22,452.08**	**52,361.56**	**362,705.27**
Tavanir-Iran (Import)	498.37	27.29	0.00	429.04	8,061.00	0.00	536.29	10,363.66	1,400.67	440.04	13,037.94	1,519.15	453.92	11,932.18	1,206.67
Zorlu Enerji Pakistan	109.20	2,293.30	--	128.64	2,948.82	--	95.69	--	2,924.23	111.35	--	2,133.35	98.68	--	5,513.41
FFC Energy	123.77	2,503.28	--	114.54	2,766.53	--	76.55	--	2,892.64	97.19	--	2,310.10	76.39	--	2,045.99
Three Gorges First	138.69	3,607.42	--	123.78	3,756.12	--	88.43	--	5,285.10	108.36	--	4,592.03	85.65	--	2,718.25
Foundation Wind-I	144.60	3,494.83	--	127.16	3,699.71	--	88.92	--	5,078.88	110.98	--	6,956.31	93.25	--	4,934.17
Foundation Wind-II	143.59	3,481.41	--	141.83	3,684.47	--	97.68	--	5,035.84	122.97	--	6,882.33	105.45	--	3,977.89
Sapphire Wind	110.68	2,739.76	--	129.95	3,534.73	--	81.42	--	4,219.07	79.43	--	6,428.02	78.91	--	4,370.22
Yunus Energy	119.00	2,862.04	--	135.62	3,579.12	--	89.81	--	3,666.10	82.72	--	5,067.90	84.73	--	3,576.16
Metro Power	140.32	3,380.62	--	147.64	3,168.32	--	106.75	--	1,728.48	125.17	--	4,353.83	105.36	--	5,283.16
Gul Ahmed Wind	116.69	2,885.80	--	137.86	3,720.73	--	87.17	--	4,180.16	83.26	--	5,627.30	86.03	--	4,440.79
Master Wind	118.61	2,931.90	--	38.81	3,705.88	--	89.93	--	4,207.48	85.08	--	5,695.05	82.34	--	4,169.06
Tenaga Generasi	105.00	2,632.00	--	133.08	3,675.18	--	76.23	--	3,921.70	93.17	--	6,007.24	89.17	--	4,604.84
HydroChina Dawood	102.26	2,611.83	--	132.44	3,740.47	--	71.44	--	3,868.63	89.41	--	6,099.56	86.20	--	4,589.25
Sachal Energy	134.62	3,404.26	--	130.89	3,569.60	--	95.70	--	4,868.54	115.08	--	6,405.95	87.76	--	5,980.02
UEP Wind	215.94	5,511.32	--	254.07	7,155.52	--	172.73	--	8,870.96	169.57	--	12,323.05	153.05	--	8,649.51
Artistic Wind	172.40	2,778.08	--	192.97	2,991.93	--	126.84	--	1,805.10	168.04	--	2,445.79	145.79	--	3,375.99
Act Wind	77.97	1,865.04	--	88.37	1,920.65	--	53.77	--	1,848.57	72.55	--	2,671.87	56.12	--	1,846.70
Hawa Energy	154.77	3,005.84	--	169.86	3,559.69	--	117.07	--	4,551.42	92.43	--	5,809.09	106.00	--	4,600.82
Jhimpir Wind	157.84	3,069.46	--	166.01	3,474.47	--	115.78	--	4,483.12	92.56	--	5,898.83	107.17	--	4,604.07
Three Gorges Second	116.00	2,290.00	--	138.81	3,030.20	--	93.90	--	3,651.47	86.43	--	5,349.00	87.06	--	3,833.01
Three Gorges Third	120.00	2,372.00	--	142.75	3,113.26	--	97.67	--	3,773.46	88.43	--	5,477.50	83.64	--	3,950.69
Tricon Bostan-A	164.63	3,191.79	--	181.46	3,838.88	--	105.98	--	4,691.34	111.16	--	6,730.65	119.50	--	5,262.80
Tricon Bostan-B	151.19	2,951.09	--	177.70	3,759.73	--	111.58	--	4,576.05	108.15	--	6,612.93	114.47	--	5,153.78
Tricon Bostan-C	159.07	3,068.26	--	178.69	3,779.41	--	121.42	--	4,579.60	107.63	--	6,691.67	114.32	--	5,113.91
Zephyr Wind	149.34	2,821.61	--	191.70	3,876.47	--	113.07	--	3,365.58	121.76	--	5,895.27	123.89	--	5,666.42
Lucky Renewables	--	--	--	128.06	967.97	--	140.28	--	1,093.59	110.69	--	3,589.97	113.97	--	1,968.16
Master Green Energy	--	--	--	127.51	974.20	--	130.86	--	2,070.81	103.97	--	2,423.11	108.08	--	1,820.95
Act 2 Din Wind	--	--	--	81.66	590.36	--	138.67	--	1,947.59	115.20	--	2,321.51	121.13	--	1,949.04

Power Plant	2020-21			2021-22			2022-23			2023-24			2024-25		
	Energy Delivered (GWh)	EPP	CPP	Energy Delivered (GWh)	EPP	CPP	Energy Delivered (GWh)	EPP	CPP	Energy Delivered (GWh)	EPP	CPP	Energy Delivered (GWh)	EPP	CPP
Artistic 2 Wind Power	--	--	--	83.20	597.04	--	132.27	--	2,878.35	110.97	--	3,955.81	118.18	--	1,894.88
Indus Wind Energy	--	--	--	76.45	574.74	--	137.66	--	1,707.49	117.74	--	2,662.59	131.95	--	2,113.25
Lakeside Energy	--	--	--	63.98	472.95	--	139.46	--	1,060.91	114.95	--	3,182.09	123.60	--	2,023.85
Liberty Wind Power-I	--	--	--	23.65	466.44	--	123.89	--	981.00	109.25	--	3,096.87	108.89	--	1,765.52
Din Energy	--	--	--	66.82	493.53	--	131.07	--	1,546.58	108.96	--	2,652.64	111.42	--	1,826.64
Gul Ahmed Electric	--	--	--	71.45	533.86	--	143.93	--	1,548.70	133.92	--	2,721.43	129.54	--	2,063.87
Liberty Wind Power-II	--	--	--	28.99	238.96	--	154.05	--	986.72	110.90	--	3,064.42	111.43	--	1,863.12
NASDA Green Energy	--	--	--	52.31	392.38	--	134.82	--	1,074.11	115.86	--	3,188.04	122.32	--	1,930.83
Metro 2 Wind Power	--	--	--	27.20	233.74	--	195.06	--	4,560.07	157.97	--	5,536.78	171.91	--	3,293.23
Total Wind	**3,246.18**	**71,752.95**	**0.00**	**4,335.87**	**92,586.06**	**0.00**	**4,077.54**	**0.00**	**119,529.43**	**3,933.27**	**0.00**	**172,859.88**	**3,843.36**	**0.00**	**132,774.25**
Quaid-e-Azam Solar	165.74	3,691.30	--	164.67	3,707.27	--	160.47	--	4,992.86	155.11	--	6,707.93	157.69	--	6,654.57
Appolo Solar	164.91	4,141.89	--	168.68	1,920.65	--	165.83	--	6,499.78	162.53	--	7,649.13	165.62	--	7,549.99
Best Green Energy	164.45	4,228.00	--	167.47	4,632.04	--	166.16	--	6,829.46	158.94	--	7,832.28	164.50	--	7,841.09
Crest Solar	167.12	4,337.42	--	169.34	4,715.61	--	169.82	--	6,983.91	163.23	--	8,103.74	167.53	--	8,020.89
AJ Power	18.59	350.44	--	18.80	340.91	--	17.38	--	475.80	16.61	--	580.21	18.01	--	567.94
Harappa Solar	28.37	613.24	--	31.38	581.17	--	31.06	--	779.23	30.27	--	948.95	30.68	--	946.62
Atlas Solar	--	--	--	56.00	380.63	--	194.18	--	1,252.27	190.35	--	3,811.61	189.53	--	2,781.10
Helios Power	--	--	--	--	--	--	--	--	--	44.90	--	315.36	97.51	--	1,334.52
HNDS Energy	--	--	--	--	--	--	--	--	--	46.17	--	323.87	96.87	--	1,334.47
Meridian Energy	--	--	--	--	--	--	--	--	--	46.86	--	328.21	98.16	--	1,349.60
Total Solar	**709.18**	**17,362.29**	**0.00**	**776.35**	**16,278.28**	**0.00**	**904.90**	**0.00**	**27,813.32**	**1,014.97**	**0.00**	**36,601.28**	**1,186.09**	**0.00**	**38,380.80**
Jamal Din Wali-II	177.17	1,193.04	588.27	169.47	1,141.23	675.77	190.76	1,446.55	873.68	168.30	1,257.74	964.90	191.65	4,803.19	309.23
Jamal Din Wali-III	144.44	972.10	733.19	136.74	922.42	464.42	184.95	1,200.99	869.18	180.44	1,345.91	990.56	183.43	4,420.41	390.19
RYK Mills	73.94	498.14	446.64	97.26	657.23	573.37	100.99	711.43	631.59	76.27	577.93	612.34	58.59	2,081.09	422.50
Chiniot Power	160.56	1,081.53	965.99	222.53	1,523.86	1,481.77	186.80	1,338.36	1,515.35	125.03	1,083.85	1,341.39	132.87	3,927.94	1,533.59
Hamza Sugar Mills	39.99	269.68	238.79	61.21	412.62	367.30	53.48	377.40	408.17	59.19	442.38	488.94	30.01	1,238.48	218.65
The Thal Industries	46.37	217.82	191.98	73.68	498.17	448.70	61.22	431.72	401.21	54.68	421.92	508.89	45.11	1,388.82	318.96
Almoiz Industries	29.83	200.91	176.04	17.39	117.74	107.50	24.87	177.22	206.53	28.60	217.55	268.97	22.67	579.62	164.35
Chanar Energy	38.26	318.05	268.46	47.92	323.71	288.35	41.03	286.84	309.40	16.37	125.19	158.76	3.27	866.54	21.07
Jamshoro Coal	--	--	--	--	--	--	--	--	--	--	--	--	368.27	4,393.30	--
Shahtaj Sugar Mills	--	--	--	--	--	--	--	--	--	--	--	--	2.76	16.17	--
Total Baggase	**710.56**	**4,751.27**	**3,609.36**	**826.20**	**5,596.98**	**4,407.18**	**844.10**	**5,970.52**	**5,215.12**	**708.88**	**5,472.48**	**5,334.75**	**1,038.64**	**23,715.58**	**3,378.54**
SPPs	0.00	0.00	0.00	172.32	686.00	588.00	0.00	757.96	551.42	0.00	-311.40	-189.90	0.00	0.00	0.00
Total	**132,215.96**	**818,975.07**	**613,923.56**	**139,605.52**	**1,495,070.75**	**775,892.57**	**129,261.82**	**1,272,598.30**	**1,306,858.58**	**126,929.25**	**1,188,959.43**	**1,901,944.12**	**127,159.22**	**1,149,122.29**	**1,807,398.41**

Note: (1) Negative values against some projects on account of EPP and CPP are due to tariff discounts and resultantly debit notes were incorporated.

(2) High values of EPP against Chanar, Hamza, RYK and Thal Industries are due to tariff revision by NEPRA from October, 2019 to September, 2024.

Source: CPPA-G

TABLE 37
Merit Order for Power Generation Plants (CPPA-G System)
(Based on the revised fuel prices effective from 16th June, 2025)

Order in Merit	Plant Groups	Fuel Type	Fuel Cost (Rs./kWh)	O&M Cost (Rs./kWh)	Specific Cost (Rs./kWh)
1	Uch (upto 152,375 MWh)	Gas	2.33300	0.74348	3.07648
2	Liberty Power (Upto 61,904 MWh)	Gas	4.21270	1.02910	5.24180
3	Thar Coal Block-I	Coal	4.39350	1.20820	5.60170
4	Engro Power Thar	Coal	4.90390	1.56420	6.46810
5	Thar Energy	Coal	4.95540	1.56420	6.51960
6	ThalNova Power	Coal	4.95580	1.56420	6.52000
7	747 MW Guddu (CC)	Gas	7.28390	1.13970	8.42360
8	Guddu (CC) B-I (Units 11-13)	Gas	8.95960	0.06890	9.02850
9	Foundation Power	Gas	8.43136	1.26260	9.69396
10	Guddu (CC) B-II (Units 5-10)	Gas	9.95470	0.06890	10.02360
11	Engro PowerGen Qadirpur	Gas	9.01644	1.11560	10.13204
12	Lucky Electric Power	Coal	11.30890	0.39110	11.70000
13	Uch (above 152,375 MWh)	Gas	11.19205	0.74348	11.93553
14	747 MW Guddu (OC)	Gas	10.87070	1.13970	12.01040
15	Port Qasim Electric	Coal	11.83750	0.39560	12.23310
16	Guddu (OC) B-I (Units 11-13)	Gas	13.43940	0.06890	13.50830
17	China Power Hub	Coal	13.40620	0.70110	14.10730
18	Uch-II	Gas	13.62848	0.73200	14.36048
19	Guddu (OC) B-II (Units 5-10)	Gas	14.93210	0.06890	15.00100
20	HSR (Sahiwal Imported)	Coal	15.87520	0.39110	16.26630
21	NPPMC - HBS (CC)	RLNG	19.40344	0.41200	19.81544
22	NPPMC - Baloki (CC)	RLNG	19.38984	0.46070	19.85054
23	QATPL - Bhikki (CC)	RLNG	19.81281	0.35660	20.16941
24	Punjab Thermal Power	RLNG	19.52340	1.01630	20.53970
25	Liberty Daharki (Above 61,904 MWh)	Gas	21.06330	1.02910	22.09240
26	Orient Power Company	RLNG	23.67012	0.76290	24.43302
27	Nandipur (CC)	RLNG	24.05230	0.78590	24.83820
28	Halmore Power	RLNG	23.58172	1.30380	24.88552
29	Sapphire Electric Power	RLNG	23.67012	1.28350	24.95362
30	Saif Power	RLNG	23.67229	1.29790	24.97019
31	Attock Gen.	RFO	25.08370	3.10270	28.18640
32	Altern Energy (Phase-II)	RLNG	27.04840	2.39980	29.44820
33	Fauji Kabirwala Power	RLNG	27.15298	2.34084	29.49382
34	Kohinoor Energy	RFO	28.09939	1.86236	29.96175
35	Nishat Chunian Power	RFO	28.23110	3.05370	31.28480
36	Liberty Power Tech.	RFO	28.56369	3.35920	31.92289
37	Davis Energen.	RLNG	31.30154	1.10150	32.40304
38	Nishat Power	RFO	29.49160	3.06090	32.55250
39	Narowal Energy	RFO	31.12350	2.73990	33.86340
40	Muzaffargarh B-II (Unit-4)	RLNG	34.45900	0.16250	34.62150
41	Muzaffargarh B-I (Unit-3)	RLNG	34.50780	0.16250	34.67030
42	Jamshoro B-II (Unit-4)	RLNG	34.65930	0.09250	34.75180
43	Muzaffargarh B-I (Unit-1)	RLNG	35.24310	0.16250	35.40560
44	Jamshoro B-II (Unit-3)	RLNG	35.39440	0.09250	35.48690
45	Muzaffargarh B-I (Unit-2)	RLNG	35.70760	0.16250	35.87010
46	Jamshoro B-II (Unit-2)	RLNG	36.34480	0.09250	36.43730
47	Muzaffargarh B-III (Unit-5)	RLNG	36.62300	0.16250	36.78550
48	Altern Energy (Phase-I)	RLNG	34.75450	2.39980	37.15430
49	Jamshoro B-I (Unit-1)	RFO	37.39710	0.09250	37.48960
50	Muzaffargarh B-III (Unit-6)	RLNG	37.59170	0.16250	37.75420
51	Jamshoro B-II (Unit-4)	RFO	40.00620	0.09250	40.09870
52	Jamshoro B-II (Unit-3)	RFO	40.86670	0.09250	40.95920
53	Jamshoro B-II (Unit-2)	RFO	41.99850	0.09250	42.09100
54	Muzaffargarh B-II (Unit-4)	RFO	43.61500	0.16250	43.77750
55	Muzaffargarh B-I (Unit-3)	RFO	43.68010	0.16250	43.84260
56	NPPMC - HBS (CC)	HSD	43.69721	0.60820	44.30541
57	Muzaffargarh B-I (Unit-1)	RFO	44.63980	0.16250	44.80230

Order in Merit	Plant Groups	Fuel Type	Fuel Cost (Rs./kWh)	O&M Cost (Rs./kWh)	Specific Cost (Rs./kWh)
58	Muzaffargarh B-I (Unit-2)	RFO	45.24450	0.16250	45.40700
59	Muzaffargarh B-III (Unit-5)	RFO	46.44120	0.16250	46.60370
60	Muzaffargarh B-III (Unit-6)	RFO	47.71150	0.16250	47.87400
61	Punjab Thermal Power	HSD	50.19431	0.44430	50.63861
62	QATPL - Bhikki (CC)	HSD	51.31973	0.38860	51.70833
63	NPPMC - Baloki (CC)	HSD	52.36524	0.64200	53.00724
64	Orient Power Company	HSD	53.17380	1.25070	54.42450
65	Halmore Power	HSD	52.96780	1.88210	54.84990
66	Sapphire Electric Power	HSD	53.16608	1.85250	55.01858
67	Saif Power	HSD	53.17254	1.87340	55.04594
68	Engro PowerGen. Qadirpur	HSD	71.69061	1.13860	72.82921

Note:

(1) General Sales Tax is not included in the above calculations.

(2) Basis for RFO rates are on per Metric Ton, HSD rates are on per Litre, Gas rates are in MMBTU.

(3) Other cost of Uch Power is due to Excise Duty on gas.

(4) RFO Revised Rates are calculated on the basis of weighted average fuel stock as provided by relevant IPP is used for merit order. Where accurate fuel stock position is not available, latest FCC rate is used for merit order.

(5) Latest available RLNG rates as notified by OGRA have been used.

(6) Fixed costs have not been used for merit order compilation pursuant to SDC 14.3.2 of the Grid Code 2005.

(7) Plant Availabilty on any specific fuel must be confirmed before the dispatch is given.

(8) The FCC rates have been assumed at 100% plant factor i.e. unity Part Load Correction factor. The rates may therefore, vary at different operation/despatch level after application of Part Load Correction (PLAC) factors given in the PPA. Therefore, PLAC be taken into account before issuing despatch instructions.

(9) The dedicated gas projects require minimum despatch of 50% against their availability on gas under respective PPAs, otherwise, shortfall energy have to be paid.

(10) Open Cycle tariff included in line with NEPRA direction to NPCC to give despatch to Open Cycle vide NPCC letter No. 10677-82 dated 16-04-2022.

(11) JPCL's Jamshoro Units 2, 3 & 4 and Muzaffargarh units 1, 2, 3, 4, 5 and 6, have tariff on Gas fuel, there inclusion/exclusion of ranking on gas fuel in merit order will be finally decisided once the disputes involving the Gas Supply Agreement have been resolved to the satisfaction of parties. During the dispute, dispatch on gas fuel will be given to these units, according to the tariff, whenever gas fuel supplies from their Suppliers. As per NEPRA Authority direction during the FCA hearing held in NEPRA office on dated 31-05-2022, Gas and Mixed fuel firing Plants of GENCOs are being separated and please be considered the availability of these GENCOs' Plants on Gas, otherwise on RFO and other fuel as in regular merit order.

Source: ISMO, Islamabad

Table 38
Monthly Utilization Factor of Power Plants (%) (2024-25)

Power Producers	Fuel	Dep. Cap. (MW)	July	August	September	October	November	December	Januanry	February	March	April	May	June
WAPDA	Hydel	8,403	47.21	44.88	45.40	39.94	35.72	25.29	13.67	23.20	25.09	32.85	42.48	42.15
Jagran	Hydel	30	80.20	64.90	69.80	32.20	17.00	9.50	5.90	4.10	15.20	60.40	69.80	82.60
Pehur	Hydel	18	-	-	-	-	-	-	-	-	-	-	-	-
Malakand-III	Hydel	82	78.70	39.40	-	14.70	23.60	-	1.80	5.30	32.10	63.90	79.70	70.30
Laraib Energy	Hydel	84	30.90	8.70	57.50	86.30	75.90	45.80	3.60	70.90	44.60	47.30	61.50	46.00
Patrind Hydro	Hydel	147	72.20	72.00	45.20	25.50	17.40	15.00	12.20	11.70	19.60	56.60	98.40	64.80
Marala Hydro	Hydel	8	-	-	-	-	-	-	-	-	-	-	-	-
Neelum Jhelum	Hydel	965	-	-	-	-	-	-	0.00	0.00	-	0.00	0.00	0.00
Tarbela 4th Ext.	Hydel	1,407	88.60	-	77.50	37.80	28.90	13.40	5.10	13.20	-	0.10	54.30	81.40
Gulpur Hydropower	Hydel	101	27.90	59.00	38.50	8.40	0.90	0.00	0.00	5.80	22.10	27.90	21.40	26.10
Daral Khwar	Hydel	36	97.10	60.10	38.00	26.20	18.50	13.20	10.90	10.90	38.10	91.60	97.10	88.60
Karot Power Company	Hydel	713	71.30	52.30	43.80	19.00	14.10	11.60	10.60	12.20	38.00	80.50	95.10	73.60
Ranolia Hydropower	Hydel	17	-	-	-	-	-	-	0.00	0.00	-	0.00	0.10	0.00
Guddu 747 (CC)	Gas	721	51.50	43.60	27.70	30.70	28.30	37.90	48.70	34.80	35.45	35.80	28.50	44.40
Central Block 2 (CC)	Gas	-	-	-	-	-	-	-	-	-	-	-	-	-
Block-3 Unit 5	RLNG	-	-	-	-	-	-	-	-	-	-	-	-	-
Nandipur	RLNG	450	63.60	38.20	30.40	7.50	-	-	7.50	-	25.60	42.90	22.50	41.00
Hub Power	RFO	1,200	-	-	1.70	-	-	-	-	-	0.00	-	-	-
Kohinoor Energy	RFO	124	18.10	1.40	5.30	-	-	0.90	19.80	-	1.70	17.80	4.60	14.30
Lal Pir Power	RFO	350	-	-	-	-	-	-	-	-	0.00	-	-	-
Pak Gen Power	RFO	350	0.70	-	-	-	-	-	2.30	-	0.00	-	-	-
Fauji Kabirwala	Gas	151	26.40	4.80	1.30	-	-	-	-	-	-	8.20	6.90	14.60
Rousch Power	RLNG	395	15.10	0.60	5.40	-	-	-	-	-	0.00	-	-	-
Saba Power	RFO	125	-	-	-	-	-	-	-	-	0.00	-	-	-
Uch-I	Gas	548	89.40	73.50	88.90	34.00	76.20	89.00	84.00	88.40	92.53	90.00	83.70	84.20
Altern Energy	Gas	27	-	-	-	-	-	-	-	-	-	-	-	-
Liberty Daharki	Gas	223	75.40	56.70	78.00	64.70	39.90	53.60	48.50	41.90	-	2.70	40.20	19.30
Chashma Nuclear-I	Nuclear	300	98.70	95.80	98.50	98.90	96.00	100.00	100.00	100.00	99.50	94.60	0.20	0.00
Chashma Nuclear-II	Nuclear	300	-	15.50	98.40	98.00	92.90	95.60	100.00	100.00	100.00	100.00	100.00	100.00
Chashma Nuclear-III	Nuclear	315	98.00	95.60	88.80	21.30	45.10	95.50	99.30	99.40	99.40	99.20	97.00	98.30
Chashma Nuclear-IV	Nuclear	315	53.10	94.60	98.70	99.60	92.00	95.40	99.10	99.40	99.20	98.90	80.10	91.80
Karachi Nuclear (Unit-2)	Nuclear	1,018	84.10	94.60	85.50	91.40	90.50	84.70	90.10	90.40	98.30	100.00	80.90	0.00
Karachi Nuclear (Unit-3)	Nuclear	1,018	98.40	98.50	12.50	-	25.90	74.50	74.60	57.90	74.10	37.30	100.00	99.80
Attock Gen.	RFO	156	13.10	0.60	6.10	0.70	-	0.50	19.00	-	0.90	18.70	3.40	18.00
Atlas Power	RFO	214	6.80	-	2.80	-	-	-	-	-	0.00	-	-	-
Nishat Power	RFO	195	15.60	0.60	3.50	0.80	-	0.50	14.40	-	0.10	11.80	2.30	10.90
Foundation Power	Gas	166	81.40	76.00	82.10	87.30	62.00	75.30	79.40	35.20	85.94	91.50	74.20	83.00
Orient Power	RLNG	206	60.70	30.40	33.70	16.20	-	-	16.20	3.20	34.20	53.80	25.00	29.70
Nishat Chunian	RFO	196	5.20	-	0.30	-	-	0.30	8.20	-	0.30	13.00	-	11.90
Saif Power	RLNG	204	30.30	8.60	28.10	9.80	-	-	9.80	-	12.10	33.60	12.10	20.40
Engro Powergen Qadirpur	Gas	213	43.00	46.60	46.60	38.30	44.40	44.50	42.30	45.40	50.82	43.30	12.10	42.80
Sapphire Electric	RLNG	204	48.40	11.80	33.00	-	-	-	-	-	11.60	36.50	9.40	21.40

Power Producers	Fuel	Dep. Cap. (MW)	July	August	September	October	November	December	Januanry	February	March	April	May	June
Narowal Energy	RFO	214	4.80	0.30	0.90	-	-	0.20	7.90	-	0.20	3.10	0.70	6.30
Liberty Power Tech.	RFO	196	13.50	1.60	1.20	-	-	0.00	11.90	-	0.10	4.90	4.30	16.70
Halmore Power	RLNG	202	57.70	41.10	21.70	8.10	-	-	8.10	2.40	24.40	40.60	11.00	23.50
Uch-II	Gas	356	80.10	57.50	76.30	90.70	66.30	64.20	83.10	23.30	84.36	47.40	80.00	81.90
JDW-II	Bagasse	24	101.00	101.10	96.10	98.30	68.50	88.90	84.30	-	-	95.10	76.90	99.60
JDW-III	Bagasse	24	76.60	69.30	98.60	99.30	70.40	89.50	87.00	82.70	93.10	97.20	76.70	98.00
RYK	Bagasse	40	8.10	32.10	11.30	-	9.10	81.00	92.60	57.20	15.30	0.00	0.00	0.00
Chiniot Power	Bagasse	63	43.10	22.50	-	13.50	29.80	58.00	64.40	82.50	93.80	0.00	0.00	0.00
Fatima Energy	Bagasse	119	-	-	-	-	-	-	-	-	-	-	-	-
Hamza Sugar Mills	Bagasse	15	-	-	-	77.40	78.60	89.30	29.00	-	-	0.00	0.00	0.00
Almoiz Industries	Bagasse	21	-	-	0.00	-	3.10	15.90	34.10	89.50	45.90	21.20	34.50	1.50
Chanaar Energy	Bagasse	22	-	-	-	-	0.40	17.30	-	78.70	18.90	0.00	2.80	0.00
China Power Hub	Coal-Imported	1,249	6.70	-	8.70	14.30	-	-	-	12.90	-	-	6.40	8.20
Engro Power Gen. Thar	Coal-Local	601	85.50	78.10	55.60	95.30	85.30	46.10	65.80	46.50	62.50	85.60	76.70	90.60
Layyah Sugar Mills	Bagasse	22	-	-	-	-	14.70	93.40	86.80	22.20	4.60	0.00	0.00	0.00
QATPL (Bhikki)	RLNG	1,130	69.90	57.90	65.50	78.50	18.20	31.20	78.50	59.60	64.30	-	-	-
NPPMCL (HBS)	RLNG	1,180	79.60	76.20	73.20	43.90	55.20	83.60	43.90	17.10	83.70	86.50	80.70	76.70
Huaneng Shandong Ruyi	Coal-Imported	1,244	50.30	37.30	44.20	31.10	0.40	9.20	65.00	-	39.30	74.10	52.50	62.70
NPPMCL (Balloki)	RLNG	1,169	70.80	58.50	64.60	81.80	30.90	70.60	81.80	47.30	-	14.50	72.20	71.60
Port Qasim Electric	Coal-Imported	1,243	61.20	12.80	50.10	35.70	42.70	-	3.60	-	1.50	16.30	12.50	65.30
Lucky Electric Power	Coal-Imported	607	9.60	48.20	51.80	33.60	17.40	-	-	-	-	-	27.90	40.60
Punjab Thermal Power	RLNG	1,244	51.90	15.80	4.00	16.50	-	6.10	16.50	2.10	4.50	28.10	16.60	18.60
Thar Energy	Coal-Local	301	85.30	75.80	20.80	87.70	72.60	4.60	57.60	22.70	71.50	77.40	69.70	79.00
Thar Coal Block-1 Power	Coal-Local	1,231	80.70	68.40	89.80	93.70	8.60	46.60	80.20	83.00	87.70	93.20	85.60	86.70
ThalNova Power	Coal-Local	301	85.90	70.90	82.50	16.30	76.20	74.30	54.10	65.70	67.20	74.40	58.30	82.70
Zorlu Enerji Pakistan	Wind	56	26.90	30.10	21.40	9.90	5.50	19.40	13.20	11.70	13.20	29.00	26.20	34.10
FFC Energy	Wind	50	23.30	26.20	16.10	7.10	3.50	20.60	14.30	10.90	10.70	25.20	22.80	29.50
Three Gorges First	Wind	50	27.40	30.90	19.90	9.00	5.20	21.20	12.70	11.40	12.40	26.80	27.40	31.30
Foundation Wind Energy-I	Wind	50	28.80	33.20	29.00	11.80	3.50	15.20	12.50	11.80	15.00	31.40	28.60	34.40
Sapphire Wind Power	Wind	53	25.20	20.00	18.80	8.90	4.50	14.50	13.20	10.40	12.10	27.80	23.20	31.10
Yunus Energy	Wind	50	25.40	21.40	19.90	9.80	5.50	17.70	16.00	12.80	14.90	31.30	25.60	31.90
Metro Power Company	Wind	50	29.60	34.80	22.40	10.30	6.30	32.70	19.90	13.70	17.30	32.70	28.70	33.60
Gul Ahmad Wind	Wind	50	25.20	21.20	20.10	10.00	5.60	17.80	17.10	13.60	15.50	31.90	25.70	32.20
Master Wind Energy	Wind	50	26.40	22.10	20.80	9.60	4.60	16.30	11.50	9.80	12.20	28.60	27.80	35.70
Tenaga Generasi	Wind	50	27.70	24.30	29.50	13.20	3.90	13.10	13.40	12.20	15.30	31.30	26.90	33.50
Act Wind	Wind	30	30.30	33.80	26.30	11.60	5.30	31.00	10.90	10.40	13.10	29.00	31.10	34.00
HydroChina Dawood	Wind	50	27.60	23.40	27.80	12.80	26.90	11.60	11.80	11.80	14.40	32.00	27.00	33.20
Sachal Energy	Wind	50	27.70	32.40	19.70	9.50	6.00	26.00	14.10	12.00	12.60	24.40	26.30	30.40
UEP Wind	Wind	99	26.20	21.70	21.30	10.50	5.40	12.80	11.30	10.80	12.60	27.80	22.80	28.60
Quid-e-Azam Solar Park	Solar	100	19.80	17.70	19.50	19.50	0.00	15.40	16.40	17.90	21.50	21.20	19.80	19.70
Appollo Solar Park	Solar	100	20.80	18.90	20.70	20.30	0.00	16.50	17.40	18.60	22.30	22.10	20.60	20.50
Best Green Energy	Solar	100	20.80	19.00	20.00	20.20	0.00	16.60	17.40	18.50	22.10	21.70	20.30	20.30
Crest Energy	Solar	100	21.10	19.20	21.00	20.50	0.00	16.70	17.60	18.80	22.70	22.00	20.90	20.60
Harappa Solar	Solar	18	23.30	21.00	22.20	17.70	0.30	12.10	13.70	16.20	24.30	25.70	24.70	24.30

Power Producers	Fuel	Dep. Cap. (MW)	July	August	September	October	November	December	Januanry	February	March	April	May	June
AJ Power	Solar	12	17.90	16.40	19.00	17.00	-	13.80	5.00	16.20	21.00	20.90	19.40	19.60
Artistic Wind Power	Wind	50	35.00	30.20	37.40	17.30	8.60	20.90	14.50	15.10	18.90	44.10	38.00	43.80
Jhampir Power	Wind	50	34.80	27.20	28.50	13.30	7.60	21.80	18.40	13.70	15.20	34.20	34.70	44.90
Hawa Energy	Wind	50	34.30	25.90	26.10	13.00	7.70	26.90	21.60	14.30	14.70	31.20	32.40	42.70
Three Gorges Third	Wind	50	28.30	22.80	21.80	10.90	6.30	18.10	15.30	12.50	14.40	30.50	25.90	32.70
Three Gorges Second	Wind	50	27.60	22.00	20.80	10.50	5.80	17.10	14.00	11.60	13.60	29.10	25.50	32.60
Tricon Boston Consulting-A	Wind	50	38.30	30.90	34.00	16.30	9.10	15.90	14.50	16.20	21.80	47.70	37.20	46.30
Tricon Boston Consulting-B	Wind	50	36.50	29.20	32.00	15.30	8.20	18.20	15.60	15.60	20.10	43.60	35.70	44.40
Tricon Boston Consulting-C	Wind	50	35.80	28.70	31.50	15.10	7.80	20.30	17.50	16.30	20.00	44.90	34.60	41.60
Zephyr Power	Wind	50	41.70	36.50	40.80	19.00	7.40	-	17.10	16.90	20.10	41.90	34.20	44.90
Master Green Energy	Wind	50	39.30	31.10	28.60	13.70	9.70	19.50	16.20	12.70	13.90	25.90	33.80	51.50
Lucky Renewables	Wind	50	39.10	32.20	33.90	16.00	9.80	21.00	17.20	13.10	14.60	33.10	35.00	47.10
Act 2 Din Wind	Wind	50	37.80	31.80	39.60	17.70	9.10	18.60	13.40	14.20	20.50	42.50	39.90	46.70
Artistic 2 Wind Power	Wind	49	41.30	46.50	39.80	17.60	9.30	36.40	26.90	19.20	22.70	49.50	44.60	47.90
Indus Wind Energy	Wind	50	36.40	31.60	43.50	19.90	10.00	19.90	17.60	19.20	23.30	50.40	39.90	50.20
Lakeside Energy Limited	Wind	50	36.40	30.60	38.00	17.30	9.60	19.50	17.50	16.20	21.10	46.70	37.80	47.90
Liberty Wind Power-I	Wind	50	33.50	28.40	33.90	16.30	7.90	19.60	16.30	14.10	18.00	39.20	32.20	39.20
DIN Energy	Wind	50	32.80	27.70	35.70	16.50	7.90	23.90	18.80	15.20	18.00	37.90	31.60	39.30
Gul Ahmed Electric	Wind	50	37.50	30.80	40.30	19.40	11.50	19.00	16.30	18.30	25.10	49.20	39.50	48.10
Atlas Solar	Solar	100	24.40	20.80	23.00	19.70	-	15.10	16.40	19.20	27.00	29.60	27.30	27.60
Liberty Wind Power-II	Wind	50	35.00	29.40	34.70	17.00	8.00	18.00	14.80	14.40	18.00	40.10	33.90	41.90
NASDA Green Energy	Wind	50	36.50	31.50	39.10	17.80	9.40	29.40	17.30	15.60	19.50	45.30	36.30	46.40
Metro 2 Wind Power	Wind	60	42.70	35.80	52.00	22.60	13.70	20.20	17.80	19.10	24.70	51.90	40.10	52.00
Foundation Wind Energy-II	Wind	50	32.60	35.80	30.50	13.00	3.90	22.70	19.00	14.30	15.90	32.80	30.70	37.60
Helios Power	Solar	50	25.80	22.50	25.70	20.80	-	15.60	17.30	18.60	25.80	24.40	26.90	26.10
Meridian Energy	Solar	50	25.80	22.70	25.80	20.70	-	16.20	17.60	18.90	26.10	24.50	27.00	26.20
HNDS Energy	Solar	50	25.40	22.50	25.50	20.40	-	15.80	17.40	18.80	25.70	24.10	26.80	25.90
Jamshoro (GENCO-I)	RFO	649	-	-	-	-	-	-	-	-	-	-	-	-
Tavanir Iran (Import)	Import	96	26.60	14.00	23.15	26.60	10.13	7.00	7.00	6.20	15.40	-	-	-

Source: CPPA-G

TABLE 39
Liquidated Damages and Recovery against Power Plants

Name of Companies	Verified Amount on Account of Liquidated Damages (Rs. in Million)					LDs Recovered (Rs. in Million)	
	2020-21	2021-22	2022-23	2023-24	2024-25	2023-24	2024-25
Malakand-III (PEDO)	--	123.95	209.10	--	--	333.05	--
Laraib Energy (AJ&K)	276.28	--	--	--	--	--	--
Gulpur Hydropower	0.07	--	--	--	2,625.57	--	--
Karot Hydropower	--	--	--	--	--	--	660.44
GENCO-I	--	3,249.96	40.23	--	--	--	--
GENCO-II	--	0.00	6,221.19	--	--	4,029.88	--
GENCO-III	--	1,574.38	2,579.48	1,418.99	--	--	--
Lal Pir Power	23.05	0.00	0.80	0.28	0.45	1.08	0.16
Pak Gen. Power	27.71	--	--	--	0.89	1.03	0.56
Fauji Kabirwala	--	813.43	28.00	31.37	2.16	--	--
Habibullah Coastal	314.16	--	--	--	--	--	2,884.45
Hub Power	2.05	--	--	--	225.21	--	--
Japan Power	1,228.80	--	--	--	--	--	--
Kohinoor Energy	0.02	0.04	--	0.05	0.00	0.08	15.81
Rousch Power	0.01	0.10	--	--	--	--	0.07
Saba Power	--	353.66	124.47	--	5.13	--	16.41
Liberty Daharki Power	2.70	25.09	4.55	--	97.77	--	194.93
Uch Power	2.20	0.00	5.89	6.33	41.93	--	35.74
Atlas Power	--	--	--	2.92	--	2.92	--
Orient Power	--	--	--	--	--	519.32	--
Narowal Energy	--	0.00	9.93	3.60	--	13.53	--
Davis Energen.	--	3.61	--	--	--	--	--
Sahiwal Imported Coal	--	665.60	--	--	14.98	--	--
Port Qasim Electric Power	--	--	4,703.20	--	706.77	--	--
China Power Hub	--	253.70	736.00	--	3.06	524.60	--
Lucky Electric Power	--	1,217.29	664.41	578.78	187.03	--	595.79
Thar Energy	--	596.12	1,126.13	--	--	476.97	1,671.77
Thar Coal Block-I Power	--	--	352.87	972.86	570.36	962.21	0.08
ThalNova Power	--	--	1,433.93	--	--	--	1,583.63
Lakeside Energy	--	--	11.30	--	--	11.30	--
Liberty Wind Power-I	--	--	8.17	--	--	--	--
Din Energy	--	--	8.02	--	--	--	--
Gul Ahmad Electric	--	--	10.19	--	--	--	--
Liberty Wind Power-II	--	--	18.82	--	--	--	--
NASDA Green Energy	--	--	9.34	--	--	9.34	--
Metro 2 Wind Power	--	--	46.87	--	--	--	--
Helios Power	--	--	--	273.85	0.71	--	72.04
HNDS Energy	--	--	--	249.46	1.54	--	46.81
Meridian Energy	--	--	--	259.44	0.87	--	56.32
Shahtaj Sugar Mills	--	--	--	--	94.40	--	--
Total	**1,876.98**	**8,876.94**	**18,352.90**	**3,797.93**	**4,578.82**	**6,885.32**	**7,835.01**

Note: (1) LD invoices issued FY 2024-25 includes revised invoices for period before FY 2024-25.
(2) LDs recovered FY 2024-25 includes cash receipts and adjustments against companies invoices.
Source: CPPA-G

TABLE 40
Partial Load Adjustment Charges

Name of Company	Verified Charges on Account of Partial Load Adjustment (Rs. in Million)				
	2020-21	2021-22	2022-23	2023-24	2024-25
GENCO-I	41.73	--	--	39.82	15.54
GENCO-III	--	26.34	64.44	17.14	--
KAPCO	262.20	536.20	246.80	--	--
Hub Power	224.98	2,726.10	938.51	--	169.70
Attock Gen.	58.13	999.44	434.64	106.16	95.32
Atlas Power	1,337.38	281.12	197.95	165.25	31.85
Engro Powergen. Qadirpur	674.48	556.07	718.10	1,145.97	1,154.49
Saif Power	489.50	1,208.84	1,548.54	1,165.97	651.19
Orient Power	538.67	1,190.79	1,546.74	1,721.89	1,317.42
Nishat Power	72.99	146.38	164.87	144.19	82.90
Nishat Chunian	92.84	223.17	251.60	296.28	60.27
Sapphire Electric	686.00	1,256.25	1,383.22	1,531.83	789.21
Halmore Power	442.17	1,031.31	963.06	999.72	890.97
Narowal Energy	68.00	189.80	147.09	111.06	51.38
Liberty Power Tech.	55.25	153.52	86.39	98.35	34.68
Foundation Power	678.99	468.91	648.12	791.13	715.97
Uch-II Power	557.25	713.18	1,158.89	5,148.02	1,405.34
Sahiwal Imported Coal	773.56	622.79	1,565.08	995.06	974.56
Quaid-e-Azam Thermal	4,172.34	8,291.00	10,154.53	7,439.65	11,129.98
NPPMCL – Haveli Bahadur Shah	4,007.62	8,353.00	10,134.17	14,993.24	9,963.29
NPPMCL – Balloki	3,074.56	8,306.00	13,626.21	13,795.82	8,933.30
Port Qasim Electric Power	406.08	916.68	612.80	705.26	1,801.71
China Power Hub	--	--	--	446.85	296.34
Punjab Thermal Power	--	--	--	3,812.62	5,822.74
Total	**18,714.72**	**38,196.89**	**46,591.75**	**55,671.30**	**46,388.13**

Note: (1) PLAC of Uch-II Power includes differentials for October, 2020 to September, 2023.
(2) GENCO-I PLAC amount is related to July, 2022 and August, 2022.
Source: CPPA-G

TABLE 41
Monthly Partial Load Adjustments Charges (FY 2024-25) (Rs. in Million)

Name of IPP	July	August	September	October	November	December	January	February	March	April	May	June	Total
GENCO-I	0.00	0.00	0.00	15.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**15.54**
Hub Power	0.00	0.00	169.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**169.70**
Attock Gen.	18.40	0.77	8.61	1.71	0.00	1.23	20.72	0.00	1.60	16.46	5.43	20.40	**95.32**
Atlas Power	22.71	0.00	9.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**31.85**
Engro Powergen. Qadirpur	118.25	106.17	103.69	77.17	100.93	113.73	121.15	100.44	89.79	86.94	27.15	109.07	**1,154.49**
Saif Power	161.90	44.99	89.68	30.41	0.00	0.00	11.01	0.00	49.09	117.60	51.13	95.38	**651.19**
Orient Power	303.00	195.56	113.45	52.96	0.00	0.00	81.76	10.42	122.18	180.71	126.02	131.36	**1,317.42**
Nishat Power	28.03	0.89	7.66	2.91	0.00	1.25	19.87	0.00	0.44	17.30	4.55	0.00	**82.90**
Nishat Chunian	17.61	0.00	1.16	0.00	0.00	1.08	18.50	0.00	0.50	18.60	2.82	0.00	**60.27**
Sapphire Electric	255.16	65.70	97.45	0.00	0.00	0.00	43.30	0.00	48.59	125.88	55.03	98.11	**789.21**
Halmore Power	201.08	130.84	84.45	19.73	0.00	0.00	65.30	8.25	92.09	136.86	56.40	95.99	**890.97**
Narowal Energy	13.84	0.14	0.00	0.00	0.00	0.65	16.02	0.00	0.69	5.10	1.88	13.06	**51.38**
Liberty Power Tech.	11.26	1.93	1.57	0.00	0.00	0.11	10.36	0.00	0.36	3.17	5.93	0.00	**34.68**
Foundation Power	46.18	66.40	56.81	43.57	82.46	86.79	77.63	37.84	61.91	40.48	53.30	62.61	**715.97**
Uch-II Power	119.12	95.64	118.54	130.12	133.98	128.35	169.27	41.19	137.37	68.62	132.38	130.77	**1,405.34**
Sahiwal Imported Coal	206.96	181.65	160.87	52.70	5.50	58.46	203.62	0.00	104.80	0.00	0.00	0.00	**974.56**
Quaid-e-Azam Thermal	1,240.77	1,259.88	1,137.27	1,043.38	231.26	324.00	849.31	756.94	1,051.74	1,033.65	1,098.93	1,102.86	**11,129.98**
Haveli Bahadur Shah	887.74	1,356.32	978.97	586.04	922.18	592.73	8.53	268.35	1,107.38	808.51	1,269.49	1,177.06	**9,963.29**
Balloki Power	1,251.06	1,149.35	946.43	926.65	421.82	715.61	625.18	402.97	0.00	211.17	1,152.57	1,130.50	**8,933.30**
Port Qasim Electric	395.81	130.96	279.90	280.85	380.61	0.00	43.97	0.00	22.39	140.93	126.27	0.00	**1,801.71**
China Power Hub	35.48	0.00	69.05	41.47	0.00	0.00	0.00	64.79	85.54	0.00	0.00	0.00	**296.34**
Punjab Thermal	1,289.04	749.15	203.52	458.00	0.00	193.25	828.59	65.60	127.48	650.11	602.89	655.10	**5,822.74**
Total	**6,623.40**	**5,536.34**	**4,637.91**	**3,763.21**	**2,278.73**	**2,217.23**	**3,214.09**	**1,756.79**	**3,103.93**	**3,662.06**	**4,772.16**	**4,822.26**	**46,388.13**

Source: CPPA-G

TABLE 42
Verified Amount on Account of Non-Project Missed Volume

Company Name	2020-21		2021-22		2022-23		2023-24		2024-25	
	(kWh)	(Million Rs.)	(kWh)	(Million Rs.)	(kWh)	(Million Rs.)	(kWh)	(Million Rs.)	(kWh)	(Million Rs.)
Zorlu Enerji Pakistan	--	--	--	--	--	--	--	--	8,356,894.00	160.82
FFC Energy	2,444.45	32.99	456.20	1.87	4,439.84	97.63	2,553,150.00	34.91	7,531,396.00	104.58
Three Gorges First Wind	1,512,069.00	39.93	91,518.00	2.39	4,741,468.00	181.89	3,815,303.00	75.35	9,145,287.00	161.67
Foundation Wind Energy-I	2,527,480.00	62.28	208,028.00	5.62	3,428,590.00	123.65	4,491,490.00	188.80	8,196,118.44	256.69
Foundation Wind Energy-II	2,695.95	66.63	204.51	5.52	3,297.24	101.38	4,269,755.00	176.22	8,432,523.00	220.40
Sapphire Wind	6,673.91	174.49	2,118.97	58.33	15,380.94	608.47	51,967,905.00	2,492.52	14,122,902.00	646.73
Yunus Energy	6,426,736.00	154.72	2,245,671.00	58.02	14,667,676.00	489.47	44,009,887.00	1,684.15	13,663,692.00	485.62
Metro Power Company	--	--	--	0.48	9,692,038.00	0.06	8,123,021.05	306.24	7,980,009.03	295.99
Gul Ahmed Wind	6,312,589.94	158.52	2,223,067.23	59.12	14,590,946.58	536.82	42,633,200.86	1,873.48	13,182,494.30	544.55
Master Wind Energy	6,767,356.00	169.73	2,227,017.00	59.05	14,161,038.00	523.08	42,285,450.00	1,859.69	12,873,602.00	532.17
Tenaga Generasi	507,511.00	12.93	2,789,646.00	74.43	21,967,321.00	901.23	34,996,300.17	1,627.68	11,714,181.00	517.13
HydroChina Dawood	667,229.81	17.38	2,157,495.69	65.62	20,281,166.59	908.14	31,280,506.82	1,558.82	10,618,632.00	503.16
Sachal Energy Development	34,035.00	0.85	26,294.00	0.65	15,419.00	0.63	318,285.89	14.58	3,421,759.00	143.67
UEP Wind Power	12,397,898.01	323.86	6,438,566.21	176.64	30,081,291.71	1,218.91	78,132,087.32	3,886.67	23,739,832.00	1,125.72
Artistic Wind Power	6,435,965.00	105.55	2,851,014.00	40.48	17,722,798.00	307.43	7,160,540.00	149.53	6,215,899.00	131.95
Act Wind	3,273,200.50	78.75	1,540,654.74	34.59	4,624,179.00	137.02	2,168,290.00	72.53	2,335,569.00	72.59
Hawa Energy	7,800,305.27	155.18	2,215,322.00	44.05	17,053,250.40	547.41	44,424,571.89	1,728.39	15,732,317.04	584.04
Jhampir Power	8,045,061.00	160.45	2,026,181.00	40.84	16,738,814.10	537.71	46,119,219.19	1,768.14	15,719,314.45	549.71
Three Gorges Second Wind	7,221,504.36	144.54	2,014,166.21	42.17	15,873,961.38	511.02	47,988,832.55	1,898.75	14,187,883.00	533.17
Three Gorges Third Wind	7,285,958.02	145.82	2,000,455.51	41.87	15,882,622.42	513.58	48,138,481.49	1,904.35	14,435,790.00	542.39
Tricon Bostan Consulting-A	6,965,637.00	134.21	2,468,146.00	51.73	16,927,454.00	554.61	55,716,858.87	2,184.16	14,890,722.04	548.05
Tricon Bostan Consulting-B	7,053,213.00	140.88	2,444,296.00	51.54	17,192,643.00	561.99	56,313,844.16	2,204.89	15,232,415.43	580.21
Tricon Bostan Consulting-C	7,021,250.00	134.56	2,445,255.00	51.52	17,316,115.00	565.77	58,359,749.00	2,288.47	15,471,247.04	578.50
Zephyr Power	--	--	--	74.80	2,208,956.00	59.96	25,840,968.00	917.94	13,150,166.58	431.60
Lucky Renewables	--	--	1,331,763.00	12.71	11,961,180.00	160.36	48,438,365.00	735.38	17,435,749.10	253.32
Master Green Energy	--	--	1,212,409.37	11.38	9,702,238.03	127.92	49,198,052.16	740.80	16,608,533.00	238.43
Act 2 Din Wind	--	--	216,619.00	1.98	10,604,486.60	111.29	50,471,219.26	695.71	16,794,642.00	233.51
Artistic 2 Wind Power	--	--	278,006.00	2.52	10,611,574.00	132.91	53,993,332.44	719.20	16,984,434.39	236.09
Indus Wind Energy	--	--	153,266.67	1.43	14,105,537.00	160.62	55,089,684.00	718.85	17,525,714.15	246.78
Lakeside Energy	--	--	--	--	10,335,894.00	129.31	45,336,691.00	647.77	16,844,341.60	234.72
Liberty Wind Power-I	--	--	33,137.00	0.31	13,853,372.00	178.31	45,583,825.00	668.00	17,144,844.39	240.75
Din Energy	--	--	166,528.00	1.55	11,517,144.00	146.28	47,732,428.00	702.05	15,736,392.32	220.35
Gul Ahmed Electric	--	--	--	--	10,577,562.68	118.55	49,797,135.80	675.60	17,212,240.29	241.89
Liberty Wind Power-II	--	--	15,675.00	0.14	13,265,487.00	170.65	46,171,298.00	677.00	17,409,560.04	241.35
NASDA Green Energy	--	--	--	--	10,717,581.00	134.55	46,878,087.00	641.98	17,463,666.62	241.94
Metro 2 Wind Power	--	--	--	--	14,064,446.00	200.09	55,406,063.00	953.18	20,489,262.67	346.05
Quaid-e-Azam Solar Park	186,667.00	3.97	102,664.00	2.14	495,833.00	14.02	202,283.00	6.58	76,263.00	2.12
Appolo Solar Development	179083.00	4.52	32,083.00	0.85	481,535.00	18.19	190,750.33	9.21	158,666.00	7.28
Best Green Energy	194,995.00	5.06	110,250.00	4.47	418,250.00	16.70	185,499.00	9.48	973,416.00	13.04
Crest Energy	172,615.00	4.54	155,749.00	4.43	523,249.00	21.02	183,167.00	9.42	89,834.00	4.26
AJ Power	97,709.00	1.85	43,656.00	817.12	85,761.00	2.05	17,214.00	0.50	17,927.65	0.52
Harappa Solar	154,735.00	3.03	100,175.00	1.90	150,563.00	3.61	99,176.00	3.12	268,190.00	7.24
Atlas Solar	--	--	64,530.00	0.41	627,375.00	4.03	368,754.00	5.38	321,451.00	2.07
Helios Power	--	--	--	--	--	--	254,031.00	1.76	691,244.00	7.89
HNDS Energy	--	--	--	--	--	--	336,639.00	2.33	751,194.00	8.57
Meridian Energy	--	--	--	--	--	--	255,970.00	1.77	543,733.00	6.22
Total	**99,252,617.22**	**2,437.21**	**42,432,084.30**	**1,904.66**	**419,289,934.51**	**11,838.31**	**1,337,297,361.25**	**39,521.32**	**491,891,944.57**	**13,285.52**

Source: CPPA-G

TABLE 43
Year-wise Details of the Circular Debt (Rs. in Million)

Description	2020-21	2021-22	2022-23	2023-24	2024-25
Due for Payments against verified invoices of Power Generation Companies	1,244,835.00	1,351,023.44	1,434,216.77	1,599,658.29	861,423.00
Payables to Fuel Suppliers by GENCOs	105,314.00	101,473.38	110,527.13	110,458.68	92,721.00
Total (Payables to IPPs/GENCOs)	**1,350,149.00**	**1,452,496.82**	**1,544,743.90**	**1,710,116.97**	**954,144.00**
Energy Payable Swap by GOP through Loan from Commercial Banks by Power Holding (Pvt.) Limited	930,000.00	800,253.45	765,253.45	683,253.45	659,646.00
Grand Total (Circular Debt)	**2,280,149.00**	**2,252,750.28**	**2,309,997.36**	**2,393,370.43**	**1,613,790.00**
Increase/(Decrease) in Circular Debt	**81,684.00**	**-27,398.72**	**57,247.08**	**83,373.07**	**-779,580.43**

Source: CPPA-G

TABLE 44
Investment Plan for Private Sector Power Generation Projects

Name of the Project	Capacity (MW)	Expected COD	Estimated Investment (Million US$)	Latest Status of the Project
Hydel Power Projects:				
Rialli-II Hydropower Project	7.08	December, 2026	18.00	TLOS issued. Also under construction.
Turtonas-Uzghor Hydropower Project	82.00	December, 2029	188.00	LOI issued. Feasibility Study (FS) completed and approved by POE.
Azad Pattan Hydel Project	700.00	September, 2033	1,357.16	LOS issued.
Kohala Hydropower Project	1124.00	March, 2034	2,364.05	LOS issued.
Mahl Hydropower Project	640.00	December, 2033	1,472.00	LOI issued. FS completed and approved by POE. Tariff determined by NEPRA.
Ashkot Hydel Project	300.00	-	450.00	Project has been transferred by GoAJ&K to PPIB for further processing as per IGCEP.
Athmuqam Hydropower Project	450.00	-	1,301.00	LOI issued. FS completed and approved by POE.
Rajdhani Hydropower Project	132.00		303.60	
Kaigah Hydel Project	548.00	-	1,260.40	--
Chakothi-Hattian Project	500.00	-	1,150.00	
Neckeherdm-Paur Hydropower Project	80.00	-	184.00	
Coal Power Projects:				
Gwadar Imported Coal Power Project	300.00	December, 2029	444.49	LOS issued.
Oracle (Thar Coal based Project)	1320.00	December, 2028	1,640.76	Project Proposal is Under Review.
Dedicated Gas Fields				
Hatim Power Project	20.00	-	21.00	
Wind Power Projects:				
Western Energy (Pvt.) Limited	50.00	June, 2028	63.12	Tariff Determination is awaited from NEPRA.
Transatlantic Energy (Pvt.) Limited	50.00	June, 2028	61.87	
Solar Power Projects:				
Zorlu Solar Pakistan Limited	100.00	December, 2026	68.97	TLOS issued. Decision on Tariff Petition is Awaited from NEPRA.
Siachen Energy Limited	100.00	June, 2028	61.08	Tariff Determination is Awaited from NEPRA.

Source: Private Power and Infrastructure Board, Islamabad

TABLE 45
Investment Plan for Power Generation Projects (K-Electric) (2024-25 to 2028-29) *

Name of Project	Capacity Addition/ (Deletion) (MW)	Expected Commissioning Year	Estimated Cost (US$ Million) [2]
Plan to induct IPPs/Additional Supply from National Grid in KE System [1]			
33 MW Solar (Negotiated Procurement)	33	2027	16
269 MW Hybrid Renewable Plant	269	2028	145
150 MW WUB Solar Projects	150	2028	80
270 MW SSEP Solar Projects	270	2028	122
300 MW Wind Plant (Category-III)	300	2029	195
200 MW Wind Project	200	2029	130
660 MW JPCL-I Coal Project [3]	660	2029	940

** These are estimates and are subject to change.*

[1] These are indicative and subject to relevant government/regulatory approvals.

[2] Cost estimates are indicative; based on bids received by KE in 2024. Same has been considered for future projects.

[3] Power offtake arrangement from JPCL-I will be assessed by KE in coordination with NGC.

Source: KE

TABLE 46
Unit Received, Delivered and Transmission Losses in NGC System (500/220 kV) (GWh)

	Unit	2020-21	2021-22	2022-23	2023-24	2024-25
Unit Received by NGC at CDPs	GWh	132,299.00	140,346.58	132,008.55	133,814.94	133,621.29
Unit Delivered by NGC at CDPs	GWh	128,620.00	136,674.56	128,811.01	130,437.60	130,189.10
NGC Losses	GWh	3,679.00	3,672.02	3,197.53	3,377.34	3,432.19
NGC Losses	%	2.78	2.62	2.42	2.52	2.57

Source: NGC

TABLE 47
Grid Stations, Power Transformers and Transmission Lines with NGC

(A) Number of Grid Stations and their MVA Capacity					
As on 30th June	**2021**	**2022**	**2023**	**2024**	**2025**
Number of Grid Stations (500 kV)	17	19	19	19	19
Number of Grid Stations (220 kV)	45	50	50	50	49
Number of Convertor Station (HVDC)	-	-	2	2	
(B) Number of Power Transformers and their MVA Capacity					
As on 30th June	**2021**	**2022**	**2023**	**2024**	**2025**
	Installed at 500 kV Grid Stations				
Total No. of Power Transformers (500/220 kV)	44	46	47	47	47
Total Capacity (MVA) of Power Transformers (500/220 kV)	24,000	25,500	25,950	25,950	25,950
Total No. of Power Transformers (220/132 kV)	34	36	38	38	41
Total Capacity (MVA) of Power Transformers (220/132 kV)	6,610	7,200	8,150	8,150	9,080
	Installed at 220 kV Grid Stations				
Total No. of Power Transformers (220/132 kV)	129	140	179	183	145
Total Capacity (MVA) of Power Transformers (220/132 kV)	32,220	35,360	37,190	38,460	30,850
	Any Other Voltage Level (HVDC)				
Total No. of Power Transformers (HVDC)	-	-	4,000	4,000	
(C) Number of Circuits and Length of Transmission Lines in NGC System (km)					
As on 30th June	**2021**	**2022**	**2023**	**2024**	**2025**
No. of Circuits (500 kV)	61	67	71	76	86
Transmission Line (km) (500 kV)	8,071	8,431	8,825	9,201	9,100
No. of Circuits (220 kV)	156	163	159	164	158
Transmission Line (km) (220 kV)	11,467	11,565	11,634	12,136	11,853
No. of Circuits (HVDC)	-	-	2	2	2
Transmission Line (km) (HVDC)	-	-	1,772	1,772	1,772

Source: NGC

TABLE 48
Loading Position of Transmission Lines and Power Transformers in NGC System

(A) Loading Position of Transmission Lines						
		2020-21	**2021-22**	**2022-23**	**2023-24**	**2024-25**
Overloaded Transmission Lines/Circuits (Nos.) (>80%)	500 kV	14	18	15	5	18
	220 kV	50	58	39	45	41
Underutilized Transmission Lines/Circuits (Nos.) (<30%)	500 kV	39	43	53	26	29
	220 kV	59	71	65	49	57
(B) Loading Position of Power Transformers						
		2020-21	**2021-22**	**2022-23**	**2023-24**	**2024-25**
Overloaded Power Transformers (Nos.) (>80%)	500 kV	29	31	40	32	30
	220 kV	122	128	80	88	86
Underutilized Power Transformers (Nos.) (<30%)	500 kV	10	7	9	12	9
	220 kV	21	24	48	18	22

Source: NGC

TABLE 49
Grid Stations and Transmission Lines with K-Electric Limited

(A) Number of Grid Stations in KE Transmission System											
As on 30th June		2021		2022		2023		2024		2025	
		No.	MVA	No.	MVA	No.	MVA	No.	MVA	No.	MVA
KE's Owned Grid Stations	500 kV	-	-	-	-	-	-	-	-	1	1,800
	220 kV	10	4,500	10	4,500	10	4,500	11	5,500	12	5,500
	132 kV	58	6,674	58	6,824	58	6,986	60	7,116	62	7,117
	66 kV	3	79	3	79	3	79	3	79	3	79
Consumers Owned Grid Stations	500 kV	-	-	-	-	-	-	-	-	-	-
	220 kV	1	80	1	80	1	80	1	80	1	80
	132 kV	11	578	11	641	11	721	11	721	11	721
	66 kV	0	0	0	0	0	0	0	0	0	0
Total No. of Grid Stations		**83**	**11,911**	**83**	**12,124**	**83**	**12,366**	**86**	**13,496**	**89**	**13,497**

(B) Length of Transmission Lines in KE System (km)						
As on 30th June		2020-21	2021-22	2022-23	2023-24	2024-25
Overhead Lines	500 kV	-	-	-	-	7
	220 kV	323	321	321	394	423
	132 kV	651	652	652	640	640
	66 kV	152	152	152	152	152
Underground Lines	500 kV	-	-	-	-	-
	220 kV	42	43	43	42	44
	132 kV	182	186	186	165	165
	66 kV	1	1	1	1	1
Total Length (km)		**1,351**	**1,354**	**1,354**	**1,394**	**1,432**

Source: KE

TABLE 50
Investment Details in Transmission System of K-Electric Limited

(A) Amount Injected to Reinforce/Expand 500 kV, 220 kV and 132 kV Transmission System of K-Electric Limited (Million Rs.) *						
Description	During FY 2023-24 [1] & [2]			During FY 2024-25 [1] & [3]		
	FC	LC	Total	FC	LC	Total
Grid Stations	15,360.346	3,305.063	18,665.408	2,277.253	2,824.525	5,101.778
Transmission	5,127.696	2,660.433	7,788.129	1,946.532	1,998.995	3,945.528
SCADA	42.908	28.605	71.513	557.707	178.862	736.569
Reinforcement	664.942	443.295	1,108.237	2,395.279	1,519.427	3,914.706
Others	-	0.453	0.453	-	-	-
Total	**21,195.892**	**6,437.849**	**27,633.740**	**7,176.771**	**6,521.809**	**13,698.581**

(B) Investment Plan in Transmission Line (500 kV, 220 kV and 132 kV) of K-Electric Limited (Million US$) [4]						
Description	During FY 2025-26			During FY 2026-27		
	FC	LC	Total	FC	LC	Total
Grid Stations	61.411	62.240	123.650	41.340	17.043	58.384
Transmission	53.386	16.503	69.889	59.992	18.887	78.879
Reinforcement	9.255	15.761	25.016	43.689	24.217	67.906
Others	1.472	1.206	2.678	0.993	0.815	1.808
Total	**125.524**	**95.710**	**221.233**	**146.015**	**60.962**	**206.977**

** Includes amount for Allied Projects.*

[1] Provisional and Unaudited.

[2] Restated. This includes consumer funded project amounting to Rs. 751 million for DHA-4 Project, Rs. 176 million for Malir Expressway Project and Rs. 5 million for Askari-VI Project.

[3] This inlcudes consumer funded project amounting to Rs. 867 million for Askari-VI Project and Rs. 266 million for Malir Expressway Project.

[4] Represents NEPRA approved investment plan numbers and subject to decision of the Authority on the review motion filed by KE dated May 13, 2024 in the matter of Investment Plan. These are prepared using FY 2021-22 macros i.e. US$ to Rs. 206, PAK CPI 158.48 and US CPI 282.03.

FC: Foreign Currency LC: Local Currency

Source: KE

TABLE 51
Surplus/Deficit in Demand and Supply during NGC's System Peak Hours

(A) Actual Figures						
Financial Year ending 30th June	Generation Capability (MW)	Demand During NGC's System Peak Hours (MW)				Surplus/ (Deficit) (MW)
2024	31,182	24,485				6,697
2025	24,733	23,848				885
(B) Projected Figures						
Financial Year ending 30th June	Planned Generation Capability as per NGC (MW)	NGC Projected Demand Growth Rate (%)	NGC's Projected Demand during Peak Hours (MW)	NGC Projected Demand Growth Rate (%)	NGC's Projected Demand during Peak Hours (MW)	Surplus/ (Deficit) (MW)
		Without Export to KE		With Export to KE		
2026	34,243	2.80	25,118	2.58	27,168	7,075
2027	34,630	2.80	25,821	2.59	27,871	6,759
2028	37,630	2.80	26,544	6.07	29,562	8,068
2029	39,356	2.80	27,288	3.56	30,614	8,742
2030	39,532	2.80	28,052	2.86	31,491	8,041

** 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: NGC

TABLE 52
Surplus/Deficit in Demand and Supply during K-Electric's System Peak Hours

(A) Actual Figures				
Financial Year ending 30th June	Generation Capability (MW) [1]	Demand During KE's System Peak Hours (MW)		Surplus/(Deficit) (MW) [2]
2024	3,550 (including IPPs + NGC)	3,568		(18)
2025	3,545 (including IPPs + NGC)	3,707		(162)
(B) Projected Figures				
Financial Year ending 30th June	Planned Generation Capability as per KE (MW) [3]	KE's Projected Demand Growth Rate (%)	KE's Projected Demand during Peak Hours (MW)	Surplus/ (Deficit) (MW)
2026	4,173	4.24	3,926	247
2027	4,197	4.24	4,158	39
2028	4,269	4.24	4,261	8
2029	4,882	4.24	4,441	441
2030	4,882	4.24	4,562	320

[1] *Based on maximum supply achieved in KE's System.*
[2] *Deficit based on peak demand and maximum supply achieved during the year.*
[3] *Includes extension in useful lives of Unit 1 & 2 of BQPS-I till FY 2027 as requested vide KE letter dated April 02, 2024.*
Source: KE

Table 53
Overloading (above 80% load) of 500 kV and 220 kV Power Transformers installed at 500 kV Grid Stations (2024-25)

Region	Name of Grid Station	Auto and Power T/F	Voltage Level	Capacity (MVA)	Capacity (Ampere)	Load (Ampere)	Overload (above 80%)
Islamabad	Sheikh Muhammadi Peshawar	T-1	500/220	450	1180	1080	91.53
		T-2	500/220	450	1180	1080	91.53
		T-3	500/220	450	1180	1080	91.53
	Rawat	T-1	500/220	450	1125	1050	93.33
		T-2	500/220	450	1125	1050	93.33
		T-3	500/220	450	1125	1050	93.33
		T-4	500/220	750	1875	1770	94.40
		T-5	220/132	250	1093	1040	95.15
		T-6	220/132	250	1093	1040	95.15
		T-7	220/132	250	1093	1040	95.15
		T-8	220/132	250	1093	1040	95.15
Lahore	Yousafwala	T-1	500/220	600	1575	1310	83.17
		T-2	500/220	600	1575	1310	83.17
		T-9	500/220	600	1575	1310	83.17
	Nokhar	T-1	500/220	600	1575	1290	81.90
		T-2	500/220	600	1575	1290	81.90
	Sheikhupura	T-1	500/220	600	1575	1450	92.06
		T-2	500/220	600	1575	1450	92.06
		T-3	500/220	600	1575	1450	92.06
		T-4	500/220	600	1575	1450	92.06
		T-10	500/220	450	1181	980	82.98
	Gatti	T-1	500/220	450	1181	1160	98.22
		T-2	500/220	450	1181	1170	99.07
		T-3	500/220	450	1181	1130	95.68
		T-4	500/220	450	1181	1130	95.68
Multan	Multan	T-1	500/220	450	1125	1135	100.89
		T-2	500/220	450	1125	1067	94.84
		T-7	500/220	450	1125	980	87.11
	Muzaffargarh	T-1	500/220	600	1500	1470	98.00
		T-2	500/220	600	1500	1540	102.67
	Rahim Yar Khan	T-5	220/132	250	1093	907	82.98
		T-6	220/132	250	1093	907	82.98
Hyderabad	Jamshoro	T-1	500/220	450	1125	1010	89.78
		T-2	500/220	450	1125	1010	89.78
		T-3	220/132	160	700	700	100.00
		T-7	220/132	160	700	700	100.00
		T-8	500/220	450	1125	1010	89.78
	Dadu	T-3	220/132	160	700	625	89.29
		T-4	500/220	450	1125	1010	89.78
		T-5	220/132	250	1093.5	980	89.62
	NKI Karachi	T-1	500/220	600	1500	1275	85.00
		T-2	500/220	600	1500	1300	86.67
	Shikarpur	T-2	220/132	250	1100	1020	92.73
		T-3	220/132	250	1100	1020	92.73

Source: NGC

Table 54

Overloading (above 80% load) of 220 kV Power Transformers installed at 220 kV Grid Stations (2024-25)

Region	Name of Grid Station	Auto and Power T/F	Voltage Level	Capacity (MVA)	Capacity (Ampere)	Load (Ampere)	Overload (above 80%)
Islamabad	Mardan	T-1	220/132	250	1093	920	84.17
		T-2	220/132	250	1093	920	84.17
		T-3	220/132	250	1093	920	84.17
	Burhan	T-1	220/132	250	1093	950	86.92
		T-2	220/132	250	1093	950	86.92
		T-3	220/132	250	1093	950	86.92
		T-4	220/132	250	1093	950	86.92
	Sangjani	T-1	220/132	160	700	600	85.71
		T-2	220/132	160	700	600	85.71
		T-3	220/132	160	700	640	91.43
		T-4	220/132	160	700	640	91.43
		T-7	220/132	160	700	640	91.43
	University Islamabad	T-1	220/132	250	1093	9440	86.00
		T-2	220/132	250	1093	1010	92.41
	Mansehra	T-1	220/132	250	1093	890	81.43
Lahore	Nokhar	T-4	220/132	160	700	600	85.71
		T-5	220/132	160	700	640	91.43
		T-6	220/132	160	700	640	91.43
		T-7	220/132	250	1093	1000	91.49
	Gakkhar	T-2	220/132	250	1093	900	82.34
		T-4	220/132	160	700	615	87.86
	Yousafwala	T-3	220/132	160	700	609	87.00
		T-4	220/132	160	700	609	87.00
		T-5	220/132	160	700	609	87.00
		T-6	220/132	160	700	609	87.00
	Band Road	T-1	220/132	250	1093	900	82.34
		T-2	220/132	250	1093	900	82.34
		T-3	220/132	250	1093	900	82.34
	Kala Shah Kaku	T-1	220/132	160	700	640	91.43
		T-2	220/132	160	700	640	91.43
		T-3	220/132	160	700	640	91.43
		T-4	220/132	160	700	640	91.43
	Kassowal	T-4	220/132	250	1095	880	80.37
	NKLP	T-1	220/132	250	1095	1050	95.89
		T-2	220/132	250	1095	1050	95.89
		T-3	220/132	250	1095	1050	95.89
		T-4	220/132	250	1095	985	89.95
	Sialkot	T-1	220/132	160	700	675	96.43
		T-2	220/132	160	700	675	96.43
		T-3	220/132	160	700	675	96.43
	Sarfraz Nagar	T-1	220/132	160	700	660	94.29
		T-2	220/132	160	700	660	94.29
		T-3	220/132	160	700	660	94.29
		T-4	220/132	250	1090	1000	91.74
	WAPDA Town	T-1	220/132	250	1093	1020	93.32
		T-2	220/132	160	700	640	91.43
		T-3	220/132	160	700	640	91.43
	Ghazi Road	T-1	220/132	250	1093	960	87.83
		T-2	220/132	250	1093	960	87.83
		T-3	220/132	250	1093	960	87.83
	New Okara	T-1	220/132	250	1093	980	89.66
		T-2	220/132	250	1093	980	89.66
		T-3	220/132	160	700	620	88.57
	Sheikhupura	T-5	220/132	250	1094	950	86.84
		T-6	220/132	250	1094	950	86.84
		T-7	220/132	250	1094	950	86.84
		T-8	220/132	250	1094	950	86.84
	Ludewala	T-1	220/132	250	1095	1000	91.32
		T-2	220/132	250	1095	1000	91.32
		T-3	220/132	250	1095	1000	91.32
	Gujrat	T-1	220/132	250	1093	940	86.00
		T-2	220/132	250	1093	940	86.00
		T-3	220/132	250	1093	940	86.00
	Faisalabad West	ATR-7	220/132	250	1095	890	81.28
		ATR-9	220/132	250	1095	890	81.28
Multan	Muzaffargarh	T-1	220/132	160	700	655	93.57
		T-2	220/132	160	700	655	93.57
		T-4	220/132	160	700	655	93.57
Hyderabad	Hala Road	T-1	220/132	160	700	665	95.00
		T-2	220/132	250	1983.5	990	90.53
		T-3	220/132	250	1093.5	1050	96.02
	T. M. Khan	T-1	220/132	160	700	720	102.86
		T-2	220/132	250	1093.5	900	82.30

Source: NGC

TABLE 55
Main Electricity Statistics of the Country

	2020-21	2021-22	2022-23	2023-24	2024-25
(A) Maximum Energy Demand (MW)					
CPPA-G System	26,349	29,131	28,865	26,892	24,759
KE System	3,604	3,670	3,654	3,568	3,707
(B) Auxiliary Consumption and System Losses (in percentage)					
CPPA-G System					
Auxiliary Consumption	0.05	n.p.	n.p.	n.p.	n.p.
Transmission Losses	2.78	2.62	2.42	2.52	2.57
Distribution Losses	17.96	17.14	16.77	18.26	17.58
KE System					
Auxiliary Consumption (KE Own)	6.88	7.13	5.85	4.06	4.26
T&D Losses (excluding Auxiliary	17.54	15.43	15.31	16.14	20.75
(C) Average Sales Price (Rs./kWh)					
CPPA-G System	18.29	23.03	33.24	44.15	n.p.
KE System [1]	19.64	23.34	27.14	36.31	36.42
(D) Per Capita Electricity Consumption					
CPPA-G System					
Energy Sale (GWh)	99,372.55	107,865.68	97,348.66	94,682.74	96,218.10
Per Capita Electricity Consumption	486.00	517.00	458.00	437.00	n.p.
Average Sale/Consumer (kWh)	3,152.61	3,249.97	2,807.27	2,589.99	n.p.
KE System					
Energy Sale (GWh)	16,068.85	16,763.23	15,553.83	14,908.51	15,248.59
Per Capita Electricity Consumption	1,001.00	1,044.34	763.00	737.00	748.11
Average Sale/ Consumer (kWh)	5,044.64	4,922.64	4,361.94	4,025.00	3,959.57

[1] Excluding Government taxes, duties and surcharges.
Source: NGC/DISCOs/KE

TABLE 56
Hourly System Demand (MW) (January - December, 2024)

Hours of the day	Maximum Demand (MW)		System Demand for a Typical day in Summer		System Demand for a Typical Day in Winter	
	Summer (22-07-2024)	Winter (03-01-2024)	Working day (24-07-2024)	Non-Working day (28-07-2024)	Working day (03-01-2024)	Non-Working day (07-01-2024)
01:00	26,867	12,993	26,474	**27,891**	12,993	13,281
02:00	26,560	12,423	25,522	27,350	12,423	12,547
03:00	25,926	12,130	24,547	26,548	12,130	12,202
04:00	25,498	11,614	24,061	25,995	11,614	12,118
05:00	25,719	12,353	23,774	26,024	12,353	12,204
06:00	25,474	13,687	23,582	24,837	13,687	13,232
07:00	25,384	14,782	23,486	24,869	14,782	14,228
08:00	24,328	15,118	23,824	24,340	15,118	13,578
09:00	25,839	15,901	24,308	24,635	15,901	14,909
10:00	25,791	17,219	24,422	24,827	17,219	15,441
11:00	25,797	18,066	24,019	23,951	18,066	14,897
12:00	25,616	18,957	23,850	24,038	18,957	16,197
13:00	26,090	19,150	24,793	24,328	19,150	16,429
14:00	26,765	19,153	25,772	24,337	19,153	16,303
15:00	27,639	18,936	26,290	24,535	18,936	16,189
16:00	27,599	19,028	26,528	24,895	19,028	16,499
17:00	28,073	19,112	26,631	25,053	19,112	16,395
18:00	27,033	**19,760**	26,239	24,987	**19,760**	**17,326**
19:00	26,433	18,851	25,657	24,832	18,851	16,769
20:00	27,588	17,983	26,501	26,043	17,983	16,300
21:00	27,817	17,381	27,167	26,543	17,381	16,103
22:00	28,053	15,998	27,183	26,998	15,998	15,098
23:00	28,227	14,721	28,108	27,097	14,721	14,193
0:00	**28,837**	14,033	**28,361**	27,595	14,033	13,406

(i) Highlighted area indicates maximum demand of the day.
(ii) Summer months are May to September and Winter months are December to February.
Source: Independent System and Market Operator

TABLE 57
Monthly System Peak Demand (MW)

Month	2020-21	2021-22	2022-23	2023-24	2024-25
July	26,085	28,650	28,447	28,843	28,306
August	26,781	27,410	27,573	29,441	25,966
September	23,931	26,140	25,906	27,225	25,866
October	20,857	23,100	22,416	20,434	23,633
November	15,962	16,795	17,234	17,048	18,336
December	17,177	17,751	17,707	17,350	18,225
January	17,012	17,602	18,794	19,060	17,872
February	16,433	17,337	17,348	16,548	16,836
March	17,617	21,477	18,671	18,369	19,312
April	21,322	27,047	21,280	19,353	24,305
May	23,847	27,474	26,364	25,882	26,962
June	26,682	30,231	29,051	27,128	28,214

Note: Monthly System Peak Demand (MW) is absolute maximum and may occur during Off-Peak Hours.
Source: Independent System and Market Operator

TABLE 58
Number of Circles, Divisions, Sub-Divisions, 11 kV Feeders and their Loading Position

DISCO	As on 30th June	Circles	Divisions	Sub-Divisions	11 kV Feeders	Loading Position of 11 kV Feeders (Nos.)				%age
						80-90%	91-100%	Above 100%	Total	
PESCO	2021	8	39	187	1,138	110	145	180	435	38.22
	2022	8	39	190	1,193	118	119	149	386	32.36
	2023	9	40	193	1,249	119	123	146	388	31.06
	2024	9	40	193	1,294	125	169	141	435	33.62
	2025	9	40	193	1,355	122	136	132	390	28.78
TESCO	2021	1	5	15	266	40	70	34	144	54.14
	2022	1	5	15	302	23	28	90	141	46.69
	2023	1	5	15	318	41	25	79	145	45.60
	2024	1	5	15	341	43	31	75	149	43.70
	2025	1	5	15	348	32	23	69	124	35.63
IESCO	2021	6	20	109	1,221	6	9	11	26	2.13
	2022	6	20	110	1,293	31	18	0	49	3.79
	2023	6	20	114	1,335	16	8	12	36	2.70
	2024	6	20	116	1,347	27	7	1	35	2.60
	2025	6	20	119	1,403	20	10	0	30	2.14
GEPCO	2021	5	24	118	910	64	42	0	106	11.65
	2022	5	24	119	949	87	56	13	156	16.44
	2023	5	24	119	978	32	16	0	48	4.91
	2024	6	24	119	1,032	42	10	3	55	5.33
	2025	6	25	124	1,063	24	8	2	34	3.20
LESCO	2021	8	42	201	2,011	141	104	40	285	14.17
	2022	8	42	201	2,058	124	151	182	457	22.21
	2023	8	41	201	2,154	193	157	160	510	23.68
	2024	8	41	201	2,200	168	152	96	416	18.91
	2025	8	42	201	2,256	221	99	31	351	15.56
FESCO	2021	5	26	140	1,185	54	19	2	75	6.33
	2022	5	26	140	1,198	80	45	4	129	10.77
	2023	5	26	140	1,272	59	33	1	93	7.31
	2024	6	29	148	1,305	41	10	0	51	3.91
	2025	6	29	148	1,320	44	19	0	63	4.77
MEPCO	2021	9	37	181	1,652	207	104	12	323	19.55
	2022	9	38	181	1,726	180	119	19	318	18.42
	2023	9	38	184	1,762	184	82	13	279	15.83
	2024	9	40	186	1,798	26	9	0	35	1.95
	2025	9	41	190	1,836	38	22	0	60	3.27
HESCO	2021	4	15	69	570	58	19	0	77	13.51
	2022	4	15	69	583	60	33	0	93	15.95
	2023	4	17	71	597	51	17	0	68	11.39
	2024	4	17	72	624	46	48	0	94	15.06
	2025	4	17	72	665	63	51	0	114	17.14
SEPCO	2021	7	29	97	548	24	39	20	83	15.15
	2022	7	30	94	562	24	39	20	83	14.77
	2023	9	30	94	575	31	19	34	84	14.61
	2024	9	30	96	589	42	38	45	125	21.22
	2025	9	30	96	600	40	53	1	94	15.67
QESCO	2021	6	14	55	688	494	131	63	688	100.00
	2022	6	14	55	714	88	238	0	326	45.66
	2023	6	14	55	725	103	205	0	308	42.48
	2024	6	14	56	778	91	146	7	244	31.36
	2025	6	14	56	767	41	61	2	104	13.56
Total in CPPA-G System	2021	59	251	1,172	10,189	1,198	682	362	2,242	22.00
	2022	59	253	1,174	10,578	815	846	477	2,138	20.21
	2023	62	255	1,186	10,965	829	685	445	1,959	17.87
	2024	64	260	1,202	11,308	651	620	368	1,639	14.49
	2025	64	263	1,214	11,613	645	482	237	1,364	11.75
KE	As on 30th June	IBCs		11 kV Feeders		Loading Position of 11 kV Feeders (Nos.)				%age
						80-90%	91-100%	Above 100%	Total	
	2021	30		1,937		17	5	2	24	1.24
	2022	30		2,001		72	19	23	114	5.70
	2023	30		2,068		87	18	15	120	5.80
	2024	30		2,112		71	24	8	103	4.88
	2025	30		2,131		114	36	8	158	7.41

Source: Distribution Companies / KE

TABLE 59
Status of Distribution Lines (km)

DISCO	As on 30th June	132 kV	66 kV	33 kV	11 kV	Total HT Lines	Total LT Lines (0.4 kV)
PESCO	2021	2,967	494	75	37,177	40,713	45,371
	2022	3,000	494	75	37,694	41,263	45,627
	2023	3,077	494	75	38,592	42,239	47,705
	2024	3,117	414	75	38,810	42,416	46,900
	2025	3,148	414	75	38,924	42,561	46,277
TESCO	2021	441	384	123	10,434	11,382	6,285
	2022	441	384	132	10,543	11,500	6,290
	2023	488	233	213	10,702	11,636	6,321
	2024	613	182	213	10,923	11,931	6,342
	2025	638	182	53	11,168	12,041	6,334
IESCO	2021	3,482	312	44	26,237	30,075	27,624
	2022	3,512	312	44	26,932	30,800	28,160
	2023	3,581	312	44	27,269	31,206	28,344
	2024	3,581	312	44	27,542	31,479	28,589
	2025	3,628	312	44	28,432	32,416	29,173
GEPCO	2021	2,611	179	0	24,659	27,449	18,456
	2022	2,682	123	0	24,996	27,801	18,494
	2023	2,676	123	0	25,266	28,065	18,585
	2024	2,751	115	0	25,459	28,325	18,672
	2025	2,826	96	0	25,941	28,863	19,029
LESCO	2021	3,051	15	0	30,055	33,121	15,000
	2022	3,110	0	0	31,562	34,672	15,533
	2023	3,184	0	0	32,148	35,332	15,591
	2024	3,268	15	0	32,769	36,052	15,701
	2025	3,281	15	0	32,913	36,209	15,780
FESCO	2021	2,337	1,124	0	45,690	49,151	31,979
	2022	2,322	881	0	46,281	49,484	32,054
	2023	2,525	845	0	46,797	50,167	32,145
	2024	2,609	845	0	47,082	50,536	32,614
	2025	2,811	830	0	47,728	51,369	32,752
MEPCO	2021	4,072	635	0	79,837	84,544	50,332
	2022	4,110	635	0	80,962	85,707	50,451
	2023	4,135	635	0	82,237	87,007	50,664
	2024	4,215	635	0	82,664	87,514	50,714
	2025	4,225	635	0	87,535	92,395	50,748
HESCO	2021	2,771	687	0	28,471	31,929	15,057
	2022	2,778	687	0	28,502	31,967	15,058
	2023	2,851	687	0	28,557	32,095	15,058
	2024	2,851	687	0	28,834	32,372	15,089
	2025	2,874	687	0	29,170	32,731	15,118
SEPCO	2021	2,262	687	0	24,722	27,671	13,349
	2022	2,308	687	0	24,856	27,851	13,353
	2023	2,284	687	0	24,912	27,883	13,354
	2024	2,344	687	0	25,490	28,521	13,310
	2025	2,344	687	0	25,641	28,672	13,737
QESCO	2021	5,500	106	1,981	40,822	48,409	17,476
	2022	6,258	207	1,673	41,606	49,744	17,908
	2023	6,854	207	1,673	42,786	51,520	19,377
	2024	7,305	107	1,818	45,086	54,316	19,377
	2025	7,305	107	1,818	46,082	55,312	19,079
Total in CPPA-G System	2021	29,495	4,623	2,223	348,104	384,445	240,928
	2022	30,521	4,411	1,924	353,933	390,789	242,927
	2023	31,656	4,224	2,005	359,266	397,150	247,144
	2024	32,654	3,999	2,150	364,659	403,462	247,308
	2025	33,080	3,965	1,990	373,534	412,569	792,058
KE	2021	833	153	0	10,283	11,269	18,509
	2022	838	153	0	10,520	11,511	18,936
	2023	838	153	0	10,891	11,882	19,370
	2024	805	153	0	11,298	12,256	30,871
	2025	805	153	0	11,835	12,793	31,131

Source: Distribution Companies / KE

TABLE 60
Status of Grid Stations (Nos.)

DISCO	As on 30th June	132 kV			66 kV			33 kV			Total
		DISCO Owned	Cons. Owned	Sub-Total	DISCO Owned	Cons. Owned	Sub-Total	DISCO Owned	Cons. Owned	Sub-Total	
PESCO	2021	83	12	95	11	0	11	2	0	2	108
	2022	85	12	97	11	0	11	2	0	2	110
	2023	92	11	103	11	0	11	2	0	2	116
	2024	94	11	105	11	0	11	2	0	2	118
	2025	98	11	109	10	0	10	2	0	2	121
TESCO	2021	11	0	11	9	1	10	0	0	0	21
	2022	13	0	13	6	1	7	0	0	0	20
	2023	14	0	14	5	1	6	0	0	0	20
	2024	15	0	15	5	1	6	0	0	0	21
	2025	15	0	15	4	1	5	0	0	0	20
IESCO	2021	85	26	111	0	1	1	2	0	2	114
	2022	89	25	114	0	1	1	2	0	2	117
	2023	89	29	118	0	1	1	2	0	2	121
	2024	90	30	120	0	1	1	2	0	2	123
	2025	94	30	124	0	1	1	2	0	2	127
GEPCO	2021	59	0	59	1	0	1	0	0	0	60
	2022	59	0	59	1	0	1	0	0	0	60
	2023	60	0	60	1	0	1	0	0	0	61
	2024	61	1	62	1	0	1	0	0	0	63
	2025	64	1	65	1	0	1	0	0	0	66
LESCO	2021	117	50	167	0	0	0	0	0	0	167
	2022	120	52	172	0	0	0	0	0	0	172
	2023	121	61	182	0	0	0	0	0	0	182
	2024	122	63	185	0	0	0	0	0	0	185
	2025	124	65	189	0	0	0	0	0	0	189
FESCO	2021	81	21	102	14	0	14	0	0	0	116
	2022	86	22	108	16	0	16	0	0	0	124
	2023	88	28	116	16	0	16	0	0	0	132
	2024	91	28	119	15	0	15	0	0	0	134
	2025	95	29	124	14	0	14	0	0	0	138
MEPCO	2021	123	11	134	6	0	6	0	0	0	140
	2022	123	12	135	6	0	6	0	0	0	141
	2023	125	12	137	6	0	6	0	0	0	143
	2024	127	13	140	6	0	6	0	0	0	146
	2025	128	13	141	6	0	6	0	0	0	147
HESCO	2021	61	9	70	15	0	15	0	0	0	85
	2022	62	10	72	15	0	15	0	0	0	87
	2023	63	10	73	15	0	15	0	0	0	88
	2024	63	10	73	15	0	15	0	0	0	88
	2025	65	10	75	14	0	14	0	0	0	89
SEPCO	2021	58	2	60	9	1	10	0	0	0	70
	2022	60	2	62	8	1	9	0	0	0	71
	2023	59	3	62	8	0	8	0	0	0	70
	2024	61	3	64	7	0	7	0	0	0	71
	2025	61	3	64	7	0	7	0	0	0	71
QESCO	2021	73	0	73	3	0	3	32	0	32	108
	2022	75	0	75	3	0	3	32	0	32	110
	2023	76	0	76	3	0	3	40	0	40	119
	2024	80	0	80	3	0	3	44	0	44	127
	2025	81	0	81	3	0	3	44	0	44	128
Total in CPPA-G System	2021	751	131	882	68	3	71	36	0	36	989
	2022	772	135	907	66	3	69	36	0	36	1,012
	2023	787	154	941	65	2	67	44	0	44	1,052
	2024	804	159	963	63	2	65	48	0	48	1,076
	2025	825	162	987	59	2	61	48	0	48	1,096
KE	2021	58	11	69	3	0	3	0	0	0	72
	2022	58	11	69	3	0	3	0	0	0	72
	2023	58	11	69	3	0	3	0	0	0	72
	2024	60	11	71	3	0	3	0	0	0	74
	2025	62	11	73	3	0	3	0	0	0	76

Source: Distribution Companies / KE

TABLE 61
Category-wise Number of Consumers

DISCO	As on 30th June	Domestic	Commercial	Industrial	Agricultural	Public Lighting	Bulk Supply	General Services	Others	Total
PESCO	2021	3,374,867	377,986	27,591	23,049	1,163	890	43,355	50	3,848,951
	2022	3,546,157	393,995	28,205	23,121	1,203	897	44,684	51	4,038,313
	2023	3,692,630	407,191	28,521	23,145	1,239	900	45,567	51	4,199,244
	2024	3,852,895	420,019	28,782	23,215	1,242	915	46,145	52	4,373,265
	2025	3,981,842	429,345	28,917	23,215	1,259	903	47,084	0	4,512,565
TESCO	2021	402,072	29,061	4,276	6,234	5	68	0	1,464	443,180
	2022	402,084	29,763	4,362	6,252	5	72	0	1,608	444,146
	2023	404,199	30,165	4,444	3,634	5	86	2,687	0	445,220
	2024	407,011	28,423	4,504	3,557	9	95	3,292	0	446,891
	2025	407,354	29,016	4,553	3,559	9	97	3,400	0	447,988
IESCO	2021	2,783,354	437,335	17,016	7,242	2,039	848	19,263	167	3,267,264
	2022	2,972,324	464,632	17,664	7,391	2,240	854	20,342	170	3,485,617
	2023	3,158,346	484,058	18,107	7,503	2,525	853	21,766	173	3,693,331
	2024	3,331,983	500,424	18,488	7,579	2,630	845	22,968	179	3,885,096
	2025	3,527,214	511,792	18,871	7,608	2,716	840	23,900	184	4,093,125
GEPCO	2021	3,387,411	394,245	76,337	52,960	620	148	0	21,365	3,933,086
	2022	3,591,198	410,372	80,524	54,982	673	148	0	21,815	4,159,712
	2023	3,817,077	425,043	83,312	56,291	703	138	22,669	31	4,405,264
	2024	4,102,446	439,338	85,392	57,153	747	139	23,625	31	4,708,871
	2025	4,432,480	454,124	87,224	57,353	784	141	24,724	31	5,056,861
LESCO	2021	4,688,342	664,548	87,918	66,101	2,613	469	0	17,863	5,527,854
	2022	5,018,720	687,951	89,934	68,250	2,726	459	0	19,208	5,887,248
	2023	5,283,943	704,392	91,150	69,934	2,779	453	19,693	271	6,172,615
	2024	5,676,254	725,430	92,201	71,563	2,843	451	20,116	272	6,589,130
	2025	6,124,417	741,119	93,127	71,860	2,876	448	20,497	268	7,054,612
FESCO	2021	4,081,137	427,149	52,253	49,738	1,882	229	0	29,414	4,641,802
	2022	4,291,224	440,006	53,475	51,922	1,913	231	0	30,371	4,869,142
	2023	4,516,894	451,958	54,363	53,345	1,955	235	30,938	147	5,109,835
	2024	4,801,242	464,121	55,165	54,328	1,987	235	31,844	152	5,409,074
	2025	5,128,277	472,002	55,624	54,537	2,030	224	32,914	154	5,745,762
MEPCO	2021	6,415,415	600,662	59,514	99,127	1,666	458	0	40,835	7,217,677
	2022	6,788,616	618,271	60,717	102,709	1,742	464	0	42,434	7,614,953
	2023	7,068,151	635,962	60,768	106,349	1,816	471	44,161	129	7,917,807
	2024	7,484,491	654,755	61,280	107,939	1,917	473	45,437	129	8,356,421
	2025	7,929,029	668,508	61,684	108,136	2,025	477	46,407	133	8,816,399
HESCO	2021	958,338	169,007	15,193	15,660	572	345	0	13,875	1,172,990
	2022	978,572	171,843	15,490	15,729	573	346	0	13,941	1,196,494
	2023	1,001,748	175,246	15,866	15,904	587	351	13,931	114	1,223,747
	2024	1,018,884	177,694	16,029	15,922	587	351	13,983	116	1,243,566
	2025	1,034,306	179,395	16,187	15,933	589	344	14,133	118	1,261,005
SEPCO	2021	643,103	125,388	13,382	9,370	535	445	0	13,494	805,717
	2022	650,565	126,818	13,533	9,377	540	449	0	13,496	814,778
	2023	652,594	126,948	13,585	9,260	470	539	13,410	20	816,826
	2024	658,826	127,788	13,726	10,106	486	542	12,585	20	824,079
	2025	661,980	128,424	13,805	9,342	498	545	13,372	21	827,987
QESCO	2021	491,006	127,814	3,802	29,639	279	282	0	9,346	662,168
	2022	503,579	131,817	3,832	29,623	283	299	0	9,958	679,391
	2023	513,399	135,039	3,834	29,608	286	305	11,025	4	693,500
	2024	534,281	140,986	3,888	29,602	288	309	11,373	6	720,733
	2025	543,843	144,001	3,931	29,556	291	312	11,655	4	733,593
Total in CPPA-G System	2021	27,225,045	3,353,195	357,282	359,120	11,374	4,182	62,618	147,873	31,520,689
	2022	28,743,039	3,475,468	367,736	369,356	11,898	4,219	65,026	153,052	33,189,794
	2023	30,108,981	3,576,002	373,950	374,973	12,365	4,331	225,847	940	34,677,389
	2024	31,868,313	3,678,978	379,455	380,964	12,736	4,355	231,368	957	36,557,126
	2025	33,770,742	3,757,726	383,923	381,099	13,077	4,331	238,086	913	38,549,897
KE	2021	2,651,527	490,652	23,244	2,164	88	170	0	17,487	3,185,332
	2022	2,851,946	509,334	23,706	2,093	180	176	0	17,897	3,405,332
	2023	3,001,648	519,001	23,618	2,096	185	196	19,057	0	3,565,801
	2024	3,125,561	532,825	23,430	1,655	181	206	20,492	0	3,704,350
	2025	3,258,859	545,129	23,078	1,571	204	201	22,035	0	3,851,077

Source: Distribution Companies / KE

TABLE 62
Category-wise Sanctioned Load (MW)

DISCO	As on 30th June	Domestic	Commercial	Industrial	Agricultural	Public Lighting	Bulk Supply	General Services	Others	Total
PESCO	2021	4,930.64	871.10	1,764.04	166.15	50.69	293.52	451.12	4.21	8,531.47
	2022	5,291.42	925.50	1,872.00	167.40	50.78	301.66	473.47	4.30	9,086.53
	2023	5,607.70	986.92	1,946.72	167.95	50.57	310.87	506.54	4.31	9,581.58
	2024	5,964.90	1,022.64	2,016.10	169.20	50.62	313.27	524.41	4.33	10,065.47
	2025	6,275.10	1,055.38	2,045.93	169.84	50.76	324.53	547.74	0.00	10,469.28
TESCO	2021	770.00	40.00	260.00	70.00	1.00	7.00	0.00	16.00	1,164.00
	2022	768.29	40.52	295.16	71.60	0.10	7.75	0.00	19.72	1,203.14
	2023	787.11	42.55	319.12	47.52	0.10	15.62	28.91	0.00	1,240.93
	2024	791.11	40.67	336.65	45.95	0.18	20.85	33.61	0.00	1,269.02
	2025	791.99	42.32	349.29	46.00	0.18	25.87	34.18	0.00	1,289.83
IESCO	2021	4,970.00	1,267.00	1,152.00	62.00	103.00	557.00	453.18	375.82	8,940.00
	2022	5,407.62	1,396.10	1,195.20	64.81	106.13	574.97	484.22	319.37	9,548.42
	2023	5,845.07	1,478.37	1,222.33	67.21	109.48	585.49	516.24	325.35	10,149.53
	2024	6,282.19	1,559.00	1,255.72	68.81	111.77	585.88	542.69	338.29	10,744.35
	2025	6,844.16	1,612.56	1,267.38	69.52	113.22	638.89	598.77	350.22	11,494.72
GEPCO	2021	5,241.09	920.91	2,033.03	397.76	22.54	75.44	0.00	192.08	8,882.85
	2022	5,653.50	974.04	2,168.16	419.08	22.83	75.44	0.00	200.34	9,513.39
	2023	6,122.84	1,031.80	2,263.78	432.56	23.25	79.35	197.18	30.75	10,181.52
	2024	6,722.36	1,078.97	2,370.14	440.39	23.76	79.36	210.55	30.76	10,956.27
	2025	7,449.04	1,134.73	2,451.57	442.59	24.17	80.32	223.58	30.75	11,836.74
LESCO	2021	7,471.08	1,931.16	5,226.09	644.81	109.22	333.87	0.00	600.73	16,316.97
	2022	8,121.77	2,042.68	5,526.34	673.62	110.57	346.07	0.00	645.11	17,466.17
	2023	8,652.97	2,183.27	5,758.92	697.31	111.12	370.77	635.83	54.39	18,464.58
	2024	9,473.00	2,269.48	5,942.27	734.72	112.17	348.35	711.85	54.46	19,646.30
	2025	10,560.24	2,382.64	6,088.52	726.50	112.39	356.04	741.91	44.50	21,012.74
FESCO	2021	10,315.00	1,109.00	2,525.00	587.00	12.00	231.00	0.00	269.00	15,048.00
	2022	10,947.00	1,172.00	2,660.00	631.00	12.00	231.00	0.00	282.00	15,935.00
	2023	11,629.00	1,225.00	2,837.00	636.00	12.00	226.00	293.00	9.00	16,867.00
	2024	12,489.00	1,277.00	2,942.00	651.00	13.00	226.00	305.00	9.00	17,912.00
	2025	13,487.28	1,347.09	3,036.97	655.92	12.86	226.41	326.87	9.13	19,102.53
MEPCO	2021	9,729.66	1,314.19	2,776.20	1,656.29	16.24	152.43	0.00	359.11	16,004.12
	2022	10,469.45	1,378.99	2,903.89	1,729.59	16.67	160.95	0.00	380.82	17,040.36
	2023	11,204.39	1,548.87	2,864.79	1,810.20	16.94	170.93	394.85	25.11	18,036.08
	2024	12,322.20	1,620.54	2,973.94	1,845.12	19.07	181.60	416.35	25.17	19,403.99
	2025	13,639.26	1,697.01	3,013.90	1,850.47	19.88	184.35	439.87	25.52	20,870.26
HESCO	2021	1,291.52	344.43	983.02	214.02	24.05	78.44	0.00	178.63	3,114.11
	2022	1,331.64	357.31	1,046.88	216.29	24.06	80.72	0.00	184.70	3,241.59
	2023	1,378.19	370.48	1,118.67	219.37	24.14	81.97	180.87	9.91	3,383.61
	2024	1,414.37	382.51	1,170.99	219.93	24.14	83.97	185.51	10.09	3,491.51
	2025	1,453.23	394.09	1,216.16	220.68	24.18	84.19	191.01	10.29	3,593.83
SEPCO	2021	700.75	231.71	481.85	111.81	13.14	84.58	0.00	121.78	1,745.62
	2022	715.43	238.56	496.46	111.47	13.15	86.78	0.00	122.50	1,784.35
	2023	723.66	242.89	543.44	110.22	13.66	89.24	120.78	2.25	1,846.12
	2024	735.11	247.50	563.64	121.17	13.89	93.78	111.79	2.25	1,889.11
	2025	741.76	251.64	577.92	111.17	14.58	94.56	122.75	2.30	1,916.68
QESCO	2021	693.43	214.01	215.15	996.52	5.77	79.50	0.00	138.15	2,342.52
	2022	710.54	220.21	219.98	996.23	5.81	89.86	0.00	148.99	2,391.62
	2023	724.31	226.75	225.37	995.89	6.05	92.80	159.93	0.01	2,431.12
	2024	752.68	239.76	239.01	995.78	6.06	121.51	167.14	0.02	2,521.95
	2025	768.03	245.90	253.56	994.53	6.18	123.86	173.64	0.02	2,565.70
Total in CPPA-G System	2021	46,113.17	8,243.51	17,416.38	4,906.36	357.65	1,892.78	904.30	2,255.51	82,089.65
	2022	49,416.66	8,745.92	18,384.07	5,081.09	362.10	1,955.19	957.69	2,307.85	87,210.56
	2023	52,675.25	9,336.89	19,100.13	5,184.23	367.31	2,023.04	3,034.13	461.09	92,182.07
	2024	56,946.91	9,738.07	19,810.45	5,292.06	374.65	2,054.57	3,208.90	474.37	97,899.97
	2025	62,010.09	10,163.36	20,301.20	5,287.21	378.40	2,139.01	3,400.31	472.73	104,152.30
KE	2021	6,948.36	2,039.96	2,675.16	42.35	1.41	191.66	0.00	281.56	12,180.46
	2022	6,975.04	1,754.34	2,680.85	30.79	1.65	137.91	0.00	305.16	11,885.74
	2023	7,313.95	1,771.55	2,836.17	30.49	1.78	148.48	336.37	0.00	12,438.79
	2024	7,651.12	1,837.38	2,933.54	24.91	1.82	209.80	372.50	0.00	13,031.07
	2025	7,761.64	1,858.48	2,983.72	22.93	1.86	214.31	398.38	0.00	13,241.33

Source: Distribution Companies / KE

TABLE 63
Peak Demand of Distribution Companies (MW)

DISCO	2020-21	2021-22	2022-23	2023-24	2024-25
PESCO	3,307	3,622	2,636	2,595	2,205
Peak Demand Growth Rate over Last Year	11.46	9.53	(27.22)	(1.56)	(15.03)
TESCO	857	983	1,082	1,103	513
Peak Demand Growth Rate over Last Year	6.46	14.70	10.07	1.94	(53.49)
IESCO	2,406	2,921	3,254	2,965	2,857
Peak Demand Growth Rate over Last Year	(9.92)	21.40	11.40	(8.88)	(3.64)
GEPCO	2,948	2,985	2,796	2,625	2,627
Peak Demand Growth Rate over Last Year	21.37	1.26	(6.33)	(6.12)	0.08
LESCO	4,835	5,995	6,099	5,917	4,890
Peak Demand Growth Rate over Last Year	(3.38)	23.99	1.73	(2.98)	(17.36)
FESCO	3,342	3,802	3,740	3,063	3,091
Peak Demand Growth Rate over Last Year	14.26	13.76	(1.63)	(18.10)	0.91
MEPCO	4,635	4,735	5,181	4,387	4,226
Peak Demand Growth Rate over Last Year	12.64	2.16	9.42	(15.33)	(3.67)
HESCO	1,399	1,365	1,400	1,546	1,499
Peak Demand Growth Rate over Last Year	13.93	(2.43)	2.56	10.43	(3.04)
SEPCO	1,191	1,223	1,338	1,472	1,512
Peak Demand Growth Rate over Last Year	5.96	2.69	9.40	10.01	2.72
QESCO	1,429	1,500	1,339	1,219	1,339
Peak Demand Growth Rate over Last Year	(6.11)	4.97	-10.73	(8.96)	9.84
Peak Demand in CPPA-G System	**26,349**	**29,131**	**28,865**	**26,892**	**24,759**
Peak Demand Growth Rate over Last Year	**6.29**	**10.56**	**(0.91)**	**(6.84)**	**(7.93)**
KE	3,604	3,670	3,654	3,568	3,707
Peak Demand Growth Rate over Last Year	0.00	1.83	-0.44	(2.35)	3.90

Source: Distribution Companies / KE

TABLE 64
Energy Volume Consumed by Demand

DISCO	2020-21		2021-22		2022-23		2023-24		2024-25	
	Energy Delivered at 132 kV (GWh)	Consumption (%)	Energy Delivered at 132 kV (GWh)	Consumption (%)	Energy Delivered at 132 kV (GWh)	Consumption (%)	Energy Delivered at 132 kV (GWh)	Consumption (%)	Energy Delivered at 132 kV (GWh)	Consumption (%)
PESCO	15,542.00	12.28	16,561.55	11.90	15,254.53	12.12	14,146.00	11.47	13,498.44	10.94
TESCO	2,227.00	1.76	2,284.45	1.64	1,719.83	1.37	1,406.90	1.14	1,528.87	1.24
IESCO	11,965.00	9.45	13,026.76	9.36	11,723.84	9.32	11,978.20	9.71	12,317.00	9.98
GEPCO	12,032.00	9.50	12,678.20	9.11	11,440.06	9.09	11,813.23	9.58	11,975.14	9.71
LESCO	25,388.00	20.05	28,334.35	20.36	26,032.44	20.69	25,093.63	20.34	25,299.63	20.51
FESCO	15,985.00	12.63	17,511.52	12.59	16,040.95	12.75	15,632.88	12.67	15,510.67	12.57
MEPCO	20,541.00	16.23	22,511.51	16.18	19,505.57	15.50	19,699.22	15.97	18,359.61	14.88
HESCO	5,591.00	4.42	5,610.33	4.03	4,916.84	3.91	5,040.92	4.09	5,322.72	4.31
SEPCO	4,291.00	3.39	4,489.77	3.23	3,868.50	3.07	3,829.45	3.10	3,924.43	3.18
QESCO	6,629.00	5.24	6,716.42	4.83	6,004.55	4.77	5,844.42	4.74	4,991.91	4.05
KE	6,118.00	4.83	9,036.34	6.49	8,960.81	7.12	8,538.06	6.92	10,234.27	8.30
IPPs	289.00	0.23	375.31	0.27	349.19	0.28	352.33	0.29	396.27	0.32
Total	**126,598.00**	**100.00**	**139,136.49**	**100.00**	**125,817.11**	**100.00**	**123,375.25**	**100.00**	**123,358.96**	**100.00**

Source: CPPA-G

TABLE 65
Maximum Demand and Energy Data of all DISCOs (FY 2024-25)

Month	Energy Units (kWh)	MDI (kW)	Capacity Transfer Charges (Rs.)	Energy Transfer Charges (Rs.)	GST on Energy Transfer Charges (Rs.)	Transmission Charges (Rs.)	Market Operator Charges (Rs.)	Total Amount Payable (Rs.)
Peshawar Electric Supply Company Limited (PESCO)								
July, 2024	1,610,486,390	3,037,504	10,322,540,502	18,444,516,173	3,692,269,048	1,520,388,304	12,156,091	**33,991,870,118**
August, 2024	1,489,702,242	3,062,164	17,430,855,965	14,958,149,057	2,637,879,867	1,573,402,783	2,294,022	**36,602,581,695**
September, 2024	1,297,049,578	3,173,568	18,780,584,631	13,322,462,153	2,463,797,332	1,611,158,314	7,518,183	**36,185,520,613**
October, 2024	943,552,449	2,454,000	13,841,894,019	10,284,578,859	1,780,261,849	1,337,808,339	5,813,526	**27,250,356,592**
November, 2024	832,160,806	2,295,776	15,742,110,561	6,595,157,816	1,092,219,285	1,372,642,754	5,438,693	**24,807,569,109**
December, 2024	995,655,790	2,731,654	14,300,579,337	10,638,476,707	2,075,686,605	1,636,338,079	6,471,288	**28,657,552,016**
January, 2025	1,036,742,413	2,690,814	17,491,929,891	13,749,194,608	2,228,679,929	1,587,403,655	6,374,538	**35,063,582,622**
February, 2025	862,054,820	2,369,498	13,933,926,418	8,191,589,411	1,716,221,218	1,379,558,740	5,613,341	**25,226,909,128**
March, 2025	899,532,000	3,012,804	12,585,598,447	6,433,905,445	1,432,855,714	1,132,974,225	7,137,333	**21,592,471,164**
April, 2025	930,018,626	2,348,846	13,408,179,393	11,931,280,773	2,285,113,777	1,212,842,685	5,564,416	**28,842,981,045**
May, 2025	1,194,465,517	2,481,178	11,128,611,875	11,498,239,857	1,994,590,880	1,362,561,863	5,877,911	**25,989,882,386**
June, 2025	1,407,021,401	3,189,306	14,946,402,588	10,566,149,928	2,455,300,991	1,658,266,962	7,555,466	**29,633,675,934**
Total	**13,498,442,032**	**32,847,112**	**173,913,213,629**	**136,613,700,787**	**25,854,876,494**	**17,385,346,703**	**77,814,808**	**353,844,952,422**
Tribal Area Electric Supply Company Limited (TESCO)								
July, 2024	114,122,607	488,880	1,661,391,590	1,307,018,975	261,642,304	244,703,360	1,956,498	**3,476,712,726**
August, 2024	111,924,481	476,670	2,713,364,181	1,123,837,384	198,189,495	244,922,840	330,890	**4,280,644,790**
September, 2024	116,081,131	512,010	3,029,979,864	1,192,310,996	220,500,732	259,937,448	1,212,952	**4,703,941,992**
October, 2024	121,963,734	526,110	2,967,546,399	1,329,386,238	230,116,919	286,811,062	1,246,355	**4,815,106,972**
November, 2024	134,477,813	561,470	3,849,993,561	1,065,782,470	176,503,459	335,702,493	1,330,122	**5,429,312,106**
December, 2024	146,859,965	610,680	3,196,992,661	1,569,183,178	306,165,309	365,814,608	1,446,701	**5,439,602,457**
January, 2025	150,672,547	622,250	4,045,003,993	1,998,207,216	323,900,013	367,086,660	1,474,110	**6,735,671,993**
February, 2025	129,283,654	619,230	3,641,406,431	1,228,504,947	257,384,269	360,525,377	1,466,956	**5,489,287,980**
March, 2025	146,074,345	647,680	2,705,599,303	1,044,797,210	232,680,394	463,898,888	1,534,354	**4,448,510,148**
April, 2025	119,423,540	577,750	3,298,034,713	1,532,093,817	293,431,087	298,325,161	1,368,690	**5,423,253,469**
May, 2025	121,629,589	533,810	2,394,251,563	1,170,838,478	203,104,456	299,031,892	1,264,596	**4,068,490,985**
June, 2025	116,355,082	564,470	2,645,339,102	873,778,637	203,043,641	304,240,596	1,337,229	**4,027,739,205**
Total	**1,528,868,488**	**6,741,010**	**36,148,903,360**	**15,435,739,545**	**2,906,662,078**	**3,831,000,386**	**15,969,453**	**58,338,274,822**
Islamabad Electric Supply Company Limited (IESCO)								
July, 2024	1,487,706,833	3,130,598	10,638,907,685	17,038,351,217	3,410,779,455	1,566,985,454	12,528,653	**32,667,552,464**
August, 2024	1,356,648,726	2,779,348	15,820,973,229	13,622,154,340	2,402,276,280	1,428,086,111	1,472,009	**33,274,961,969**
September, 2024	1,227,764,939	2,587,262	15,310,934,870	12,610,814,737	2,332,188,401	1,313,502,241	6,129,224	**31,573,569,473**
October, 2024	910,888,463	2,014,990	11,365,638,969	9,928,546,356	1,718,632,580	1,098,480,206	4,773,511	**24,116,071,622**
November, 2024	705,655,291	1,550,506	10,631,802,439	5,592,558,523	926,179,546	927,239,297	3,673,149	**18,081,452,954**
December, 2024	839,757,794	2,074,252	10,858,990,667	8,972,723,125	1,750,679,323	1,242,535,670	4,913,903	**22,829,842,687**
January, 2025	863,652,538	2,174,656	14,136,588,515	11,453,690,589	1,856,589,499	1,282,904,312	5,151,760	**28,734,924,675**
February, 2025	683,567,331	1,719,192	10,109,776,344	6,495,529,960	1,360,879,529	1,000,940,431	4,072,766	**18,971,199,029**
March, 2025	677,858,246	1,622,802	6,779,045,146	4,848,383,226	1,079,753,762	1,815,490,578	3,844,418	**14,526,517,129**
April, 2025	916,966,109	2,283,752	13,036,596,059	11,763,829,025	2,253,042,929	1,179,230,953	5,410,208	**28,238,109,174**
May, 2025	1,205,012,379	2,738,936	12,284,711,413	11,599,766,730	2,012,202,669	1,455,907,565	6,488,539	**27,359,076,917**
June, 2025	1,441,525,563	3,050,708	14,296,875,228	10,825,261,942	2,515,511,947	1,556,772,256	7,227,127	**29,201,648,499**
Total	**12,317,004,212**	**24,596,404**	**145,270,840,564**	**124,751,609,768**	**23,618,715,919**	**15,868,075,073**	**65,685,268**	**309,574,926,592**
Gujranwala Electric Power Company Limited (GEPCO)								
July, 2024	1,484,473,917	3,212,942	10,918,742,469	17,001,325,401	3,403,367,535	1,608,201,813	12,858,194	**32,944,495,412**
August, 2024	1,333,024,356	3,295,518	18,759,184,547	13,384,941,266	2,360,443,592	1,693,304,863	2,560,348	**36,200,434,616**
September, 2024	1,271,490,746	3,174,172	18,784,158,991	13,059,938,208	2,415,247,313	1,611,464,953	7,519,613	**35,878,329,078**
October, 2024	955,030,402	2,615,770	14,754,364,759	10,409,686,809	1,801,918,051	1,425,997,930	6,196,759	**28,398,164,307**
November, 2024	666,456,236	1,765,446	12,105,643,635	5,281,892,661	874,730,399	1,055,558,844	4,182,342	**19,322,007,879**
December, 2024	683,809,762	1,956,758	10,243,893,635	7,306,434,913	1,425,567,729	1,172,153,437	4,635,560	**20,152,685,273**
January, 2025	703,384,576	2,016,660	13,109,518,285	9,328,229,750	1,512,062,271	1,189,697,041	4,777,468	**25,144,284,814**
February, 2025	586,547,477	1,998,316	11,751,176,032	5,573,608,534	1,167,727,622	1,163,450,783	4,734,011	**19,660,696,981**
March, 2025	684,940,000	1,877,072	7,841,225,134	4,899,035,493	1,091,034,218	1,067,808,827	4,446,784	**14,903,550,456**
April, 2025	972,057,430	2,626,316	14,992,092,318	12,470,599,836	2,388,405,741	1,356,116,216	6,221,743	**31,213,435,853**
May, 2025	1,221,712,706	3,023,075	13,559,135,356	11,760,528,479	2,040,089,886	1,612,363,169	7,161,665	**28,979,278,555**
June, 2025	1,412,210,514	3,620,958	16,969,301,792	10,605,118,025	2,464,356,173	1,845,499,077	8,578,050	**31,892,853,115**
Total	**11,975,138,122**	**31,183,003**	**163,788,436,951**	**121,081,339,376**	**22,944,950,529**	**16,801,616,951**	**73,872,534**	**324,690,216,342**
Lahore Electric Supply Company Limited (LESCO)								
July, 2024	2,987,248,802	6,116,918	20,787,506,387	34,212,247,420	6,848,692,642	3,061,754,185	24,479,906	**64,934,680,541**
August, 2024	2,718,149,367	5,696,704	32,427,533,895	27,293,026,918	4,813,144,055	2,927,083,568	3,506,565	**67,464,295,001**
September, 2024	2,555,015,684	5,872,642	34,753,202,103	26,243,483,926	4,853,354,053	2,981,425,318	13,912,289	**68,845,377,688**
October, 2024	2,120,421,248	5,176,614	29,198,917,019	23,112,270,613	4,000,736,850	2,822,052,721	12,263,399	**59,146,240,601**
November, 2024	1,496,912,227	4,080,236	27,978,132,982	11,863,539,237	1,964,712,097	2,439,377,137	9,666,079	**44,255,427,533**
December, 2024	1,487,462,580	4,037,788	21,138,368,051	15,893,380,192	3,100,977,450	2,418,749,321	9,565,520	**42,561,040,533**
January, 2025	1,541,141,259	4,778,560	31,063,550,473	20,438,491,589	3,312,983,581	2,819,036,771	11,320,409	**57,645,382,822**
February, 2025	1,278,867,945	3,745,664	22,026,524,844	12,152,314,300	2,546,033,327	2,180,784,077	8,873,478	**38,914,530,026**
March, 2025	1,557,503,921	4,297,892	17,953,887,104	11,140,051,669	2,480,932,743	2,131,230,574	10,181,706	**33,716,283,795**
April, 2025	2,105,773,573	5,676,986	32,406,571,866	27,015,131,786	5,174,017,024	2,931,350,519	13,448,780	**67,540,519,975**
May, 2025	2,652,855,498	6,549,576	29,376,243,563	25,537,086,160	4,429,898,818	3,461,840,624	15,515,946	**62,820,585,110**
June, 2025	2,798,276,664	6,570,338	30,791,312,243	21,013,902,668	4,883,089,526	3,355,148,288	15,565,131	**60,059,017,856**
Total	**25,299,628,768**	**62,599,918**	**329,901,750,530**	**255,914,926,476**	**48,408,572,166**	**33,529,833,103**	**148,299,206**	**667,903,381,480**
Faisalabad Electric Supply Company Limited (FESCO)								
July, 2024	1,810,404,246	3,595,650	12,219,323,088	20,734,127,654	4,150,609,159	1,799,761,978	14,389,791	**38,918,211,670**
August, 2024	1,638,056,909	3,419,066	19,462,460,855	16,447,783,133	2,900,577,860	1,756,786,364	2,228,071	**40,569,836,283**
September, 2024	1,553,919,961	3,269,223	19,346,653,114	15,960,870,132	2,951,732,855	1,659,720,484	7,744,789	**39,926,721,375**
October, 2024	1,312,671,915	3,321,859	18,737,090,556	14,307,925,160	2,476,703,583	1,810,925,294	7,869,484	**37,340,514,077**
November, 2024	924,309,827	2,633,560	18,058,291,701	7,325,470,193	1,213,165,786	1,574,603,555	6,238,904	**28,177,770,139**
December, 2024	879,042,069	2,970,823	15,552,661,504	9,392,471,444	1,832,576,947	1,779,607,080	7,037,880	**28,564,354,855**
January, 2025	890,471,961	2,980,197	19,373,095,646	11,809,367,622	1,914,243,077	1,758,120,632	7,060,087	**34,861,887,064**
February, 2025	776,961,536	2,892,877	17,011,677,265	7,382,999,020	1,546,813,314	1,684,278,168	6,853,226	**27,632,620,992**
March, 2025	1,005,595,530	2,782,336	11,622,848,231	7,192,525,175	1,601,803,272	1,582,785,818	6,591,354	**22,006,553,850**
April, 2025	1,337,632,919	3,303,970	18,860,420,168	17,160,596,016	3,286,647,522	1,706,027,490	7,827,105	**41,021,518,301**
May, 2025	1,636,981,327	3,759,742	16,863,243,777	15,758,013,665	2,733,530,586	2,027,183,905	8,906,829	**37,390,878,763**
June, 2025	1,744,618,764	3,702,869	17,353,170,503	13,101,366,770	3,044,420,061	1,932,918,303	8,772,097	**35,440,647,733**
Total	**15,510,666,964**	**38,632,172**	**204,460,936,407**	**156,573,515,985**	**29,652,824,023**	**21,072,719,070**	**91,519,615**	**411,851,515,101**

Multan Electric Power Company Limited (MEPCO)								
Month	Energy Units (kWh)	MDI (kW)	Capacity Transfer Charges (Rs.)	Energy Transfer Charges (Rs.)	GST on Energy Transfer Charges (Rs.)	Transmission Charges (Rs.)	Market Operator Charges (Rs.)	Total Amount Payable (Rs.)
July, 2024	2,411,609,412	5,118,274	17,393,751,799	27,619,586,902	5,528,957,489	2,561,894,215	20,483,333	**53,124,673,738**
August, 2024	1,986,851,404	4,849,538	27,605,183,255	19,950,040,093	3,518,203,282	2,491,792,270	3,130,414	**53,568,349,315**
September, 2024	1,971,978,507	4,872,970	28,837,329,306	20,254,899,637	3,745,851,714	2,473,911,423	11,544,066	**55,323,536,146**
October, 2024	1,555,232,624	4,267,344	24,070,139,931	16,951,800,170	2,934,358,668	2,326,360,387	10,109,338	**46,292,768,493**
November, 2024	1,027,750,543	3,240,350	22,219,043,999	8,145,273,098	1,348,932,749	1,937,402,843	7,676,389	**33,658,329,077**
December, 2024	893,550,932	2,632,324	13,780,573,309	9,547,497,109	1,862,824,200	1,576,836,597	6,235,976	**26,773,967,191**
January, 2025	901,341,819	2,759,606	17,939,119,790	11,953,522,806	1,937,609,956	1,627,986,420	6,537,507	**33,464,776,479**
February, 2025	765,842,034	2,643,038	15,542,489,174	7,277,337,068	1,524,676,062	1,538,818,000	6,261,357	**25,889,581,661**
March, 2025	1,120,529,213	3,357,432	14,025,237,276	8,014,588,702	1,784,880,010	1,794,982,980	7,953,756	**25,627,642,724**
April, 2025	1,627,480,827	4,516,348	25,781,172,621	20,879,077,211	3,998,821,912	2,332,047,156	10,699,228	**53,001,818,129**
May, 2025	1,975,882,535	5,032,628	22,572,408,640	19,020,366,008	3,299,448,354	2,647,401,978	11,922,296	**47,551,547,276**
June, 2025	2,121,558,110	5,199,720	24,368,031,309	15,932,025,665	3,702,192,252	2,637,966,651	12,318,137	**46,652,534,013**
Total	**18,359,607,960**	**48,489,572**	**254,134,480,410**	**185,546,014,469**	**35,186,756,647**	**25,947,400,920**	**114,871,796**	**500,929,524,243**

Hyderabad Electric Supply Company Limited (HESCO)								
July, 2024	620,390,450	1,650,840	5,610,153,192	7,105,183,726	1,422,333,321	826,309,308	6,606,662	**14,970,586,209**
August, 2024	486,764,528	1,651,808	9,402,640,528	4,887,618,586	861,934,897	848,732,891	1,217,311	**16,002,144,213**
September, 2024	509,415,473	1,616,712	9,567,400,648	5,232,389,320	967,654,980	820,773,016	3,829,991	**16,592,047,955**
October, 2024	495,154,080	1,660,278	9,364,870,464	5,397,104,515	934,239,447	905,107,479	3,933,199	**16,605,255,104**
November, 2024	349,574,032	1,490,988	10,223,688,174	2,770,493,266	458,819,373	891,460,611	3,532,151	**14,347,993,574**
December, 2024	259,412,740	1,333,474	6,980,917,324	2,771,797,663	540,808,937	798,788,676	3,159,000	**11,095,471,600**
January, 2025	255,944,798	1,324,428	8,609,588,668	3,394,319,353	550,203,240	781,325,594	3,137,570	**13,338,574,425**
February, 2025	246,654,558	1,201,768	7,067,044,110	2,343,810,183	491,052,049	699,688,098	2,846,988	**10,604,441,428**
March, 2025	404,121,528	1,620,856	6,770,915,983	2,890,480,494	643,721,224	922,055,384	3,839,808	**11,231,012,893**
April, 2025	493,550,300	1,538,848	8,784,377,538	6,331,794,913	1,212,683,874	794,594,682	3,645,531	**17,127,096,538**
May, 2025	599,053,576	1,993,270	8,940,240,560	5,766,647,598	1,000,335,951	1,056,886,441	4,722,057	**16,768,832,606**
June, 2025	602,684,553	1,645,474	7,711,369,449	4,525,912,216	1,051,705,382	854,442,508	3,898,128	**14,147,327,683**
Total	**5,322,720,616**	**18,728,744**	**99,033,206,638**	**53,417,551,832**	**10,135,492,676**	**10,200,164,688**	**44,368,395**	**172,830,784,228**

Sukkur Electric Power Company Limited (SEPCO)								
July, 2024	528,263,811	1,342,450	4,562,132,098	6,050,079,322	1,211,119,902	671,948,178	5,372,485	**12,500,651,984**
August, 2024	414,429,087	1,047,888	5,964,927,024	4,161,296,051	733,847,419	538,426,386	290,226	**11,398,787,106**
September, 2024	453,062,581	1,081,778	6,401,760,820	4,653,568,523	860,610,417	549,197,502	2,562,732	**12,467,699,994**
October, 2024	370,407,812	870,876	4,912,214,057	4,037,389,078	698,872,540	474,761,685	2,063,105	**10,125,300,465**
November, 2024	231,631,564	687,116	4,711,546,789	1,835,759,037	304,018,718	410,826,143	1,627,778	**7,263,778,464**
December, 2024	176,144,829	517,916	2,711,360,534	1,882,088,850	367,216,729	310,246,346	1,226,943	**5,272,139,401**
January, 2025	185,407,077	549,666	3,573,163,785	2,458,853,763	398,568,657	324,266,864	1,302,159	**6,756,155,227**
February, 2025	149,639,050	497,750	2,927,038,501	1,421,930,055	297,908,795	289,797,823	1,179,170	**4,937,854,344**
March, 2025	221,452,577	933,838	3,900,987,281	1,583,940,250	352,749,641	761,049,174	2,212,262	**6,600,938,608**
April, 2025	319,654,211	1,144,522	6,533,402,486	4,100,868,558	785,410,336	590,981,757	2,711,373	**12,013,374,509**
May, 2025	410,142,001	1,059,280	4,751,096,450	3,948,134,991	684,879,959	554,082,668	2,509,434	**9,940,703,502**
June, 2025	464,198,826	1,167,298	5,470,439,603	3,485,941,570	810,043,001	587,063,484	2,765,329	**10,356,252,986**
Total	**3,924,433,426**	**10,900,378**	**56,420,069,426**	**39,619,850,047**	**7,505,246,113**	**6,062,648,010**	**25,822,995**	**109,633,636,592**

Quetta Electric Supply Company Limited (QESCO)								
July, 2024	572,753,328	1,482,083	5,036,655,687	6,559,607,139	1,313,118,445	741,839,898	5,931,296	**13,657,152,466**
August, 2024	461,174,388	1,418,044	8,071,978,090	4,630,667,151	816,621,335	728,620,145	939,105	**14,248,825,825**
September, 2024	429,067,082	1,292,705	7,649,987,540	4,407,102,132	815,030,011	656,281,009	3,062,418	**13,531,463,110**
October, 2024	403,922,374	1,348,733	7,607,587,305	4,402,692,731	762,106,646	735,267,423	3,195,148	**13,510,849,253**
November, 2024	379,402,478	1,330,462	9,122,963,173	3,006,893,860	497,969,503	795,482,235	3,151,864	**13,426,460,636**
December, 2024	413,758,971	1,412,654	7,395,435,367	4,420,970,801	862,581,188	846,219,738	3,346,577	**13,528,553,671**
January, 2025	415,415,670	1,182,898	7,689,557,466	5,509,209,249	893,016,968	697,832,183	2,802,285	**14,792,418,151**
February, 2025	364,645,147	1,353,750	7,960,780,253	3,465,003,913	725,953,528	788,174,392	3,207,034	**12,943,119,120**
March, 2025	414,380,618	1,271,284	5,310,624,235	2,963,858,667	660,062,828	515,179,356	3,011,672	**9,452,736,758**
April, 2025	355,733,397	1,412,035	8,060,476,757	4,563,731,221	874,059,147	729,113,923	3,345,111	**14,230,726,159**
May, 2025	385,555,386	1,286,731	5,771,262,637	3,711,457,755	643,823,740	713,338,280	3,048,266	**10,842,930,678**
June, 2025	396,102,551	1,121,779	5,257,118,805	2,974,566,654	691,212,646	611,243,304	2,657,494	**9,536,798,903**
Total	**4,991,911,390**	**15,913,158**	**84,934,427,315**	**50,615,761,274**	**9,555,555,986**	**8,558,591,884**	**37,698,271**	**153,702,034,731**

Total of DISCOs excluding K-Electric Limited								
July, 2024	13,627,459,796	29,176,139	99,151,104,498	156,072,043,929	31,242,889,300	14,603,786,693	116,762,908	**301,186,587,328**
August, 2024	11,996,725,488	27,696,748	157,659,101,568	120,459,513,979	21,243,118,082	14,231,158,222	17,968,961	**313,610,860,812**
September, 2024	11,384,845,682	27,453,042	162,461,991,888	116,937,839,764	21,625,967,808	13,937,371,708	65,036,256	**315,028,207,425**
October, 2024	9,189,245,101	24,256,574	136,820,263,475	100,161,380,528	17,337,947,133	13,223,572,526	57,463,824	**267,600,627,486**
November, 2024	6,748,330,817	19,635,910	134,643,217,012	53,482,820,161	8,857,250,915	11,740,295,912	46,517,471	**208,770,101,470**
December, 2024	6,775,455,432	20,278,323	106,159,772,389	72,395,023,982	14,125,084,415	12,147,289,552	48,039,347	**204,875,209,685**
January, 2025	6,944,174,658	21,079,735	137,031,116,513	92,093,086,544	14,927,857,191	12,435,660,131	49,937,892	**256,537,658,272**
February, 2025	5,844,063,552	19,041,083	111,971,839,372	55,532,627,390	11,634,649,713	11,086,015,888	45,108,326	**190,270,240,689**
March, 2025	7,131,987,978	21,423,996	89,495,968,139	51,011,566,330	11,360,473,806	12,187,455,803	50,753,447	**164,106,217,525**
April, 2025	9,178,290,932	25,429,373	145,161,323,921	117,749,003,157	22,551,633,348	13,130,630,541	60,242,185	**298,652,833,152**
May, 2025	11,403,290,514	28,458,226	127,641,205,836	109,771,079,721	19,041,905,299	15,190,598,385	67,417,537	**271,712,206,778**
June, 2025	12,504,552,028	29,832,920	139,809,360,620	93,904,024,073	21,820,875,620	15,343,561,428	70,674,187	**270,948,495,928**
Total	**112,728,421,978**	**293,762,069**	**1,548,006,265,231**	**1,139,570,009,559**	**215,769,652,631**	**159,257,396,789**	**695,922,341**	**3,063,299,246,552**

K-Electric Limited (2,000 MW)								
July, 2024	783,381,000	1,289,750	4,383,038,380	8,971,875,586	1,796,012,333	645,569,789	5,161,580	**15,801,657,668**
August, 2024	755,485,000	1,316,310	7,492,874,325	7,585,849,656	1,337,769,801	676,347,125	1,012,177	**17,093,853,084**
September, 2024	733,649,000	1,257,040	7,438,928,709	7,535,572,427	1,393,595,495	638,174,587	2,977,928	**17,009,249,146**
October, 2024	791,276,000	1,860,992	10,497,006,534	8,624,788,616	1,492,951,957	1,014,527,554	4,408,690	**21,633,683,351**
November, 2024	967,431,000	1,962,546	13,457,156,148	7,667,220,175	1,269,762,752	1,173,404,786	4,649,271	**23,572,193,133**
December, 2024	740,842,000	2,028,010	10,616,907,523	7,915,818,338	1,544,465,297	1,214,835,403	4,804,356	**21,296,830,916**
January, 2025	871,438,000	1,928,810	12,538,439,778	11,556,940,760	1,873,325,867	1,137,871,307	4,569,351	**27,111,147,064**
February, 2025	822,196,000	2,028,820	11,930,556,006	7,812,834,974	1,636,868,314	1,181,210,688	4,806,275	**22,566,276,258**
March, 2025	981,961,390	1,855,060	7,749,272,855	7,023,481,915	1,564,156,682	1,055,286,874	4,394,637	**17,396,592,963**
April, 2025	1,017,814,040	2,099,294	11,983,633,900	13,057,614,919	2,500,832,586	1,083,984,804	4,973,227	**28,631,039,437**
May, 2025	963,454,700	1,998,120	8,961,993,843	9,274,468,852	1,608,835,023	1,103,772,982	4,733,546	**20,953,804,246**
June, 2025	805,341,400	1,786,380	8,371,713,048	6,047,781,483	1,405,348,587	966,549,015	4,231,934	**16,795,624,068**
Total	**10,234,269,530**	**21,411,132**	**115,421,521,050**	**103,074,247,703**	**19,423,924,695**	**11,891,534,913**	**50,722,972**	**249,861,951,333**

Source: CPPA-G

TABLE 66
Total Units Purchased, Sold and Losses

DISCO	Year	Unit Purchased (GWh)				Losses		
		Through NTDC	Through CPPs, SPPs etc.	Through Net-Metering	Unit Purchased	Unit Sold	GWh	%age
PESCO	2020-21	15,540.90	0.00	2.59	15,543.49	9,607.54	5,935.95	38.19
	2021-22	16,560.19	0.00	9.29	16,569.48	10,355.18	6,214.30	37.50
	2022-23	15,254.61	0.00	25.03	15,279.64	9,548.86	5,730.78	37.51
	2023-24	14,133.54	0.00	62.88	14,196.42	8,803.06	5,393.36	37.99
	2024-25	14,133.54	0.00		14,133.54	8,644.19	5,489.35	38.84
TESCO	2020-21	2,226.00	0.00	0.00	2,226.00	2,012.65	213.35	9.58
	2021-22	2,284.00	0.00	0.00	2,284.00	2,071.59	212.41	9.30
	2022-23	1,719.83	0.00	0.78	1,720.61	1,564.66	155.95	9.06
	2023-24	1,407.00	0.00	1.30	1,408.30	1,286.09	122.21	8.68
	2024-25	1,537.00	0.00	0.00	1,537.00	1,404.21	132.79	8.64
IESCO	2020-21	11,966.00	0.00	0.00	11,966.00	10,944.00	1,022.00	8.54
	2021-22	13,027.00	0.00	0.00	13,027.00	11,961.92	1,065.08	8.18
	2022-23	11,723.84	0.00	114.43	11,838.27	10,778.51	1,059.76	8.95
	2023-24	11,977.17	0.00	247.47	12,224.64	11,154.58	1,070.06	8.75
	2024-25	12,316.00	0.00	654.00	12,970.00	11,881.92	1,088.08	8.39
GEPCO	2020-21	12,032.48	0.00	0.00	12,032.48	10,922.10	1,110.38	9.23
	2021-22	12,678.20	0.00	0.00	12,678.20	11,528.76	1,149.44	9.07
	2022-23	11,417.30	22.77	37.94	11,478.01	10,454.80	1,023.21	8.91
	2023-24	11,813.23	31.11	99.76	11,944.09	10,573.24	1,370.85	11.48
	2024-25	11,974.37	32.71	336.06	12,343.14	11,055.75	1,287.39	10.43
LESCO	2020-21	25,387.87	0.00	0.00	25,387.87	22,352.15	3,035.72	11.96
	2021-22	28,334.00	0.00	0.00	28,334.00	25,070.75	3,263.25	11.52
	2022-23	26,032.47	0.00	158.97	26,191.44	23,092.17	3,099.27	11.83
	2023-24	25,093.78	0.00	321.11	25,414.89	21,400.01	4,014.88	15.80
	2024-25	25,299.63	0.00	978.71	26,278.34	22,759.32	3,519.02	13.39
FESCO	2020-21	14,874.48	1,110.00	0.00	15,984.48	14,501.20	1,483.28	9.28
	2021-22	16,112.53	1,400.00	0.00	17,512.53	15,918.79	1,593.74	9.10
	2022-23	16,040.95	0.00	46.79	16,087.74	14,662.69	1,425.05	8.86
	2023-24	15,632.88	0.00	103.57	15,736.45	14,190.93	1,545.52	9.82
	2024-25	15,510.28	0.00	326.59	15,836.87	14,428.27	1,408.60	8.89
MEPCO	2020-21	16,065.16	4,467.05	0.00	20,532.21	17,466.10	3,066.11	14.93
	2021-22	18,518.35	4,030.36	0.00	22,548.71	19,202.42	3,346.29	14.84
	2022-23	16,332.94	3,172.63	94.11	19,599.68	16,732.36	2,867.32	14.63
	2023-24	16,827.82	2,880.87	220.35	19,929.04	16,904.35	3,024.69	15.18
	2024-25	18,359.40	5.17	788.42	19,152.99	16,568.92	2,584.07	13.49
HESCO	2020-21	4,419.93	2,112.65	0.00	6,532.58	4,014.18	2,518.40	38.55
	2021-22	4,836.97	1,173.95	0.00	6,010.92	4,034.50	1,976.42	32.88
	2022-23	3,974.83	909.19	2.35	4,886.37	3,576.57	1,309.80	26.81
	2023-24	2,564.05	2,528.49	6.37	5,098.91	3,709.36	1,389.55	27.25
	2024-25	4,099.39	1,303.15	18.70	5,421.24	3,915.85	1,505.39	27.77
SEPCO	2020-21	4,290.96	0.00	0.00	4,290.96	2,777.63	1,513.33	35.27
	2021-22	4,489.77	0.00	0.00	4,489.77	2,890.17	1,599.60	35.63
	2022-23	3,835.86	31.74	4.30	3,871.90	2,538.19	1,333.71	34.45
	2023-24	3,823.55	199.87	9.52	4,032.94	2,625.59	1,407.35	34.90
	2024-25	3,915.70	144.64	9.13	4,069.47	2,482.67	1,586.81	38.99
QESCO	2020-21	6,624.56	0.00	0.00	6,624.56	4,775.00	1,849.56	27.92
	2021-22	6,716.30	0.00	0.00	6,716.30	4,831.60	1,884.70	28.06
	2022-23	6,004.55	0.00	0.77	6,005.32	4,399.85	1,605.47	26.73
	2023-24	5,844.40	0.00	1.17	5,845.57	4,035.53	1,810.04	30.96
	2024-25	4,993.20	0.00	4.95	4,998.15	3,077.00	1,921.15	38.44
Total in CPPA-G System	2020-21	113,428.34	7,689.70	2.59	121,120.63	99,372.55	21,748.08	17.96
	2021-22	123,557.31	6,604.31	9.29	130,170.91	107,865.68	22,305.23	17.14
	2022-23	112,337.18	4,136.33	485.46	116,958.98	97,348.66	19,610.32	16.77
	2023-24	109,117.42	5,640.34	1,073.50	115,831.26	94,682.74	21,148.51	18.26
	2024-25	112,138.51	1,485.67	3,116.56	116,740.74	96,218.10	20,522.64	17.58

KE	As on 30th June	Unit Purchased (GWh)					Unit Sold (GWh)	Losses	
		KE Own	Through NTDC	Through Net-Metering	Through CPPs + Others	Total Unit Purchased		GWh	%age
	2020-21	10,185.60	6,118.04	0.00	3,182.03	19,485.67	16,068.85	3,416.82	17.54
	2021-22	7,889.96	9,036.54	44.00	2,851.39	19,821.89	16,763.23	3,058.66	15.43
	2022-23	7,093.34	8,960.81	107.18	2,204.71	18,366.04	15,553.83	2,812.21	15.31
	2023-24	7,471.36	8,538.07	77.03	1,691.90	17,778.36	14,908.51	2,869.84	16.14
	2024-25	6,432.61	10,234.27	136.07	1,082.76	17,885.71	15,248.59	2,637.12	14.74

Source: Distribution Companies / KE

TABLE 67
Units Billed, Amount of Units Billed and Amount Realized in all DISCOs (2024-25)

	DISCO	Unit	Domestic	Commercial	Industrial	Agricultural	Public Lighting	Bulk Supply	General Services	Others	Total
PESCO	Units Billed	GWh	4669.32	830.89	1895.87	40.22	12.07	744.97	450.85	0.00	8644.19
	Amount of Units Billed	Rs. Mln.	140891.41	57384.16	91185.77	1969.69	711.44	32275.86	24789.01	0.00	349207.34
	Amount Realized and %age	Rs. Mln.	118971.87	56289.86	87415.46	1986.66	400.83	29630.32	24744.23	0.00	319439.23
	Recovery to Billed Amount	%	84.44	98.09	95.87	100.86	56.34	91.80	99.82	0.00	91.48
TESCO	Units Billed	GWh	981.18	10.38	342.41	16.56	0.01	40.82	12.85	0.00	1404.21
	Amount of Units Billed	Rs. Mln.	32268.81	560.22	13247.03	575.89	0.00	1955.28	645.94	0.00	49253.17
	Amount Realized and %age	Rs. Mln.	28057.94	549.09	13264.81	587.25	0.00	1920.27	869.25	8.05	45256.66
	Recovery to Billed Amount	%	86.95	98.01	100.13	101.97	0.00	98.21	134.57	0.00	91.89
IESCO	Units Billed	GWh	5696.41	1370.36	1209.69	29.64	67.72	949.57	602.54	1955.99	11881.92
	Amount of Units Billed	Rs. Mln.	192468.595	96293.1	58335.64	1372.785	4022.332	52270.455	32426.48	65562.545	502751.93
	Amount Realized and %age	Rs. Mln.	199114.74	96583.16	59443.56	1391.15	2780.16	53563.39	32738.84	62033.23	507648.23
	Recovery to Billed Amount	%	103.45	100.30	101.90	101.34	69.12	102.47	100.96	94.62	100.97
GEPCO	Units Billed	GWh	6621.27	785.92	2642.67	354.57	14.44	151.52	166.56	318.81	11055.75
	Amount of Units Billed	Rs. Mln.	221528.28	57821.16	128119.03	16209.50	869.63	8276.77	9419.01	10473.88	452717.26
	Amount Realized and %age	Rs. Mln.	226028.76	57218.45	130518.85	17417.36	601.87	8574.87	9305.35	9788.57	459454.09
	Recovery to Billed Amount	%	102.03	98.96	101.87	107.45	69.21	103.60	98.79	93.46	101.49
LESCO	Units Billed	GWh	9972.48	1989.16	8233.75	905.65	110.27	693.71	837.23	17.07	22759.32
	Amount of Units Billed	Rs. Mln.	350724.89	138985.02	381157.58	36109.21	5439.10	37578.99	44968.57	978.25	995941.61
	Amount Realized and %age	Rs. Mln.	354828.12	137957.61	382752.99	38326.55	7219.93	39187.92	47662.95	982.66	1008918.73
	Recovery to Billed Amount	%	101.17	99.26	100.42	106.14	132.74	104.28	105.99	100.45	101.30
FESCO	Units Billed	GWh	7177.73	846.06	5216.67	716.75	15.00	201.05	250.53	4.48	14428.27
	Amount of Units Billed	Rs. Mln.	225243.00	60987.00	237305.00	33499.00	910.00	11703.00	14195.00	454.00	584296.00
	Amount Realized and %age	Rs. Mln.	226823.18	61246.78	237900.74	33152.83	953.97	10975.13	15130.92	267.13	586450.68
	Recovery to Billed Amount	%	100.70	100.43	100.25	98.97	104.83	93.78	106.59	58.84	100.37
MEPCO	Units Billed	GWh	10015.26	1186.19	2892.44	1751.33	61.36	286.56	370.41	5.37	16568.92
	Amount of Units Billed	Rs. Mln.	303071.33	82321.95	131393.45	77370.16	2997.68	15775.38	20085.82	294.33	633310.10
	Amount Realized and %age	Rs. Mln.	307597.26	83033.35	131736.98	82048.53	2133.499	15660.44	20341.36	317.116	642868.54
	Recovery to Billed Amount	%	101.49	100.86	100.26	106.05	71.17	99.27	101.27	107.74	101.51
HESCO	Units Billed	GWh	2158.39	256.21	986.99	133.43	27.82	89.19	260.93	2.89	3915.85
	Amount of Units Billed	Rs. Mln.	61407.68	18958.70	47935.32	6962.43	1502.62	5195.68	14347.11	153.90	156463.44
	Amount Realized and %age	Rs. Mln.	29589.47	18229.16	47913.42	4862.70	444.64	4629.06	11146.13	158.86	116973.44
	Recovery to Billed Amount	%	48.19	96.15	99.95	69.84	29.59	89.09	77.69	103.22	74.76
SEPCO	Units Billed	GWh	1449.75	176.53	367.76	47.02	129.25	171.36	140.34	0.66	2482.67
	Amount of Units Billed	Rs. Mln.	34793.15	12987.06	19818.90	2163.45	7212.31	8998.21	6808.50	36.69	92818.26
	Amount Realized and %age	Rs. Mln.	13964.14	12517.90	19215.20	1838.91	8634.46	6899.66	5775.75	36.51	68882.53
	Recovery to Billed Amount	%	40.13	96.39	96.95	85.00	119.72	76.68	84.83	99.52	74.21
QESCO	Units Billed	GWh	575.30	158.42	174.47	1845.40	3.78	153.99	165.62	0.04	3077.00
	Amount of Units Billed	Rs. Mln.	17911.86	12443.06	9449.90	80600.95	228.08	9047.06	9547.22	1.77	139229.90
	Amount Realized and %age	Rs. Mln.	11641.67	11593.73	9277.29	6531.55	26.38	8587.62	6289.99	0.64	53948.87
	Recovery to Billed Amount	%	64.99	93.17	98.17	8.10	11.57	94.92	65.88	36.16	38.75
Total in CPPA-G System	Units Billed	GWh	49317.08	7610.12	23962.71	5840.57	441.71	3482.73	3257.87	2305.31	96218.10
	Amount of Units Billed	Rs. Mln.	1580309.00	538741.43	1117947.61	256833.06	23893.19	183076.68	177232.66	77955.37	3955989.01
	Amount Realized and %age	Rs. Mln.	1516617.15	535219.10	1119439.30	188143.49	23195.74	179628.68	174004.77	73592.77	3809841.00
	Recovery to Billed Amount	%	95.97	99.35	100.13	73.26	97.08	98.12	98.18	94.40	96.31
KE	Units Billed	GWh	6986.56	1963.18	5151.37	41.35	55.10	550.02	501.02	0.00	15248.59
	Amount of Units Billed	Rs. Mln.	330436.17	145446.12	249055.47	581.01	3177.08	30167.63	32253.01	0.00	791116.48
	Amount Realized and %age	Rs. Mln.	258375.53	135315.88	253962.44	274.49	4317.38	30454.08	33753.50	0.00	716453.31
	Recovery to Billed Amount	%	78.19	93.04	101.97	47.24	135.89	100.95	104.65	0.00	90.56

Source: Distribution Comapnies / KE

TABLE 68
Category-wise Electricity Sold (Gwh)

DISCO	Year	Domestic	Commercial	Industrial	Agricultural	Public Lighting	Bulk Supply	General Services	Others	Total
PESCO	2020-21	5,372.61	801.62	2,274.06	78.97	13.02	641.42	424.62	1.22	9,607.54
	2021-22	5,688.78	874.45	2,527.90	77.18	12.37	698.14	474.98	1.38	10,355.18
	2022-23	5,128.21	875.37	2,236.23	55.71	12.32	783.91	455.68	1.43	9,548.86
	2023-24	4,822.47	868.26	1,892.60	45.24	12.33	719.02	441.56	1.58	8,803.06
	2024-25	4,669.32	830.89	1,895.87	40.22	12.07	744.97	450.85	-	8,644.19
TESCO	2020-21	1,401.58	5.01	553.82	30.99	0.00	12.48	0.00	8.77	2,012.65
	2021-22	1,468.63	5.45	547.31	26.27	0.00	12.98	0.00	10.95	2,071.59
	2022-23	1,110.73	6.13	394.33	21.53	0.00	20.93	11.01	0.00	1,564.66
	2023-24	966.84	7.69	246.40	18.97	0.00	33.93	12.26	0.00	1,286.09
	2024-25	981.18	10.38	342.41	16.56	0.01	40.82	12.85	0.00	1,404.21
IESCO	2020-21	5,325.00	1,166.00	1,521.00	35.00	81.00	918.00	471.73	1,426.27	10,944.00
	2021-22	5,757.32	1,305.56	1,685.74	35.67	83.47	1,034.07	546.85	1,513.24	11,961.92
	2022-23	5,155.61	1,224.19	1,389.79	28.28	78.09	1,468.08	516.47	918.00	10,778.51
	2023-24	5,342.36	1,304.69	1,244.65	28.44	71.78	1,661.27	547.75	953.64	11,154.58
	2024-25	5,696.41	1,370.36	1,209.69	29.64	67.72	949.57	602.54	1,955.99	11,881.92
GEPCO	2020-21	6,372.55	671.74	2,775.92	542.03	9.71	160.05	0.00	390.10	10,922.10
	2021-22	6,816.69	757.73	2,797.44	535.09	9.92	177.32	0.00	434.57	11,528.76
	2022-23	6,098.01	698.77	2,531.64	521.62	16.01	159.90	167.38	261.48	10,454.80
	2023-24	6,299.23	732.26	2,467.07	460.92	14.63	154.95	166.57	277.61	10,573.24
	2024-25	6,621.27	785.92	2,642.67	354.57	14.44	151.52	166.56	318.81	11,055.75
LESCO	2020-21	9,663.64	1,662.38	8,351.36	1,187.71	139.70	654.33	0.00	693.03	22,352.15
	2021-22	10,353.55	1,867.70	9,775.38	1,332.18	138.82	720.49	0.00	882.63	25,070.75
	2022-23	9,088.78	1,807.05	9,145.70	1,347.15	143.01	682.40	859.61	18.46	23,092.17
	2023-24	9,329.22	1,806.73	7,552.88	1,055.13	156.52	703.31	777.61	18.61	21,400.01
	2024-25	9,972.48	1,989.16	8,233.75	905.65	110.27	693.71	837.23	17.07	22,759.32
FESCO	2020-21	7,061.51	769.75	4,937.35	1,267.71	13.42	237.80	0.00	213.66	14,501.20
	2021-22	7,390.64	847.89	5,821.99	1,367.22	17.72	213.72	0.00	259.61	15,918.79
	2022-23	6,549.92	784.61	5,669.39	1,209.18	17.31	194.58	233.29	4.41	14,662.69
	2023-24	6,972.12	795.67	4,857.98	1,125.80	17.11	183.17	234.18	4.90	14,190.93
	2024-25	7,177.73	846.06	5,216.67	716.75	15.00	201.05	250.53	4.48	14,428.27
MEPCO	2020-21	9,825.38	980.72	2,860.58	3,201.47	20.20	275.51	0.00	302.24	17,466.10
	2021-22	10,243.68	1,077.49	3,460.11	3,736.51	23.35	294.09	0.00	367.19	19,202.42
	2022-23	9,100.37	1,081.70	2,999.15	2,906.14	25.33	261.93	351.47	6.27	16,732.36
	2023-24	9,601.52	1,147.19	2,684.40	2,780.00	41.86	278.73	364.58	6.07	16,904.35
	2024-25	10,015.26	1,186.19	2,892.44	1,751.33	61.36	286.56	370.41	5.37	16,568.92
HESCO	2020-21	2,408.50	265.05	823.94	200.58	4.96	105.86	0.00	205.29	4,014.18
	2021-22	2,298.04	263.53	914.43	208.11	8.09	113.39	0.00	228.92	4,034.50
	2022-23	1,998.94	236.35	836.94	162.95	29.14	91.27	218.31	2.67	3,576.57
	2023-24	1,985.75	245.24	952.07	172.64	23.73	84.22	243.01	2.70	3,709.36
	2024-25	2,158.39	256.21	986.99	133.43	27.82	89.19	260.93	2.89	3,915.85
SEPCO	2020-21	1,795.88	227.32	375.13	84.90	165.92	22.85	0.00	105.63	2,777.63
	2021-22	1,794.92	235.94	412.22	87.03	40.06	206.06	0.00	113.94	2,890.17
	2022-23	1,371.99	215.02	373.75	77.98	139.67	174.51	184.64	0.63	2,538.19
	2023-24	1,265.76	190.82	449.75	90.63	245.50	172.77	209.73	0.64	2,625.59
	2024-25	1,449.75	176.53	367.76	47.02	129.25	171.36	140.34	0.66	2,482.67
QESCO	2020-21	587.89	138.38	191.79	3,485.96	10.57	130.47	0.00	229.94	4,775.00
	2021-22	591.97	151.15	172.46	3,516.63	10.97	140.79	0.00	247.63	4,831.60
	2022-23	561.93	144.44	160.89	3,146.29	12.86	136.99	234.94	1.51	4,399.85
	2023-24	557.58	152.48	184.29	2,781.13	12.31	146.09	199.76	1.89	4,035.53
	2024-25	575.30	158.42	174.47	1,845.40	3.78	153.99	165.62	0.04	3,077.00
Total in CPPA-G System	2020-21	49,814.54	6,687.97	24,664.95	10,115.32	458.50	3,158.77	896.35	3,576.15	99,372.55
	2021-22	52,404.21	7,386.89	28,114.97	10,921.89	344.77	3,611.05	1,021.83	4,060.07	107,865.68
	2022-23	46,164.48	7,073.63	25,737.81	9,476.83	473.75	3,974.50	3,232.80	1,214.87	97,348.66
	2023-24	47,142.85	7,251.03	22,532.09	8,558.90	595.77	4,137.45	3,197.02	1,267.63	94,682.74
	2024-25	49,317.08	7,610.12	23,962.71	5,840.57	441.71	3,482.73	3,257.87	2,305.31	96,218.10
KE	2020-21	8,041.32	1,708.58	5,220.99	121.70	98.04	454.31	0.00	423.91	16,068.85
	2021-22	8,004.68	1,846.46	5,842.80	110.72	63.82	467.84	0.00	426.91	16,763.23
	2022-23	7,369.71	1,818.00	5,350.19	66.31	47.53	469.42	432.66	0.00	15,553.83
	2023-24	6,814.34	1,818.03	5,221.51	19.02	57.71	518.73	459.18	0.00	14,908.51
	2024-25	6,986.56	1,963.18	5,151.37	41.35	55.10	550.02	501.02	0.00	15,248.59

Source: Distribution Companies / KE

TABLE 69
Category-wise Energy Sales in CPPA-G and K-Electric System

		2020-21	2021-22	2022-23	2023-24	2024-25
CPPA-G System						
Domestic	GWh	49,814.54	52,404.21	46,164.48	47,142.85	49,317.08
Percentage share	%	47.22	44.83	43.42	45.67	46.33
Commercial	GWh	6,687.97	7,386.89	7,073.63	7,251.03	7,610.12
Percentage share	%	6.34	6.32	6.65	7.02	7.15
Industrial	GWh	24,664.95	28,114.97	25,737.81	22,532.09	23,962.71
Percentage share	%	23.38	24.05	24.21	21.83	22.51
Agricultural	GWh	10,115.32	10,921.89	9,476.83	8,558.90	5,840.57
Percentage share	%	9.59	9.34	8.91	8.29	5.49
Public Lighting	GWh	458.50	344.77	473.75	595.77	441.71
Percentage share	%	0.43	0.29	0.45	0.58	0.41
Bulk Supply	GWh	3,158.77	3,611.05	3,974.50	4,137.45	3,482.73
Percentage share	%	2.99	3.09	3.74	4.01	3.27
General Services	GWh	896.35	1,021.83	3,232.80	3,197.02	3,257.87
Percentage share	%	0.85	0.87	3.04	3.10	3.06
Others	GWh	3,576.15	4,060.07	1,214.87	1,267.63	2,305.31
Percentage share	%	3.39	3.47	1.14	1.23	2.17
Supplied to KE	GWh	6,118.04	9,036.54	8,960.81	8,538.07	10,234.27
Percentage share	%	5.80	7.73	8.43	8.27	9.61
Total in CPPA-G area	**GWh**	**105,490.59**	**116,902.22**	**106,309.47**	**103,220.81**	**106,452.37**
Percentage share	**%**	**86.78**	**87.46**	**87.24**	**87.38**	**87.47**
KE System						
Domestic	GWh	8,041.32	8,004.68	7,369.71	6,814.34	6,986.56
Percentage share	%	50.04	47.75	47.38	45.71	45.82
Commercial	GWh	1,708.58	1,846.46	1,818.00	1,818.03	1,963.18
Percentage share	%	10.63	11.01	11.69	12.19	12.87
Industrial	GWh	5,220.99	5,842.80	5,350.19	5,221.51	5,151.37
Percentage share	%	32.49	34.85	34.40	35.02	33.78
Agricultural	GWh	121.70	110.72	66.31	19.02	41.35
Percentage share	%	0.76	0.66	0.43	0.13	0.27
Public Lighting	GWh	98.04	63.82	47.53	57.71	55.10
Percentage share	%	0.61	0.38	0.31	0.39	0.36
Bulk Supply	GWh	454.31	467.84	469.42	518.73	550.02
Percentage share	%	2.83	2.79	3.02	3.48	3.61
General Services	GWh	0.00	0.00	432.66	459.18	501.02
Percentage share	%	0.00	0.00	2.78	3.08	3.29
Others	GWh	423.91	426.91	0.00	0.00	0.00
Percentage share	%	2.64	2.55	0.00	0.00	0.00
Total in KE area	**GWh**	**16,068.85**	**16,763.23**	**15,553.83**	**14,908.51**	**15,248.59**
Percentage share	**%**	**13.22**	**12.54**	**12.76**	**12.62**	**12.53**
Country						
Domestic	GWh	57,855.86	60,408.89	53,534.20	53,957.18	56,303.64
Percentage share	%	47.59	45.19	43.93	45.68	46.26
Commercial	GWh	8,396.55	9,233.35	8,891.63	9,069.06	9,573.30
Percentage share	%	6.91	6.91	7.30	7.68	7.87
Industrial	GWh	29,885.94	33,957.77	31,088.00	27,753.59	29,114.08
Percentage share	%	24.59	25.41	25.51	23.49	23.92
Agricultural	GWh	10,237.02	11,032.61	9,543.14	8,577.92	5,881.92
Percentage share	%	8.42	8.25	7.83	7.26	4.83
Public Lighting	GWh	556.54	408.59	521.28	653.48	496.81
Percentage share	%	0.46	0.31	0.43	0.55	0.41
Bulk Supply	GWh	3,613.08	4,078.89	4,443.93	4,656.19	4,032.75
Percentage share	%	2.97	3.05	3.65	3.94	3.31
General Services	GWh	896.35	1,021.83	3,665.45	3,656.20	3,758.89
Percentage share	%	0.74	0.76	3.01	3.10	3.09
Others	GWh	4,000.06	4,486.98	1,214.87	1,267.63	2,305.31
Percentage share	%	3.29	3.36	1.00	1.07	1.89
Supplied to KE by CPPA-G	GWh	6,118.04	9,036.54	8,960.81	8,538.07	10,234.27
Percentage share	%	5.03	6.76	7.35	7.23	8.41
Total in the Country	**GWh**	**121,559.44**	**133,665.45**	**121,863.30**	**118,129.33**	**121,700.96**
Percentage share	**%**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**

Source: Distribution Companies /KE

TABLE 70
Category-wise Consumers and their Electricity Consumption (%)

		2020-21	2021-22	2022-23	2023-24	2024-25
CPPA-G System (Consumers and Consumption in percentage to the total)						
Domestic	Consumers	86.37	86.60	86.83	87.17	87.60
	Consumption	47.22	44.83	43.42	45.67	46.33
Commercial	Consumers	10.64	10.47	10.31	10.06	9.75
	Consumption	6.34	6.32	6.65	7.02	7.15
Industrial	Consumers	1.13	1.11	1.08	1.04	1.00
	Consumption	23.38	24.05	24.21	21.83	22.51
Agricultural	Consumers	1.14	1.11	1.08	1.04	0.99
	Consumption	9.59	9.34	8.91	8.29	5.49
Public Lighting	Consumers	0.04	0.04	0.04	0.03	0.03
	Consumption	0.43	0.29	0.45	0.58	0.41
Bulk Supply	Consumers	0.01	0.01	0.01	0.01	0.01
	Consumption	2.99	3.09	3.74	4.01	3.27
General Services	Consumers	0.20	0.20	0.65	0.63	0.62
	Consumption	0.85	0.87	3.04	3.10	3.06
Others	Consumers	0.47	0.46	0.00	0.00	0.00
	Consumption	3.39	3.47	1.14	1.23	2.17
Supplied to KE	Consumption	5.80	7.73	8.43	8.27	9.61
KE System (Consumers and Consumption in percentage to the total)						
Domestic	Consumers	83.24	83.75	84.18	84.38	84.62
	Consumption	50.04	47.75	47.38	45.71	45.82
Commercial	Consumers	15.40	14.96	14.55	14.38	14.16
	Consumption	10.63	11.01	11.69	12.19	12.87
Industrial	Consumers	0.73	0.70	0.66	0.63	0.60
	Consumption	32.49	34.85	34.40	35.02	33.78
Agricultural	Consumers	0.07	0.06	0.06	0.04	0.04
	Consumption	0.76	0.66	0.43	0.13	0.27
Public Lighting	Consumers	0.00	0.01	0.01	0.00	0.01
	Consumption	0.61	0.38	0.31	0.39	0.36
Bulk Supply	Consumers	0.01	0.01	0.01	0.01	0.01
	Consumption	2.83	2.79	3.02	3.48	3.61
General Services	Consumers	0.00	0.00	0.53	0.55	0.57
	Consumption	0.00	0.00	2.78	3.08	3.29
Others	Consumers	0.55	0.53	0.00	0.00	0.00
	Consumption	2.64	2.55	0.00	0.00	0.00
Country (Consumers and Consumption in percentage to the total)						
Domestic	Consumers	86.08	86.34	86.58	86.92	87.33
	Consumption	47.59	45.19	43.93	45.68	46.26
Commercial	Consumers	11.08	10.89	10.71	10.46	10.15
	Consumption	6.91	6.91	7.30	7.68	7.87
Industrial	Consumers	1.10	1.07	1.04	1.00	0.96
	Consumption	24.59	25.41	25.51	23.49	23.92
Agricultural	Consumers	1.04	1.02	0.99	0.95	0.90
	Consumption	8.42	8.25	7.83	7.26	4.83
Public Lighting	Consumers	0.03	0.03	0.03	0.03	0.03
	Consumption	0.46	0.31	0.43	0.55	0.41
Bulk Supply	Consumers	0.01	0.01	0.01	0.01	0.01
	Consumption	2.97	3.05	3.65	3.94	3.31
General Services	Consumers	0.18	0.18	0.64	0.63	0.61
	Consumption	0.74	0.76	3.01	3.10	3.09
Others	Consumers	0.48	0.47	0.00	0.00	0.00
	Consumption	3.29	3.36	1.00	1.07	1.89
Supplied to KE by CPPA-G	Consumption	5.03	6.76	7.35	7.23	8.41

Source: Distribution Companies /KE

TABLE 71
Annual Growth Rate of Electricity Consumption

		2020-21	2021-22	2022-23	2023-24	2024-25
CPPA-G System						
Domestic	GWh	49,814.54	52,404.21	46,164.48	47,142.85	49,317.08
	%	4.56	5.20	-11.91	2.12	4.61
Commercial	GWh	6,687.97	7,386.89	7,073.63	7,251.03	7,610.12
	%	6.85	10.45	-4.24	2.51	4.95
Industrial	GWh	24,664.95	28,114.97	25,737.81	22,532.09	23,962.71
	%	14.78	13.99	-8.46	-12.46	6.35
Agricultural	GWh	10,115.32	10,921.89	9,476.83	8,558.90	5,840.57
	%	4.91	7.97	-13.23	-9.69	-31.76
Public Lighting	GWh	458.50	344.77	473.75	595.77	441.71
	%	68.21	-24.81	37.41	25.76	-25.86
Bulk Supply	GWh	3,158.77	3,611.05	3,974.50	4,137.45	3,482.73
	%	-3.98	14.32	10.06	4.10	-15.82
General Services	GWh	896.35	1021.83	3,232.80	3,197.02	3,257.87
	%	3.31	14.00	216.37	-1.11	1.90
Others	GWh	3,576.15	4,060.07	1,214.87	1,267.63	2,305.31
	%	7.50	13.53	-70.08	4.34	81.86
Supplied to KE	GWh	6,118.04	9,036.54	8,960.81	8,538.07	10,234.27
	%	12.75	47.70	-0.84	-4.72	19.87
Total	**GWh**	**105,490.59**	**116,902.22**	**106,309.47**	**103,220.81**	**106,452.37**
Percentage change	**%**	**7.41**	**10.82**	**-9.06**	**-2.91**	**3.13**
KE System						
Domestic	GWh	8,041.32	8,004.68	7,369.71	6,814.34	6,986.56
	%	7.37	-0.46	-7.93	-7.54	2.53
Commercial	GWh	1,708.58	1,846.46	1,818.00	1,818.03	1,963.18
	%	5.78	8.07	-1.54	0.00	7.98
Industrial	GWh	5,220.99	5,842.80	5,350.19	5,221.51	5,151.37
	%	25.56	11.91	-8.43	-2.41	-1.34
Agricultural	GWh	121.70	110.72	66.31	19.02	41.35
	%	4.81	-9.02	-40.11	-71.32	117.44
Public Lighting	GWh	98.04	63.82	47.53	57.71	55.10
	%	-12.49	-34.90	-25.52	21.40	-4.52
Bulk Supply	GWh	454.31	467.84	469.42	518.73	550.02
	%	-2.87	2.98	0.34	10.50	6.03
General Services	GWh	0.00	0.00	432.66	459.18	501.02
	%	0.00	0.00	0.00	6.13	9.11
Others	GWh	423.91	426.91	0.00	0.00	0.00
	%	33.13	0.71	-100.00	0.00	0.00
Total	**GWh**	**16,068.85**	**16,763.23**	**15,553.83**	**14,908.51**	**15,248.59**
Percentage change	**%**	**12.55**	**4.32**	**-7.21**	**-4.15**	**2.28**
Country						
Domestic	GWh	57,855.86	60,408.89	53,534.20	53,957.18	56,303.64
	%	4.94	4.41	-11.38	0.79	4.35
Commercial	GWh	8,396.55	9,233.35	8,891.63	9,069.06	9,573.30
	%	6.63	9.97	-3.70	2.00	5.56
Industrial	GWh	29,885.94	33,957.77	31,088.00	27,753.59	29,114.08
	%	16.53	13.62	-8.45	-10.73	4.90
Agricultural	GWh	10,237.02	11,032.61	9,543.14	8,577.92	5,881.92
	%	4.91	7.77	-13.50	-10.11	-31.43
Public Lighting	GWh	556.54	408.59	521.28	653.48	496.81
	%	44.70	-26.58	27.58	25.36	-23.97
Bulk Supply	GWh	3,613.08	4,078.89	4,443.93	4,656.19	4,032.75
	%	-3.85	12.89	8.95	4.78	-13.39
General Services	GWh	896.35	1,021.83	3,665.45	3,656.20	3,758.89
	%	3.31	14.00	258.72	-0.25	2.81
Others	GWh	4,000.06	4,486.98	1,214.87	1,267.63	2,305.31
	%	9.74	12.17	-72.92	4.34	81.86
Supplied to KE by CPPA-G	GWh	6,118.04	9,036.54	8,960.81	8,538.07	10,234.27
	%	12.75	47.70	-0.84	-4.72	19.87
Total	**GWh**	**121,559.44**	**133,665.45**	**121,863.30**	**118,129.33**	**121,700.96**
Percentage change	**%**	**8.06**	**9.96**	**-8.83**	**-3.06**	**3.02**

Source: Distribution Companies /KE

TABLE 72
Average Annual Electricity Consumption per Connection (kWh)

DISCO	Year	Domestic	Commercial	Industrial	Agricultural	Public Lighting	Bulk Supply	General Services	Others	Overall
PESCO	2020-21	1,591.95	2,120.77	82,420.35	3,426.18	11,196.96	720,696.63	9,793.93	24,362.24	2,496.14
	2021-22	1,604.21	2,219.44	89,625.95	3,338.09	10,282.63	778,305.46	10,629.65	27,106.94	2,564.23
	2022-23	1,388.77	2,149.78	78,406.44	2,407.00	9,943.50	871,011.11	10,000.15	28,110.22	2,273.95
	2023-24	1,251.65	2,067.19	65,756.40	1,948.84	9,927.82	785,809.11	9,569.06	30,290.50	2,012.93
	2024-25	1,172.65	1,935.25	65,562.47	1,732.50	9,586.97	824,994.46	9,575.44	-	1,915.58
TESCO	2020-21	3,485.89	172.40	129,518.24	4,971.13	0.00	183,529.41	0.00	5,990.44	4,541.38
	2021-22	3,652.55	183.11	125,472.26	4,201.86	0.00	180,277.78	0.00	6,809.70	4,664.21
	2022-23	2,747.98	203.22	88,733.12	5,924.60	0.00	243,372.09	4,097.51	0.00	3,514.35
	2023-24	2,375.46	270.56	54,706.93	5,333.15	0.00	357,157.89	3,724.18	0.00	2,877.86
	2024-25	2,408.67	357.73	75,205.36	4,652.99	1,111.11	420,824.74	3,779.41	0.00	3,134.48
IESCO	2020-21	1,913.16	2,666.15	89,386.46	4,832.92	39,725.36	1,082,547.17	24,488.92	8,540,538.92	3,349.59
	2021-22	1,936.98	2,809.88	95,433.65	4,826.14	37,263.39	1,210,854.80	26,882.80	8,901,411.76	3,431.79
	2022-23	1,632.38	2,529.02	76,754.29	3,769.16	30,926.73	1,721,078.55	23,728.29	5,306,358.38	2,918.37
	2023-24	1,603.36	2,607.17	67,322.05	3,752.47	27,292.78	1,966,000.00	23,848.40	5,327,597.77	2,871.12
	2024-25	1,614.99	2,677.57	64,103.12	3,895.24	24,932.62	1,130,440.48	25,211.05	10,630,402.17	2,902.90
GEPCO	2020-21	1,881.24	1,703.86	36,364.02	10,234.71	15,661.29	1,081,418.92	0.00	18,258.83	2,776.98
	2021-22	1,898.17	1,846.45	34,740.45	9,732.09	14,739.97	1,198,108.11	0.00	19,920.70	2,771.53
	2022-23	1,597.56	1,644.00	30,387.42	9,266.42	22,770.98	1,158,681.16	7,383.56	8,434,903.23	2,373.25
	2023-24	1,535.48	1,666.74	28,891.08	8,064.72	19,587.68	1,114,741.01	7,050.71	8,955,000.00	2,245.39
	2024-25	1,493.81	1,730.62	30,297.52	6,182.26	18,419.64	1,074,574.47	6,736.94	10,284,096.77	2,186.29
LESCO	2020-21	2,061.21	2,501.52	94,990.33	17,968.11	53,463.45	1,395,159.91	0.00	38,796.95	4,043.55
	2021-22	2,062.99	2,714.88	108,695.00	19,519.12	50,924.43	1,569,699.35	0.00	45,951.27	4,258.48
	2022-23	1,720.07	2,565.40	100,336.84	19,263.22	51,462.04	1,506,410.60	43,650.54	68,118.08	3,741.07
	2023-24	1,643.55	2,490.56	81,917.55	14,744.07	55,054.52	1,559,445.68	38,656.29	68,419.12	3,247.77
	2024-25	1,628.31	2,684.00	88,414.21	12,602.98	38,341.45	1,548,459.82	40,846.47	63,694.03	3,226.16
FESCO	2020-21	1,730.28	1,802.06	94,489.31	25,487.76	7,130.71	1,038,427.95	0.00	7,263.89	3,124.05
	2021-22	1,722.27	1,927.00	108,873.12	26,332.19	9,262.94	925,194.81	0.00	8,547.96	3,269.32
	2022-23	1,450.09	1,736.02	104,287.66	22,667.17	8,854.22	828,000.00	7,540.57	30,000.00	2,869.50
	2023-24	1,452.15	1,714.36	88,062.72	20,722.28	8,610.97	779,446.81	7,353.98	32,236.84	2,623.54
	2024-25	1,399.64	1,792.49	93,784.52	13,142.45	7,389.16	897,544.64	7,611.65	29,090.91	2,511.12
MEPCO	2020-21	1,531.53	1,632.73	48,065.67	32,296.65	12,124.85	601,550.22	0.00	7,401.49	2,419.91
	2021-22	1,508.95	1,742.75	56,987.50	36,379.58	13,404.13	633,814.66	0.00	8,653.20	2,521.67
	2022-23	1,287.52	1,700.89	49,354.10	27,326.44	13,948.24	556,114.65	7,958.83	48,604.65	2,113.26
	2023-24	1,282.86	1,752.09	43,805.48	25,755.29	21,836.20	589,281.18	8,023.86	47,054.26	2,022.92
	2024-25	1,263.11	1,774.38	46,891.25	16,195.62	30,301.23	600,754.72	7,981.77	40,375.94	1,879.33
HESCO	2020-21	2,513.21	1,568.28	54,231.55	12,808.43	8,671.33	306,840.58	0.00	14,795.68	3,422.18
	2021-22	2,348.36	1,533.55	59,033.38	13,230.97	14,115.18	327,719.65	0.00	16,420.84	3,371.94
	2022-23	1,995.45	1,348.69	52,750.54	10,245.85	49,647.36	260,019.94	15,670.81	23,421.05	2,922.64
	2023-24	1,948.95	1,380.13	59,396.72	10,842.86	40,425.89	239,943.02	17,378.96	23,275.86	2,982.84
	2024-25	2,086.80	1,428.19	60,974.24	8,374.44	47,232.60	259,273.26	18,462.46	24,491.53	3,105.34
SEPCO	2020-21	2,792.52	1,812.93	28,032.43	9,060.83	310,130.84	51,348.31	0.00	7,827.92	3,447.40
	2021-22	2,759.02	1,860.46	30,460.36	9,281.22	74,185.19	458,930.96	0.00	8,442.50	3,547.19
	2022-23	2,102.36	1,693.76	27,511.74	8,420.84	297,174.47	323,771.80	13,768.90	31,600.00	3,107.38
	2023-24	1,921.24	1,493.23	32,766.14	8,967.54	505,148.15	318,761.99	16,664.92	32,100.00	3,186.09
	2024-25	2,190.02	1,374.60	26,639.26	5,033.40	259,534.14	314,423.85	10,495.21	31,333.33	2,998.43
QESCO	2020-21	1,197.32	1,082.67	50,444.50	117,613.95	37,885.30	462,659.57	0.00	24,603.04	7,211.16
	2021-22	1,175.53	1,146.67	45,005.22	118,712.82	38,763.25	470,869.57	0.00	24,867.44	7,111.66
	2022-23	1,094.53	1,069.62	41,964.01	106,264.86	44,965.03	449,147.54	21,309.75	377,500.00	6,344.41
	2023-24	1,043.61	1,081.53	47,399.69	93,950.75	42,743.06	472,783.17	17,564.49	315,000.00	5,599.20
	2024-25	1,057.83	1,100.12	44,382.09	62,437.34	12,984.54	493,541.67	14,210.21	10,000.00	4,194.43
Total in CPPA-G System	2020-21	1,829.73	1,994.51	69,034.96	28,166.96	40,311.42	755,325.20	14,314.51	24,183.92	3,152.61
	2021-22	1,823.20	2,125.44	76,454.23	29,570.09	28,976.97	855,902.58	15,714.10	26,527.37	3,249.97
	2022-23	1,533.25	1,978.08	68,826.87	25,273.36	38,313.47	917,686.91	14,314.10	1,292,412.36	2,807.27
	2023-24	1,479.30	1,970.94	59,380.13	22,466.43	46,778.76	950,046.69	13,817.88	1,324,589.45	2,589.99
	2024-25	1,460.35	2,025.19	62,415.41	15,325.59	33,777.97	804,140.15	13,683.58	2,524,982.48	2,495.94
KE	2020-21	3,032.71	3,482.26	224,616.68	56,238.45	1,114,090.91	2,672,411.76	0.00	24,241.44	5,044.64
	2021-22	2,806.74	3,625.24	246,469.25	52,900.14	354,555.56	2,658,181.82	0.00	23,853.72	4,922.64
	2022-23	2,455.22	3,502.88	226,530.32	31,638.55	256,937.84	2,395,020.92	22,703.32	0.00	4,361.95
	2023-24	2,180.20	3,412.06	222,855.60	11,491.70	318,826.00	2,518,118.80	22,407.86	1.00	4,024.60
	2024-25	2,143.87	3,601.32	223,215.45	26,323.31	270,082.70	2,736,417.55	22,737.26	2.00	3,959.57

Source: Distribution Companies / KE

TABLE 73
Distribution Losses (voltage category-wise)

DISCO	Losses of	2020-21		2021-22		2022-23		2023-24		2024-25	
		GWh	%	GWh	%	GWh	%	GWh	%	GWh	%
PESCO	132 kV system (including 66 & 33 kV)	235.60	1.50	322.67	1.95	160.92	1.06	205.61	1.50	214.77	1.66
	11 kV and below system	5697.60	37.20	5843.37	35.99	5498.76	36.46	5124.88	36.80	4819.77	35.80
	Overall system	5935.95	38.19	6214.30	37.50	5730.78	37.51	5393.36	37.99	5489.35	38.84
TESCO	132 kV system (including 66 & 33 kV)	39.85	1.79	2284.45	1.20	1719.83	9.02	11.00	0.78	10.58	0.70
	11 kV and below system	173.50	7.94	2251.01	7.97	1698.38	7.90	109.92	7.87	114.07	7.51
	Overall system	213.35	9.58	212.41	9.30	155.95	9.06	122.21	8.68	132.79	8.64
IESCO	132 kV system (including 66 & 33 kV)	137.00	1.15	128.00	0.99	124.67	1.05	110.96	0.91	98.00	0.76
	11 kV and below system	885.00	7.48	937.00	7.26	934.94	7.98	959.10	7.92	990.00	7.69
	Overall system	1022.00	8.54	1065.08	8.18	1059.76	8.95	1070.06	8.75	1088.08	8.39
GEPCO	132 kV system (including 66 & 33 kV)	115.16	0.96	115.69	0.91	103.68	0.90	96.03	0.80	104.53	0.85
	11 kV and below system	995.21	8.35	1033.75	8.23	919.52	8.08	1274.81	10.76	1182.87	9.67
	Overall system	1110.38	9.23	1149.44	9.07	1023.21	8.91	1370.85	11.48	1287.39	10.43
LESCO	132 kV system (including 66 & 33 kV)	74.91	0.30	138.65	0.50	180.96	0.70	98.53	0.39	53.11	0.20
	11 kV and below system	2960.83	11.70	3125.07	11.10	2759.37	10.70	3915.94	15.47	3466.02	13.19
	Overall system	3035.72	11.96	3263.25	11.52	3099.27	11.83	4014.88	15.80	3519.02	13.39
FESCO	132 kV system (including 66 & 33 kV)	225.36	1.40	248.68	1.42	154.44	0.96	183.10	1.16	138.18	0.87
	11 kV and below system	1257.81	8.00	1346.58	7.80	1271.48	7.98	1362.41	8.76	1270.41	8.09
	Overall system	1483.28	9.28	1593.74	9.10	1425.05	8.86	1545.52	9.82	1408.60	8.89
MEPCO	132 kV system (including 66 & 33 kV)	321.38	1.57	383.87	1.69	118.30	0.60	218.23	1.10	184.21	1.00
	11 kV and below system	2744.74	13.60	2962.42	13.30	2655.72	13.50	2806.46	14.20	2399.88	12.50
	Overall system	3066.11	14.93	3346.29	14.84	2867.32	14.63	3024.69	15.18	2584.07	13.49
HESCO	132 kV system (including 66 & 33 kV)	145.60	2.61	102.20	1.84	98.58	2.02	92.31	1.81	123.12	2.27
	11 kV and below system	1414.70	26.06	1423.00	26.50	1220.11	25.50	1290.88	25.82	1382.23	26.09
	Overall system	2518.40	38.55	1976.42	32.88	1309.80	26.81	1389.55	27.25	1505.39	27.77
SEPCO	132 kV system (including 66 & 33 kV)	75.32	1.76	87.49	1.95	67.93	1.76	84.53	2.10	59.90	1.53
	11 kV and below system	1412.9	33.73	1454.27	33.47	1265.77	32.69	1322.82	32.80	1526.90	38.08
	Overall system	1513.33	35.27	1599.60	35.63	1333.71	34.45	1407.35	34.90	1586.81	38.99
QESCO	132 kV system (including 66 & 33 kV)	114.91	1.70	126.71	1.90	15.47	0.30	218.80	3.74	168.20	3.37
	11 kV and below system	1734.4	26.60	1758.01	26.70	1587.36	26.50	1590.11	28.30	1748.00	36.23
	Overall system	1849.56	27.92	1884.70	28.06	1605.47	26.73	1810.04	30.96	1921.15	38.44
Total Distribution Losses in CPPA-G System		**21748.08**	**17.96**	**22305.23**	**17.14**	**19610.32**	**16.77**	**21148.51**	**18.26**	**20522.64**	**17.58**
KE	220 kV & 132 kV system (including 66 kV)	208.00	1.07	164.41	0.83	157.19	0.86	132.00	0.75	150.12	0.84
	11 kV and below system	3210.00	16.65	2874.59	14.64	2645.50	14.54	2726.82	15.50	2490.01	14.00
	Overall system	3416.82	17.54	3058.66	15.43	2812.21	15.31	2869.84	16.14	2637.12	14.74

Source: Distribution Companies / KE

TABLE 74

DISCOs' Billing, Collection and Percentage of Recovery against Computed Billing

DISCO	FY	Billing (Rs. in Million)			Collection (Rs. in Million)			%age of Collection		
		Government	Private	Total	Government	Private	Total	Govt.	Private	Total
PESCO	2020-21	26,085.99	149,987.73	176,073.72	39,300.85	141,973.17	181,274.02	150.66	94.66	102.95
	2021-22	33,716.95	198,912.01	232,628.96	31,700.19	182,719.49	214,419.68	94.02	91.86	92.17
	2022-23	46,958.67	265,016.19	311,974.86	51,075.45	236,230.22	287,305.67	108.77	89.14	92.09
	2023-24	57,641.54	324,940.11	382,581.65	58,463.16	294,362.89	352,826.05	101.43	90.59	92.22
	2024-25	54,654.98	291,118.79	345,773.77	52,504.20	266,935.03	319,439.23	96.06	91.69	92.38
TESCO	2020-21	715.43	29,468.12	30,183.55	652.17	8,475.67	9,127.84	91.16	28.76	30.24
	2021-22	1,302.22	41,107.73	42,409.95	1,098.64	27,628.96	28,727.60	84.37	67.21	67.74
	2022-23	1,900.73	47,457.25	49,357.98	1,536.02	39,430.00	40,966.02	80.81	83.09	83.00
	2023-24	2,553.14	43,523.51	46,076.65	2,183.70	46,500.83	48,684.53	85.53	106.84	105.66
	2024-25	2,491.83	46,761.36	49,253.19	2,694.35	42,562.31	45,256.66	108.13	91.02	91.89
IESCO	2020-21	62,450.00	155,904.00	218,354.00	97,902.00	159,841.00	257,743.00	156.77	102.53	118.04
	2021-22	79,036.63	211,166.14	290,202.77	66,812.50	210,472.16	277,284.66	84.53	99.67	95.55
	2022-23	102,974.63	282,246.56	385,221.19	130,243.50	274,158.59	404,402.09	126.48	97.13	104.98
	2023-24	142,812.34	379,352.23	522,164.57	135,417.41	371,257.62	506,675.03	94.82	97.87	97.03
	2024-25	134,030.00	368,722.00	502,752.00	129,879.00	377,769.00	507,648.00	96.90	102.45	100.97
GEPCO	2020-21	12,638.14	177,724.79	190,362.93	19,149.48	183,045.64	202,195.12	151.52	102.99	106.22
	2021-22	16,134.85	233,013.74	249,148.59	15,989.04	232,418.32	248,407.36	99.10	99.74	99.70
	2022-23	21,121.32	315,385.02	336,506.34	27,194.12	308,846.06	336,040.18	128.75	97.93	99.86
	2023-24	27,266.37	427,731.13	454,997.50	26,119.20	424,655.95	450,775.15	95.79	99.28	99.07
	2024-25	26,039.34	431,464.92	457,504.26	24,523.13	434,930.96	459,454.09	94.18	100.80	100.43
LESCO	2020-21	29,356.20	397,310.87	426,667.07	26,575.26	399,496.97	426,072.23	90.53	100.55	99.86
	2021-22	27,136.98	585,816.12	612,953.10	26,575.49	533,012.27	559,587.76	97.93	90.99	91.29
	2022-23	46,971.08	774,200.94	821,172.02	62,239.00	708,829.95	771,068.95	132.50	91.56	93.90
	2023-24	58,597.00	927,795.00	986,392.00	54,611.49	920,632.11	975,243.60	93.20	99.23	98.87
	2024-25	60,361.62	935,580.00	995,941.62	65,922.97	942,995.70	1,008,918.67	109.21	100.79	101.30
FESCO	2020-21	12,506.79	229,123.46	241,630.25	11,446.92	234,916.46	246,363.38	91.53	102.53	101.96
	2021-22	15,854.00	350,853.00	366,707.00	15,295.00	332,482.00	347,777.00	96.47	94.76	94.84
	2022-23	20,468.65	424,286.15	444,754.80	20,371.23	416,248.41	436,619.64	99.52	98.11	98.17
	2023-24	24,450.98	581,995.54	606,446.52	23,052.19	581,238.71	604,290.90	94.28	99.87	99.64
	2024-25	25,564.51	558,731.67	584,296.18	25,842.43	560,608.28	586,450.71	101.09	100.34	100.37
MEPCO	2020-21	16,415.69	256,160.34	272,576.03	15,465.82	266,938.30	282,404.12	94.21	104.21	103.61
	2021-22	21,753.73	342,325.10	364,078.83	21,062.28	342,032.95	363,095.23	96.82	99.91	99.73
	2022-23	27,915.53	458,049.02	485,964.55	26,022.28	450,843.06	476,865.34	93.22	98.43	98.13
	2023-24	40,141.01	636,548.43	676,689.44	35,307.85	632,056.15	667,364.00	87.96	99.29	98.62
	2024-25	40,813.00	586,941.34	627,754.34	40,469.46	590,465.99	630,935.45	99.16	100.60	100.51
HESCO	2020-21	9,719.55	62,307.38	72,026.93	8,097.82	46,377.55	54,475.37	83.31	74.43	75.63
	2021-22	11,924.19	76,968.38	88,892.57	8,258.76	57,272.08	65,530.84	69.26	74.41	73.72
	2022-23	17,224.21	92,487.76	109,711.97	13,559.56	69,692.67	83,252.23	78.72	75.35	75.88
	2023-24	22,871.20	130,513.00	153,384.20	19,183.10	99,863.00	119,046.10	83.87	76.52	77.61
	2024-25	25,368.10	132,103.20	157,471.30	18,645.00	98,297.70	116,942.70	73.50	74.41	74.26
SEPCO	2020-21	9,105.61	40,992.00	50,097.61	6,847.01	25,587.24	32,434.25	75.20	62.42	64.74
	2021-22	12,550.67	49,771.01	62,321.68	9,338.77	30,975.67	40,314.44	74.41	62.24	64.69
	2022-23	25,263.24	53,937.00	79,200.24	19,563.32	34,445.11	54,008.43	77.44	63.86	68.19
	2023-24	39,202.50	68,429.10	107,631.60	25,188.00	47,039.90	72,227.90	64.25	68.74	67.11
	2024-25	31,025.93	67,154.71	98,180.65	24,132.38	44,750.11	68,882.49	77.78	66.64	70.16
QESCO	2020-21	10,525.65	57,714.92	68,240.57	9,482.33	15,537.55	25,019.88	90.09	26.92	36.66
	2021-22	31,211.70	64,932.00	96,143.70	15,455.30	18,665.70	34,121.00	49.52	28.75	35.49
	2022-23	17,081.79	113,397.68	130,479.47	12,283.87	35,890.64	48,174.51	71.91	31.65	36.92
	2023-24	40,367.70	132,294.40	172,662.10	28,646.10	34,467.10	63,113.20	70.96	26.05	36.55
	2024-25	33,269.03	105,960.85	139,229.88	20,426.51	33,521.51	53,948.02	61.40	31.64	38.75
Total in CPPA-G System	2020-21	189,519.05	1,556,693.61	1,746,212.66	234,919.66	1,482,189.55	1,717,109.21	123.96	95.21	98.33
	2021-22	250,621.92	2,154,865.23	2,405,487.15	211,585.97	1,967,679.60	2,179,265.57	84.42	91.31	90.60
	2022-23	327,879.85	2,826,463.57	3,154,343.42	364,088.35	2,574,614.71	2,938,703.06	111.04	91.09	93.16
	2023-24	455,903.78	3,653,122.45	4,109,026.23	408,172.20	3,452,074.26	3,860,246.46	89.53	94.50	93.95
	2024-25	433,618.34	3,524,538.84	3,958,157.19	405,039.43	3,392,836.59	3,797,876.02	93.41	96.26	95.95
KE	2020-21	28,154.00	287,719.00	315,873.00	27,617.00	272,056.00	299,673.00	98.09	94.56	94.87
	2021-22	32,989.01	357,246.72	390,235.73	36,407.91	340,927.00	377,334.91	110.36	95.43	96.69
	2022-23	40,406.85	496,752.20	537,159.05	40,709.87	457,566.49	498,276.36	100.75	92.11	92.76
	2023-24	56,685.89	696,495.23	753,181.11	48,732.20	640,761.42	689,493.62	85.97	92.00	91.54
	2024-25	60,052.44	731,064.04	791,116.48	67,721.18	648,732.13	716,453.31	112.77	88.74	90.56

Source: Distribution Companies / KE

TABLE 75
DISCOs' Actual Technical and Commercial Losses

DISCO		T&D Losses			Commercial Losses			Combined Technical & Commercial Losses (%)
		Units Purchased (MWh)	Units Billed (MWh)	Losses (%)	Billing (Computed) (Rs. in Million)	Collection (Rs. in Million)	Losses (%)	
PESCO	2020-21	15,540.95	9,607.69	38.18	176,816.03	181,273.88	-2.52	36.62
	2021-22	16,560.19	10,394.15	37.23	232,628.96	214,419.68	7.83	42.15
	2022-23	15,243.61	9,583.92	37.13	311,974.86	287,305.67	7.91	42.10
	2023-24	14,133.54	8,803.06	37.72	382,581.64	352,826.05	7.78	42.56
	2024-25	13,678.74	8,644.20	36.81	345,773.77	319,439.22	7.62	41.62
TESCO	2020-21	2,226.20	2,012.67	9.59	27,499.78	25,501.88	7.27	23.60
	2021-22	2,284.45	2,071.59	9.32	42,409.95	28,727.60	32.26	38.60
	2022-23	1,719.83	1,564.66	9.02	49,357.98	40,966.02	17.00	24.50
	2023-24	1,407.05	1,286.09	8.60	46,076.65	48,684.53	-5.66	3.42
	2024-25	1,536.86	1,404.20	8.63	49,253.19	45,256.66	8.11	16.05
IESCO	2020-21	11,966.00	10,943.00	8.55	218,353.00	257,742.00	-18.04	-7.95
	2021-22	13,026.93	11,961.96	8.18	290,202.77	277,284.66	4.45	12.26
	2022-23	11,838.13	10,778.52	8.95	385,221.19	404,402.09	-4.98	4.42
	2023-24	12,224.64	11,154.57	8.75	515,925.00	506,675.03	1.79	11.46
	2024-25	12,970.00	11,881.92	8.39	504,433.00	507,648.00	-0.64	7.80
GEPCO	2020-21	12,032.48	10,922.11	9.23	190,363.93	202,195.12	-6.22	3.01
	2021-22	12,678.20	11,528.75	9.07	249,148.59	248,407.15	0.30	9.34
	2022-23	11,478.01	10,454.80	8.91	336,506.28	336,040.19	0.14	9.04
	2023-24	11,944.09	10,573.24	11.48	454,997.50	450,775.15	0.93	12.30
	2024-25	12,343.14	11,055.75	10.43	457,504.26	459,454.09	-0.43	10.04
LESCO	2020-21	25,387.87	22,352.13	11.96	426,667.07	426,072.23	0.14	12.12
	2021-22	28,334.45	25,070.73	11.52	571,563.62	567,879.83	0.64	12.10
	2022-23	26,032.47	23,092.14	11.29	783,469.41	751,642.42	4.06	14.90
	2023-24	25,093.78	21,400.01	14.72	1,014,723.63	1,003,308.94	1.12	15.80
	2024-25	26,278.34	22,759.31	13.39	995,941.62	1,008,918.64	-1.30	12.26
FESCO	2020-21	15,984.48	14,501.28	9.28	258,995.51	251,754.57	2.80	11.82
	2021-22	17,512.55	15,919.00	9.10	328,930.00	327,371.00	0.47	9.57
	2022-23	16,088.00	14,663.00	8.86	480,556.00	482,431.00	-0.39	8.90
	2023-24	15,736.00	14,192.00	9.81	619,116.00	604,290.90	2.39	11.60
	2024-25	15,836.88	14,428.27	8.89	590,902.87	594,945.72	-0.68	8.27
MEPCO	2020-21	20,532.21	17,466.09	14.93	272,576.03	282,404.12	-3.61	11.87
	2021-22	22,733.91	19,202.42	15.53	364,078.83	363,095.23	0.27	14.90
	2022-23	19,599.68	16,732.37	14.63	485,964.55	476,865.34	1.87	16.20
	2023-24	19,929.05	16,904.36	15.18	676,689.44	667,364.00	1.38	16.30
	2024-25	19,385.78	16,568.90	14.53	627,754.35	630,935.45	-0.51	12.90
HESCO	2020-21	5,574.40	4,014.10	27.99	70,839.90	54,302.40	23.34	44.79
	2021-22	5,559.80	4,034.50	27.43	86,037.60	64,650.00	24.86	45.50
	2022-23	4,884.04	3,565.34	27.00	109,711.90	83,252.20	24.12	44.60
	2023-24	5,098.90	3,709.40	27.25	153,384.18	119,046.09	22.39	43.54
	2024-25	5,421.20	3,915.82	27.77	157,471.29	116,942.72	25.74	46.36
SEPCO	2020-21	4,290.96	2,775.76	35.31	50,097.61	32,434.25	35.26	58.10
	2021-22	4,489.77	2,890.18	35.63	62,321.68	40,314.44	35.31	77.27
	2022-23	3,871.90	2,538.14	34.45	79,200.24	54,008.43	31.81	55.30
	2023-24	4,026.79	2,625.59	34.80	110,416.81	73,509.72	33.43	56.59
	2024-25	4,069.47	2,482.67	38.99	92,818.26	68,882.53	25.79	54.73
QESCO	2020-21	6,615.80	4,775.37	27.82	68,240.57	25,019.88	63.34	74.00
	2021-22	6,716.30	4,831.57	28.06	96,144.00	34,121.00	64.51	74.46
	2022-23	6,002.60	4,399.90	26.70	109,237.06	35,423.79	67.57	76.23
	2023-24	5,745.07	4,035.52	29.76	172,662.10	63,113.20	63.45	74.32
	2024-25	4,993.18	3,077.02	38.38	139,229.88	53,948.02	61.25	76.12
Total in CPPA-G System	2020-21	120,151.35	99,370.20	17.30	1,760,449.43	1,738,700.33	1.24	18.37
	2021-22	129,896.55	107,904.85	16.93	2,323,466.00	2,166,270.59	6.77	23.70
	2022-23	116,758.27	97,372.79	16.60	3,131,199.47	2,952,337.15	5.71	22.41
	2023-24	115,338.91	94,683.84	17.91	4,146,572.95	3,889,593.61	6.20	23.41
	2024-25	116,513.59	96,218.06	17.42	3,961,082.49	3,806,371.05	3.91	
KE	2020-21	19,487.42	16,068.83	17.54	315,873.00	299,672.00	5.13	218.00
	2021-22	19,802.21	16,763.22	15.35	390,235.00	377,335.00	3.31	18.10
	2022-23	18,356.53	15,553.83	15.27	537,159.00	498,276.00	7.24	21.40
	2023-24	17,767.77	14,908.51	16.09	753,181.11	689,493.62	8.46	23.19
	2024-25	17,882.24	15,248.59	14.73	791,116.48	716,453.31	9.44	22.78

Source: Distribution Companies / KE

TABLE 76
Receivables of Distribution Companies including K-Electric Limited

DISCO	Category	June, 2024 (Rs. in Million)				June, 2025 (Rs. in Million)			
		Opening Balance of Receivables at begin of Month (1st of June)	Billing during Month	Collection during Month	Closing Balance of Receivables at end of Month (30th of June)	Opening Balance of Receivables at begin of Month (1st of June)	Billing during Month	Collection during Month	Closing Balance of Receivables at end of Month (30th of June)
PESCO	Federal Govt.	22,979.98	2,837.67	16,658.61	9,225.27	15,366.21	2,323.66	6,364.27	11,299.73
	Provincial Govt.	5,358.84	2,067.27	2,173.02	5,255.83	8,237.79	1,945.65	4,345.42	6,147.90
	Private	202,304.41	26,993.72	23,692.43	208,520.74	232,880.85	21,041.08	20,305.87	235,341.65
	Total	**230,643.23**	**31,898.66**	**42,524.06**	**223,001.84**	**256,484.85**	**25,310.39**	**31,015.56**	**252,789.28**
TESCO	Federal Govt.	969.09	111.43	114.83	965.69	1,156.00	81.70	140.76	1,096.94
	Provincial Govt.	2,389.78	91.04	187.62	2,293.20	2,401.02	58.12	476.82	1,982.32
	Private	83,905.77	3,571.97	6,774.54	80,703.19	87,500.33	3,028.44	5,648.27	84,880.50
	Total	**87,264.64**	**3,774.44**	**7,076.99**	**83,962.08**	**91,057.35**	**3,168.26**	**6,265.85**	**87,959.76**
IESCO	Federal Govt.	70,153.27	13,825.24	7,520.53	76,473.56	77,306.38	10,028.84	21,047.48	66,291.14
	Provincial Govt.	2,095.75	718.19	781.77	2,032.29	1,828.80	350.60	2,753.12	(573.53)
	Private	19,404.13	46,532.07	37,994.41	27,926.24	17,886.36	35,475.55	33,175.10	20,183.89
	Total	**91,653.15**	**61,075.50**	**46,296.71**	**106,432.09**	**97,021.53**	**45,854.98**	**56,975.69**	**85,901.50**
GEPCO	Federal Govt.	9,199.66	2,196.94	4,271.59	7,125.01	9,914.62	1,713.24	3,740.99	7,886.87
	Provincial Govt.	1,598.82	815.17	655.44	1,758.55	3,234.36	737.92	2,060.30	1,911.99
	Private	43,740.91	51,699.38	43,826.79	51,613.50	42,364.77	41,810.85	38,003.43	46,172.19
	Total	**54,539.39**	**54,711.48**	**48,753.82**	**60,497.06**	**55,513.75**	**44,262.02**	**43,804.71**	**55,971.05**
LESCO	Federal Govt.	5,907.00	1,992.00	1,228.00	6,673.00	8,146.00	254.00	1,664.00	6,736.00
	Provincial Govt.	16,192.00	4,268.00	5,693.00	14,773.00	17,621.00	444.00	8,758.00	9,307.00
	Private	190,895.00	103,721.00	91,405.00	203,203.00	191,793.00	84,969.00	84,777.00	191,985.00
	Total	**212,994.00**	**109,981.00**	**98,326.00**	**224,649.00**	**217,560.00**	**85,667.00**	**95,199.00**	**208,028.00**
FESCO	Federal Govt.	1,141.64	1,337.47	753.61	1,724.80	1,828.32	974.31	718.36	2,082.95
	Provincial Govt.	4,557.89	1,472.06	2,216.01	3,815.95	4,710.52	1,450.52	3,243.91	2,910.76
	Private	72,985.45	62,381.67	54,790.39	80,575.89	71,971.57	52,718.02	47,606.72	77,093.89
	Total	**78,684.98**	**65,191.20**	**57,760.01**	**86,116.64**	**78,510.41**	**55,142.85**	**51,568.99**	**82,087.60**
MEPCO	Federal Govt.	2,035.39	1,201.24	1,047.67	2,188.80	2,256.69	1,057.40	1,126.94	2,206.53
	Provincial Govt.	12,312.70	2,378.61	4,017.44	10,674.87	13,736.86	2,443.20	5,723.96	10,434.80
	Private	113,064.20	68,198.66	65,258.02	116,007.43	104,760.89	54,302.48	52,380.67	105,921.27
	Total	**127,412.30**	**71,778.51**	**70,323.14**	**128,871.10**	**120,754.44**	**57,803.08**	**59,231.57**	**118,562.60**
HESCO	Federal Govt.	5,121.50	548.60	136.30	5,533.90	5,733.46	492.23	526.57	5,699.11
	Provincial Govt.	18,922.90	1,682.40	1.00	20,604.10	27,458.83	1,773.23	2,478.26	26,750.04
	Private	178,059.00	14,516.10	9,372.90	183,202.20	212,271.63	14,076.72	9,970.98	216,381.16
	Total	**202,103.40**	**16,747.10**	**9,510.20**	**209,340.20**	**245,463.92**	**16,342.18**	**12,975.81**	**248,830.31**
SEPCO	Federal Govt.	8,424.85	518.93	162.63	9,124.87	12,258.94	807.47	155.04	12,911.37
	Provincial Govt.	28,623.29	2,383.55	121.26	32,976.13	39,528.14	1,203.19	9,001.29	31,730.04
	Private	184,839.81	6,016.42	4,712.66	187,824.14	207,473.56	5,880.02	4,130.70	209,222.88
	Total	**221,887.95**	**8,918.90**	**4,996.55**	**229,925.14**	**259,260.64**	**7,890.68**	**13,287.03**	**253,864.29**
QESCO	Federal Govt.	2,533.47	697.72	873.57	2,357.62	3,003.22	698.21	1,233.57	2,467.86
	Provincial Govt.	39,083.10	844.33	1,678.62	38,248.81	42,277.51	829.99	1,005.77	42,101.73
	Private	607,232.79	12,277.60	7,307.02	612,203.37	689,979.13	7,406.34	3,864.33	693,521.14
	Total	**648,849.36**	**13,819.65**	**9,859.21**	**652,809.80**	**735,259.86**	**8,934.54**	**6,103.67**	**738,090.73**

DISCO	Category	FY 2023-24 (Rs. in Million)					
		Opening Balance of Receivable as at July, 2023	Billing due	Collection	Billing not due	Adjustments	Closing Balance of Receivable as at June, 2024
KE	Federal Govt.	3,263.66	24,675.89	(24,776.54)	1,009.40	(148.00)	4,024.41
	Provincial Govt.	46,051.71	32,010.00	(23,955.81)	3,492.33	(1.04)	57,597.19
	Private	183,752.38	696,495.23	(640,761.42)	5,446.81	(16,054.90)	228,878.10
	Total	**233,067.74**	**753,181.11**	**(689,493.77)**	**9,948.54**	**(16,203.94)**	**290,499.69**
	Category	**FY 2024-25 (Rs. in Million)**					
		Opening Balance of Receivable as at July, 2024	**Billing due**	**Collection**	**Billing not due**	**Adjustments**	**Closing Balance of Receivable as at June, 2025**
	Federal Govt.	4,024.41	26,615.65	(25,937.93)	(488.37)	4.53	4,218.29
	Provincial Govt.	57,597.19	33,436.79	(41,783.26)	1,845.15	(81.50)	51,014.37
	Private	228,878.10	731,064.04	(648,732.13)	(494.25)	(5,230.24)	305,485.53
	Total	**290,499.69**	**791,116.48**	**(716,453.31)**	**862.53**	**(5,307.20)**	**360,718.19**

Note 1: Adjustments include write-offs, internal transfers etc. Note 2: All figures are inclusive of taxes, duties and LPS.

TABLE 77
Province-wise Electricity Consumption by Economic Groups of the Country (Gwh)

Category	Year	Punjab [1]	Sindh [2]	Khyber Pakhtunkhwa	Balochistan [3]	K-Electric Limited	Total
Domestic	2020-21	38,248.08	12,245.70	6,774.19	587.89	8,041.32	65,897.18
	2021-22	40,561.88	12,097.64	7,157.41	591.97	8,004.68	68,413.57
	2022-23	35,992.69	10,740.64	6,238.94	561.93	7,369.71	60,903.91
	2023-24	37,544.45	10,065.85	5,789.31	557.58	6,814.34	60,771.52
	2024-25	39,483.15	10,594.69	5,650.50	575.30	6,986.56	63,290.19
Commercial	2020-21	5,250.59	2,200.95	806.63	138.38	1,708.58	10,105.13
	2021-22	5,856.37	2,345.93	879.90	151.15	1,846.46	11,079.81
	2022-23	5,596.32	2,269.37	881.50	144.44	1,818.00	10,709.63
	2023-24	5,786.54	2,254.09	875.95	152.48	1,818.03	10,887.09
	2024-25	6,177.69	2,395.93	841.27	158.42	1,963.18	11,536.48
Industrial	2020-21	20,446.21	6,420.06	2,827.88	191.79	5,220.99	35,106.93
	2021-22	23,540.66	7,169.45	3,075.21	172.46	5,842.80	39,800.57
	2022-23	21,735.67	6,560.88	2,630.56	160.89	5,350.19	36,438.19
	2023-24	18,806.98	6,623.32	2,139.00	184.29	5,221.51	32,975.10
	2024-25	20,195.22	6,506.11	2,238.28	174.47	5,151.37	34,265.44
Agricultural	2020-21	6,233.92	407.18	109.96	3,485.96	121.70	10,358.72
	2021-22	7,006.67	405.86	103.45	3,516.63	110.72	11,143.33
	2022-23	6,012.37	307.24	77.24	3,146.29	66.31	9,609.46
	2023-24	5,450.29	282.28	64.21	2,781.13	19.02	8,596.94
	2024-25	3,757.94	221.81	56.78	1,845.40	41.35	5,923.27
Public Lighting	2020-21	264.03	268.92	13.02	10.57	98.04	654.58
	2021-22	273.28	111.97	12.37	10.97	63.82	472.41
	2022-23	279.75	216.35	12.32	12.86	47.53	568.81
	2023-24	301.90	326.94	12.33	12.31	57.71	711.19
	2024-25	268.79	212.16	12.08	3.78	55.10	551.91
Bulk Supply	2020-21	2,245.69	583.02	653.90	130.47	454.31	4,067.39
	2021-22	2,439.69	787.29	711.12	140.79	467.84	4,546.73
	2022-23	2,766.89	735.20	804.84	136.99	469.42	4,913.35
	2023-24	2,981.43	775.72	752.95	146.09	518.73	5,174.92
	2024-25	2,282.41	810.57	785.79	153.99	550.02	4,582.77
General Services	2020-21	471.73	-	424.62	-	-	896.35
	2021-22	546.85	-	474.98	-	-	1,021.83
	2022-23	2,128.22	835.61	466.69	234.94	432.66	4,098.11
	2023-24	2,090.69	911.92	453.82	199.76	459.18	4,115.38
	2024-25	2,227.28	902.29	463.70	165.62	501.02	4,259.90
Others	2020-21	3,025.30	734.83	9.99	229.94	423.91	4,423.97
	2021-22	3,457.24	769.77	12.33	247.63	426.91	4,913.89
	2022-23	1,208.62	3.30	1.43	1.51	-	1,214.87
	2023-24	1,260.83	3.34	1.58	1.89	-	1,267.63
	2024-25	2,301.72	3.55	-	0.04	-	2,305.31
Total	2020-21	75,713.82	22,860.66	11,195.57	4,775.00	16,068.85	130,613.90
	2021-22	83,135.79	23,687.90	11,951.79	4,831.60	16,763.23	140,370.32
	2022-23	73,592.31	20,832.99	10,646.83	4,164.91	15,121.18	124,358.22
	2023-24	72,132.42	20,331.55	9,635.32	3,835.77	14,449.33	120,384.39
	2024-25	74,466.91	20,744.82	9,584.70	2,911.38	14,747.58	122,455.38

[1] Islamabad Capital Territory is included *[2] Consumption in KE Area is not included* *[3] Area served by KE is excluded*

Source: Distribution Companies / KE

TABLE 78
Province-wise Electricity Consumption by Economic Groups of the Country (%)

Category	Year	Punjab [1]	Sindh [2]	Khyber Pakhtunkhwa	Balochistan [3]	K-Electric Limited	Total
Domestic	2020-21	50.52	53.57	60.51	12.31	50.04	50.45
	2021-22	48.79	51.07	59.89	12.25	47.75	48.74
	2022-23	48.91	51.56	58.60	13.49	48.74	48.97
	2023-24	52.05	49.51	60.08	14.54	47.16	50.48
	2024-25	53.02	51.07	58.95	19.76	47.37	51.68
Commercial	2020-21	6.93	9.63	7.20	2.90	10.63	7.74
	2021-22	7.04	9.90	7.36	3.13	11.01	7.89
	2022-23	7.60	10.89	8.28	3.47	12.02	8.61
	2023-24	8.02	11.09	9.09	3.98	12.58	9.04
	2024-25	8.30	11.55	8.78	5.44	13.31	9.42
Industrial	2020-21	27.00	28.08	25.26	4.02	32.49	26.88
	2021-22	28.32	30.27	25.73	3.57	34.85	28.35
	2022-23	29.54	31.49	24.71	3.86	35.38	29.30
	2023-24	26.07	32.58	22.20	4.80	36.14	27.39
	2024-25	27.12	31.36	23.35	5.99	34.93	27.98
Agricultural	2020-21	8.23	1.78	0.98	73.00	0.76	7.93
	2021-22	8.43	1.71	0.87	72.78	0.66	7.94
	2022-23	8.17	1.47	0.73	75.54	0.44	7.73
	2023-24	7.56	1.39	0.67	72.51	0.13	7.14
	2024-25	5.05	1.07	0.59	63.39	0.28	4.84
Public Lighting	2020-21	0.35	1.18	0.12	0.22	0.61	0.50
	2021-22	0.33	0.47	0.10	0.23	0.38	0.34
	2022-23	0.38	1.04	0.12	0.31	0.31	0.46
	2023-24	0.42	1.61	0.13	0.32	0.40	0.59
	2024-25	0.36	1.02	0.13	0.13	0.37	0.45
Bulk Supply	2020-21	2.97	2.55	5.84	2.73	2.83	3.11
	2021-22	2.93	3.32	5.95	2.91	2.79	3.24
	2022-23	3.76	3.53	7.56	3.29	3.10	3.95
	2023-24	4.13	3.82	7.81	3.81	3.59	4.30
	2024-25	3.06	3.91	8.20	5.29	3.73	3.74
General Services	2020-21	0.62	0.00	3.79	0.00	0.00	0.69
	2021-22	0.66	0.00	3.97	0.00	0.00	0.73
	2022-23	2.89	4.01	4.38	5.64	2.86	3.30
	2023-24	2.90	4.49	4.71	5.21	3.18	3.42
	2024-25	2.99	4.35	4.84	5.69	3.40	3.48
Others	2020-21	4.00	3.21	0.09	4.82	2.64	3.39
	2021-22	4.16	3.25	0.10	5.13	2.55	3.50
	2022-23	1.64	0.02	0.01	0.04	0.00	0.98
	2023-24	1.75	0.02	0.02	0.05	0.00	1.05
	2024-25	3.09	0.02	0.00	0.00	0.00	1.88
Total	2020-21	100.00	100.00	100.00	100.00	100.00	100.00
	2021-22	100.00	100.00	100.00	100.00	100.00	100.00
	2022-23	100.00	100.00	100.00	100.00	100.00	100.00
	2023-24	100.00	100.00	100.00	100.00	100.00	100.00
	2024-25	100.00	100.00	100.00	100.00	100.00	100.00

[1] Islamabad Capital Territory is i n cluded *[2] Consumption in KE Area is not included* *[3] Area served by KE is excluded*

Source: Distribution Companies / KE

Table 79
Safety (Number of Fatal Accidents for Both Employees and Public)

DISCO	2020-21			2021-22			2022-23			2023-24			2024-25		
	Employees	Public	Total	Employees	Public	Total	Employees	Public	Total	Employees	Public	Total	Employees	Public	Total
PESCO	7	16	**23**	10	29	**39**	12	29	**41**	7	13	**20**	6	14	**20**
TESCO	0	0	**0**	0	0	**0**	0	1	**1**	2	1	**3**	2	1	**3**
IESCO	5	17	**22**	10	17	**27**	8	16	**24**	5	21	**26**	6	22	**28**
GEPCO	7	2	**9**	3	7	**10**	3	6	**9**	4	3	**7**	2	1	**3**
LESCO	9	2	**11**	9	18	**27**	8	3	**11**	9	9	**18**	4	1	**5**
FESCO	4	3	**7**	5	0	**5**	3	3	**6**	4	3	**7**	6	0	**6**
MEPCO	6	7	**13**	4	4	**8**	4	1	**5**	1	2	**3**	5	1	**6**
HESCO	2	30	**32**	3	32	**35**	4	10	**14**	1	8	**9**	2	14	**16**
SEPCO	2	12	**14**	2	8	**10**	6	3	**9**	1	4	**5**	4	4	**8**
QESCO	3	3	**6**	4	4	**8**	4	6	**10**	3	8	**11**	1	1	**2**
Total DISCOs	**45**	**92**	**137**	**50**	**119**	**169**	**52**	**78**	**130**	**37**	**72**	**109**	**38**	**59**	**97**
KE	0	39	**39**	0	27	**27**	0	37	**37**	3	34	**37**	0	26	**26**

Source: Distribution Companies / KE

TABLE 80
New Connections Sanctioned, Load and Pending

DISCO	Year	All Category excluding Net-Metering			Net-Metering Connections		
		Connections		Applications	Connection		Applications
		Sanctioned (Nos.)	Load (kW)	Pending (Nos.)	Sanctioned (Nos.)	Load (kW)	Pending (Nos.)
PESCO	2020-21	173,012	637,325	4,664			
	2021-22	171,607	632,149	7,134			
	2022-23	147,168	566,138	14,464	2,427	36,360	86
	2023-24	176,814	680,734	2,007	5,837	82,070	127
	2024-25	123,235	474,454	2,624	11,722	881,206	234
TESCO	2020-21	280	31,446	55			
	2021-22	393	31,430	57			
	2022-23	877	30,373	19	-	-	-
	2023-24	1,531	18,050	6	12	651	0
	2024-25	786	4,850	7	79	9,490	0
IESCO	2020-21	163,575	454,310	44,225			
	2021-22	204,951	607,246	38,201			
	2022-23	207,714	601,283	26,337	8,499	90,674	4
	2023-24	191,765	594,817	3,230	19,200	212,208	1,422
	2024-25	208,029	750	6,132	38,170	367,160	0
GEPCO	2020-21	216,378	510,388	51,030			
	2021-22	232,001	615,489	11,114			
	2022-23	239,077	597,409	24,945	4,871	85,590	70
	2023-24	317,365	717,312	9,238	18,262	234,559	117
	2024-25	344,940	752,048	7,464	40,139	546,955	152
LESCO	2020-21	345,825	1,063,820	107,866			
	2021-22	357,818	1,149,193	12,827			
	2022-23	309,040	998,417	52,615	11,427	161,100	126
	2023-24	412,629	1,181,699	44,181	22,392	273,730	699
	2024-25	476,324	1,366,459	28,984	65,130	935,110	1,286
FESCO	2020-21	254,965	848,446	54,278			
	2021-22	191,387	693,825	96,880			
	2022-23	261,939	1,081,439	68,418	2,914	47,505	0
	2023-24	285,797	961,895	66,956	11,957	189,135	0
	2024-25	313,038	1,039,962	71,860	15,231	240,304	867
MEPCO	2020-21	352,712	1,018,929	218,012			
	2021-22	384,812	1,658,540	117,684			
	2022-23	276,142	1,003,729	185,721	6,466	110	897
	2023-24	441,133	1,161,510	73,633	25,694	381,295	3,679
	2024-25	455,303	1,198,000	48,313	51,911	746,203	879
HESCO	2020-21	28,310	105,713	3,069			
	2021-22	23,504	127,480	2,448			
	2022-23	25,635	135,706	1,606	150	4,468	0
	2023-24	19,819	107,909	1,563	391	10,819	0
	2024-25	17,439	10,232	1,095	1,261	43,107	0
SEPCO	2020-21	16,901	61,864	524			
	2021-22	9,061	38,738	394			
	2022-23	8,808	77,610	337	61	5,187	9
	2023-24	7,253	42,987	42	85	1,040	14
	2024-25	3,908	24,568	139	250	2,490	22
QESCO	2020-21	18,171	65,350	470			
	2021-22	14,826	49,100	713			
	2022-23	12,791	44,768	1,307	38	1,049	0
	2023-24	23,618	70,734	1,594	131	2,569	0
	2024-25	12,860	43,750	748	234	11,380	68
KE	2020-21	200,835	837,708	17,705			
	2021-22	212,595	629,099	43,378			
	2022-23	147,710	458,985	34,548	3,677	79,996	992
	2023-24	127,236	383,983	37,784	5,286	107,982	4,369
	2024-25	113,345	354,313	35,693	9,767	203,608	1,080

Source: Distribution Companies / KE

TABLE 81
DISCOs' Power Transformers, Capacities and their Loading Positions

DISCO	As on 30th June	No. of Power Transformers				Capacity of Power Transformers (MVA)				No. of Over-Loaded Power Transformers (above 80%)				
		132 kV	66 kV	33 kV	Total	132 kV	66 kV	33 kV	Total	132 kV	66 kV	33 kV	Total	% age
PESCO	2021	221	26	5	252	6,658.50	243.95	23.00	6,925.45	81	11	3	95	37.70
	2022	230	24	5	259	7,103.90	238.35	23.00	7,365.25	79	12	4	95	36.68
	2023	238	24	5	267	7,368.40	238.35	23.00	7,629.75	94	10	3	107	40.07
	2024	242	21	5	268	7,486.40	197.35	23.00	7,706.75	94	9	4	107	39.93
	2025	248	21	4	273	7,657.40	197.35	16.00	7,870.75	93	9	4	106	38.83
TESCO	2021	34	21	0	55	711.30	263.30	0.00	974.60	13	1	0	14	25.45
	2022	40	17	0	57	1,066.40	176.70	0.00	1,243.10	8	0	0	8	14.04
	2023	39	16	0	55	1,118.30	171.20	0.00	1,289.50	6	0	0	6	10.91
	2024	43	14	0	57	1,138.00	163.70	0.00	1,301.70	6	0	0	6	10.53
	2025	44	10	0	54	1,191.00	118.40	0.00	1,309.40	4	2	0	6	11.11
IESCO	2021	260	1	6	267	6,651.00	46.00	24.00	6,721.00	8	0	1	9	3.37
	2022	266	1	6	273	6,867.00	46.00	25.00	6,938.00	23	0	0	23	8.42
	2023	272	1	6	279	7,139.50	46.00	25.00	7,210.50	5	0	2	7	2.51
	2024	277	1	6	284	7,278.00	46.00	25.00	7,349.00	13	0	4	17	5.99
	2025	287	1	6	294	7,554.00	46.00	25.00	7,625.00	17	0	4	21	7.14
GEPCO	2021	172	2	0	174	5,084.80	26.00	0.00	5,110.80	34	0	0	34	19.54
	2022	179	2	0	181	5,229.30	26.00	0.00	5,255.30	50	1	0	51	28.18
	2023	181	1	0	182	5,298.80	13.00	0.00	5,311.80	56	1	0	57	31.32
	2024	184	1	0	185	5,529.30	13.00	0.00	5,542.30	29	1	0	30	16.22
	2025	195	1	0	196	5,998.80	13.00	0.00	6,011.80	24	0	0	24	12.24
LESCO	2021	427	1	0	428	12,916.00	37.50	0.00	12,953.50	74	0	0	74	17.29
	2022	441	0	0	441	13,443.50	0.00	0.00	13,443.50	70	0	0	70	15.87
	2023	452	0	0	452	13,813.50	0.00	0.00	13,813.50	56	0	0	56	12.39
	2024	460	0	0	460	14,093.50	0.00	0.00	14,093.50	51	0	0	51	11.09
	2025	466	0	0	466	14,318.00	0.00	0.00	14,318.00	46	0	0	46	9.87
FESCO	2021	217	23	0	240	5,778.00	261.00	0.00	6,039.00	39	6	0	45	18.75
	2022	223	26	0	249	5,961.00	299.60	0.00	6,260.60	38	7	0	45	18.07
	2023	228	26	0	254	6,295.00	299.60	0.00	6,594.60	21	4	0	25	9.84
	2024	234	23	0	257	6,478.00	268.60	0.00	6,746.60	19	5	0	24	9.34
	2025	239	21	0	260	6,639.00	250.60	0.00	6,889.60	16	1	0	17	6.54
MEPCO	2021	301	11	0	312	8,602.00	118.80	0.00	8,720.80	30	0	0	30	9.62
	2022	308	9	0	317	8,897.00	93.00	0.00	8,990.00	45	1	0	46	14.51
	2023	311	9	0	320	8,996.70	92.80	0.00	9,089.50	13	0	0	13	4.06
	2024	318	11	0	329	9,192.70	118.80	0.00	9,311.50	2	0	0	2	0.61
	2025	324	11	0	335	9,352.50	118.80	0.00	9,471.30	0	0	0	0	0.00
HESCO	2021	106	16	0	122	2,654.40	136.90	0.00	2,791.30	14	0	0	14	11.48
	2022	124	4	0	128	2,831.30	103.50	0.00	2,934.80	24	1	0	25	19.53
	2023	117	16	0	133	2,956.90	136.90	0.00	3,093.80	21	0	0	21	15.79
	2024	118	17	0	135	3,039.00	149.90	0.00	3,188.90	22	0	0	22	16.30
	2025	122	14	0	136	3,197.10	116.40	0.00	3,313.50	22	3	0	25	18.38

DISCO	As on 30th June	No. of Power Transformers				Capacity of Power Transformers (MVA)					No. of Over-Loaded Power Transformers (above 80%)			
		132 kV	66 kV	33 kV	Total	132 kV	66 kV	33 kV	Total	132 kV	66 kV	33 kV	Total	% age
SEPCO	2021	111	22	0	133	2,782.10	228.40	0.00	3,010.50	14	6	0	20	15.04
	2022	112	22	0	134	2,873.10	228.40	0.00	3,101.50	24	8	0	32	23.88
	2023	113	21	0	134	2,859.10	223.40	0.00	3,082.50	18	6	0	24	17.91
	2024	114	21	0	135	2,872.10	223.40	0.00	3,095.50	34	4	0	38	28.15
	2025	115	17	0	132	2,917.80	176.90	0.00	3,094.70	30	3	0	33	25.00
QESCO	2021	135	4	40	179	3,267.00	38.60	160.00	3,465.60	47	2	0	49	27.37
	2022	145	3	40	188	3,504.60	32.30	160.00	3,696.90	51	2	0	53	28.19
	2023	146	3	40	189	3,570.60	32.30	160.00	3,762.90	49	1	0	50	26.46
	2024	154	3	44	201	3,903.30	32.30	176.00	4,111.60	23	0	0	23	11.44
	2025	160	3	44	207	4,040.60	32.30	176.00	4,248.90	13	2	0	15	7.25
Total in CPPA-G System	2021	1,984	127	51	2,162	55,105.10	1,400.45	207.00	56,712.55	354	26	4	384	17.76
	2022	2,068	108	51	2,227	57,777.10	1,243.85	208.00	59,228.95	412	32	4	448	20.12
	2023	2,097	117	51	2,265	59,416.80	1,253.55	208.00	60,878.35	339	22	5	366	16.16
	2024	2,144	112	55	2,311	61,010.30	1213.05	224.00	62,447.35	293	19	8	320	13.85
	2025	2,200	99	54	2,353	62,866.20	1,069.75	217.00	64,152.95	265	20	8	293	12.45
KE	2021	168	4	0	172	6,457.00	79.00	0.00	6,536.00	49	1	0	50	29.07
	2022	175	4	0	179	6,724.00	79.00	0.00	6,803.00	46	2	0	48	26.82
	2023	177	4	0	181	6,886.00	79.00	0.00	6,965.00	36	1	0	37	20.44
	2024	180	4	0	184	7,016.00	79.00	0.00	7,095.00	37	2	0	39	21.20
	2025	180	4	0	184	7,017.00	79.00	0.00	7,096.00	44	2	0	46	25.00

Source: Distribution Companies / KE

TABLE 82
DISCOs' Distribution Transformers, Capacities and their Loading Positions

DISCO	As on 30th June	No. of Distribution Transformers	Capacity of Distribution Transformers (kVA)	Loading Position of Distribution Transformers (Nos.)				
				80-90%	91-100%	Above 100%	Total	%age
PESCO	2021	79,437	6,264,345	892	738	811	2,441	3.07
	2022	81,149	6,424,565	1,108	540	794	2,442	3.01
	2023	83,093	6,591,035	976	602	756	2,334	2.81
	2024	84,084	6,682,535	1,933	1,029	973	3,935	4.68
	2025	84,766	6,743,850	1,690	709	507	2,906	3.43
TESCO	2021	18,903	2,093,400	3,491	890	1,850	6,231	32.96
	2022	19,194	1,440,705	893	1,910	699	3,502	18.25
	2023	19,412	1,474,760	1,452	1,257	783	3,492	17.99
	2024	19,486	1,546,420	1,419	615	458	2,492	12.79
	2025	19,304	1,539,350	0	0	297	297	1.54
IESCO	2021	51,988	4,279,000	529	215	206	950	1.83
	2022	53,616	4,395,000	215	393	895	1,503	2.80
	2023	55,242	4,546,000	420	181	20	621	1.12
	2024	56,779	4,689,000	703	508	96	1,307	2.30
	2025	88,748	8,559,000	726	535	82	1,343	1.51
GEPCO	2021	76,125	4,745,000	1,065	685	133	1,883	2.47
	2022	80,085	4,798,000	1,170	501	301	1,972	2.46
	2023	93,854	6,570,075	1,408	563	252	2,223	2.37
	2024	95,447	6,653,182	1,494	535	248	2,277	2.39
	2025	103,538	7,943,155	1,270	471	230	1,971	1.90
LESCO	2021	122,124	9,245,095	10,393	7,330	2,724	20,447	16.74
	2022	126,758	9,479,195	9,354	5,764	2,757	17,875	14.10
	2023	132,211	9,902,000	7,951	4,612	2,050	14,613	11.05
	2024	134,005	11,985,000	6,759	3,471	1,657	11,887	8.87
	2025	144,725	14,663,000	10,761	1,136	502	12,399	8.57
FESCO	2021	120,446	7,628,000	1,055	110	33	1,198	0.99
	2022	124,801	7,934,146	1,230	130	23	1,383	1.11
	2023	128,948	8,280,716	1,186	120	18	1,324	1.03
	2024	130,723	8,495,360	1,371	79	16	1,466	1.12
	2025	137,719	9,031,000	1,497	291	0	1,788	1.30
MEPCO	2021	187,791	9,102,165	2,270	1,787	0	4,057	2.16
	2022	223,922	12,960,060	5,711	1,021	0	6,732	3.01
	2023	230,606	13,390,490	6,915	1,268	0	8,183	3.55
	2024	236,213	13,612,720	6,894	1,217	0	8,111	3.43
	2025	110,720	7,475,440	4,901	1,688	500	7,089	6.40
HESCO	2021	43,873	2,680,585	635	405	74	1,114	2.54
	2022	44,317	2,720,905	637	420	76	1,133	2.56
	2023	44,865	2,776,095	831	598	250	1,679	3.74
	2024	49,785	3,300,855	833	597	275	1,705	3.42
	2025	53,365	4,228,950	69	83	177	329	0.62
SEPCO	2021	39,076	2,178,305	1,378	718	581	2,677	6.85
	2022	39,444	2,167,720	4,261	1,816	1,076	7,153	18.13
	2023	40,169	2,332,690	4,089	1,743	805	6,637	16.52
	2024	40,410	2,392,000	1,697	1,320	530	3,547	8.78
	2025	40,784	2,438,460	2,464	778	0	3,242	7.95
QESCO	2021	64,119	3,339,400	3,088	1,301	954	5,343	8.33
	2022	66,119	3,466,225	3,024	1,212	788	5,024	7.60
	2023	68,074	3,584,750	2,459	789	472	3,720	5.46
	2024	69,993	3,693,750	2,156	579	421	3,156	4.51
	2025	71,406	3,777,589	1,880	530	380	2,790	3.91
Total in CPPA-G System	2021	803,882	51,555,295	24,796	14,179	7,366	46,341	5.76
	2022	859,405	55,786,521	27,603	13,707	7,409	48,719	5.67
	2023	896,474	59,448,611	27,687	11,733	5,406	44,826	5.00
	2024	916,925	63,050,822	25,259	9,950	4,674	39,883	4.35
	2025	855,075	66,399,794	25,258	6,221	2,675	34,154	3.99
KE	2021	29,702	8,153,340	1,018	649	900	2,567	8.64
	2022	29,971	8,685,305	1,983	1,474	2,740	6,197	20.68
	2023	31,261	8,807,605	1,989	1,302	2,317	5,608	17.94
	2024	31,422	8,963,725	1,938	1,331	2,633	5,902	18.78
	2025	31,678	9,094,130	1,993	1,425	2,882	6,300	19.89

Source: Distribution Companies / KE

TABLE 83
Feeders Outages Statistics of DISCOs (2024-25)

DISCO	Nature of Tripping	132 kV Feeders		66 kV Feeders		33 kV Feeders		11 kV Feeders		All Feeders	
		No. of Tripping	Duration (Min.)	No. of Tripping	Duration (Min.)	No. of Tripping	Duration (Min.)	No. of Tripping	Duration (Min.)	No. of Tripping	Duration (Min.)
PESCO	Planned	357	92792	32	8885	2	905	19071	4386217	19462	4488799
	Forced	501	79504	106	29903	0	0	43051	3159647	43658	3269054
	Total	858	172296	138	38788	2	905	62122	7545864	63120	7757853
TESCO	Planned	16	7034	3	345	0	0	6892	95976	6911	103355
	Forced	385	81247	130	52149	2	2012	12827	1974963	13344	2110371
	Total	401	88281	133	52494	2	2012	19719	2070939	20255	2213726
IESCO	Planned	858	334860	1	420	0	0	14257	3391141	15116	3726421
	Forced	0	0	0	0	0	0	2140	102748	2140	102748
	Total	858	334860	1	420	0	0	16397	3493889	17256	3829169
GEPCO	Planned	15	3761	8	2520	0	0	10547	2531280	10570	2537561
	Forced	86	47747	3	94	0	0	38601	3156483	38690	3204324
	Total	101	51508	11	2614	0	0	49148	5687763	49260	5741885
LESCO	Planned	805	148639	0	0	0	0	25501	6129300	26306	6277939
	Forced	2761	112358	0	0	0	0	24118	723467	26879	835825
	Total	3566	260997	0	0	0	0	49619	6852767	53185	7113764
FESCO	Planned	249	63443	80	20972	0	0	9204	2223021	9533	2307436
	Forced	18	2179	2	29	0	0	49457	723004	49477	725212
	Total	267	65622	82	21001	0	0	58661	2946025	59010	3032648
MEPCO	Planned	1653	441895	38	15630	0	0	13117	1359540	14808	1817065
	Forced	238	21679	2	124	0	0	416980	2602620	417220	2624423
	Total	1891	463574	40	15754	0	0	430097	3962160	432028	4441488
HESCO	Planned	219	72510	34	10863	0	0	864	285120	1117	368493
	Forced	619	90436	48	25251	0	0	66586	1224416	67253	1340103
	Total	838	162946	82	36114	0	0	67450	1509536	68370	1708596
SEPCO	Planned	732	279733	85	47000	0	0	4308	1055188	5125	1381921
	Forced	150	62963	21	16390	0	0	34096	18809004	34267	18888357
	Total	882	342696	106	63390	0	0	38404	19864192	39392	20270278
QESCO	Planned	231	69215	20	1440	45	5217	3651	428959	3947	504831
	Forced	335	59874	15	2115	619	81247	32487	848921	33456	992157
	Total	566	129089	35	3555	664	86464	36138	1277880	37403	1496988
KE	Planned	10	4481	0	0	0	0	7684	273956	7694	278437
	Forced	16	2184	0	0	0	0	110623	7118722	110639	7120906
	Total	26	6665	0	0	0	0	118307	7392678	118333	7399343

Source: Distribution Companies / KE

TABLE 84
Village Electrification in all Distribution Companies

DISCO	As on 30th June	Total Number of Villages in DISCO	Total Villages Electrified in DISCO	Remaining Villages in DISCO	Percentage of Total Electrified Villages in DISCO
PESCO	2021	33,761	27,301	6,460	80.87
	2022	34,344	28,371	5,973	82.61
	2023	34,433	29,065	5,368	84.41
	2024	34,671	29,331	5,340	84.60
	2025	34,671	29,412	5,259	84.83
TESCO	2021	4,196	2,421	1,775	57.70
	2022	4,196	2,521	31,430	60.08
	2023	400	350	50	87.50
	2024	198	150	48	75.76
	2025	155	73	82	47.10
IESCO	2021	913	633	280	69.33
	2022	691	272	419	39.36
	2023	816	314	502	38.48
	2024	602	460	142	76.41
	2025	926	580	346	62.63
GEPCO	2021	7,854	7,744	110	98.60
	2022	8,330	7,919	411	95.07
	2023	8,434	8,097	337	96.00
	2024	8,797	8,360	216	95.03
	2025	8,925	8,563	362	95.94
LESCO	2021	246	215	31	87.40
	2022	495	32	463	6.46
	2023	463	71	392	15.33
	2024	498	282	216	56.63
	2025	790	490	300	62.03
FESCO	2021	29,282	27,589	1,693	94.22
	2022	31,929	28,544	3,385	89.40
	2023	34,716	29,319	5,397	84.45
	2024	36,836	30,467	6,369	82.71
	2025	37,169	31,181	5,988	83.89
MEPCO	2021	44,603	34,703	9,900	77.80
	2022	48,761	35,806	12,955	73.43
	2023	52,643	47,188	5,455	89.64
	2024	57,773	49,111	8,662	85.01
	2025	66,133	50,883	15,250	76.94
HESCO	2021	23,803	19,315	4,488	81.15
	2022	23,803	19,435	4,368	81.65
	2023	23,803	19,695	4,108	82.74
	2024	23,803	19,799	4,004	83.18
	2025	23,803	19,866	3,937	83.46
SEPCO	2021	23,263	18,475	4,788	79.42
	2022	23,263	18,475	4,788	79.42
	2023	23,263	18,593	4,670	79.93
	2024	23,263	18,640	4,623	80.13
	2025	23,263	18,650	4,613	80.17
QESCO	2021	29,692	18,853	10,839	63.50
	2022	2,560	1,134	1,426	44.30
	2023	2,460	1,380	1,080	56.10
	2024	2,460	1,457	1,003	59.23
	2025	2,268	1,006	1,262	44.36
Total in CPPA-G System	2021	197,613	157,249	40,364	79.57
	2022	178,372	142,509	35,863	79.89
	2023	181,431	154,072	27,359	84.92
	2024	188,901	158,057	30,844	83.67
	2025	198,103	160,704	37,399	81.12
KE	2021	954	938	16	98.32
	2022	976	958	18	98.16
	2023	976	969	7	99.28
	2024	1,005	984	21	97.91
	2025	1,012	991	21	97.92

Source: Distribution Companies / KE

TABLE 85
WAPDA Hydroelectric Tariff (2024-25)

Power Stations	Province	Capacity (MW)	NEO (GWh)	Variable Rate (Rs./kWh)	Fixed Charges (Rs./kW/M)		Hydel Levies				
					Fixed Rate	Revenue Gap	NHP Regular (Rs./kWh)	NHP Arrears (Rs./kW/M)	WUC Regular (Rs./kWh)	WUC Arrear (Rs./kW/M)	IRSA (Rs./kWh)
Tarbela	KPK	3,474	12,446	0.040	589.910	27.923	1.548	282.761			0.005
Warsak	KPK	242	899	0.108	1,002.320	70.959	1.548	282.761			0.005
Duber Khwar	KPK	130	495	0.323	2,319.073	872.715	1.548	282.761			0.005
Allai Khwar	KPK	121	481	0.218	1,742.092	261.391	1.548	282.761			0.005
Khan Khwar	KPK	72	263	0.291	2,062.473	969.723	1.548	282.761			0.005
Jabban	KPK	22	125	0.276	2,869.849	- 406.853	1.548	282.761			0.005
Dargai	KPK	20	71	0.185	1,426.061	602.416	1.548	282.761			0.005
Kuram Garhi	KPK	4	14	0.539	3,426.977	1,394.116	1.548	282.761			0.005
Chitral	KPK	1	3	1.303	7,241.005	9,160.685	1.548	282.761			0.005
Tarbela 4th Ext.	KPK	1,407	4,427	0.123	978.021	525.635	1.548	282.761			0.005
Golen Gol	KPK	108	132	1.597	3,464.622	4,514.854	1.548	282.761			0.005
Gomal Zam	KPK	17	41	1.236	5,085.284	- 425.345	1.548	282.761			0.005
Ghazi Barotha	Pujnab	1,447	6,813	0.073	911.291	- 24.603	1.474	245.536			0.005
Chashma	Punjab	183	876	0.204	1,908.714	196.967	1.474	245.536			0.005
Jinnah HPP	Punjab	95	207	0.417	1,798.014	444.141	1.474	245.536			0.005
Rasul	Punjab	22	54	0.229	1,271.670	416.807	1.474	245.536			0.005
Nandipur	Punjab	14	36	0.307	1,660.933	983.774	1.474	245.536			0.005
Shadiwal	Punjab	13	32	0.303	1,527.775	677.708	1.474	245.536			0.005
Chichoki	Punjab	13	31	0.285	1,450.690	622.819	1.474	245.536			0.005
Renala Khurd	Punjab	1	2	1.664	5,632.486	4,882.747	1.474	245.536			0.005
Mangla	AJK	997	3,838	0.107	1,017.230	251.911			1.100	29.592	0.005

Source: NEPRA

TABLE 86 (A)
Indexed/Adjusted Tariff of GENCOs on Quarterly Basis (Rs./kWh) As on 1st of

Power Plant	Year	Fuel	July			October			January			April		
			FCC	VOM	CPP	FCC	VOM	CPP	FCC	VOM	CPP	FCC	VOM	CPP
GENCO-I														
Block-1 (Unit-1)	2020-21	RFO	13.8740			13.8740			17.0397			19.9120		
	2021-22		21.5113			26.8620			30.7336			30.7326		
	2022-23		45.3558											
Block-2 (Unit-2)	2020-21	RFO							19.1363					
	2021-22		24.1581			30.1671			34.5151			34.5140		
	2022-23		50.9365											
Block-2 (Unit-3)	2020-21	RFO							18.6206			19.1363		
	2021-22		23.5071			29.3542			33.5850					
	2022-23		49.5639											
Block-2 (Unit-4)	2020-21	RFO							18.2286					
	2021-22		23.0121			28.7361			32.8778			32.8768		
	2022-23		48.5205											
JPCL	2024-25	Coal							13.4148					
GENCO-II														
Guddu 747 (Block-I)	2020-21	Gas		1.5540			1.5397			0.8529			0.8445	
	2022-23		7.6799			7.6799				8.9596				
	2023-24		8.9596		0.3513	8.9596		0.3513	8.9596		0.3513	8.9596		0.3513
	2024-25		7.2839	1.1146	4.3034	7.2839	1.1142	4.3052	7.2839	1.1199	1.9487	7.2839	1.1397	1.9637
Guddu 747 (Block-II)	2021-22	Gas		0.5424	0.8574		0.5953	1.2018		0.6296	1.2448		0.6616	1.2798
	2021-22			0.5424	0.8574		0.5953	1.2018		0.6296	1.2448		0.6616	1.2798
	2022-23		8.5330			8.5330				9.9547				
	2023-24		9.9547		0.3513	9.9547		0.3513	9.9547		0.3513	9.9547		0.3513
GENCO-III														
Nandipur	2020-21	RLNG	7.5440	0.6226	0.3256	8.8430	0.6224	0.3259		0.602 1	0.3190	10.8743	0.5813	0.3119
	2021-22		14.9801	0.6131	0.3228	19.5648	0.6729	0.3431	16.2147	0.7117	0.3564	20.8334	0.7479	0.3687
	2022-23		25.9997	0.5262	0.5013	23.2628	0.5943	0.5426	23.3082	0.5895	0.5398	26.8976	0.7442	0.6338
	2023-24		25.0757	0.7649	0.7794	26.8815	0.7781	0.8029	27.4740	0.7610	0.8118	25.7142	0.7588	0.8200
Muzaffargarh (Unit-1)	2021-22	RFO/ RLNG	22.4558			28.2383			31.5184			31.5184		
	2022-23		46.5400											
	2023-24			0.1625	0.5029	41.6030	0.1625	0.5029	31.0324	0.1625	0.5029		0.1625	0.5029
Muzaffargarh (Unit-2)	2021-22	RFO/ RLNG	22.7600			28.6209			31.9454			31.9454		
	2022-23		47.1704											
	2023-24			0.1625	0.5029	42.1666	0.1625	0.5029	31.4527	0.1625	0.5029		0.1625	0.5029
Muzaffargarh (Unit-3)	2021-22	RFO/ RLNG	21.9730			27.6312			30.8408			30.8408		
	2022-23		45.5394											
	2023-24			0.1625	0.5029	40.7086	0.1625	0.5029	30.3652	0.1625	0.5029		0.1625	0.5029
Muzaffargarh (Unit-4)	2021-22	RFO/ RLNG	21.9403			27.5901			30.7949			30.7949		
	2022-23		45.4716											
	2023-24			0.1625	0.5029	40.6480	0.1625	0.5029	30.3200	0.1625	0.5029		0.1625	0.5029
Muzaffargarh (Unit-5)	2021-22	RFO/ RLNG	23.3620			29.3779			32.7904			32.7904		
	2022-23		48.4181											
	2023-24			0.1625	0.5029	43.2819	0.1625	0.5029	32.2847	0.1625	0.5029		0.1625	0.5029
Muzaffargarh (Unit-6)	2021-22	RFO/ RLNG	24.0010			30.1814			33.6873			33.6873		
	2022-23		49.7424											
	2023-24			0.1625	0.5029	44.4658	0.1625	0.5029	33.1677	0.1625	0.5029		0.1625	0.5029
GTPS Faisalabad	2021-22	RFO/ RLNG	18.6839			24.4116			20.2248			20.2248		
	2023-24			0.1625	0.5029		0.1625	0.5029		0.1625	0.5029		0.1625	0.5029
Nandipur	2024-25	RLNG	27.2751	0.7684	4.1203	25.8728	0.7685	2.4061		0.7725	3.6854	27.2750	0.7859	3.5760

** CCP ** without CCP*

Source: NEPRA

TABLE 86 (B)

Indexed/Adjusted Tariff of Hydel Power Plants on Quarterly Basis (Rs./kWh) As on 1st of

Power Plant	Year	July			October			January			April		
		WUC	VOM	CPP	WUC	VOM	CPP	WUC	VOM	CPP	WUC	VOM	CPP
Jagran	2021-22		1.3273	1.3900		1.4444	1.3900		1.4444	1.3900		1.4444	1.3900
	2022-23		1.6631	1.3900		1.6631	1.3900		1.6631	1.3900		1.6631	1.3900
	2023-24		2.1518	1.3900		2.1518	1.3900		2.1518	1.3900		2.1518	1.3900
	2024-25	-	*2.5899	1.3900		2.5899	1.3900		2.5899	1.3900		2.5899	1.3900
Malakand-III	2020-21	0.3209	0.3468	5.0095	0.3209	0.3457	4.9614	0.3771	0.3345	4.8024	0.3771	0.3229	4.6044
	2021-22	0.3771	0.3407	4.7556	0.3771	0.3738	5.1318	0.3771	0.3954	5.3467	0.3771	0.4155	5.5165
	2022-23	0.3771	0.4813	6.2074	0.3771	0.5444	6.9199	0.3771	0.5400	6.8370	0.3771	6.8320	8.5224
	2023-24	0.5345	0.6980	8.7833	0.7025	0.7096	8.8748	0.6999	0.6932	8.6992	0.6999	0.6909	8.6025
	2024-25	0.6999	0.7000	8.6301	0.7484	0.6997	8.6236	0.7484	0.7033	8.6556	0.7484	0.7157	8.7223
Laraib Energy	2020-21	0.4124	0.0685	13.6274	0.4124	0.0685	13.7788	0.4124	0.0685	12.858	0.4124	0.0685	12.7736
	2021-22	0.4124	0.5786	12.1734	0.4124	0.0685	13.3147	0.4124	0.0685	14.1816	0.4124	0.0685	12.8513
	2022-23	0.4124	0.0685	14.7616	0.4124	0.0685	16.0278	0.4124	0.0685	16.3241	0.4124	0.0685	17.9346
	2023-24	0.8982	0.0685	20.4645	0.7527	0.125	21.9289	0.791	0.1314	20.8471	0.8217	0.1365	20.7732
	2024-25	0.8108	0.1347	16.434	0.8219	0.1365	13.8649	0.8331	0.1384	13.8698	0.8343	0.1386	14.7845
Patrind Hydro	2021-22	0.1867	0.0425	13.8227	1.1867	1.1881	13.9234	0.1881	0.0425	14.9648	1.1881	0.0425	15.1083
	2022-23	0.1881	0.0425	10.91781	0.1881	0.0425	18.45022	0.1881	0.0425	21.87343	0.1881	0.0425	23.39032
	2023-24	0.2425	0.0734	17.56862	0.2407	0.1096	17.56862	0.3148	0.0776	17.73256	0.3148	0.0847	17.80536
	2024-25	0.3148	0.0836	27.4937	0.3148	0.0847	27.5202	0.3676	0.0859	26.7273	0.3676	0.0860	26.8043
Neelum Jhelum	2021-22		0.7217	8.3960		0.7217	8.3960		0.7217	8.3960		0.7217	8.3960
	2024-25		0.7217	8.3967		0.7217	8.3967		0.7217	8.3967		0.7217	8.3967
Gulpur Hydro	2022-23	0.1500	0.0441	17.3108	0.1500	0.0441	20.1335	0.1500	0.0441	22.2181	0.3307	0.0966	13.6278
	2023-24	0.3307	0.1037	16.1865	0.2407	0.1096	16.3201		0.1152	16.4998		0.1197	16.4555
	2024-25	0.3635	0.1181	34.1487	0.2963	0.1197	34.0309	0.3033	0.1213	33.1280	0.3033	0.1215	32.7281
Karot Hydro	2021-22										0.1500	0.2639	13.9135
	2022-23	0.1500	0.2808	17.7566	0.1500	0.2971	18.4868	0.1500	0.2959	21.1421	0.2023	0.3329	22.8680
	2023-24	0.2023	0.3367	27.4980	0.3506	0.4680	27.7940	0.1946	0.4804	22.5802	0.1946	0.4880	22.5887
	2024-25	0.2175	0.4840	22.3254	0.2175	0.4929	22.3401	0.2175	0.4976	25.8706	0.2175	0.4990	25.9398
Marala Hydro	2023-24		0.8263	17.9525		0.8673	18.1238		0.9176	18.0117		0.9425	17.9502
	2024-25	0.3028	0.9235	17.0619	0.3028	0.9508	17.1045	0.3028	0.9622	17.3198	0.3049	0.9567	17.3730
Chianwali Hydro	2023-24		1.0007	16.2897		1.0503	16.4241		1.1112	16.5327		1.1414	16.6020
	2024-25	0.2917	1.1184	15.3651	0.2917	1.1515	15.4441	0.2917	1.1653	15.7035	0.2917	1.1587	15.7040
Pakpattan Hydro	2023-24		0.6981	15.1203		0.7327	15.2648		0.7753	15.1712		0.7963	15.1198
	2024-25	0.2917	0.7802	14.3696	0.2917	0.8033	14.4056	0.2917	0.8130	14.5873	0.2917	0.8033	14.6320

Note: The VOM component of Jagran for July and August, 2024 is Rs. 2.1518/kWh and for September, 2025 it is Rs. 2.5899/kWh and the same is stated in July-September 2025 quarter of the above table.*

Source: NEPRA

TABLE 86 (C)

Indexed/Adjusted Tariff of Gas-based Power Plants on Quarterly Basis (Rs./kWh) As on 1st of

Power Plant	Year	July			October			January			April		
		FCC	VOM	CPP	FCC	VOM	CPP	FCC	VOM	CPP	FCC	VOM	CPP
Uch-II	2020-21	7.8425	0.3553	3.5848	7.2150	0.3553	3.5854	6.9423	0.3457	3.5633	6.8471	0.3358	3.3638
	2021-22	6.6804	0.3510	3.4765	7.1038	0.3795	3.7496	7.5346	0.3980	3.9543	7.6673	0.4153	4.0815
	2022-23	8.4127	0.4719	4.5748	9.6679	0.5261	5.1471	9.6100	0.5223	5.2992	11.2088	0.6454	6.6187
	2023-24	13.3028	0.7008	7.1164	13.5419	0.7157	7.1399	13.2396	0.7078	7.0997	13.0677	0.7089	7.0044
	2024-25	13.0641	0.7144	6.6072	13.078	0.7175	6.6343	13.0871	0.7219	6.6411	13.1562	0.7320	2.8763
Foundation Power	2020-21	7.1480	0.6127	2.9241	6.6297	0.6130	2.9109	6.6297	0.5963	2.8993	6.6297	0.5792	1.3985
	2021-22	6.6297	0.6054	1.4386	6.6297	0.6546	1.5380	6.6297	0.6866	1.6026	6.6297	0.7164	1.6520
	2022-23	6.6297	0.8140	1.8431	6.6297	0.9075	2.0315	8.1227	0.9009	2.0141	8.1227	1.1133	2.4691
	2023-24	8.1227	1.2088	2.9107	8.1227	1.2345	2.4743	8.1227	1.2208	2.4550	8.1227	1.2227	2.4502
	2024-25	8.1227	1.2322	2.2010	8.1227	1.2375	2.199	8.1227	1.2452	2.1987	8.1227	1.2626	2.2126
Engro PowerGen. Qadirpur	2020-21		0.5414	1.3114		0.5415	1.2995		0.5268	1.2673		0.5116	1.2277
	2021-22	7.1240	0.5348	1.2547	7.1240	0.5784	1.3287	7.1240	0.6068	1.3793	7.1240	0.6332	1.4153
	2022-23	7.1240	1.3363	0.7197	7.1240	1.3426	0.8026	8.7284	1.3473	0.7968	8.7284	1.3752	0.9850
	2023-24	8.7284	1.0684	1.8677	8.7284	1.0911	1.8945	8.7284	1.0787	1.9057	8.7284	1.0803	1.9239
	2024-25	8.7284	1.0888	1.6625	8.7284	1.0934	1.6651	8.7284	1.1002	1.6581	8.7284	1.1156	1.6554
SNPC-I	2023-24	8.6039	1.8751	4.7324	8.6039	1.9273	4.7214	8.6039	1.9373	4.6409	8.6039	1.9526	4.6313
	2024-25		1.9540	4.4770		1.9747	4.2759		1.9898	4.1003		2.0077	4.0824
SNPC-II	2023-24	8.5508	1.8751	4.6984	8.5508	1.9273	4.6874	8.5508	1.9373	4.6074	8.5508	1.9526	4.5979
	2024-25		1.9540	4.4449		1.9747	4.2451		1.9898	4.0708		2.0077	4.0532

Source: NEPRA

TABLE 86 (D)

Indexed/Adjusted Tariff of RFO-based Power Plants on Quarterly Basis (Rs./kWh) As on 1st of

Power Plant	Year	July			October			January			April		
		FCC	VOM	CPP	FCC	VOM	CPP	FCC	VOM	CPP	FCC	VOM	CPP
Attock Gen.	2020-21	9.2189	1.5072	1.3915	9.801	1.508	1.3806	11.697	1.4688	1.3438	14.2455	1.4284	1.2988
	2021-22	15.6287	1.4902	1.3362	20.5891	1.6062	1.4254	18.8586	1.6814	1.4773	28.1311	1.7516	1.5194
	2022-23	31.4473	1.9816	1.4895	24.1362	2.2020	1.6020	20.0176	2.1865	1.5906	23.5012	2.6868	1.8535
	2023-24	28.0602	2.9585	2.2148	34.6685	3.0247	2.2493	27.7348	2.9992	2.2437	28.9584	3.0069	2.1238
	2024-25	28.9584	3.0267	2.0730	26.5112	3.0430	2.0842	27.2250	3.0513	1.9678	26.9191	3.0852	1.9770
Atlas Power	2020-21	12.0144	1.4866	1.5096	12.6185	1.4873	1.4966	12.3983	1.4482	1.4568	11.4835	1.4080	1.4133
	2021-22	15.9233	1.4696	1.4504	18.8931	1.5851	1.5484	22.2725	1.6600	1.6392	23.8323	1.7300	1.7017
	2022-23	33.7996	1.9591	1.6979	31.6495	2.1785	1.7477	29.8178	2.1631	1.7629	18.6230	2.6615	1.9250
	2023-24	26.7349	2.9213	2.2873		2.9860	2.3087	33.5006	2.9590	2.4153	28.1053	2.9660	2.4315
	2024-25	29.8503	2.9862	2.0982									
Nishat Power	2020-21	11.2375	1.4866	1.3691	11.954	1.4873	1.3585	11.487	1.4482	1.3236	12.0047	1.4080	1.2867
	2021-22	16.3035	1.4696	1.3197	19.5235	1.5850	1.4067	23.4321	1.6600	1.4921	21.6372	1.7300	1.5507
	2022-23	34.2937	1.9590	1.5629	31.4865	2.1785	1.6145	31.2963	2.1631	1.6299	30.0236	2.6614	1.7966
	2023-24	28.1725	2.9213	2.2641	36.5309	2.986	2.2863	33.9043	2.959	2.2967	33.9043	2.9659	2.3133
	2024-25	29.0229	2.9862	1.9767	29.4655	3.0015	1.9315	29.5018	3.0100	1.7888	29.7408	3.0436	1.7974
Nishat Chunian	2020-21	10.7477	1.4831	2.6956	11.8764	1.4838	1.3986		1.4448	1.3535	11.7334	1.4046	1.3146
	2021-22	15.0494	1.4661	1.3489	18.6228	1.5813	1.4385	22.9832	1.6561	1.5239	25.2196	1.7259	1.5827
	2022-23	33.2044	1.9544	1.5890	35.3005	2.1734	1.6402	31.7990	2.1580	1.6549	30.467	2.6552	1.8186
	2023-24	28.8150	2.9144	2.3923		2.9789	2.415	38.2654	2.9521	2.411	38.2654	2.9589	2.3208
	2024-25	31.0856	2.9792	1.9991		2.9944	1.9563		3.0028	1.7789	28.8480	3.0365	1.7872
Narowal Energy	2020-21	12.8512	1.3372	3.3859	12.4791	1.3358	3.3849	12.2017	1.3117	3.3468	11.7283	1.2837	3.3047
	2021-22	15.8980	1.3265	1.8438	19.7987	1.4068	1.9809	22.7597	1.4589	2.1109	24.5703	1.5076	2.2004
	2022-23	35.8367	1.6668	2.2032	32.4247	1.8194	2.777	29.5052	1.8087	2.3001	21.493	2.1551	2.5415
	2023-24	28.5401	2.5595	2.9588		2.6307	2.9731	37.3817	2.644	2.9446	37.3817	2.6647	2.9580
	2024-25	31.5743	2.6667	2.6080	32.0382	2.6949	2.5305		2.6047	2.2444	31.1235	2.6299	2.2544
Liberty Power	2020-21	11.6379	1.6336	3.3368	12.6064	1.6345	3.3482	11.3621	1.5941	3.3293	12.0423	1.5525	1.4982
	2021-22	15.8790	1.6162	1.5400	20.0485	1.7356	1.6488	22.5202	1.8131	1.7476	28.2842	1.8855	1.8170
	2022-23	33.0273	2.1224	1.8185	31.2086	2.3494	1.8787	26.6526	2.334	1.8940	20.8177	2.8488	2.0827
	2023-24	29.9357	3.1884	2.4579		3.2636	2.5823	33.3862	3.2459	2.6024		3.2580	2.5513
	2024-25	30.8974	3.2752	2.2222		3.2967	2.1721	30.4048	3.0800	1.9763	30.0963	3.1192	1.9827

Source: NEPRA

TABLE 86 (E)

Indexed/Adjusted Tariff of HSD-based Power Plants on Quarterly Basis (Rs./kWh) As on 1st of

Power Plant	Year	July			October			January			April		
		FCC	VOM	CPP	FCC	VOM	CPP	FCC	VOM	CPP	FCC	VOM	CPP
Saif Power	2020-21	20.8883	0.9053	1.4317	18.6751	0.9049	1.4181	19.7699	0.8755	1.3769	20.2931	0.8453	1.3285
	2021-22	20.4379	0.8916	1.3682	23.1749	0.9785	1.4678	23.1749	1.0349	1.5413	30.1370	1.0875	1.5952
	2022-23		1.2599	1.5654		1.4250	1.6327		1.4134	1.6354		1.7883	1.8130
	2023-24	30.137	1.8269	2.1518	30.137	1.8572	2.1689	30.137	1.8143	2.1594	30.137	1.8083	2.1549
	2024-25		1.8321	1.9380		1.8314	1.9192		1.8407	1.9005		1.8734	1.9092
Sapphire Electric	2020-21	18.9038	0.8952	2.7399		0.8949	2.7751	19.5726 20.0947	0.8658	1.3868	19.6652	0.8359	1.3380
	2021-22	20.2368	0.8817	1.3770	22.9705	0.9676	1.4738	27.8787	1.0233	1.5527	29.9195	1.0754	1.6073
	2022-23		1.2458	1.5742		1.4091	1.6437		1.3976	1.6465		1.7683	1.8305
	2023-24	54.6936	1.8065	2.1234	54.6936	1.8365	2.1490	54.6936	1.7941	2.1383	54.6936	1.7882	2.1434
	2024-25		1.8117	1.9489		1.8110	1.9287		1.8202	1.9090		1.8525	1.9177
Orient Power	2020-21	18.1151	0.6044	1.5596	18.5753	0.6042	1.5463	19.6700 20.1920	0.5845	1.5039	19.7621 19.7621	0.5644	1.4548
	2021-22	20.334	0.5953	1.4958	23.0661	0.6533	1.5987	26.2901	0.6909	1.6744	26.2901	0.7261	1.7306
	2022-23		0.8411	1.7042		0.9514	1.8385		0.9436	1.8332		1.1940	2.1713
	2023-24	30.0213	1.2197	2.4041	30.0213	1.2399	2.6086	30.0213	1.2113	2.5965	30.0213	1.2073	2.4272
	2024-25		1.2232	2.3722		1.2227	2.3559		1.2290	2.3409		1.2507	2.3541
Halmore Power	2020-21	18.0411	0.9095	3.2281	18.5182	0.9092	3.2325	20.1238	0.8796	3.2050	19.6952	0.8492	3.1725
	2021-22	20.7171	0.8958	1.5962	23.0009	0.9831	1.7136	27.7637	1.0397	1.8004	27.7637	1.0926	1.8637
	2022-23		1.2658	1.8180		1.4316	2.0078		1.4200	1.9969		1.7967	2.4723
	2023-24	29.9512	1.8355	2.9679	29.9512	1.8659	2.9973	29.9512	1.8228	2.9119	29.9512	1.8168	2.8985
	2024-25		1.8407	2.5638		1.8400	2.5351		1.8494	2.5143		1.8821	2.5322
Engro PowerGen. Qadirpur	2020-21		0.5526	1.3387		0.5527	1.3265		0.5376	1.2935		0.5221	1.2531
	2021-22		0.5459	1.2808		0.5904	1.3563	30.1303	0.6193	1.408	31.4388	0.6463	1.4448
	2022-23	45.7170	1.3640	0.7346	52.6869	1.3706	0.8192		1.3753	0.8133		1.4038	1.0054
	2023-24	52.6869	1.0905	1.9066	69.4004	1.1136	1.9339	69.4004	1.1010	1.9454	69.4004	1.1026	1.9638
	2024-25		1.1113	1.6969		1.1160	1.6997		1.1229	1.6923		1.1386	1.6898
QATPL (Bhikki)	2023-24	46.0574	0.3790	3.7623	46.0574	0.3853	3.5231	50.1316	0.3764	3.4235	50.1316	0.3751	3.4990
	2024-25		0.3801	3.3347		0.3799	3.1658		0.3819	2.8806		0.3886	2.9618
NPPMCL (HBS)	2021-22	17.3142	0.2512	1.8024	17.3142	0.2757	1.9293	23.9000	0.2916	2.1325	27.5010	0.3064	2.2302
	2022-23	50.2889	0.3550	2.6872		0.4015	2.8495		0.3982	2.8159		0.5039	3.3527
	2023-24	27.5010	0.5148	3.6893	27.5010	0.5233	3.6268	27.5010	0.5112	3.4123	27.5010	0.5095	3.4961
	2024-25		0.5948	3.2237		0.5946	2.9710		0.5967	2.4481		0.6041	2.4511
NPPMCL (Balloki)	2021-22	17.7269	0.2742	1.7002	17.7269	0.3009	1.8214	24.4806	0.3182	2.0067	26.3162	0.3344	2.0811
	2022-23		0.3874	2.5521		0.4382	2.6820		0.4346	2.5763		0.5499	3.1920
	2023-24	43.7589	0.5618	3.4714	43.7589	0.5711	3.4355	43.7589	0.5579	3.2314	51.5914	0.5561	3.2707
	2024-25		0.6278	3.1564		0.6276	2.8989		0.6298	2.3543		0.6376	2.4373
Punjab Thermal	2023-24	46.6941			46.6941			59.5502			59.5502		

Source: NEPRA

TABLE 86 (F)

Indexed/Adjusted Tariff of RLNG-based Power Plants on Quarterly Basis (Rs./kWh) As on 1st of

Power Plant	Year	July			October			January			April		
		FCC	VOM	CPP	FCC	VOM	CPP	FCC	VOM	CPP	FCC	VOM	CPP
Saif Power	2020-21	7.2121	0.6272	1.4	8.4811	0.627	1.3867		0.6066	1.3458	10.423	0.5856	1.2962
	2021-22	14.2694	0.6177	1.3361	18.7805	0.6779	1.4347	18.8764	0.717	1.499	19.9602	0.7535	1.5481
	2022-23	24.892	0.8728	1.5075	22.2716	0.9872	1.5727	22.3151	0.9792	1.5710	25.7517	1.2389	1.7319
	2023-24	24.0073	1.2657	2.0679	26.7257	1.2867	2.0858	26.3101	1.257	2.0801	24.6186	1.2528	2.0738
	2024-25	26.1022	1.2693	1.8630	24.7664	1.2688	1.8581		1.2753	1.8527	26.1007	1.2979	1.8613
Sapphire Electric	2020-21	7.2114	0.6202	2.7074	8.4804	0.62	2.7425	9.7492	0.5999	1.3544	10.422	0.5791	1.3045
	2021-22	14.2681	0.6109	1.3444	18.7788	0.6704	1.4439	15.5401	0.709	1.5088	19.9584	0.7451	1.5584
	2022-23	24.8897	0.8632	1.5141	22.2696	0.9763	1.5815	22.3131	0.9684	1.5796	25.7493	1.2252	1.7463
	2023-24	24.0051	1.2517	2.0363	25.7338	1.2724	2.0628	26.3077	1.243	2.0559	26.6164	1.2389	2.0592
	2024-25	26.0998	1.2552	1.8711	26.60 12	1.2548	1.8653		1.2612	1.8595	26.0984	1.2835	1.8680
Orient Power	2020-21	7.2114	0.3687	1.527	8.4804	0.3685	1.5137	9.7492	0.3565	1.4716	10.422	0.3442	1.4212
	2021-22	14.2681	0.3631	1.4625	18.7788	0.3985	1.5642	15.6695	0.4214	1.6305	19.9584	0.4429	1.6817
	2022-23	24.8897	0.5131	1.644	22.2696	0.5803	1.7763	22.3131	0.5756	1.7663	25.7493	0.7282	2.0871
	2023-24	24.0051	0.744	2.3169	26.7233	0.7563	2.5224	26.3077	0.7388	2.5141	26.6164	0.7364	2.3429
	2024-25	26.0998	0.7461	2.2944	24.7642	0.7458	2.2924	24.1490	0.7496	2.2913	26.0984	0.7629	2.3044
Halmore Power	2020-21	7.2119	0.6301	3.1895	8.4808	0.6298	3.1939	9.7498	0.6094	3.1667	10.422	0.5883	3.1327
	2021-22	14.2689	0.6205	1.5567	18.7798	0.681	1.6728	19.2334	0.7203	1.7484	19.9595	0.7569	1.8057
	2022-23	24.8911	0.8768	1.7468	22.2709	0.9918	1.9341	22.3144	0.9837	1.9177	25.7508	1.2446	2.3725
	2023-24	24.0065	1.2715	2.8647	25.2204	1.2926	2.8952	25.2204	1.2627	2.8143	25.2204	1.2586	2.7987
	2024-25	26.1013	1.2751	2.4716	24.7656	1.2746	2.4599	24.1504	1.2811	2.4556	26.0999	1.3038	2.4732
QATPL (Bhikki)	2020-21	2.2325			2.2035			2.1972			1.9990		
	2021-22	11.919	0.5424	2.0246	15.5668	0.5953	2.2126	13.0235	0.6296	2.5023	16.5762	0.6616	2.6060
	2022-23	20.9212	0.7664	3.2045	18.7188	0.8669	3.3745	18.7554	0.8598	3.364	21.6437	0.3404	3.0907
	2023-24	20.1776	0.3478	3.4532	21.6307	0.3535	3.2343	22.1075	0.3454	3.143	20.691	0.3442	3.2122
	2024-25	21.9474	0.3487	3.0615	20.8190	0.3486	2.9064	20.3006	0.3504	2.6448	21.9473	0.3566	2.7193
NPPMCL (HBS)	2020-21	1.7484			1.7316 1.5644			1.5433			1.5386		
	2021-22	11.805	0.1937	1.5794	15.4179	0.2126	1.6906	12.8864	0.2248	1.869	16.4176	0.2362	1.9543
	2022-23	20.4889	0.2737	2.3549	18.332	0.3095	2.4972	18.3679	0.307	2.4677	21.1965	0.3885	2.9382
	2023-24	19.7607	0.3969	3.2332	21.1838	0.4034	3.1783	21.6507	0.3941	3.0693	20.2635	0.3928	3.0639
	2024-25	21.4940	0.4029	2.8248	20.3889	0.4028	2.6035	19.8811	0.4042	2.1454	21.4938	0.4092	2.1480
NPPMCL (Balloki)	2020-21	1.6969			1.6819 1.5201			1.5031			1.4916		
	2021-22	11.8978	0.2161	1.5426	15.5391	0.2371	1.6525	12.9878	0.2508	1.8207	16.5467	0.2635	1.8881
	2022-23	20.6500	0.3053	2.3155	18.4762	0.3453	2.4332	18.5123	0.3425	2.3375	21.3632	0.4333	2.8960
	2023-24	19.9161	0.4427	3.1496	21.3504	0.4500	3.1170	21.8209	0.4396	2.9318	20.4229	0.4382	2.9675
	2024-25	21.6629	0.4505	2.8430	20.0375	0.4503	2.6095	20.5492	0.4519	2.1365	2 1.6630	0.4575	2.2119
Punjab Thermal	2023-24	20.0929	0.9911	3.8319	21.5399	1.0075	3.8260	23.8573	0.9843	3.6822	20.6041	0.9810	3.6212
	2024-25	21.8553	0.9939	3.4588	20.7316	0.9935	3.3318	20.2154	0.9986	2.7702	21.8552	1.0163	2.7738

Source: NEPRA

TABLE 86 (G)

Indexed/Adjusted Tariff of Coal Fired Power Plants on Quarterly Basis (Rs./kWh) As on 1st of

Power Plant	Year	July			October			January			April		
		FCC	VOM	CPP	FCC	VOM	CPP	FCC	VOM	CPP	FCC	VOM	CPP
China Hub Power	2021-22	6.3562	0.5092	5.7108	8.6382	0.5221	6.1409	12.034	0.5304	6.7296	11.2902	0.5380	7.2117
	2022-23	28.629	0.5635	8.5973	25.8876	0.5879	10.513	29.3699	0.586	10.1742		0.6417	13.7945
	2023-24	23.5905	0.6935	13.0601		0.7032	13.0439		0.6876	12.6267		0.6900	12.4753
	2024-25	13.2195	0.6909	11.7845	18.9049	0.6944	11.9042		0.6972	11.8912		0.7011	11.5007
HSR (Sahiwal Coal)	2021-22	11.0828	0.1889	4.7894	12.8493	0.2012	5.2379	16.3442	0.2092	5.7787	23.9561	0.2166	6.1394
	2022-23	27.9974	0.2410	7.9058	28.4462	0.2643	8.5290	29.6852	0.2626	8.6448	32.1745	0.3156	11.2261
	2023-24	27.7611	0.3674	12.0410		0.3770	11.3779	20.5786	0.3775	10.4505	16.7748	0.3800	10.3445
	2024-25	16.6169	0.3809	10.1320	18.7400	0.3838	9.9622	17.1468	0.3872	9.8311	17.4780	0.3911	9.6888
Engro PowerGen Thar	2021-22	5.6771	1.0776	5.8156	6.1354	1.0899	6.2533	6.3452	1.0979	6.6408	6.8161	1.1053	6.9755
		2.4853			2.4077			2.5183			2.5283		
	2022-23	10.266	1.1279	7.8694	8.2268	1.1512	9.2362	8.1996	1.1495	9.4016	9.5468	1.2025	11.8735
	2023-24	9.6245	1.2080	11.8666	10.1927	1.3175	12.1115	10.0387	1.3181	11.8752	10.0828	1.3205	11.6861
	2024-25	10.5969	1.3214	11.5559	10.0494	1.3249	11.4810	9.9539	1.5755	11.3898	10.7554	1.5642	11.2866
Port Qasim	2021-22	7.3026	0.1918	4.7798	10.7306	0.2043	5.1881	16.6909	0.2124	5.7679	15.3063	0.2198	6.1774
	2022-23	12.8732	0.2444	7.6566	18.1510	0.2681	8.4516	17.8756	0.2664	8.7745	16.2513	0.3202	10.9748
	2023-24	14.8904	0.3719	11.0581	16.3728	0.3816	10.7256		0.3821	10.4373		0.3845	10.3033
	2024-25	16.3004	0.3854	10.4942	15.3498	0.3889	10.1535	16.4798	0.3917	9.9516	14.7458	0.3956	10.0712
Lucky Electric	2023-24	15.3743	0.3673	10.3777	12.7789	0.3770	10.7102	13.7605	0.3777	10.3204	13.7605	0.3801	10.3924
	2024-25	14.7834	0.3810	10.1336	14.0167	0.3845	9.4248		0.3873	8.6298		0.3911	8.6940
Thar Energy	2023-24	9.6245	0.7343	12.4490	10.2073	0.7901	12.7170	10.0149	0.7908	12.4746	10.0835	0.7931	12.2785
	2024-25	10.6325	0.7940	12.1575	10.0644	0.7976	12.0533	9.9348	1.0481	11.8642	10.7531	1.0368	11.7967
ThalNova	2023-24	9.6246	0.7805	12.3445	10.1909	0.7901	12.6659	10.0216	0.7908	12.4225	10.0827	0.7931	12.2280
	2024-25	10.5965	0.7940	12.1040	10.0284	0.7976	12.0017	9.9399	1.0481	11.8050	10.7527	1.0368	11.7383
Thar Coal Block-I	2023-24	9.7312	0.6571	12.4394	9.7908	0.6667	12.5558	10.3282	0.6673	12.2884	10.1818	0.6697	12.1255
	2024-25	10.0022	0.6706	11.9983	9.9789	0.6741	11.9706	10.0094	0.6769	11.7604	10.4131	0.6808	11.6308

Source: NEPRA

TABLE 86 (H)
Indexed/Adjusted Tariff of Wind Power Plants on Quarterly Basis (Rs./kWh) As on 1st of

Power Plant	Year	July	October	January	April
Zorlu Enerji Pakistan	2020-21	23.2873	23.1664	22.3285	21.9163
	2021-22	22.0815	22.8368	24.6398	24.9682
	2022-23	28.5650	29.9956	31.0979	34.4965
	2023-24	19.2806	19.5278	19.2689	19.1234
	2024-25	19.1090	19.1436	19.2262	19.3344
FFC Energy	2020-21	19.9800	19.8961	19.8252	19.5240
	2021-22	19.8548	18.9647*	19.7126	19.9137
	2022-23	20.8753	21.7289	9.6166	11.6386
	2023-24	13.7067	13.9346	13.8734	13.8389
	2024-25	13.0727	13.1447	13.2162	13.2769
Three Gorges First Wind	2020-21	26.7102	26.6198	25.4996	25.1445
	2021-22	25.1220	25.7758	28.2415	28.5411
	2022-23	33.4248	34.6634	36.9678	39.8929
	2023-24	47.4899	47.7237	17.8729	17.7662
	2024-25	16.9247	16.9598	17.0376	17.1574
Foundation Wind Energy-I	2020-21	24.4571	24.3459	23.5319	23.0836
	2021-22	23.3628	24.2672	26.2950	26.7278
	2022-23	30.9413	32.6558	34.1154	38.1429
	2023-24	43.2062	43.4535	42.0062	41.8279
	2024-25	40.4283	40.4213	29.9707	21.0235
Foundation Wind Energy-II	2020-21	24.5426	24.4267	23.6097	23.1469
	2021-22	23.4395	24.3703	26.3422	26.7862
	2022-23	30.8479	32.6123	33.8967	38.0429
	2023-24	42.8885	43.1403	41.7262	41.5402
	2024-25	30.3450	21.3302	21.4147	21.6137
Sapphire Wind	2020-21	26.6567	26.2951	25.4446	24.3491
	2021-22	25.1177	27.1121	28.2928	29.5654
	2022-23	33.9553	38.6043	38.4910	48.0655
	2023-24	48.5493	48.7009	47.2674	46.3859
	2024-25	46.2219	45.6427	45.4725	45.5725
Younus Energy	2020-21	24.2429	24.1483	23.8151	23.5249
	2021-22	23.8856	25.0112	26.8006	27.8182
	2022-23	30.8076	32.7107	32.8275	38.5591
	2023-24	38.8652	38.6924	37.5683	37.1922
	2024-25	36.5847	35.4475	34.6496	34.7800
Metro Power	2020-21	21.5079	21.4077	20.8006	20.4094
	2021-22	20.6884	21.4656	23.3371	23.7037
	2022-23	23.7037	28.8554	30.0726	33.5388
	2023-24	37.7259	38.5865	37.2998	37.1436
	2024-25	35.2223	35.2189	34.0677	34.2239
Gul Ahmad Wind	2020-21	25.4623	25.2299	24.6385	23.9458
	2021-22	24.5060	26.0668	27.5838	28.7922
	2022-23	32.6201	36.0459	36.1471	44.4626
	2023-24	44.4626	44.4762	43.1733	42.5503
	2024-25	42.1570	41.1722	40.6121	40.7359
Master Wind Energy	2020-21	25.4623	25.2299	24.6385	23.9458
	2021-22	24.5060	26.0668	27.5839	28.7922
	2022-23	32.6202	36.0459	36.1471	44.0032
	2023-24	44.4626	44.4762	43.1733	42.5503
	2024-25	42.1570	41.1722	40.6121	40.7359
Tenaga Generasi	2020-21	26.0596	25.7589	25.0382	24.1419
	2021-22	24.8034	26.5795	27.9328	29.2217
	2022-23	33.4341	37.6130	37.6908	46.5508
	2023-24	47.0725	47.1785	45.7970	45.0404
	2024-25	44.7724	43.9146	43.5248	43.6440

Power Plant	Year	July	October	January	April
Act Wind	2020-21	24.2678	24.1722	23.8389	23.5535
	2021-22	23.9107	21.2522*	22.9626	23.9021
	2022-23	26.5315	28.0102	28.2073	33.0178
	2023-24	34.5334	34.3537	33.3290	33.0309
	2024-25	31.0780	29.8504	28.9322	29.0194
HydroChina Dawood	2020-21	26.6569	26.2843	25.4348	24.3327
	2021-22	25.0930	27.0824	28.2760	29.6920
	2022-23	34.3886	39.4569	39.5927	49.5954
	2023-24	50.2277	50.4487	48.9755	49.5954
	2024-25	47.9490	47.1452	46.9020	47.0233
Sachal Energy	2020-21	26.3683	26.2782	24.5596	24.2078
	2021-22	24.2157	24.9084	26.6890	27.0451
	2022-23	32.8522	34.1675	36.4894	39.5872
	2023-24	47.8677	48.0961	45.4138	45.3388
	2024-25	43.8081	43.8313	41.7594	41.8904
UEP Wind	2020-21	26.6569	26.2843	25.4348	24.3327
	2021-22	25.0930	27.0824	28.2760	29.6920
	2022-23	34.3886	39.4569	39.5927	49.5954
	2023-24	50.2277	50.4487	48.9755	48.0811
	2024-25	47.9490	47.1452	47.0875	47.0430
AEP Wind	2020-21	16.4777	16.3933	16.1102	15.7992
	2021-22	16.0942	14.8627	15.5151	15.9393
	2022-23	10.3544	11.6594	11.7545	13.9590
	2024-25	20.9122	20.5391	20.2786	20.3902
Jhimpir Power	2020-21	19.8729	19.5868	18.9343	18.0884
	2021-22	18.6771	20.2101	21.1386	22.2877
	2022-23	26.0244	30.0808	30.2740	38.1325
	2023-24	39.6831	39.8823	38.7313	38.0436
	2024-25	36.9540	36.2568	36.0453	36.1540
Hawa Energy	2020-21	19.8729	19.5868	18.9343	18.0884
	2021-22	18.6771	20.2100	21.1385	22.2876
	2022-23	26.0244	30.0807	30.2740	38.1325
	2023-24	39.6831	39.8823	38.7313	37.0374
	2024-25	36.9540	36.2568	36.0453	36.1540
Three Gorges Second Wind	2020-21	20.1137	19.8588	19.1945	18.3207
	2021-22	18.9154	20.4669	21.4082	22.5878
	2022-23	26.4073	30.5650	30.7912	38.8013
	2023-24	39.8460	40.0567	38.8874	38.1893
	2024-25	37.6336	36.9001	36.8793	36.8105
Three Gorges Third Wind	2020-21	20.1137	19.8588	19.1945	18.3207
	2021-22	18.9154	20.4669	21.4082	22.5878
	2022-23	26.4073	30.5650	30.7912	38.8013
	2023-24	39.8460	40.0567	38.8874	38.1893
	2024-25	37.6336	36.9001	36.8793	36.8105
Tricon Boston Consulting-A	2020-21	20.1643	19.8710	19.2092	18.3490
	2021-22	18.9435	20.4970	21.4414	22.6401
	2022-23	26.5026	30.7173	30.9796	30.0479
	2023-24	40.1707	40.3897	38.6786	37.9775
	2024-25	37.8998	37.1383	36.9054	37.0198
Tricon Boston Consulting-B	2020-21	20.1643	19.8710	19.2092	18.3490
	2021-22	18.9435	20.4970	21.4414	22.6401
	2022-23	26.5026	30.7173	30.9796	30.0479
	2023-24	40.1707	40.3897	38.6786	37.9775
	2024-25	37.8998	37.1383	36.9054	37.0198

Power Plant	Year	July	October	January	April
Tricon Boston Consulting-C	2020-21	20.1643	19.8710	19.2092	18.3490
	2021-22	18.9435	20.4970	21.4413	22.6401
	2022-23	26.5026	30.7173	30.9796	30.0479
	2023-24	40.1707	40.3897	38.6786	37.9775
	2024-25	37.8998	37.1383	36.9054	37.0198
Zephyr Power	2020-21	19.1167	18.9270	18.4634	17.9330
	2021-22	18.3552	19.5777	20.9060	22.0036
	2022-23	25.3359	28.2725	28.5666	35.2241
	2023-24	35.7433	35.8000	34.7032	34.2715
	2024-25	33.8858	32.7148	31.9474	32.0640
Act 2 Din Wind Power	2022-23	10.3544	11.6594	11.7545	13.9590
	2023-24	14.5501	14.6885	14.3236	14.1645
	2024-25	14.1447	13.8538	13.6692	13.7052
Din Energy	2022-23	10.4916	11.8147	11.9113	14.1216
	2023-24	14.7160	14.8555	14.4876	14.3258
	2024-25	14.3059	14.0102	13.8251	13.8614
Gul Ahmad Electric	2022-23	-	-	-	13.8659
	2023-24	14.4657	14.6112	14.3516	14.1039
	2024-25	14.0910	13.7996	13.7163	13.6632
Indus Wind Energy	2022-23	10.5156	11.8419	11.9388	14.1539
	2023-24	14.7491	14.8886	14.5197	14.3574
	2024-25	14.3375	14.0409	13.8553	13.8918
Lakeside Energy	2022-23	8.9597	11.4170	11.6238	13.8305
	2023-24	14.4250	14.5698	14.3096	14.0642
	2024-25	14.0512	13.7590	13.6755	13.6246
Liberty Wind Power-I	2022-23	10.2794	11.6060	11.8248	-
	2023-24	14.6541	14.8010	14.5371	14.2854
	2024-25	14.2721	13.9760	13.8912	13.8368
Liberty Wind Power-II	2022-23	10.2794	11.6060	11.8248	-
	2023-24	14.6541	14.8010	14.5371	14.2854
	2024-25	14.2721	13.9760	13.8912	13.8368
Master Green Energy	2022-23	10.7569	12.0403	12.2675	14.4681
	2023-24	14.9777	15.1766	14.9241	14.7829
	2024-25	14.2730	13.9754	13.8680	13.9020
Metro 2 Wind Power	2022-23	10.0853	11.3681	11.5788	13.6805
	2023-24	0.8441	14.4182	17.6220	17.3481
	2024-25	17.3219	16.7346	16.5453	16.5923
NASDA Green Energy	2022-23	10.1431	11.4521	11.6681	13.8647
	2023-24	14.4597	14.6045	14.3432	14.0960
	2024-25	14.0828	13.7906	13.7069	13.6537
Lucky Renewables	2023-24	15.1359	15.2743	15.0130	14.8574
	2024-25	14.7535	14.4448	14.3590	14.3949
Artistic Wind Power	2023-24	14.5502	14.6885	14.3237	14.1646
	2024-25	14.1447	13.8538	13.6692	13.7054
Artistic Energy	2023-24	22.6558	22.7030	22.2495	22.0408
	2024-25	20.9122	20.5391	20.2786	20.3902

** Revised Tariff after negotiations.*

Source: NEPRA

TABLE 86 (I)
Indexed/Adjusted Tariff of Solar Power Plants on Quarterly Basis (Rs./kWh) As on 1st of

Power Plant	Year	July	October	January	April
Quid-e-Azam Solar	2020-21	24.0405	23.9233	23.5572	21.0250
	2021-22	21.2981	22.1694	23.5694	24.3394
	2022-23	26.6459	28.0770	28.0551	32.3631
	2023-24	32.4584	32.5896	31.6596	31.2367
	2024-25	30.7328	30.0236	29.6152	29.6540
Appollo Solar	2020-21	26.5411	26.1886	25.3171	24.2124
	2021-22	24.9945	27.0009	28.1694	29.3158
	2022-23	33.5012	37.9032	37.6841	47.1482
	2023-24	47.6737	48.2975	47.0307	46.2900
	2024-25	46.2197	45.7927	45.7853	45.9149
Best Green Energy	2020-21	27.1687	26.7901	25.9056	24.7694
	2021-22	25.5584	27.6126	28.8366	30.2248
	2022-23	34.9167	39.9263	39.9293	50.0207
	2023-24	50.5895	51.1565	49.6922	48.7967
	2024-25	48.6202	47.9198	47.7037	47.8077
Crest Energy	2020-21	27.5127	27.1294	26.2332	25.0897
	2021-22	25.8913	27.9732	29.2076	30.5662
	2022-23	35.2272	40.1914	40.1454	50.2869
	2023-24	50.8611	51.4498	50.0083	49.1361
	2024-25	48.9852	48.3369	48.2231	48.2912
Harappa Solar	2020-21	20.0679	19.8812	19.4414	18.8648
	2021-22	19.2590	18.3647*	18.9144	19.5693
	2022-23	21.7399	24.1044	24.1955	28.8490
	2023-24	29.9816	31.5014	31.0000	30.6751
	2024-25	29.5685	29.2819	29.2184	29.2691
AJ Power	2020-21	19.7567	19.5745	19.1423	18.5742
	2021-22	18.9671	18.0936*	18.6420	19.2980
	2022-23	21.4612	23.8192	23.9181	28.5492
	2023-24	29.1878	30.5322	28.7165	29.4011
	2024-25	29.2992	29.0167	28.9580	29.0136
Gharo Solar	2022-23	12.3650	14.1148	14.3732	17.4438
	2023-24	17.8041	18.5041	18.1559	17.9530
	2024-25	17.4182	17.0879	17.0038	17.0683
Oursun Pakistan	2022-23	25.0197	27.0500	23.3725	32.7176
	2023-24	33.8720	35.1144	34.2656	34.0210
	2024-25	32.5722	31.2792	30.2656	30.2822
Atlas Solar	2022-23	9.3615	10.5538	10.9741	14.0822
	2023-24	14.9279	15.0175	14.6273	14.5926
	2024-25	14.2411	13.2715	12.5165	12.5364
HNDS	2024-25	11.4322	11.1979	11.1301	11.1494
Meridian	2024-25	11.4322	11.1979	11.1301	11.1494
Helios	2024-25	11.4322	11.1979	11.1301	11.1494

** Revised Tariff after negotiations.*

Source: NEPRA

TABLE 86 (J)
Indexed/Adjusted Tariff of Bagasse-based Power Plants on Quarterly Basis (Rs./kWh) As on 1st of

Power Plant	Year	FCC	July	October	January	April
Almoiz Industries	2020-21		6.7320	6.7158	6.6451	6.6268
	2021-22		6.6889	6.2498*	6.8801	7.2134
	2022-23	11.8846	8.0626	8.4217	8.6086	10.0653
	2023-24	12.4788	10.5725	10.5512	10.2968	10.3113
	2024-25		9.9626	9.3489	8.8033	8.8153
RYK Mills	2020-21		6.8632	6.8517	6.7857	6.7508
	2021-22		6.8250	6.3624*	6.8065	7.0350
	2022-23	11.8846	7.6408	7.9397	8.0004	9.0323
	2023-24	12.4788	9.4459	9.4049	9.2108	9.1416
	2024-25		8.9369	8.6965	8.5310	8.5330
Chiniot Power	2020-21		6.8408	6.8285		6.7297
	2021-22		6.8019	7.0471	7.5426	7.8081
	2022-23	11.8846	8.5346	8.9259	8.9983	10.2976
	2023-24	12.4788	10.7822	10.7567	10.5375	10.4736
	2024-25		10.2445	9.9417	9.7158	9.7264
The Thal Industries	2020-21		6.7639	6.7488	6.6793	6.6569
	2021-22		6.7219	6.2787	6.8622	7.1701
	2022-23	11.8846	7.9600	8.3044	8.4607	9.8140
	2023-24	12.4788	10.3031	10.2725	10.0327	10.0268
	2024-25		9.7132	9.1903	8.7370	8.7468
Jamal Din Wali-II	2020-21		6.8633	6.8516	6.7856	6.7507
	2021-22		6.8249	6.3685*	6.8067	7.0351
	2022-23	11.8846	7.6408	7.9397	8.0004	9.0323
	2023-24	12.4788				
	2024-25		8.9369	8.6967	8.5312	4.6109
Jamal Din Wali-III	2020-21		6.8633	6.8516	6.7856	6.7507
	2021-22		6.8249	6.3685*	6.8067	7.0351
	2022-23	11.8846	7.6408	7.9397	8.0004	9.0323
	2023-24	12.4788				
	2024-25		8.9369	8.6967	8.5312	4.6109
Hamza Sugar	2020-21		6.7907	6.7766	6.7079	
	2021-22		6.7496	6.3029*	6.8474	7.1339
	2022-23	11.8846	7.8744	8.2067	8.3373	9.6043
	2023-24	12.4788	10.0716	10.0397	9.8122	9.7894
	2024-25		9.5049	9.0579	8.6818	8.6896
Channar Energy	2021-22		6.6889	6.2498*	6.8801	7.2134
	2022-23	11.8846	8.0626	8.4217	8.6086	10.0653
	2023-24	12.4788	10.5771	10.5497	10.2970	10.3115
	2024-25		9.9629	9.3491	8.8040	8.8156

** Revised Tariff after negotiations.*

Source: NEPRA

TABLE 87
Insurance Cost Component

Company Name	Insurance Premium (Rs. in Million)		Insurance Component (Rs./kWh)		Period
	Reference	Revised	Reference	Revised	
Appolo Solar	66,707,000	52,510,736	0.4351	0.3425	May 31, 2020 to May 30, 2021
	66,707,000	85,283,901	0.4351	0.5563	May 31, 2021 to May 30, 2022
	66,707,000	85,760,233	0.4351	0.5594	May 31, 2022 to May 30, 2023
Best Green	20,518,000	24,310,091	0.1338	0.1586	August 01, 2020 to July 31, 2021
	20,518,000	22,920,947	0.1338	0.1495	July 31, 2021 to July 30, 2022
	20,518,000	32,720,368	0.1338	0.2134	July 31, 2022 to July 30, 2023
Crest Energy	19,583,000	23,126,315	0.1277	0.1509	August 01, 2020 to July 31, 2021
	19,583,000	21,804,814	0.1277	0.1509	July 31, 2021 to July 30, 2022
	19,583,000	31,124,970	0.1277	0.203	July 31, 2022 to July 30, 2023
Three Gorges 1st	74,157,000	70,856,437	0.5347	0.5109	November 26, 2020 to November 25, 2021
	74,157,000	82,361,457	0.5347	0.5938	November 26, 2021 to November 25, 2022
	74,157,000	11,373,404	0.5347	0.7513	November 26, 2022 to November 25, 2023
	74,170,931	118,373,407	0.5347	0.8534	November 26, 2023 to November 25, 2024
	74,157,085	108,926,492	0.5347	0.7853	November 26, 2024 to November 25, 2025
Zorlu Enerji	56,790,000	110,767,164	0.668	0.6966	January 01, 2021 to December 31, 2021
Zephyr Power	96,554,760	73,061,170	0.6349	0.4766	March 28, 2021 to March 27, 2022
	97,335,000	118,932,014	0.6349	0.4766	March 28, 2022 to March 27, 2023
	97,335,000	190,910,359	0.6349	1.2453	March 28, 2023 to March 27, 2024
Act Wind	44,669,719	70,219,390	0.5483	0.8619	October 08, 2021 to October 07, 2022
	63,813,884	104,912,890	0.7833	1.2878	October 08, 2022 to October 07, 2023
	63,813,884	104,912,890	0.7833	1.2878	October 08, 2023 to October 07, 2024
	63,813,884	104,316,320	0.7833	1.2805	October 08, 2024 to October 07, 2025
Harappa Solar	12,849,379	15,646,010	0.4808	0.5837	October 14, 2020 to October 13, 2021
	12,849,379	17,277,160	0.4808	0.6445	October 14, 2021 to October 13, 2022
	12,863,755	26,783,330	0.4808	0.9992	October 14, 2023 to October 13, 2024
	12,863,755	26,830,636	0.4808	1.0009	October 14, 2024 to October 13, 2025
Tricon Boston-A	96,554,760	34,948,169	0.6349	0.2292	November 22, 2020 to November 21, 2021
	96,554,760	47,121,195	0.6349	0.309	November 22, 2021 to November 21, 2022
	96,814,320	81,579,870	0.6349	0.535	November 22, 2022 to November 21, 2023
	96,817,558	135,048,461	0.6349	0.8856	November 22, 2023 to November 21, 2024
	96,817,558	162,725,630	0.6349	1.0671	November 22, 2024 to November 21, 2025
Tricon Boston-B	96,554,760	34,948,169	0.6349	0.2292	November 22, 2020 to November 21, 2021
	96,554,760	47,121,195	0.6349	0.309	November 22, 2021 to November 21, 2022
	96,814,320	81,579,870	0.6349	0.535	November 22, 2022 to November21, 2023
	96,817,558	135,048,461	0.6349	0.8856	November 22, 2023 to November 21, 2024
	96,817,558	162,725,630	0.6349	1.0671	November 22, 2024 to November 21, 2025
Tricon Boston-C	96,554,760	34,948,169	0.6349	0.2292	November 22, 2020 to November 21, 2021
	96,554,760	47,121,195	0.6349	0.309	November 22, 2021 to November 21, 2022
	96,814,320	81,579,870	0.6349	0.535	November 22, 2022 to November21, 2023
	96,817,558	135,048,461	0.6349	0.8856	November 22, 2023 to November 21, 2024
	96,817,558	162,725,630	0.6349	1.0671	November 22, 2024 to November 21, 2025
Oursun Pakistan	96,554,760	37,550,940	0.6349	0.4763	November 30, 2021 to November 29, 2022
	57,371,868	60,543,716	0.7277	0.7679	November 30, 2023 to November 29, 2024
	57,371,868	59,419,800	0.7277	0.7536	November 30, 2024 to November 29, 2025
AJ Power	7,034,305	5,488,860	0.3936	0.3072	December 14, 2020 to December 13, 2021
	6,195,668	5,488,860	0.3467	0.3071	December 14, 2021 to December 13, 2022
	6,195,668	5,714,986	0.3467	0.3198	December 14, 2022 to December 13, 2023
	6,195,668	6,211,840	0.3467	0.3476	December 14, 2023 to December 13, 2024
Gharo Solar	29,290,000	23,853,150	0.301	0.2966	December 23, 2021 to December 22, 2022
	29,290,000	51,093,980	0.301	0.5252	December 23, 2022 to December 22, 2023
	29,290,000	51,093,980	0.301	0.5252	December 23, 2023 to December 22, 2024
	29,290,000	51,282,230	0.301	0.5272	December 23, 2024 to December 22, 2025
FFC Energy	69,874,959	54,195,702	0.4867	0.3775	January 01, 2022 to December 31, 2022
	69,874,959	104,712,282	0.4867	0.7294	July 01, 2023 to June 30, 2024
	69,874,959	101,055,415	0.4867	0.7039	July 01, 2024 to June 30, 2025
Hawa Energy	96,817,558	66,138,233	0.6349	0.4337	March 15, 2021 to March 14, 2022
	96,819,125	120,984,666	0.6349	0.7934	March 15, 2022 to March 14, 2023
	96,819,125	153,447,326	0.6349	1.0062	March 15, 2023 to March 14, 2024
	96,819,125	138,496,433	0.6349	0.9082	March 15, 2024 to March 14, 2025

Company Name	Insurance Premium (Rs. in Million)		Insurance Component (Rs./kWh)		Period
	Reference	Revised	Reference	Revised	
Jhimpir Power	96,817,558	66,281,550	0.6349	0.4346	March 16, 2021 to March 15, 2022
	96,819,125	117,140,272	0.6349	0.7682	March 16, 2022 to March 15, 2023
	96,819,125	153,439,972	0.6349	1.0062	March 16, 2023 to March 15, 2024
	96,819,125	138,218,208	0.6349	0.9064	March 16, 2024 to March 15, 2025
Artistic Wind	67,179,530	71,233,632	0.4444	0.4713	March 16, 2021 to March 15, 2022
	67,179,530	114,455,320	0.4444	0.7572	March 16, 2022 to March 15, 2023
	95,967,548	161,966,780	0.6349	1.0001	March 16, 2023 to March 15, 2024
	95,967,548	151,169,882	0.6349	1.0001	March 16, 2024 to March 15, 2025
Three Gorges 2nd	96,360,090	43,053,387	0.6349	0.2837	June 20, 2021 to June 19, 2022
	96,360,090	54,840,971	0.6349	0.3613	June 20, 2022 to June 19, 2023
	96,356,868	72,091,317	0.6349	0.475	June 20, 2023 to June 19, 2024
	96,356,868	68,990,447	0.6349	0.4546	June 20, 2024 to June 19, 2025
Three Gorges 3rd	96,360,090	43,054,329	0.6349	0.2837	June 09, 2021 to June 08, 2022
	96,360,090	54,840,971	0.6349	0.3613	June 09, 2022 to June 08, 2023
	96,356,868	72,091,317	0.6349	0.475	June 09, 2023 to June 08, 2024
	96,356,868	68,991,866	0.6349	0.4546	June 09, 2024 to June 08, 2025
Foundation Wind-I	47,555,000	64,949,535	0.3291	0.4495	July 01, 2021 to June 30, 2022
	47,555,000	41,435,248	0.3291	0.5996	July 01, 2022 to December 31, 2022
	47,555,000	96,833,743	0.3291	0.6701	January 01, 2023 to December 31, 2024
	47,555,000	96,833,743	0.3291	0.6701	January 01, 2024 to December 31, 2024
Foundation Wind-II	47,555,000	64,949,532	0.3309	0.452	July 01, 2021 to June 30, 2022
	47,555,000	41,435,248	0.3309	0.604	July 01, 2022 to December 31, 2022
	47,555,000	96,833,743	0.3309	0.6739	January 01, 2023 to December 31, 2023
	47,555,000	96,833,743	0.3309	0.6739	January 01, 2024 to December 31, 2024
Master Green	36,687,608	53,143,184	0.2177	0.3153	August 21, 2022 to August 20, 2023
	36,687,608	65,076,345	0.2177	0.3862	August 21, 2023 to August 20, 2024
	36,687,608	64,327,281	0.2177	0.3817	August 21, 2024 to August 20, 2025
Metro Power	61,436,000	105,617,984	0.4317	0.7422	September 16, 2021 to September 15, 2022
	61,433,587	135,467,827	0.4317	0.9519	September 16, 2022 to September 15, 2023
	61,433,587	171,535,312	0.4317	1.2054	September 16, 2023 to September 15, 2024
	61,433,587	188,922,917	0.4317	1.3276	September 16, 2024 to September 15, 2025
Sachal Energy	66,547,000	67,482,923	0.4875	0.4944	April 11, 2021 to April 10, 2022
	66,547,000	124,300,752	0.4875	0.9106	April 11, 2023 to April 10, 2024
	66,547,000	130,147,430	0.4875	0.9535	April 11, 2024 to April 10, 2025
	66,547,000	124,365,441	0.4875	0.9111	April 11, 2025 to April 10, 2026

Source: NEPRA

Table 88
Use of Transmission System Charges
(A) National Grid Company of Pakistan Limited (NGC)

Description	Rs./kW/Month
FY 2020-21	224.12
FY 2021-22	235.30
FY 2022-23	-
FY 2023-24	-
FY 2024-25	-

Note: NGC has submitted the tariff petition via letter dated June 10, 2025 for the FY 2022-23 to FY 2024-25, which is under process. Therefore, the notified tariff of FY 2021-22 is applicable till revision/modification of transmission tariff.
Source: NEPRA

Table 88
(B) Sindh Transmission and Dispatch Company (Pvt.) Limited (STDC)

Description	Reference (Rs./kW/Hr)	(July - December, 2021) (Rs./kW/Hr)	(January - June, 2022) (Rs./kW/Hr)	(July - December, 2022) (Rs./kW/Hr)	(January - June, 2023) (Rs./kW/Hr)	(July - December, 2023) (Rs./kW/Hr)	(January - June, 2024) (Rs./kW/Hr)	(July - December, 2024) (Rs./kW/Hr)	(January - June, 2025) (Rs./kW/Hr)
O&M	0.1824	0.1970	0.2211	0.2211	0.2753	0.2753	0.3569	0.3569	0.3714
Insurance	0.0192	0.0192	0.0192	0.0192	0.0192	0.0192	0.0192	0.0192	0.0192
ROE	0.0935	0.0935	0.0935	0.0935	0.0935	0.0935	0.0935	0.0935	0.0935
Debt Servicing	0.2127	0.2288	0.2643	0.2963	0.3042	0.3402	0.3193	0.2986	0.2462
Total	**0.5078**	**0.5385**	**0.5981**	**0.6301**	**0.6922**	**0.7282**	**0.7889**	**0.7682**	**0.7303**

Source: NEPRA

Table 88
(C) Pak Matiari-Lahore Transmission Company (Pvt.) Limited (PMLTC)

Description		Jul-Sep 2021	Oct-Dec 2021	Jan-Mar 2022	Apr-Jun 2022	Jul-Sep 2022	Oct-Dec 2022	Jan-Mar 2023	Apr-Jun 2023
	Reference	Allowed	Allowed	Allowed	Allowed	Allowed	Allowed	Allowed	Allowed
Fixed O&M ITC (Foreign)	0.0441	0.0746	0.0818	0.0866	0.0910	0.1054	0.1192	0.1182	0.1496
ITC O&M (Local)	0.0323	0.0420	0.0420	0.0420	0.0420	0.0420	0.0420	0.0420	0.0420
NTDC O&M (Local)	0.0411	0.0534	0.0534	0.0534	0.0534	0.0534	0.0534	0.0534	0.0534
Land Lease	0.0073	0.0073	0.0073	0.0073	0.0073	0.0073	0.0073	0.0073	0.0073
Insurance	0.0409	0.0409	0.0409	0.0409	0.0409	0.0409	0.0409	0.0409	0.0409
ROE	0.1680	0.2547	0.2751	0.2864	0.2948	0.3315	0.3700	0.3651	0.4572
ROEDC	0.0388	0.0588	0.0635	0.0661	0.0681	0.0766	0.0855	0.0843	0.1056
Principal	0.3038	0.4606	0.4606	0.5178	0.5178	0.6338	0.6338	0.6981	0.6981
Interest	0.2189	0.2729	0.2729	0.3209	0.3209	0.5265	0.5265	0.7410	0.7410
Sinosure Fee	0.0250	0.0250	0.0250	0.0250	0.0250	0.0231	0.0231	0.0231	0.0231
Total Tariff (PKR/kW/hr)	**0.9202**	**1.2902**	**1.3226**	**1.4463**	**1.4611**	**1.8404**	**1.9016**	**2.1734**	**2.3180**
Total Tariff (US Cents/kWh)	**0.8814**	**0.8151**	**0.7736**	**0.8128**	**0.7976**	**0.8934**	**0.8270**	**0.9579**	**0.8159**

Description		Jul-Sep 2023	Oct-Dec 2023	Jan-Mar 2024	Apr-Jun 2024	Jul-Sep 2024	Oct-Dec 2024	Jan-Mar 2025	Apr-Jun 2025
	Reference	Allowed	Allowed	Allowed	Allowed	Allowed	Allowed	Allowed	Allowed
Fixed O&M ITC (Foreign)	0.0441	0.1528	0.1553	0.1517	0.1512	0.1532	0.1532	0.1540	0.1567
ITC O&M (Local)	0.0323	0.0562	0.0763	0.0808	0.0830	0.0813	0.0837	0.0847	0.0842
NTDC O&M (Local)	0.0411	0.0715	0.0971	0.1028	0.1056	0.1034	0.1065	0.1078	0.1072
Land Lease	0.0073	0.0073	0.0073	0.0073	0.0073	0.0073	0.0073	0.0073	0.0073
Insurance	0.0409	0.0409	0.0409	0.0409	0.0409	0.0409	0.0409	0.0409	0.0409
ROE	0.1680	0.4620	0.4652	0.4544	0.4482	0.4486	0.4474	0.4487	0.4515
ROEDC	0.0388	0.1067	0.1074	0.1050	0.1035	0.1036	0.1033	0.1036	0.1043
Principal	0.3038	0.9339	0.9339	0.9186	0.9186	0.9587	0.9587	0.9589	0.9589
Interest	0.2189	0.8708	0.8708	0.8853	0.8853	0.8043	0.8043	0.7567	0.7567
Sinosure Fee	0.0250	0.0211	0.0211	0.0211	0.0211	0.0189	0.0189	0.0189	0.0189
Total Tariff (PKR/kW/hr)	**0.9202**	**2.7233**	**2.7755**	**2.7679**	**2.7646**	**2.7203**	**2.7242**	**2.6814**	**2.6865**
Total Tariff (US Cents/kWh)	**0.8814**	**0.9485**	**0.9600**	**0.9801**	**0.9927**	**0.9757**	**0.9798**	**0.9616**	**0.9574**

Source: NEPRA

TABLE 89

National Average Uniform Determined Tariff with Prior Year Adjustments (PYA) along-with GOP Applicable Tariff

A-1 GENERAL SUPPLY TARIFF - RESIDENTIAL

	Tariff Category/Particulars	Fixed Charges (Rs./Cons./M)	Fixed Charges (Rs./kW/M)	Uniform Determined with PYA Variable Charges (Rs./kWh)		GOP Applicable Variable Charges (Rs./kWh) (July to September, 2024)		GOP Applicable Variable Charges (Rs./kWh) (October, 2024 onward)	
Protected	(a) For Sanctioned load less than 5 kW								
	(i) Up to 50 Units - Life Line	-	-		6.76		3.95		3.95
	(ii) 51 - 100 Units - Life Line	-	-		11.41		7.74		7.74
	(iii) 001 - 100 Units	-	-		29.50		7.74		11.69
	(iv) 101 - 200 Units	-	-		31.86		10.06		14.16
Un-Protected	(v) 001 - 100 Units	-	-		30.64		16.48		23.59
	(vi) 101 - 200 Units	-	-		33.76		22.95		30.07
	(vii) 201 - 300 Units	-	-		36.89		34.26		34.26
	(viii) 301 - 400 Units	200	-		39.93		39.15		39.15
	(ix) 401 - 500 Units	400	-		41.15		41.36		41.36
	(x) 501 - 600 Units	600	-		42.40		42.78		42.78
	(xi) 601 - 700 Units	800	-		43.79		43.92		43.92
	(xii) Above 700 Units	1,000	-		48.84		48.84		48.84
	(b) For Sanctioned load 5 kW & above			Peak	Off-Peak	Peak	Off-Peak	Peak	Off-Peak
	Time of Use	1,000	-	44.44	38.15	48.00	41.68	48.00	41.68
	(c) Pre-Paid Residential Supply Tariff	1,000	-	-	49.98	-	49.98	-	49.98

As per Authority's decision, only protected residential consumers will be given the benefit of one previous slab.
As per Authority's decision, residential life line consumer will not be given any slab benefit.
Under Tariff A-1, there shall be minimum monthly customer charge at the following rates, even if no energy is consumed. For consumers where monthly fixed charges are applicable, no minimum charges shall be applicable on such consumers, even if no energy consumed.

a) Single Phase Connections: Rs. 75/- per consumer per month
b) Three Phase Connections: Rs. 150/- per consumer per month

A-2 GENERAL SUPPLY TARIFF - COMMERCIAL

Tariff Category/Particulars	Fixed Charges (Rs./Cons./M)	Fixed Charges (Rs./kW/M)	Uniform Determined with PYA Variable Charges (Rs./kWh)		GOP Applicable Variable Charges (Rs./kWh) (July to September, 2024)		GOP Applicable Variable Charges (Rs./kWh) (October, 2024 onward)	
(a) For Sanctioned load less than 5 kW	1,000	-		37.99		38.59		38.59
(b) For Sanctioned load 5 kW & above	-	1,250		40.91		40.91		40.91
			Peak	Off-Peak	Peak	Off-Peak	Peak	Off-Peak
(c) Time of Use	-	1,250	45.32	34.52	44.97	36.30	44.97	36.30
(d) Electric Vehicle Charging Station	-	-		42.99		45.55		45.55
(e) Pre-Paid Commercial Supply Tariff	-	1,250		45.01		47.10		47.10

Where fixed charges are applicable Rs./kW/Month, the charges shall be billed based on 25% of sanctioned load or Actual MDI for the month which ever is higher.

A-3 GENERAL SERVICES

Tariff Category/Particulars	Fixed Charges (Rs./Cons./M)	Fixed Charges (Rs./kW/M)	Uniform Determined with PYA Variable Charges (Rs./kWh)	GOP Applicable Variable Charges (Rs./kWh) (July to September, 2024)	GOP Applicable Variable Charges (Rs./kWh) (October, 2024 onward)
(a) General Services	1,000	-	43.97	43.64	43.64
(b) Pre-Paid General Services Supply Tariff	1,000	-	51.12	51.30	51.30

Where fixed charges are applicable Rs./kW/Month, the charges shall be billed based on 25% of sanctioned load or Actual MDI for the month which ever is higher.

B - INDUSTRIAL SUPPLY TARIFF

Tariff Category/Particulars	Fixed Charges (Rs./Cons./M)	Fixed Charges (Rs./kW/M)	Uniform Determined with PYA Variable Charges (Rs./kWh)		GOP Applicable Variable Charges (Rs./kWh) (July to September, 2024)		GOP Applicable Variable Charges (Rs./kWh) (October, 2024 onward)	
B1 Up to 25 kW (at 400/230 Volts)	1,000	-		29.38		31.95		31.95
B2(a) Exceeding 25-500 kW (at 400 Volts)	-	1,250		28.80		31.88		31.88
Time of Use			Peak	Off-Peak	Peak	Off-Peak	Peak	Off-Peak
B1(b) Up to 25 KW	1,000	-	35.29	28.64	37.89	31.20	37.89	31.20
B2(b) Exceeding 25-500 kW (at 400 Volts)	-	1,250	37.34	26.64	37.83	28.56	37.83	28.56
B3 For all loads up to 5000 kW (at 11, 33 kV)	-	1,250	34.86	25.57	37.83	29.39	37.83	29.39
B4 For all loads (at 66, 132 kV & above)	-	1,250	35.95	26.06	37.83	29.11	37.83	29.11
Pre-Paid Industrial Supply Tariff	-	1,250		42.17		44.46		44.46

Where fixed charges are applicable Rs./kW/Month, the charges shall be billed based on 25% of sanctioned load or Actual MDI for the month which ever is higher.

C - SINGLE-POINT SUPPLY

Tariff Category/Particulars	Fixed Charges (Rs./Cons./M)	Fixed Charges (Rs./kW/M)	Uniform Determined with PYA Variable Charges (Rs./kWh)		GOP Applicable Variable Charges (Rs./kWh) (July to September, 2024)		GOP Applicable Variable Charges (Rs./kWh) (October, 2024 onward)	
C1 For supply at 400/230 Volts								
C1(a) Sanctioned load less than 5 kW	2,000	-		44.55		44.55		44.55
C1(b) Sanctioned load 5 kW & up to 500 kW	-	1,250		41.78		41.78		41.78
C2(a) For supply at 11, 33 kV up to and including 5000 kW	-	1,250		40.40		41.72		41.72
C3(a) For supply at 66 kV & above and sanctioned load above 5000 kW	-	1,250		39.96		41.92		41.92
Time of Use			Peak	Off-Peak	Peak	Off-Peak	Peak	Off-Peak
C1(c) For supply at 400/230 Volts 5 kW & up to 500 kW	-	1,250	48.16	38.57	47.47	38.70	47.47	38.70
C2(b) For supply at 11, 33 kV up to and including 5000 kW	-	1,250	47.80	36.36	47.47	37.18	47.47	37.18
C3(b) For supply at 66 kV & above and sanctioned load above 5000 kW	-	1,250	42.86	31.09	47.47	36.91	47.47	36.91
Pre-Paid Bulk Supply Tariff	-	1,250		53.45		54.85		54.85

Where fixed charges are applicable Rs./kW/Month, the charges shall be billed based on 25% of sanctioned load or Actual MDI for the month which ever is higher.

D - AGRICULTURE TARIFF

Tariff Category/Particulars	Fixed Charges (Rs./Cons./M)	Fixed Charges (Rs./kW/M)	Uniform Determined with PYA Variable Charges (Rs./kWh)		GOP Applicable Variable Charges (Rs./kWh) (July to September, 2024)		GOP Applicable Variable Charges (Rs./kWh) (October, 2024 onward)	
D1(a) SCARP less than 5 kW	-	-	41.02		41.02		41.02	
D2(a) Agricultural Tube Wells	-	400	36.61		30.05		30.05	
			Peak	Off-Peak	Peak	Off-Peak	Peak	Off-Peak
D1(b) SCARP 5 kW & above	-	400	44.06	35.84	43.94	35.86	43.94	35.86
D2(b) Agricultural 5 kW & above	-	400	30.72	29.63	30.69	29.85	30.69	29.85
Pre-Paid for Agriculture & SCARP	-	400	33.73		37.36		37.36	

Under this tariff, there shall be minimum monthly charges Rs. 2,000/- per consumer per month, even if no energy is consumed.
Note: The consumers having Sanctioned Load less than 5 kW can opt for TOU metering.

E - TEMPORARY SUPPLY TARIFFS

Tariff Category/Particulars	Fixed Charges (Rs./Cons./M)	Fixed Charges (Rs./kW/M)	Uniform Determined with PYA Variable Charges (Rs./kWh)	GOP Applicable Variable Charges (Rs./kWh) (July to September, 2024)	GOP Applicable Variable Charges (Rs./kWh) (October, 2024 onward)
E1(i) Residential Supply	2,000	-	54.73	59.09	59.09
E1(ii) Commercial Supply	5,000	-	41.36	54.60	54.60
E2 Industrial Supply	5,000	-	32.81	43.40	43.40

F - SEASONAL INDUSTRIAL SUPPLY TARIFF

(125% of relevant Industrial Tariff)

Note: Tariff-F consumers will have the option to convert to regular tariff and vice versa. This option can be exercised at the time of a new connection or at the beginning of the season. Once exercised, the option remains in force for at least one year.

G - PUBLIC LIGHTING

Tariff Category/Particulars	Fixed Charges (Rs./Cons./M)	Fixed Charges (Rs./kW/M)	Uniform Determined with PYA Variable Charges (Rs./kWh)	GOP Applicable Variable Charges (Rs./kWh) (July to September, 2024)	GOP Applicable Variable Charges (Rs./kWh) (October, 2024 onward)
Street Lighting	2,000	-	44.06	44.06	44.06

H - RESIDENTIAL COLONIES ATTACHED TO INDUSTRIAL PREMISES

Tariff Category/Particulars	Fixed Charges (Rs./Cons./M)	Fixed Charges (Rs./kW/M)	Uniform Determined with PYA Variable Charges (Rs./kWh)	GOP Applicable Variable Charges (Rs./kWh) (July to September, 2024)	GOP Applicable Variable Charges (Rs./kWh) (October, 2024 onward)
Residential Colonies attached to Industrial Premises	2,000	-	43.25	43.25	43.25

K - SPECIAL CONTRACTS

Tariff Category/Particulars	Fixed Charges (Rs./Cons./M)	Fixed Charges (Rs./kW/M)	Uniform Determined with PYA Variable Charges (Rs./kWh)		GOP Applicable Variable Charges (Rs./kWh) (July to September, 2024)		GOP Applicable Variable Charges (Rs./kWh) (October, 2024 onward)	
Azad Jammu & Kashmir (AJK)	-	1,250	27.60		27.60		27.60	
			Peak	Off-Peak	Peak	Off-Peak	Peak	Off-Peak
Time of Use	-	1,250	31.12	26.62	30.00	26.88	30.00	26.88
Rawat Lab	2,000	-	35.97		43.40		43.40	

H - RAILWAY TRACTION

Tariff Category/Particulars	Fixed Charges (Rs./Cons./M)	Fixed Charges (Rs./kW/M)	Uniform Determined with PYA Variable Charges (Rs./kWh)	GOP Applicable Variable Charges (Rs./kWh) (July to September, 2024)	GOP Applicable Variable Charges (Rs./kWh) (October, 2024 onward)
Railway Traction	2,000	-	45.19	43.55	43.55

Note: This tariff shall remain applicable for period of One (01) year from the effective date of notification of the instant decision.

Source: NEPRA

Table 90
Schedule of Electricity Tariff of K-Electric Limited

Description	Fixed Charges (Rs./Con./M)	Fixed Charges (Rs./kW/M)	Applicable Uniform Variable Tariff (Rs./kWh)	Applicable Uniform Variable Tariff (Rs./kWh)
	July, 2024 onward		July to September, 2024	October, 2024 onward
A-1 General Supply Tariff - Residential				
Up to 50 Units (Lifeline)	-	-	3.95	3.95
050-100 Units (Lifeline)	-	-	7.74	7.74
001-100 Units (Protected)	-	-	7.74	11.69
101-200 Units (Protected)	-	-	10.06	14.16
001-100 Units	-	-	16.48	23.59
101-200 Units	-	-	22.95	30.07
201-300 Units	-	-	34.26	34.26
301-400 Units	200	-	39.15	39.15
401-500 Units	400	-	41.36	41.36
501-600 Units	600	-	42.78	42.78
601-700 Units	800	-	43.92	43.92
Above 700 Units	1,000	-	48.84	48.84
Time of Use				
Peak	1,000	-	48.00	48.00
Off-Peak		-	41.68	41.68
E-1 (i) Temporary Residential	2,000	-	59.09	59.09
A-2 General Supply Tariff - Commercial				
For sanctioned load less than 5 kW	1,000	-	38.59	38.59
For sanctioned load 5 kW & Above	-	1,250	40.91	40.91
Peak	-	1,250	44.97	44.97
Off-Peak	-		36.30	36.30
E-1 (i) Temporary Commerical	5,000	-	54.60	54.60
Electric Vehicle Charging Station	-	-	45.55	45.55
A-3 General Services	1,000	-	43.64	43.64
B - Industrial Supply Tariff				
B-1 Less than 5 kW/25 kW (at 400/230 volts) - Note	1,000	-	31.95	31.95
Peak	1,000	-	37.89	37.89
Off-Peak		-	31.20	31.20
B-2 5-500 kW/25-500 kW (at 400 Volts) - Note	-	1,250	31.88	31.88
Peak	-	1,250	37.83	37.83
Off-Peak	-		28.56	28.56
B-3 For all loads up to 500 kW (at 11, 33 kV)	-	1,250	32.15	32.15
Peak	-	1,250	37.83	37.83
Off-Peak	-		29.39	29.39
B-4 For all loads (at 66 kV, 132 kV and above)	-	1,250	31.58	31.58
Peak	-	1,250	37.83	37.83
Off-Peak	-		29.11	29.11
B-5 For all loads (at 220 kV & above)				
Peak	-	-	37.83	37.83
Off-Peak	-	1,250	28.28	28.28
E-2 (i) Temporary Industrial	5,000	-	43.40	43.40
C - Bulk Supply Tariff				
C-1 For supply at 400/230 Volts				
a) Sanctioned load less than 5 kW	2,000	-	44.55	44.55
b) Sanctioned load 5 kW and up to 500 kW	-	1,250	41.78	41.78
Peak	-	1,250	47.47	47.47
Off-Peak	-		38.70	38.70
C-2 For supply at 11, 33 kV up to and including 5000 kW	-	1,250	41.72	41.72
Peak	-	1,250	47.47	47.47
Off-Peak	-		37.18	37.18
C-3 For supply at 132 kV and above up to and including 5000 kW	-	1,250	41.92	41.92
Peak	-	1,250	47.47	47.47
Off-Peak	-		36.91	36.91
E-2 (ii) Temporary Bulk Supply				
(a) at 400 Volts	5,000	-	47.21	47.21
(b) at 11 kV	5,000	-	47.21	47.21
D - Agriculture Tariff				
D-1 For all loads	-	400	30.05	30.05
D-2 For all loads - Time of Use				
Peak	-	-	30.69	30.69
Off-Peak	-	400	29.85	29.85
G - Public Lighting (Street Lighting)	2,000	-	44.06	44.06
H - Residential Colonies attached to Industrial Premises	2,000	-	43.25	43.25

Note: The uniform GoP applicable rate proposed for prepaid metering category would also be applicable to K-Electric prepaid consumers.
Where fixed charges are applicable Rs./kW/Month, the charges shall be billed based on 25% of sanctioned load or Actual MDI for the month which ever is higher.

Source: NEPRA

TABLE 91
Monthly Fuel Price Adjustment in respect of all DISCOs and K-Electric
Monthly Fuel Price Adjustment of CPPA-G System (Rs./kWh)

Year	FY 2020-21			FY 2021-22			FY 2022-23			FY 2023-24			FY 2024-25		
	Variation	Ref. Fuel Cost (Rs.)	Variation	Act. Fuel Cost (Rs.)	Ref. Fuel Cost (Rs.)	Variation	Act. Fuel Cost (Rs.)	Ref. Fuel Cost (Rs.)	Variation	Act. Fuel Cost (Rs.)	Ref. Fuel Cost (Rs.)	Variation	Act. Fuel Cost (Rs.)	Ref. Fuel Cost (Rs.)	Variation
July	4.3796	3.5420	0.8376	6.6570	5.2798	1.3771	10.6314	6.2879	4.3435	8.3565	6.8935	1.4630	9.0257	9.3520	-0.3263
August	3.6873	3.2045	0.4828	6.6872	4.7334	1.9539	10.0852	9.8934	0.1918	8.3598	6.6457	1.7141	8.5754	9.3877	-0.8123
September	3.9548	2.8410	1.1138	7.5502	5.0229	2.5272	9.9933	9.9114	0.0819	7.4725	7.0711	0.4014	8.5892	9.8006	-1.2113
October	4.0505	-3.7579	0.2925	9.9179	5.1733	4.7446	8.8492	9.1705	-0.3213	10.9724	7.8938	3.0786	9.2453	10.2752	-1.0299
November	3.5273	-2.4877	0.7696	8.0401	3.7381	4.3020	6.2654	6.0762	0.1892	8.9107	4.7831	4.1276	7.2046	7.8609	-0.6563
December	5.9961	4.4602	1.5359	8.6315	5.5347	3.0968	7.0027	9.3193	-2.3166	9.9702	5.4031	4.5671	9.5142	10.6364	-1.1222
January	6.6530	5.7576	0.8954	12.4614	6.5124	5.9490	11.0320	10.5541	0.4779	14.5456	7.4894	7.0562	10.9943	13.0100	-2.0157
February	4.7830	4.1414	0.6416	9.1046	4.2516	4.8530	7.2114	7.2120	-0.0006	9.3550	4.4337	4.9213	8.2072	8.5276	-0.3204
March	5.5861	6.2295	-0.6434	9.0974	6.2295	2.8678	9.5039	8.7122	0.7917	9.2789	6.4417	2.8372	9.2251	9.2560	-0.0309
April	6.1715	6.6087	-0.4371	10.6009	6.6087	3.9923	9.9950	8.3875	1.6075	8.8239	5.4918	3.3321	8.9229	7.6803	1.2426
May	5.6678	5.9322	-0.2644	13.8363	5.9322	7.9040	9.7320	7.8281	1.9039	9.0377	5.7090	3.3287	7.0462	7.3925	-0.3462
June	5.7414	5.9344	-0.1930	15.8316	5.9344	9.8972	9.3184	7.5084	1.8100	9.7029	7.1403	2.5627	7.6574	8.3341	-0.6767

Monthly Fuel Price Adjustment of K-Electric System (Rs./kWh)

Year	FY 2020-21			FY 2021-22			FY 2022-23			FY 2023-24		
	Act. Fuel Cost (Rs.)	Ref. Fuel Cost (Rs.)	Variation	Act. Fuel Cost (Rs.)	Ref. Fuel Cost (Rs.)	Variation	Act. Fuel Cost (Rs.)	Ref. Fuel Cost (Rs.)	Variation	Act. Fuel Cost (Rs.)	Ref. Fuel Cost (Rs.)	Variation
July	8.6177	7.8921	-0.7478	11.5811	10.8921	0.6890	23.8679	27.9850	-4.1171	17.7058	15.9947	1.7111
August	8.1999	7.8921	0.7526	11.6532	10.8921	0.7611	23.0988	27.9850	-4.8862	16.6555	15.9947	0.6608
September	8.6022	7.8921	0.3078	14.6492	10.8921	3.7571	22.8589	27.9850	-5.1261	17.3893	15.9947	1.3946
October	8.5734	8.6022	0.7101	15.7243	14.6492	1.0751	20.4053	22.8589	-2.4536	20.4888	15.9947	4.4941
November	7.5005	8.6022	-0.0288	13.8902	14.6492	-0.7590	15.4282	22.8589	-7.4307	17.7651	15.9947	1.7704
December	9.1009	8.6022	-0.1017	12.0557	14.6492	-2.5935	12.0605	22.8589	-10.7984	16.7877	15.9947	0.7930
January	10.3514	9.1009	1.2505	15.3337	12.0557	3.2780	13.7718	12.0605	1.7113	18.9643	15.9947	2.9696
February	11.1992	9.1009	2.0983	13.4420	12.0557	1.3863	12.6400	12.0605	0.5795	14.1767	15.9947	-1.8180
March	11.0428	9.1009	1.9419	16.8827	12.0557	4.8269	15.9947	12.0605	3.9342	14.0231	15.9947	-1.9716
April	10.4929	11.0428	-0.5499	22.1545	16.8827	5.2718	15.9475	15.9947	-0.0472	14.3200	15.9916	-1.6716
May	10.0930	11.0428	-0.9498	26.4006	16.8827	9.5180	17.4412	15.9947	1.4465	18.5900	15.9966	2.5934
June	10.8921	11.0428	0.1507	27.9850	16.8827	11.1023	18.3059	15.9947	2.3112	19.1600	15.9912	3.1688

Source: NEPRA

TABLE 92
Detail of Quarterly Adjustments of DISCOs

Quarterly Adjustments Period	Decision Dated	Allowed National Average (Rs./kWh)	Applicability Period (with effect from)
FY 2020-21 (1st & 2nd Quarter)	02-07-2021	0.8966	October, 2021 to September, 2022
FY 2020-21 (3rd Quarter)	30-07-2021	-0.0673	October, 2021 to September, 2022
FY 2020-21 (4th Quarter)	30-12-2021	-0.9908	February, 2022 to April, 2022
FY 2021-22 (1st Quarter)	09-05-2022	0.5715	June, 2022 to August, 2022
FY 2021-22 (2nd Quarter)	16-06-2022	1.5500	July, 2022 to September, 2022
FY 2021-22 (3rd Quarter)	29-07-2022	0.5087	September, 2022 to November, 2022
FY 2021-22 (4th Quarter)	14-10-2022	3.2971	October, 2022 to January, 2023
FY 2022-23 (1st Quarter)	17-01-2023	3.0805	February, 2023 to March, 2023
FY 2022-23 (2nd Quarter)	12-04-2023	0.4689	April, 2023 to June, 2023
FY 2022-23 (3rd Quarter)	04-07-2023	1.2489	July, 2023 to September, 2023
FY 2022-23 (4th Quarter)	22-09-2023	3.2814	October, 2023 to December, 2023
FY 2023-24 (1st Quarter)	20-12-2023	1.1502	January, 2024 to March, 2024
FY 2023-24 (2nd Quarter)	28-03-2024	2.7492	April, 2024 to June, 2024
FY 2023-24 (3rd Quarter)		0.93 and 1.90	(June, 2024 to August, 2024) (for June, 2024 Rs. 1.90/kWh, and for July and August, 2024 Rs. 0.93/kWh)
FY 2023-24 (4th Quarter)	06-09-2024	1.7432	September, 2024 to November, 2024
FY 2024-25 (1st Quarter)	05-12-2024	0.1957	December, 2024
FY 2024-25 (2nd Quarter)	27-03-2025	-1.9004	April, 2025 to June, 2025
FY 2024-25 (3rd Quarter)		-1.5538	May, 2025 to July, 2025
FY 2024-25 (4th Quarter)		-1.8881	August, 2025 to October, 2025

Source: NEPRA

TABLE 93
CPI (General/US), Exchange Rate, KIBOR and LIROR

Quarter	CPI (General)*	CPI (US)	PKR/USD	KIBOR (3 Month) (%)	LIBOR (3 Month) (%)
July, 2020 – September, 2020	269.27	256.39	168.75	7.26	0.30
October, 2020 – December, 2020	136.23	259.92	166.40	7.25	0.23
January, 2021 – March, 2021	141.83	260.23	160.80	7.29	0.24
April, 2021 – June, 2021	143.09	263.01	153.60	7.59	0.19
July, 2021 – September, 2021	145.24	269.20	158.30	7.45	0.16
October, 2021 – December, 2021	147.61	273.57	170.95	7.78	0.16
January, 2022 – March, 2022	158.18	277.95	177.95	10.52	0.34
April, 2022 – June, 2022	160.61	283.72	183.20	11.89	0.34
July, 2022 – September, 2022	165.23	292.30	206.00	15.32	2.94
October, 2022 – December, 2022	187.84	296.17	229.95	15.71	2.94
January, 2023 – March, 2023	195.89	297.71	226.90	17.06	5.14
April, 2023 – June, 2023	211.28	300.84	284.10	22.08	5.14
July, 2023 – September, 2023	227.96	304.13	287.10	22.91	5.545
October, 2023 – December, 2023	239.27	307.03	289.10	22.66	5.657
January, 2024 – March, 2024	253.15	307.05	282.40	21.46	5.593
April, 2024 – June, 2024	260.01	310.33	278.50	21.99	5.56

** From October - December, 2020 quarter NCPI values were used for the indexation purpose. Pakistan Bureau of Statistics has discontinued the publication of CPI for base year 2007-08 with effect from July, 2020 and replaced it with National CPI for new base year 2015-16.*
Source: NEPRA

TABLE 94
CPPA-G Market Operator Fee

Description	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25
Revenue Requirement (Rs. in Million)	468.07	863.67	1,152.00	673.00	-41.00
Average Monthly MDI (MW)	23,693.00	26,535.00	27,588.00	27,288.00	27,102.00
Market Operation Fee (Rs./kW/Month)	1.71	2.71	3.48	2.06	-0.13

Source: NEPRA

ACRONYMS AND ABBREVIATIONS

ADCT	Annual Dependable Capacity Test
AMI	Advanced Metering Infrastructure
AMRS	Automated Meter Reading System
AQTA	Annual Quarterly Tariff Adjustments
AT&C	Aggregate Technical and Commercial
BESS	Battery Energy Storage System
BPC	Bulk Power Consumer
BQTPS	Bin Qasim Thermal Power Station
BTPL	Bahira Town (Pvt.) Limited
CCI	Council of Common Interests
CCOE	Cabinet Committee on Energy
CCPP	Combined Cycle Power Plant
CDP	Common Delivery Point
CMDI	Coincidental Maximum Demand Indicator
COD	Commercial Operation Date
CPI	Consumer Price Index
CPP	Capacity Purchase Price
CPPA-G	Central Power Purchasing Agency (Guarantee) Limited
CSM	Consumer Service Manual
CTBCM	Competitive Trading Bilateral Contract Market
DISCO	Distribution Company
EMO	Economic Merit Order
EPP	Energy Purchase Price
EV	Electric Vehicle
FDI	Foreign Direct Investment
FESCO	Faisalabad Electric Supply Company Limited
FPA	Fuel Price Adjustment
FY	Financial Year
GENCO	Public Sector Generation Company
GEPCO	Gujranwala Electric Power Company Limited
GOP	Government of Pakistan
GWh	Giga Watt per hour
HAZECO	Hazara Electric Supply Company Limited
HDIP	Hydrocarbon Development Institute of Pakistan
HESCO	Hyderabad Electric Supply Company Limited
HPP	Hydropower Project
HSE	Health, Safety and Environment
HVAC	High Voltage Alternating Current
HVDC	High Voltage Direct Current
IAA	Independent Auction Administrator
IBC	Integrated Business Centre
IESCO	Islamabad Electric Supply Company Limited
IGCEP	Indicative Generation Capacity Expansion Plan
IPP	Independent Power Producer
ISMO	Independent System and Market Operator
ISP	Industrial Support Package
KCCPP	Korangi Combined Cycle Power Plant
KE	K-Electric Limited
KIBOR	Karachi Interbank Offered Rate
KPI	Key Performance Indicators
kV	Kilo Volt
KVA	Kilovolt Ampere
kWh	Kilowatt/hours
LD	Liquidated Damages

LESCO	Lahore Electric Supply Company Limited
LIBOR	London Interbank Offered Rate
MEPCO	Multan Electric Power Company Limited
MMBTU	Metric Million British Thermal Unit
MMCFT	Metric Million Cubic Feet
MTOE	Million Tonnes of Oil Equivalent
MVA	Megavolt Ampere
MW	Megawatt
MWh	Megawatt/hour
MYT	Multi-year Tariff
n.a.	Not Available
n.p.	Not Provided
NEECA	National Energy Efficiency and Conservation Authority
NEPRA	National Electric Power Regulatory Authority
NGC	National Grid Company of Pakistan Limited
NPGCL	Northern Power Generation Company Limited
NPMV	Non-Project Missed Volume
O&M	Operation and Maintenance
PAEC	Pakistan Atomic Energy Commission
PEDO	Pakhtunkhwa Energy Development Organization
PESCO	Peshawar Electric Supply Company Limited
PGC	Provincial Grid Company
PIEDMC	Punjab Industrial Estates Development and Management Company
PITC	Power Information Technology Company
PLAC	Partial Load Adjustment Charges
PMLTC	Pak Matiari-Lahore Transmission Company Limited
PPA	Power Purchase Agreement
PPDB	Punjab Power Development Board
PPIB	Private Power and Infrastructure Board
PPMC	Power Planning and Monitoring Company
PYA	Prior Year Adjustment
QESCO	Quetta Electric Supply Company Limited
RE	Renewable Energy
RFO	Residual Furnace Oil
RLNG	Regasified Liquefied Natural Gas
SCADA	Supervisory Control and Data Acquisition
SCARP	Salinity Control and Reclamation Project
SECP	Securities and Exchange Commission of Pakistan
SEPCO	Sukkur Electric Power Company Limited
SEZ	Special Economic Zone
SGTPS	Site Gas Turbine Power Station
SMS	Secured Metering System
SOFR	Secured Overnight Financing Rate
SPA	Special Purpose Agent
SPP	Small Power Producer
SPTL	Special Purpose Transmission Licence
STDC	Sindh Transmission and Dispatch Company Limited
T&D	Transmission and Distribution
TDS	Tariff Differential Subsidy
TESCO	Tribal Area Electricity Supply Company Limited
TIP	Transmission Investment Plan
TRS	Tariff Rationalization Surcharge
TOU	Time of Use
TSEP	Transmission System Expansion Plan
UoSC	Use of System Charges
WAPDA	Water and Power Development Authority
ZRIR	Zero Rated Industrial Rebate

SOURCE OF INFORMATION

The following sources of information have been used in the compilation of this State of the Industry Report 2025:

(i) K-Electric Limited
(ii) All Distribution Companies
(iii) All Independent Power Producers
(iv) Public Sector Generation Companies
(v) Independent System and Market Operator
(vi) Water and Power Development Authority
(vii) Central Power Purchasing Agency (Guarantee) Limited
(viii) National Grid Company of Pakistan Limited
(ix) National Energy Efficiency and Conservation Authority
(x) Hydrocarbon Development Institute of Pakistan
(xi) Energy Department, Government of Balochistan
(xii) Private Power and Infrastructure Board
(xiii) Punjab Power Development Board
(xiv) Others

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Web Base Data

SIR

NEPRA Asaan Approach