

Statement of Objects and Reasons

The document provides background and brief on the Power Sector

It is stated that there is a need to undertake profound measure to revamp the sector with reform initiatives aimed at restructuring and transformation of the Energy Sector including privatization of certain entities under 3P.

In order to achieve the objective of transparent governance, there is a need to strengthen human capital, empower and build confidence amongst decision takers, provide financial autonomy, ensure independence of regulator the provisions and improving sector efficiency by building a competitive environment.

- **Challenges will not evaporate nor can they be ignored.**
 - The facts ailing the power sector are all too well known.
 - They are recognised and need acting upon on priority to set things right under a tight time schedule.
 - Status quo or ostrich approach is not an option anymore.
 - Sector is venerable to shocks due to international events.
 - Large change management projects have to start somewhere.
 - Damned if you do, damned if you don't.

- **Approach for Sectorial Solutions**
 - **Governance, Sector Landscape Change and Structural Changes**
 - **Merge DISCOs and operate under public private public partnership with ownership of Federal, Provincial, Generation Companies, Consumers of the area and listed on PSX**
 - **Reduction in excess T&D and bill recovery losses contributing to escalation of circular debt**
 - **Accountability of DISCO and NTDC management teams**
 - **Capacity building in project management and execution**
 - **Investment to reduce interlink/interconnection constraints**
 - **And increase HVDC utilization**

 - **Policy Measures**
 - **Expiring PPAs extend their contract under "no electricity, no payment" model**
 - **Delay new capacity induction till**
 - **Increase in utilization factor to 60% and as plants operated below full load incurred a cost In FY 2022-23 of Rs. 46.59 bn**
 - **Conversion of imported coal plants to Thar whose expansion be undertaken and capex local funding be by SECMC and its shareholders**
 - **Upfront tariff policy be amended with new PPAs based only on competitive bidding**
 - **Subsidy has to be directed towards target category**
 - **Pay direct to recipient under budget allocation.**
 - **There is to be no cross subsidy and uniform tariff be charged across the country**
 - **"Free units" perk be withdrawn and total remuneration cover it and bill be paid by recipient**

- **Enable 94% domestic consumer using 200 units to service bill**
 - Rs 4-7 per unit relief; cost Rs 50bn in 1QFY25
 - Defaulter PMTs areas will be provided solar panels, AMR, Prepaid Meters installed and bills balanced between summer and winters to facilitate consumer cash flow
 - Reduction in indirect taxes of ~30% of bill by allowing adjustment in tax returns against income tax, sales tax and or % rebate
- **Competitive generation**
- **Deliver Energy mix having**
 - Higher percentage of RE (hydel, wind and solar) followed
 - By nuclear and indigenous gas/coal with
 - Low share of imported gas and coal
- **Port charges reduction**
 - LNG and coal port charges reduction with additional 'one' fee adjusted against circular debt; one time \$100m benefit
- **CTBM be implemented with sincerity to build knowledge, confidence, gain experience with expiring PPAs and build competitive market using PMEX**
 - Develop real two-way "contracts for differences" where the generators get money from the public entity when prices are low, and pay back the difference between spot prices and their agreed price, when spot prices are high. In France and UK, this is providing a natural hedge to power prices and helps keep retail prices down.
- **Pilot project for hydrogen not as a fuel but for producing green ammonia to replace indigenous gas utilization in fertilizer industry**
 - Without any subsidies and as a 3P initiative
- **Operational Steps**

Implement measures to enhance operational efficiency of power plants, minimizing part load operation of power plant to minimize PLAC of Rs 45bn
- **The transmission and distribution system**
 - Capacity be 10% higher than peak demand load

- **Cater for renewables intermittency and navigate transition to a sustainable energy future**
 - **Energy Storage: Storing excess solar energy for evening use i.e pump storage using hydel and battery.**
 - **Grid Flexibility: Enhancing infrastructure for rapid demand changes.**
 - **Demand Response: Strategies to shift electricity use patterns.**
- **Off grid development in rural tehsils to be phased in over 5 years**
 - **39 divisions with 166 districts at an average of 4 to 5 tehsils per district each having 8 to 12 union councils with 10 to 12 wards in each union council**
- **Power Sector Background**
 - Government adopted a policy of unbundling the power sector, which was enshrined in the 1997 NEPRA Act and the 1958 WAPDA Act.
 - The power wing of WAPDA was restructured and decentralized/unbundled into eight distribution, four generation and one transmission company.
 - Pakistan Electric Power Company Limited (PEPCO) is responsible for restructuring and preparation for privatization of generation and distribution companies through Privatization Commission.
 - KESC was privatized in 2005 as a vertically integrated utility.
 - Alternative Energy Development Board (AEDB) was established to oversee the development of alternative energy resources and is now merged with PPIB.
 - State of Industry Report 2019: “Although preparation of short and long-term expansion plans by National Transmission and Despatch Company Limited (NTDC) is one of the main requirements of the Grid Code, this critically important function was completely ignored for the last many years. Presently on NEPRA’s directions, a long-term Indicative Generation Capacity Expansion Plan (IGCEP) is being developed by NTDC.
 - Major generation expansion plans have been formulated by the then WAPDA and now NTDC, with assistance of foreign/local consultants coupled with in-house efforts:
 - National Power Plan (NPP 1994-2018) developed by Canadian Consultant; M/s ACRES International Limited
 - National Power System Expansion Plan (NPSEP 2011-2030) developed by Canadian Consultant; M/s SNC Lavalin

- Least Cost Plan (LCP 2016-2035) developed by Japanese Consultant; M/s International Institute of Electric Power, Ltd. (IIEP)
- Indicative Generation Capacity Expansion Plan (IGCEP 2018-40), IGCEP 2020-47, IGCEP 2021-30, IGCEP 2022-31, IGCEP 2024-34
- And Transmission System Expansion Plan (TSEP) 2024-34 draft by NTDC is first per MoE Year Book 2022-23
- As of June 30, 2023 Pakistan's *installed* capacity stands at 45,885 MW (CPPA-G 42,362 MW), *dependable* generation capacity is 43,749 MW (CPPA-G 40,628 MW and (KE 3,121 MW).
 - This capacity consists of 25,490 MW of thermal generation (GENCOs, IPPs, and SPPs), hydroelectric of 10,635 MW, wind power 1,838 MW, solar energy 530 MW, biomass (bagasse) generating 249 MW, and nuclear power adding 3,620 MW.
 - KE's own thermal generation capacity is 2,816 MW falls short to meet current demand of its system. KE procures electricity: 366 MW from thermal IPPs, 100 MW from solar potential, 139 MW from SPPs/CPPs, and approximately 1,100 MW sourced from the CPPA-G System to bridge the gap.
- Our *generation capability* is 30,574 MW in CPPA-G with peak demand of 23,679MW (6,895 MW surplus); in KE System it is 3,409 MW and 3,654MW, respectively (deficit 245MW).
 - Globally, target for reserve margin, which is the amount of unused available capability of an electric power system (at peak load for a utility system) as a percentage of total capability, is ~20 percent, according to experts.
- According to estimates, in financial year 2022–23, around 15 to 30 percentage was electricity pilferage valued at Rs 380 billion; estimated in FY 2023-24 is up to Rs 520 billion
- The NEPRA Amendment Act, 2018 has also entirely changed the concept of DISCOs' exclusivity to distribute electricity to consumers in their respective service territories.
 - Continuity of those inefficiencies, which were accumulated earlier by DISCOs, cannot be allowed as such, with their new roles under the Amendment Act, 2018.

- Per State of Industry Report 2019
 - “The real dilemma of the sector is that due to continued centralized control at every level, the DISCOs tend to seek shield against any measure, which leads to competition and opening of the sector”.
 - Persisting with this model would only reinforce the failure.
- Therefore, for any recovery of the sector, DISCOs have to be made independent, while total or partial privatization of DISCOs undertaken forthwith.
 - The privatization of a vertically integrated utility (KE), which includes the distribution and supply of electricity, marked a pioneering step in Pakistan’s energy sector.
 - Initially hailed as potential role model for future privatizations, it has encountered challenges from very beginning for reasons including but not limited to ad-hoc arrangements.
 - These circumstances raise questions regarding the efficacy of the privatization endeavor.
 - Regrettably, the anticipated benefits have not been fully realized, posing concerns for all stakeholders, including the national exchequer and the electricity consumers.
 - A thorough reevaluation is imperative to ensure privatization aligned with its intended objectives and to provide substantial relief to all concerned parties.
- In June 2021, the Council of Common Interests approved the National Electricity Policy (NEP) and PPMC was also declared as designated entity to implement the benchmarks envisaged under the NEP
- Power Planning and Monitoring Company replaces PAPCO established in October 2021, and is providing support to the Ministry of Energy (Power Division) in coordination, pertaining to Discos, Transmission & System Operations, Market Operations, Generation and leveraging IT for greater efficiency and sustainability; and on policy, technical and performance monitoring.

Alternate View on Background History

The Rise and Fall of WAPDA

Wapda was a blessing to this Nation

1. Introduction

The Water and Power Development Authority (WAPDA) in Pakistan has faced significant financial challenges over several decades. This report outlines the key reasons for these problems, focusing on government policies, expansion efforts, and financial strategies from the late 1950s to the 1990s.

2. Government Policies and Subsidies (1950s - 1990s)

WAPDA's power sector was mandated to operate on a self-financing basis in 1959, but rates were set below the actual marginal cost due to social and political considerations.

3. Expansion and Debt (1950s - 1990s)

WAPDA undertook extensive expansions of its transmission and distribution networks, financed through loans with high interest rates, hampering the rehabilitation of the power network and the construction of additional power houses.

4. Increased Load and Demand (1959 - 1997)

The load on WAPDA's power system surged from 119 MW to approximately 9,000 MW, and the number of consumers grew from around 300,000 to nearly 9.9 million, requiring substantial investments in infrastructure.

5. Financing and Loans (1950s - 1990s)

WAPDA relied on government-provided funds and high-interest loans from federal and foreign sources, escalating debt servicing costs to about Rs. 23 billion per annum by the 1990s.

6. Private Power Houses (1990s)

The Energy Policy of 1994 encouraged the construction of private power houses, which produced electricity at a significantly higher cost than WAPDA's own power houses.

7. Financial Shortfall (1995-1996)

WAPDA faced a financial shortfall of Rs. 31 billion in 1995-96, primarily due to the high costs associated with private power houses and debt servicing.

8. Analysis

The financial problems of WAPDA stemmed from multiple interrelated factors, including subsidized rates, high-interest loans, expansion without grants, increased operational costs, and inefficient private power houses.

9. Debt and Interest Repayment

The debt and interest rates were serviced through WAPDA's revenues, which came from tariffs charged to consumers, leading to financial shortfalls and increased tariffs.

10. Conclusion

The financial problems of WAPDA resulted from several factors, including government policies, reliance on high-interest loans, the cost of expansion without federal grants, and the inefficiency of private power houses, ultimately borne by consumers.

Recommended Solutions**Increase Utilization Factor by Removal of System Constraints**

1. During FY 2022-23, utilization factor of de-rated thermal electric power generation capacity remained 34.68%. PPA is based on 60%.
 - a. CPPA-G mandate be to achieve 60% in step 1 before any new power plants are allowed to begin or continue construction.
 - b. Improve project development and execution capacity and shift additional resources to improve transmission limitations under TIP to remove technical constraints hindering System Operator's ability to evacuate electricity from efficient power plants and as intermittent RE generation increases
2. During FY 2022-23, system constraints resulted in a loss of Rs. 20.203 billion, which was disallowed and contributed towards accumulation of circular debt.
 - a. Power plants had to be operated on RFO/HSD due to system constraints or shortage of RLNG/Gas. This led to a cost of Rs. 164 billion for the power sector.
 - b. Furthermore, payment obligation on Account of Non-Project Missed Volume (NPMV) due to grid constraints, scheduled maintenance and other potential issues including RE projects during FY 2022-23 was Rs. 10.517 billion, compared to Rs 1.177 billion during FY 2021-22
 - c. PLAC are allowed to power plants under their respective Power Purchase Agreements (PPAs), if plants are operated below full load especially base load power plants at Part load results in lower efficiency and higher generation costs in the monthly FPA.
 - i. In FY 2022-23, an amount of Rs. 46.59 bn has been incurred compared to Rs. 38.20 bn paid during the previous year.
 - ii. In this context, efforts are required and should be made towards operating coal and other efficient and cost-effective thermal.

- iii. Coal the new gold?
 - 1. “ The world’s dirtiest fuel is a disturbingly safe investment.
 - 2. "The Dawn of the New Solar Age", literally every smelter for solar panels has its own dedicated coal plant in China and that not one single panel is possible without carbon (the chemical element), heat, and electricity from coal (produced to over 80% in China) and in 2023 (again), coal's electricity generation increase was double that of solar in India and China... despite their dramatic solar capacity build out
 - 3. Headlines elude to something else that there is no way to make "honest" money with wind and solar driven by their low energy density + intermittency + short lifetime and the resulting high input energy and raw material requirement to make up for the total system to make solar and wind power "useful" for the customer i.e. provide electricity on demand 24/7/365 despite drastic overbuild, short duration energy storage (batteries?), long duration energy storage (hydrogen?) backup power stations (gas or coal?) and more complex and larger network integration and transmission infrastructure
 - 4. So, the coal industry is the new "secret" for investors to make money with as surprising and unpopular as it may be. Jury is out on that
- d. HVDC transmission line established to efficiently transport electric power mainly from the southern region to the central and northern load center is not being fully utilized with impact on Circular Debt due take or pay liability.
 - i. In FY 2022-23, the average utilization of this crucial infrastructure remained at approximately 1,584 MW, 39.6% of its designed capacity of 4,000 MW
- e. The existing interconnection capacity between NTDC and KE, which relies heavily on supplies from the National Grid, is limited to about 1,100 MW.
 - i. KE investment plan proposing the establishment of two 500 kV grid stations at KKI and Dhabeji and augmentation of the 500 kV NKI grid station be expedited

3. NTDC and the System Operator couldn't sufficiently justify to NEPRA the technical constraints despite substantial investment allocated to the company and the fact that cost of transmission line expansion is significantly less as compared to the losses incurred due to non-evacuation,
 - a. Under PPA(s), power dispersal arrangements must be completed within agreed timelines (ranging from sixty to one hundred twenty days before the Scheduled Commercial Operation). In majority cases, NTDC failed to complete these dispersal arrangements within time and budget.
 - b. NTDC couldn't complete the transmission line for power evacuation from the newly commissioned 1,320 MW Thar Coal Block-I Power Generation Company project.
 - c. NTDC interim arrangement compelled curtailment of power from other, cheaper Thar Coal Block-II projects, which was eventually energized late.
4. NEPRA has granted license to Provincial Grid Companies authorized to engage in transmission of electric power within the territorial limits of the Province.
 - a. Sindh one has started developing off take infrastructure for solar projects and connecting with KE. Other Provinces are limited as CPPA-G is not a credit worthy buyer as is KE
 - b. They need to develop off take infrastructure within the timelines specified in PPAs for REs and other generation projects needs as a reliable subcontractor of PPIB
 - c. Human capital and project management skills needed to timely execute transmission and distribution projects needs development.
 - d. Such licenses would promote competition in the transmission sector, generally considered as a monopoly function.

DISCOs

1. 77 years later, electricity sector of Pakistan is still primarily state owned, and power sector model of the country in its present configuration of installed base, energy mix, capacity payments to IPPs, and unchallenged power pilferage is not sustainable. It requires restructuring and in country solution by PPMC, as privatization continues to fail
 - a. Since years, government has been considering privatising public Discos under different modes. It is about time the government finalizes an approach including reviving them under PIDC or PPMC and moving on priority.

- b. The level of power distribution companies' losses and pilferage is not sustainable and requires enforcement of writ, charging actual cost based tariff and giving targeted subsidies to establish RE units in areas with high losses resulting in revenue based load shedding.
 - c. In May 2024, boards of nine power distribution companies, *other than two operating in Sindh with Rs 112 billion losses*, were sacked. The government has attributed the Rs 589 billion losses this fiscal year of all 12 DISCOs, to independent directors
 - d. However, bureaucrats from the energy and finance Ministries also served on these boards, remaining unaffected. They will return as ex-officio members.
 - e. The Government has also decided to enlist the services of the military and intelligence agencies to enhance governance in these power distribution companies, invoking Article 245 of the Constitution and the Anti-Terrorism Act and approved the establishment of the Distribution Companies Support Unit (DSU) to mitigate losses in the future. The first DSU will be set up in the Multan Electric Power Company (MEPCO), as per the decision.
2. Optimization of skills, merger of regional distribution companies (maximum of 2 per Province) followed 5-7years later by formation of newly formed public sector vertical integrating power generating and distribution companies under 3P.

Pricing Optimization and Relief Measures

1. Cancellation of upfront tariff regime policy approved in 2005 and extended in 2007 during Musharraf tenure. Going forward price be determined by competitive bidding
2. Behind circular debt of Rs 5.4 trillion, is inability to recover charges, pass actual cost of generation and transmission or provision of matching funds to cover subsidies, years of mis-governance facilitated by changes of CEOs, BOD, lack of capacity building and with NEPRA target setting for losses and recovery without performance accountability.
3. Increasing demand and increasing conservation with following measures will contribute in reducing capacity payments and possibly imported fuel bill
 - a. Indigenous gas withdrawn from captive power plants, residences and shifted for power generation. Residences be offered electrons and LPG only

- b. In 2023-2024, the indigenization ratio of energy is 74.2% that is expect to increase to 76.5% by 2027 due to inclusion of hydro, wind and solar based power plants.
 - i. There is an overall increase to 87.13% by the year 2034 provided we are able to invest the funds as per IGCEP 2024 that highlights demand and installed capacity of whole country as 37,224 MW and 56,046 MW, respectively by year 2034
- c. -Total NPV required to manage generation infrastructure construction, operations and maintenance in the base case scenario indicates 63.31 billion US\$ NPV investment requirements both in terms of CAPEX and OPEX of electric power generation by year 2034
- d. Endorsement of Clean Air Act with imposition of Green Tax immediately to control emissions and penalize the power plants, which emit excessive CO₂, SO_x and NO_x than permitted under the Act
 - i. Establish CDM process to adjust/net off carbon emissions could offset some of the expenses related to power tariff by providing an alternate revenue source.
- e. Power generation based on imported fuel is planned to be reduced to 13% (with RFO having no contribution at all in the energy mix, whereas imported coal (due contractual binding) and RLNG is contributing just 9% and 4% in the total energy requirements, respectively)
 - i. Increase to 56% (46% of hydropower and 10% of variable renewable energy) vs 6.5% of total current installed base)
 - ii. Share of indigenous fuels stand at 31%, i.e. 9% of local coal, 5% of local gas and 17% of nuclear in the overall energy mix
 - iii. Maximum value of solar generation does not occur when solar production is at its peak needs to be considered
 - iv. Battery vs pump hydel and green hydrogen fuel needs understanding given that all have different costing, subsidy and environmental considerations
 - 1. Most battery technologies are dirty and wasteful.
 - 2. Solar and wind turbines disposal is a challenge
 - 3. "Green hydrogen" throws away 70% of the electricity in production whereas in an electric vehicle only 20% of the electricity is wasted: hydrogen as a fuel is incredibly complex with cost approximately x10 more than electric vehicles.


4. Impact of the investment on consumer-end tariff The power purchase price (PPP) includes (Energy Purchase Price (EPP) fuel and variable O&M (operation and maintenance) costs and Capacity Purchase Price (CPP) capacity charges including the use of service charges, market operator fee, impact of T&D losses, Distribution & Supplier Margin, and Prior Year Adjustment) needs understanding detailed understanding in revised IGCEP/TSEP as percentage of CPP in the overall tariff is an increasing trend.
 - a. In FY 2022, EPP constituted around 60% of the tariff, while CPP accounted for about 40%.
 - b. During FY 2023, the percentage of EPP and CPP was around 50% each, while for FY 2024, it was projected to be around 67% and 33%, respectively.
 - c. The increase in CPP percentage is due to the augmented capacity of power generation plants and the addition of the HVDC line in the system.
 - d. Capacity charges work out as around 65pc of the total projected PPP whereas energy cost is around 35pc in FY25.
5. Average per-unit power purchase price of Discos on a unit-purchased basis — i.e. before the adjustment of allowed transmission and dispatch losses of Discos — capacity charges works out as Rs17.66 per unit.
 - a. Whereas energy charges are Rs9.69 per unit, totaling Rs27.35 per unit for 2024-25 for national average power purchase price of around at Rs27 per unit.
 - b. Note: 2019 June Dollar Rate was Rs 156.7 vs IGCEP 2023-24 is based on Rs. 289.1 (Oct 2023).
 - c. After adding losses and distribution margins, the average tariff goes up to Rs35.50 per unit against Rs27.78 for last year.
 - d. After addition of 18pc **general sales tax**, the average base tariff for next year would jump to Rs42 per unit excluding other taxes, duties and surcharges.
 - e. This figure does not include any adjustments related to monthly fuel and quarterly tariff adjustments
 - f. Real applicable average tariff would now stand between Rs65 and 72 per unit **after inclusion of surcharges, taxes, duties and levies** besides monthly and quarterly adjustments.
 - g. The average national tariff is expected to be even much higher for consumers than the industrial sector, for which the prime

- minister announced Rs10.69 per unit cut, with a negative revenue impact of Rs200bn. Rs 50bn additional subsidy to protected consumers is also planned.
- h. This amount would now stand transferred to domestic, commercial, bulk power consumers, etc, paid from the PSDP reduction or alternate taxation measures.
 - i. Surprisingly export sector of Bangladesh has implemented a 50% cut from July 1, 2024 in cash incentives for exports across 43 products in a country where a substantial 65% of the cash incentives primarily benefit the garments and textiles industry as part of plan to prepare the private sector for LDC graduation in 2026.
 - i. As per the WTO Rules, these cash incentives are considered as Subsidies Contingent upon Export Performance.
 - ii. According to the Agreement on Subsidies and Countervailing Measures (ASCM), no subsidy/cash incentives will be allowed after graduation from the LDC status.
6. Significant impact on consumer price is also due to devaluation.
- a. Rs 183 in 6 years of which Rs 130 was in 3 years
 - i. FY 2017, 1 US\$ was Rs 104.
 - ii. 1 US\$ to 157.66 Rs in 2021,
 - iii. 1 US\$ to 204.85 Rs in 2022
 - iv. 1 US\$ to Rs 287.50 in 2023
7. And lackluster economic growth of 0.29% in FY 2022-23 vs generation planning based on over 5% GDP growth on peak summer demand cannot be forecasted accurately
- a. Gap between installed capacity and projected demand will continue due to changing growth indicators and RE induction, indicating need to better manage the moving target and execution cycle for power plants of 5-7years for thermal and 10+ years of nuclear
 - b. Risk analysis may smoothen the curve to some extent but important is how the planning basis is timely rectified
8. It is also important to shift consumption to nondomestic consumers. Per State of Industry Report 2023, total number of electricity consumers in the country reached to 38,249,950 and consumed 121,852.01 GWh.
- a. Out of which 43.92 % was consumed by 33,115,996 domestic consumers

9. Analysis shows that
 - a. 26.45m ie 69.15% consumers pay below cost of electricity
 - i. 15.5 million “protected consumers” using up to 50 and 100 units per month pay Rs. 3.95 and Rs. 7.74 (lifeline) respectively and Rs 10.06 using up to 200 units per month.
 - ii. 5.95 million “unprotected category” pay Rs 16.48 per unit for the first 100 units
 - iii. Another 5 million consumers fall pay Rs 22.95 for the next 101-200 units and Rs. 27.14 for 201-300 slab
 - iv. The consumers of the next five household categories from 301 units and above pay Rs 32.03 - 42.72 per unit.
 - v. Note: PM on July 10, 2024 is quoted as saying that protected and non protected consumers using up to 200 units are 25m (NTDC and KE) or 94 % of domestic consumers would be given Rs 4-7 per unit relief and will cost Rs 50bn in 1QFY25
 - b. 7.3 % was consumed by 4,095,967 in commercial category, 25.51% was consumed by 397,685 industries,
 - c. And 7.91% was by 377,255 agriculture consumers and 15.38% by other 263,047 consumers
 - i. Note: PM on July 10, 2024 is quoted as saying that Rs 500bn has been lost over 8-10 years on account of tube wells in Baluchistan
 - ii. Shifting 1m tube wells to solar energy starting with 28,000 tube wells in Baluchistan at cost of Rs 55bn.
10. The average national base tariff, including for K-Electric, has now been worked out at Rs35.50 per unit for the next fiscal year, against Rs29.78 per unit for the current year.
 - a. After adding the cost of losses and distribution margins, the average tariff rises to Rs35.50 per unit.
 - b. The real, applicable average national tariff would now be between Rs65 and Rs72 per unit after including surcharges, taxes, duties, and levies, as well as monthly and quarterly adjustments.
 - c. For those surpassing 200-unit limit, consumers must wait 6 months before they can revert to the [protected category](#).
 - d. Charges billed to DISCOs by CPPA-G remain consistently over Rs. 4,000 per kW/month. This highlights that only around 3% to 4% of the fixed costs is accounted for as fixed charges, while the rest is billed based on variable charges depending on

- energy consumption but fixed charge although being additional are not being allowed to be recovered fully
- e. The peak rates remain unchanged.
11. Shut down inefficient power generation by CPPA- G, KE including its IPPs, and GENCOs with EPP+CPP >Rs 45 per unit
- a. Be reviewed, bought out earlier and policy framework developed for them to upgrade and operate in CTBM regime
- i. Implement CTBM by Jan 1, 2025, initiative that will facilitate development of competitive market over a period of time.
- b. Expired PPAs and those expiring not be given any extensions. Their contracts extended under "no electricity, no payment" model
- i. NTDC's 7228 MWs are to be retired (2020MWs of GENCOs, 1300MWs of KAPCO operating due network constraints and 3908 MWs due to PPA expiry including HUBCO) between 2027 and 2034: and 1102 MWs of KE due PPA expiry between 2025 and 2033)
- c. Implement solar repowering initiatives for expensive GENCOs (e.g Lakhra, Jamshoro, Muzaffargarh, Faisalabad, and Multan and encourage others as well through policy incentives and encouraging production of green hydrogen and ammonia.
12. Another measure is to reduce port handling charges at PQ for LNG carriers from 0.75m to 0.25m and additional \$1m per carrier payment given to them for upgrading of channel
- a. The USD ~60m has not been used for channel upgrade and another ~\$30m of port charges should be transferred to reduce Circular Debt.
13. Pakistan electricity consumption has dropped by 7-9pc in 2022-23.
14. To alleviate the impact of heightened capacity charges, it is crucial to boost the growth rate of electricity sales, implementing cost-reduction measures and delivering only electrons and not both electrons and molecules to residence.

15.



EFFECTIVE RATES WITH AND WITHOUT TAXES

PROTECTED	CONSUMERS RS./KWH	CURRENT RATES RS./KWH		JUL-24 EXPECTED RS./KWH		JAN-25 EXPECTED RS./KWH	
		W/O TAXES	W TAXES	W/O TAXES	W TAXES	W/O TAXES	W TAXES
		UP TO 50 UNITS - LIFE LINE	1,031,293	3.95	4.74	3.95	4.74
51-100 UNITS - LIFE LINE	293,330	7.74	9.28	7.74	9.28	7.74	9.28
01-100 UNITS	10,106,443	15.72	19.37	16.03	19.75	11.69	14.54
101-200 UNITS	5,447,475	18.04	22.16	18.50	22.71	14.16	17.50
UNPROTECTED							
01-100 UNITS	5,954,366	24.46	33.22	27.93	37.38	23.59	32.18
101-200 UNITS	2,315,675	30.93	40.98	34.41	45.15	30.07	39.94
201-300 UNITS	2,210,975	35.12	46.00	38.60	50.17	34.26	44.97
301-400 UNITS	594,066	40.01	51.87	44.60	56.73	39.72	51.52
401-500 UNITS	193,731	43.22	55.72	46.58	59.76	42.24	54.55
501-600 UNITS	78,418	44.64	57.42	48.58	61.70	43.87	56.50
601-700 UNITS	36,720	45.78	58.79	49.49	63.24	45.15	58.03
ABOVE 700 UNITS	59,498	50.70	64.69	54.51	69.27	50.17	64.06

Note:-
1- The July 24 expected rates would be changes to reflect changes in QTA and FCAs for Aug 2024 to December 2024.

Government Hikes Electricity Price from July'24; Electricity bills likely to be 20% higher

From July 2024, you may notice an increase in your electricity bills, even if your consumption remains the same as in previous months. This is due to:

A) Base Electricity Tariff Increase:

The Government of Pakistan has increased the base electricity tariff by Rs. 3.95 to Rs. 7.12 per unit in various slabs. This increase is applicable nationwide across all customer categories except lifeline customers.

B) Introduction of Monthly Fixed Charges:

Applicable to customers with unit consumption above 300 units per meter installed. This has been implemented for the first time for residential customers and will be reflected in upcoming bills according to below Schedule of Charges.

Tariff Category	Comparison of Old & New Electricity Tariff				
	Old Tariff (Rs. / Unit)	New Tariff (Rs. / Unit)	Increase (Rs. / Unit)	Increase (%)	Fixed Charges (Rs. / Connection)
PROTECTED					
Up to 50 Units (Lifeline)	3.95	3.95	0	0%	0
51 - 100 Units (Lifeline)	7.74	7.74	0	0%	0
001 - 100 Units	7.74	11.69	3.95	51%	0
101 - 200 Units	10.06	14.16	4.10	41%	0
UNPROTECTED					
001 - 100 Units	16.48	23.59	7.11	43%	0
101 - 200 Units	22.95	30.07	7.12	31%	0
201 - 300 Units	27.14	34.26	7.12	26%	0
301 - 400 Units	32.03	39.15	7.12	22%	200
401 - 500 Units	35.24	41.36	6.12	17%	400
501 - 600 Units	36.66	42.78	6.12	17%	600
601 - 700 Units	37.8	43.92	6.12	16%	800
Above 700 Units	42.72	48.84	6.12	14%	1,000
TOU (PEAK)	41.89	48	6.11	15%	1,000
TOU (OFF - PEAK)	35.57	41.68	6.11	17%	

This Schedule is applicable from 1st July. Start reducing electricity use from today to manage your bill. Please note:

- Electricity prices, like petrol prices, for each customer category are same across Pakistan under the Government's Uniform Tariff Policy. So Lasbela or Lahore, Kohat or Karachi - all will pay the same price.
- Only the Government can set electricity prices and taxes. Power Distribution Companies across Pakistan do not control price-setting process for customers.
- The government remains committed to protecting the most vulnerable customers – lifeline and up to 200 units/month users. These customers will continue to receive significantly subsidized power.

Energy Conservation Tip: One Inverter Fan can save 20 units/month*

*Compared to Conventional Fans

16. Cost of 197 units: $100 \times 7.74 + 97 \times 10.06 = \text{Rs } 1749.82$

Cost of electricity:	1749.82
F.C Surcharge:	636.31
Electricity Duty:	26.25
TV Fee:	35
GST:	410.10
N.J Surcharge:	19.7
Total Estimated Bill:	2877.18

17. Bangladesh

- Energy Cost for 197 kwh is 1272.90 Taka
- Addition to Energy Cost are:
 - Demand Charge: Fixed monthly fee TK 42 for 1 Kwh.
 - VAT (Value Added Tax): 5%.
 - Meter Rent: Monthly for single phase electricity meter TK 40
 - 0.5% Rebate: For prepayment meters.

- c. Total Bill = Energy Cost + Demand Charge + VAT Amount + Meter Rent - 0.5% Rebate Amount is \approx 1412.19 Taka (approximately) or PKRs 3347 Rs 2.37 to 1taka
 - d. Under IMF Program: 5% tariff hike in each months of 1Q2023 for a total of 15%. On 29 February 2024, an average 8.5 per cent increase in average electricity tariffs to minimize subsidy to the sector.
 - e. Total Owed to IPPs: USD 3.5 billion (over Tk 35,000 crore) as of Sept. 2023
 - f. It has 1.65 crore lifeline consumers
 - g. The average price of electricity is Tk. 12 (Rs 28.44) per unit, but selling price is Tk. 7 under a tiered pricing system:
 - o 0-50 units = 4.63 Taka/kWh
 - o 0-75 units = 5.26 Taka/kWh
 - o 76-200 units = 7.20 Taka/kWh
 - o 201-300 units = 7.59 Taka/kWh
 - o 301-400 units = 8.02 Taka/kWh
 - o 401-600 units = 12.67 Taka/kWh
 - o Above 600 units = 14.61 Taka/kWh
18. IGCEP 2023-34 and TSEP be redrafted as an integrated document
- h. Peak demand be based on next 3 years of GDP growth projections of IMF including for 2024-25 and that be taken as basis for 1+ 3 year revolving plan; 5+10 year revolving plan be based on loner term projections
 - i. Tariff (CPP+EPP) projections be made part of the document
 - j. Incorporate only committed projects which have achieved financial close; be revised post early retirement of expensive power plants; increase in utilization factor and to then critically assess need and timing of 24 new hydel power generation projects (7,460 MW) planned between 2024 and 2032
 - k. Furthermore, the decision in respect of induction of new generation capacity shall be made only after a through consideration of all relevant factors and comprehensive analysis of situation of economy, investment quantum and on basis of impact on consumer tariff.
19. And it should account for next major upcoming challenge to be manifested as we move towards higher RE capacity than envisaged 10%.
20. While RE sources significantly contribute to clean electricity generation, they come with their own set of challenges that need to be addressed for their widespread integration into the grid.

21. As of June 30, 2023, the total number of net-metering consumers in the CPPA-G system was 56,427, compared to 37,769 as of June 30, 2022.
 - a. Furthermore, the accumulated generation by net-metering connections during FY 2022-23 amounted to 481,863,365 kWh, in contrast to 150,669,148 kWh during FY 2021-22.
 - b. In the FY 2022-23, a total of 1,596 Net-Metering Licenses were issued, representing cumulative installed capacity of 221.05 MW.
 - c. Net-Metering Import in KE was 102 MW 2022-23 vs 60MW in 2021-22
22. The total installed capacity of renewable energy sources including hydropower, wind, solar, and bagasse/ biomass, in Pakistan's power system exceeds 13,000 MW.
23. Effective energy storage solutions are essential to capture and store surplus energy for later use, especially when demand is high and supply is low.
 - l. Developing cost-effective and efficient energy storage technologies is crucial for maximizing the benefits of intermittent power sources.
 - m. Unlike traditional power plants, intermittent sources cannot provide a continuous output, which means that excess energy generated during periods of high availability may go unused
24. Building a robust, extensive transmission infrastructure to transport the energy from where it is generated to where it is needed and interconnected grid is crucial for efficiently harnessing the potential of intermittent power sources.
 - n. Geographical location of these sources can pose logistical challenges given the land requirement e.g solar power is most abundant in regions with ample sunlight, while wind energy is more prevalent in specific geographic locations.
25. Intelligent tackling of the issues related to variability, energy storage, and transmission infrastructure will be key to realizing the full potential of hydropower, wind, and solar energy in pursuit of a sustainable energy future.
 - a. Unlike conventional power plants that can provide a constant output, the availability of energy from hydropower, wind, and solar depends on weather conditions and water flow. This variability can lead to fluctuations in energy supply, making it challenging to match supply with demand in real-time.
 - b. As a result, grid operators need to implement sophisticated forecasting and balancing mechanisms to ensure a stable and reliable power supply.

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