Past Brothers' Power Sector Has Similar Symptoms-D

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Pakistan's Power Sector Evolution

- 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

Measures Taken, Being Taken or Recommended

- 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 must be undertaken forthwith.
- The privatization of a vertically integrated utility, which includes the distribution and supply of electricity, marked 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 through reevaluation is imperative to ensure privatization aligned with its intended objectives and to provide substantial relief to all concerned parties.
- In order to make timely availability of transmission facilities and for provision of reliable electricity supply, NEPRA has granted licence to the first Provincial Grid Company as foreseen under the Amendment Act.
  - Sindh Transmission and Dispatch Company Limited obtained a licence and is authorized to engage in transmission of electric power within the territorial limits of the Province of Sindh. NEPRA expects that such licenses would promote competition in the transmission sector also, which is generally considered as a monopoly function".

- 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.
- In May 2024, boards of nine power distribution companies, *other than two operating in Sindh with Rs 112 billion losses,* were sacked on Monday.
  - The government has attributed the Rs 589 billion losses this fiscal year of all 12 DISCOs, to independent directors. However, bureaucrats from the energy and finance Ministries also served on these boards, remaining unaffected. They will return as ex-officio members.
- The Government 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.

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Recommendations of State of Industry Report 2023 by NEPRA

Generation

(a) Implementation of Least-Cost Planning through IGCEP: Implement the already approved IGCEP to ensure that power generation projects are selected based on their cost-effectiveness and alignment with long-term energy needs. The Plan also needs to be monitored and updated at regular interval to accommodate changes.

(b) DISCOs Procurement Aligned with Power Acquisition Programs: Align the procurement strategies of DISCOs with their established Power Acquisition Programs, ensuring a coordinated approach to meet demand while minimizing costs.

(c) Retirement of Inefficient Public/Private Sector Generation Plants: Strategically phase out outdated and inefficient generation facilities, both in the public and private sectors to minimize the burden of capacity payments and to ensure operation of efficient plant only.

(d) Shifting Generation Mix towards Renewable and Indigenous Sources: Emphasize the transition towards utilizing renewable energy sources and indigenous fuels, reducing dependence on imported energy and enhancing sustainability.

(e) Optimize Capacity Utilization: Maximize the utilization of existing efficient power generation capacities, ensuring that plants operate at their full potential to meet demand efficiently.

(f) Effective Fuel Supply Chain Planning, Sourcing, and Management: Develop robust plans for sourcing and managing fuel supplies to power plants, ensuring a reliable and consistent flow of fuel to support uninterrupted operations.

(g) Timely Payments by CPPA-G to IPPs: Ensure that payments to IPPs are made promptly by CPPA-G, maintaining financial stability and fostering investor confidence in the power sector. This is also necessary to avoid interest on late payment.

(h) Prioritize Hydel Projects: Give priority to the development of HPPs, provided it is cost- effective, and leveraging Pakistan's abundant water resources for sustainable and reliable electricity generation.

(i) Solar Repowering of Expensive GENCOs: Implement solar repowering initiatives for costly GENCOs such as Lakhra, Jamshoro, Muzaffargarh, Faisalabad, and Multan, to enhance efficiency and reduce operational expenses.

(j) Off-Grid Solutions for Rural Electrification: Introduce off-grid solutions to electrify remote rural areas, enabling access to reliable and sustainable electricity for underserved communities.

(k) Promote Bilateral Trade through CTBCM Regime: Facilitate bilateral trade agreements between power buyers and sellers through the CTBCM regime, enhancing market efficiency and stability.

(l) Foster Net-Metering and Distributed Energy Solutions: Encourage the adoption of net-metering and decentralized energy solutions, enabling consumers to generate their own electricity and contribute to the grid, reducing overall demand.

(m) Enhance Thar Coal Utilization (including conversion from imported to local coal): Implement measures to optimize the utilization of Thar Coal, including transitioning from imported coal to locally sourced coal, reducing costs and enhancing energy security.

(n) Efficient Power Plant Operation to Minimize PLAC: Implement measures to enhance the operational efficiency of power plants, minimizing part load operation of power plant to minimize PLAC and maximize cost-effectiveness.

Transmission

(a) Implementation of Constraints Removal Schemes on a Fast Track Basis: Expedite the execution of schemes aimed at removing constraints in the transmission system, ensuring a swift resolution of bottlenecks.

(b) Develop a Comprehensive IGCEP/TSEP (Integrated System Planning): Establish a robust and comprehensive IGCEP/TSEP to guide coordinated development and growth of both generation and transmission capacities.

(c) Ensure Timely and Budget-Adherent Project Delivery as per Approved TIP: Enforce strict adherence to approved TIPs, ensuring that projects are completed on schedule and within allocated budgets.

(d) Enhance Short-Term and Medium-Term Forecasting for Efficient Dispatch by NPCC: Strengthen forecasting capabilities for short-term and medium-term periods to facilitate more precise scheduling and dispatch of electricity, coordinated by the NPCC.

(e) Augment Interconnection Capacity between KE and NTDC Systems for Unconstrained Power Flow and System Stability: Increase the capacity for interconnection between KE and NTDC systems to facilitate seamless power transfer and ensure system stability.

(f) Facilitate Active Participation and Engagement of Provincial Grid Companies: Encourage and facilitate the involvement of PGCs in the planning and operation of the transmission system, fostering a collaborative approach to grid management.

(g) Expand the Number of Regional Control Centers for Enhanced System Operation Control: Increase the number of regional control centers to enhance oversight and control of system operations, allowing for more effective response to dynamic grid conditions.

(h) Streamline Procurement Processes for Swift Project Completion: Simplify and expedite the procurement procedures to prevent delays in the completion of transmission projects, ensuring a timely and efficient implementation.

(i) Swift Implementation of SCADA and Other System Enhancement Tools: Rapidly deploy SCADA systems and other advanced tools to improve real-time monitoring and control of the transmission network.

(j) Secure Provincial Support for Right-of-Way (ROW) Issues: Collaborate with provincial authorities to address ROW issues, ensuring unimpeded access for the construction and maintenance of transmission infrastructure.

(k) Encourage Private Sector Participation in Investment through BOOT Arrangements: Promote private sector investment in the transmission sector through BOOT arrangements, fostering innovation and efficiency in infrastructure development.

Distribution

(a) Privatization of DISCOs through Public-Private Partnerships (PPP): Explore opportunities for private sector involvement in DISCOs through well-structured partnerships, which can lead to enhanced efficiency and service delivery.

(b) Horizontal Restructuring of DISCOs into Smaller Units: Consider dividing large DISCOs into smaller, more manageable units to increase operational efficiency and accountability.

(c) Discontinuation of AT&C-based Load-Shedding through Technology Adoption: Replace traditional AT&C-based load-shedding with advanced technology solutions to ensure uninterrupted power supply.

(d) Grant Autonomy to DISCOs for Improved Governance and Performance: Provide DISCOs with greater autonomy to enhance their decision-making capabilities, thereby fostering improved governance and operational performance.

(e) Customer-Centric Approach through Established Facilitation Centers: Establish customer facilitation centers to ensure a seamless, customer-oriented approach, addressing queries and concerns promptly.

(f) Timely Provision of Connections for Effective Capacity Utilization: Expedite the process of providing new connections to fully utilize the installed capacity and improve overall system performance.

(g) Timely Subsidy Payments by the Federal Government to Ensure Financial Stability: Ensure prompt disbursement of subsidies by the Federal Government to maintain liquidity and financial stability in the power sector.

(h) Technology Investment and Governance for Enhanced Recoveries and Loss Reduction: Invest in advanced technology and strengthen overall governance to improve revenue recoveries and reduce losses.

(i) Outsourcing of High Loss Feeders to the Private Sector: Consider outsourcing the management of high loss feeders to the private sector to bring in specialized expertise and drive efficiency.

(j) Pilot Projects for Outsourcing Meter Reading and Revenue Collection: Initiate pilot projects to outsource meter reading and revenue collection processes, potentially increasing efficiency and accuracy.

(k) Timely Deployment of AMI and AMR: Implement AMI and AMR technologies at PMT level, along with the use of ABC cables, in alignment with investment plans.

(l) Installation of Pre-paid Meters for Enhanced Revenue Collection and Theft Prevention: Introduce pre-paid metering systems within DISCOs to enhance revenue collection and deter electricity theft.

(m) Encourage Industries to Operate during Off-Peak Hours: Promote industrial operations during off-peak hours to alleviate demand peaks and encourage industries with captive power to connect with the grid.

(n) Capacity Building of DISCOs, Especially MIRAD Professionals, for Sustainability: Prioritize capacity building within DISCOs, with special focus on professionals in Market Implementation & Regulatory Affairs Department (MIRAD), to ensure long-term sustainability.

(o) Review and Modify Tariff Categories to Introduce Seasonal Tariffs for Optimal Capacity Utilization: Evaluate tariff structures and introduce seasonal tariffs to encourage better utilization of installed capacity.

(p) Facilitate Special Economic Zones (SEZs) to Boost Demand: Provide necessary support to SEZs to spur economic activities and increase electricity demand.

(q) Promote Solarization of Agricultural Tube-Wells: Encourage the adoption of solar energy for powering agricultural tube-wells, reducing reliance on conventional grid-based power.

(r) Introduce Demand Side Management for Efficient Peak Demand Handling: Implement demand side management strategies to effectively manage peak electricity demands and reduce strain on the grid.

(s) Enhance Planning Cycle, Demand Forecasting, and Investment Execution for DISCOs: Strengthen the planning cycle, improve demand forecasting, and ensure timely execution of investment plans to support effective power acquisition and distribution.

Summary

- These recommendations per NEPRA, if implemented, can lead to significant improvement in the Generation, Transmission and Distribution sector of Pakistan's electric power system, enhancing reliability, efficiency, and customer satisfaction.
- They address critical aspects of governance, technology adoption, customer- centricity, and financial stability.