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## Requisite Power Sector Decisions

The performance of the most capital-intensive sector of the country considered as the backbone of the economy leaves much to desire.

In 1947 Pakistan had installed generating capacity of 60MW increased to 7000 MW in 1991.

WAPDA established as an Integrated Utility in 1959, took control of KESC in 1952 till it was privatized in 2006.

Following goals of 1992 WAPDA's Strategic Restructuring have not been met todate:

- Enhance capital formation,
- Improve efficiency and reconcile the prices.
- Introduction of competition to the power sector with the passage of time, by providing the greatest possible role through privatization

32 years later, excluding NEPRA, we have grown from one firm (WAPDA) to 21 after (DISCOs (12 including KE), CPPAG, NTDC, PPMC, PITC, GENCOs (4) and PEPCO).

And CTBCM mandated to NTDC in 2004 and to CPPAG in 2015 and its approval in November 2020 awaits judgement of NEPRA after hearing on its Test Run Report in July 2024. Furthermore, debate on privatization is still in progress.

Pakistan need for a 7-9% GDP growth requires accepting our decades of mismanagement, learning from it and undertaking an aggressive reform battle.

That requires Ease of Doing business, encouragement of FDI, and Competitive market approach without GOP running businesses has to become norm, necessitating immediately

- *Execution and roadmap for Deregulation of energy (Generation, Transmission, Distribution and Retail in the power, fuel and gas sectorial) is an essential action,*
- *Building a strong regulatory environment*
- *Undertaking changes post 18<sup>th</sup> amendment*
- *Ensuring a competitive environment and working out challenges in way of expeditious implementation*
- *Ensuring Transparency, Advocacy and Continuous Improvement by recalling that Carl Lewis in the '80s and '90s had a record-breaking 100m*

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time of 9.86 sec. In Olympic 2024, Oblique Seville from Jamaica matched that time and came in last. Success is not *Static but Evolves* and what was amazing yesterday is baseline today. Learn from the past, always aim higher, keep pushing boundaries and learn new methods to stay ahead

Currently, there is no single body responsible for overseeing strategic planning and design of the country's electricity, fuel and gas networks.

Formation of an independent National Energy System Operator will fill this gap – breaking down the silos which currently exist between the planning of electricity and gas systems and independent oversight for the design of all Pakistan's energy networks.

Electricity, oil and gas network planning be brought under its roof to support the clean energy transition, accelerating government's clean power mission of 2030, facilitating our energy security with regional play, keep energy bills down in the long term.

It will take a cross-sector approach to planning the country's energy system in the best interests of the public - looking across electricity, gas, oil and hydrogen, as well as renewable generation, storage and other emerging technologies like carbon capture usage and storage

This independent organization will map out the country's future energy networks – helping both the government, MoE and the combined Regulator-formed by the merger of OGRA and NEPRA- make informed decisions.

PPMC be that Nimble Organization that Reinvents the sector with Disruptive Measures and In Box Solutions builds on the National Energy Plan and

- Builds Capacity, creates culture of Delegation with Authority, instills Ownership, ensures Financial powers, undertakes efficient Processes and undertakes Back Office synergy in the power companies
- Delivers People Customer Service focused integrated (1+3 and 5+10 year) revolving plans ingrained on Data and Financial Analysis of business cases that increase revenue streams, create efficiency, enhance productivity and conservation
- Undertaking Mergers, Vertical Integration, expediting 3P, doing away with Rules of Business Impediments and improving Processes in redefined firm
- Having strong Project Management capability to build credence with DFIs

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Our key reports need to consider and be based on the following

**IGCEP** by NTDC should now also provide a network blueprint for the country, mapping the demand and optimal locations for offshore and onshore transmission infrastructure to support a decarbonised energy grid. This advice will also cover how to spread new energy projects across the country in a way that will reduce the costs in transporting power to homes and businesses, which could in turn bring down bills for consumers.

**TSEP** by NTDC would need to set out a coordinated approach for onshore and offshore energy infrastructure to help cut grid connection waiting times and provide cost-effective energy generation. Also work at a local level, with plans to deploy regional energy system plans across the country. The role is to work with local authorities and energy distribution networks to improve understanding of regional infrastructure needs.

Both documents need to build and advise on how future energy demand and supply could be met by making changes to infrastructure, technology, innovation and consumer behavior in line with net zero targets in form of a **Future Energy Scenarios** report by studying trends, IEEE reports reviewing developments with the likes of Electric Reliability Council of Texas, Inc. (ERCOT which supplies power to more than 25 million Texas customers and represents 90 percent of the state's electric load, the California Independent System Operator (CASIO) that oversees the operation of California's bulk electric power system, transmission lines, and electricity market generated and transmitted by its member utilities with input from **PITC** regarding emerging Smart Metering technologies being first step towards creating a Smart Grid.

All need to keep on learning for ensuring capacity building by reviewing and studying the many methodologies that have been tested and implemented with AI techniques being one having gained much recognition to deal with uncertainty around wind and solar which adds to numerous problems with complex interconnected power systems.

Furthermore, building knowledge of Internet of Things and the 4th industrial revolution based on Cyber-Physical Systems that is expected to monitor, analyze and automate business processes, transforming production and logistic processes into smart factory environments where big data capabilities, cloud services and smart predictive decision support tools are to be used to increase productivity and efficiency.

This evolution driven mainly by emergence of distributed energy resources (DERs) to satisfy societal concerns regarding the utilization of renewable energies and reduction of greenhouse emissions as well as the introduction of a plethora of new communications, control, automation and power electronics technologies and

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solutions that have emerged as a consequence of computing power and are enabling the long pursued objective of end-to-end real-time system awareness and operation, covering generation, transmission, and distribution systems as well as the grid edge.

Digital technologies are thus set to play a key role in the transition to more secure and sustainable energy systems, fostering greater connectivity, efficiency, reliability and emissions reductions. However, the pace of digitalisation will depend heavily on our energy sector's ability to build a workforce with the right skills and requires stronger and more cohesive digital hiring strategies and training efforts.

CPPAG should also produce a 6 monthly report on progress in implementation of **CTBCM** for evolving a competitive environment, day ahead trading including challenges faced and monitoring implementation timeline.

**State of Industry Report** of NEPRA is to capture the outcomes of each of these deliberated reports and accordingly update and steward National Electricity Plan

Capacity building requires further learning from likes of European Network of Transmission System Operators, represents 40 electricity transmission system operators from 36 countries across Europe, thus extending beyond EU borders with mandates aims at further liberalising the gas and electricity markets in the EU.

Similarly, European Network of Transmission System Operators for Gas responsible for a number of regulatory tasks on behalf of Europe's gas transmission system operators whose role is to facilitate and enhance cooperation between national TSOs across 26 European countries, in order to ensure the development and coordinated operation of a pan-European gas transmission network that is capable of meeting Europe's current and future needs. In doing so, it contributes to the completion of the internal market for gas, help stimulate cross-border trade and access, and increase the interoperability of existing regional transmission systems to further open up the gas and electricity markets in the European Union.

And seek UK specialist support for meeting exposure to climate hazards

There is no *Magic Wand* for implementing immediate solutions in a sector venerable to shocks due to int'l events having profound impact on local business and consumer.

Yet maintaining *status quo* is no longer an option and the sooner we change course, the better we will become at decision taking and looking beyond the horizon.

As a nation, we also need to hold stead to measures taken, appreciate that *turnaround requires time, patience, and endurance* and not *continue* with a hopium narrative including appreciation that homegrown change management is a must

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which needs to continue with changes along the way.

Perseverance Commands Success