



PAKISTAN'S ENERGY MESS

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CONTEXT

Energy is the backbone of civilization and development. However, in Pakistan, the energy sector is not just facing challenges; it is in a deep crisis. This crisis is a complex web of perpetual circular debt, burdensome capacity payments, ill-conceived IPP contracts, and outdated tariff design. The situation is further exacerbated by persistent power outages, unreliable supplies, rising tariffs, over-reliance on non-renewable energy sources, import dependency, and environmental degradation.

Pakistan's per capita energy consumption is significantly below world standards, and inefficiency in energy use is high. Tariff design allows for subsidies, but the fiscal space is limited to finance those subsidies. The legal and regulatory framework governing the sector is fragile. The gravity of this crisis cannot be overstated.

Behind all the mess is decades of mismanagement, overcentralized, and misguided decision-making. Above all, it is the non-realization of past mistakes and repetition of the same. Unfortunately, the poor consumers are bearing the brunt of these systemic failures.

The power sector's circular debt, which began in 2006 at III billion, has ballooned to PKR 2.6 trillion, indicating a poorly managed financial system. Regrettably, decision-makers tend to view it solely as a theft issue. Electricity theft is a problem, but it's not the sole cause of this financial mess. Theft is only possible with the connivance of the administrative staff. Maladministration often leads to overbilling consumers to cover up theft and low recoveries. DISCOs' efficiency is primarily influenced by the management of these companies. Their administrative and financial management is centralized at the Ministry level.

Electricity demand has now started declining, further adversely impacting DISCOs' financials. Instead of focusing on their inefficient practices, DISCOs are blaming this on the increasing shift of consumers towards distributed generation (roof-top solar)—net metering policy. They ignore that last year, the contribution of net metering was hardly 3TWh, whereas the demand shrunk by close to 20TWh. The reluctance to acknowledge the impact of commercial load shedding (in loss-making areas) on the decrease in demand is a significant oversight. Many parts of the country still experience load-shedding for several hours, driving consumers away from the grid.

The issue of fairness is being raised without substantial evidence. It is argued that poor consumers without a net-metering facility are subsidizing wealthy consumers with net-metering. While this may be a concern in the future, last year the electricity exported to the grid by net-metering consumers accounted for only 0.14% of the total electricity procured by DISCOs.

Instead of addressing inefficiencies and supporting poorly managed DISCOs, the decision to revise net-metering has shocked 0.11 million customers (and adding). Many middle-class consumers have invested their savings in solar PV to reduce their utility bills. The decrease in roof-top solar costs, along with the substantial increase in electricity tariffs over a year, contributes to increasing net-metering consumers.

A significant contributor to the financial mess is the underutilization of expensive installed generation capacity for which capacity payments have to be made, whether the capacity is used or not. The lack of long-term vision/ planning and focus on short-term fixes kept us adding generation capacity without

complementing it with the transmission infrastructure to evacuate power.

Whatever expansion in the transmission infrastructure is made is mostly unplanned. The underutilization of newly developed transmission infrastructure has increased the capacity payment burden. For example, in 2021, an 886 km HVDC transmission line with a 4,000 MW capacity was constructed with a take-or-pay contract but is significantly underutilized (only 39.6%).

Throughout the years, sector managers have repeatedly failed to develop a comprehensive and sustainable energy policy that meets the population's needs while ignoring sustainability and the country's macroeconomic environment.

The focus has been on more addition rather than on efficiency. Many public-sector power plants (GENCOs) built in the early 1980s and private-sector plants built in the late 1990s operate at lower efficiency levels, sometimes as low as 30% or even less. These plants are economically unviable and should have been retired. However, these inefficient plants are still in the system and are eligible for capacity payments. Some Independent Power Producers (IPPs) contracts have been renewed despite their low efficiency.

The government's effort to enter into contracts with Solar IPPs reveals a lack of coherence in renewable energy policies. If these efforts succeed, the capacity payment burden will increase even further. The issue related to capacity payments is somewhat linked to inaccurate demand projections. Pakistan has an installed capacity of 45,000 MW, while the highest demand in the summer has reportedly peaked at 30,000 MW. The winter demand is at most 17,000 MW. The overestimated demand and underutilized capacity are due to a poorly managed policy framework. Additionally, no efforts are being made to balance summer and winter demand through innovative seasonal tariffs.

The link to the sector's financial challenges can also be found in the tariff design—not only is there cross-subsidy across sectors and domestic consumer categories, but some distribution companies (DISCOs) are also cross-subsidizing others. The government pays subsidies to maintain uniform tariffs across all distribution companies. In FY2023, out of the PKR 870 billion allocated to the power sector, about 61% was allocated to the inter-DISCO tariff differential. Additionally, the consumer-end tariff is cluttered with taxes and surcharges, increasing the consumer's financial burden and discouraging them from paying bills on time.

The current design of electricity tariffs is not a priority for decision-makers. Significant cross-subsidies across sectors are distorting electricity demand. The industry is moving away from the grid towards captive generation, now complemented by the increasing use of renewable power plants. Furthermore, it is pertinent to mention that many large factories (textile) are forced to move

towards energy efficiency practices and solar adoption to offset the impact of rising electricity tariffs and the potential impact of the Carbon Border Adjustment Mechanism (CBAM).

GOVERNANCE REFORMS

The governance structure within the power sector is responsible for the mess that has multiplied over the years. The Ministry of Energy (Power Division), with the support of consultants/ donors, is responsible for formulating policies and strategies across the power supply chain—generation, transmission, and distribution. The National Electric Power Regulatory Authority (NEPRA) oversees tariffs, licensing, and ensuring compliance with regulatory standards, but it lacks the necessary powers and capacity.

Pakistan Institute of Development Economics (PIDE) research strongly advocates for depoliticizing boards of entities such as NTDC and DISCOs. Only by ensuring that these boards consist of skilled professionals capable of making impartial decisions and appointing competent management can governance and policy implementation be significantly enhanced.

DISCOs need to shift their focus towards developing robust business models, enhancing their efficiencies, and improving their governance and management practices. This transformation can only be achieved when DISCOs are granted financial and administrative independence, and decision-making power is decentralized at the company level. Addressing the maladministration and inefficiencies that currently plague the sector is a crucial step towards sustainable progress and restoring trust and integrity within the sector.

Another critical aspect involves clarifying the Ministry of Energy's role to ensure only the effective oversight of the power sector and not intervention in company affairs. This clarification would streamline decision-making processes and enhance accountability, leading to more efficient operations. Furthermore, prioritizing the commercialization of power companies over privatization can lead to operational efficiency gains while retaining public assets.

Establishing an independent Power Commission composed of experts for three to five years with a target to clean up the mess can be a promising step. This commission with powers can facilitate better coordination and management across generation, transmission, and distribution, optimizing the overall energy infrastructure and paving the way for a more efficient power sector. An effective legal and regulatory setup is crucial.

TARIFF REFORMS

Revising the tariff design to enhance efficiency is crucial. Tariffs should accurately reflect the actual supply cost to all consumer categories and geographical markets. Redirecting subsidies through programs like the Benazir Income Support Program (BISP) can ensure that assistance reaches those most in need. This will reduce the overall subsidy burden on the government and instill a sense of fiscal discipline, reassuring the stakeholders about the power sector's financial sustainability. Promoting winter electricity consumption through innovative seasonal tariffs can reduce the capacity payments burden and lessen gas resource consumption.

TECHNOLOGY ADOPTION

Implementing automated metering infrastructure (AMI), which includes pay-as-you-go meters, can significantly improve billing accuracy, reduce commercial losses, enhance revenue collection, and prevent the misuse of net metering incentives. Similarly, promoting off-grid solutions for remote areas can provide reliable electricity, lessen the burden on the national grid, and offer electricity access to 26% of the population currently not connected to the grid. However, these initiatives should be pursued without the influence and support of donors, as this is not sustainable.

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