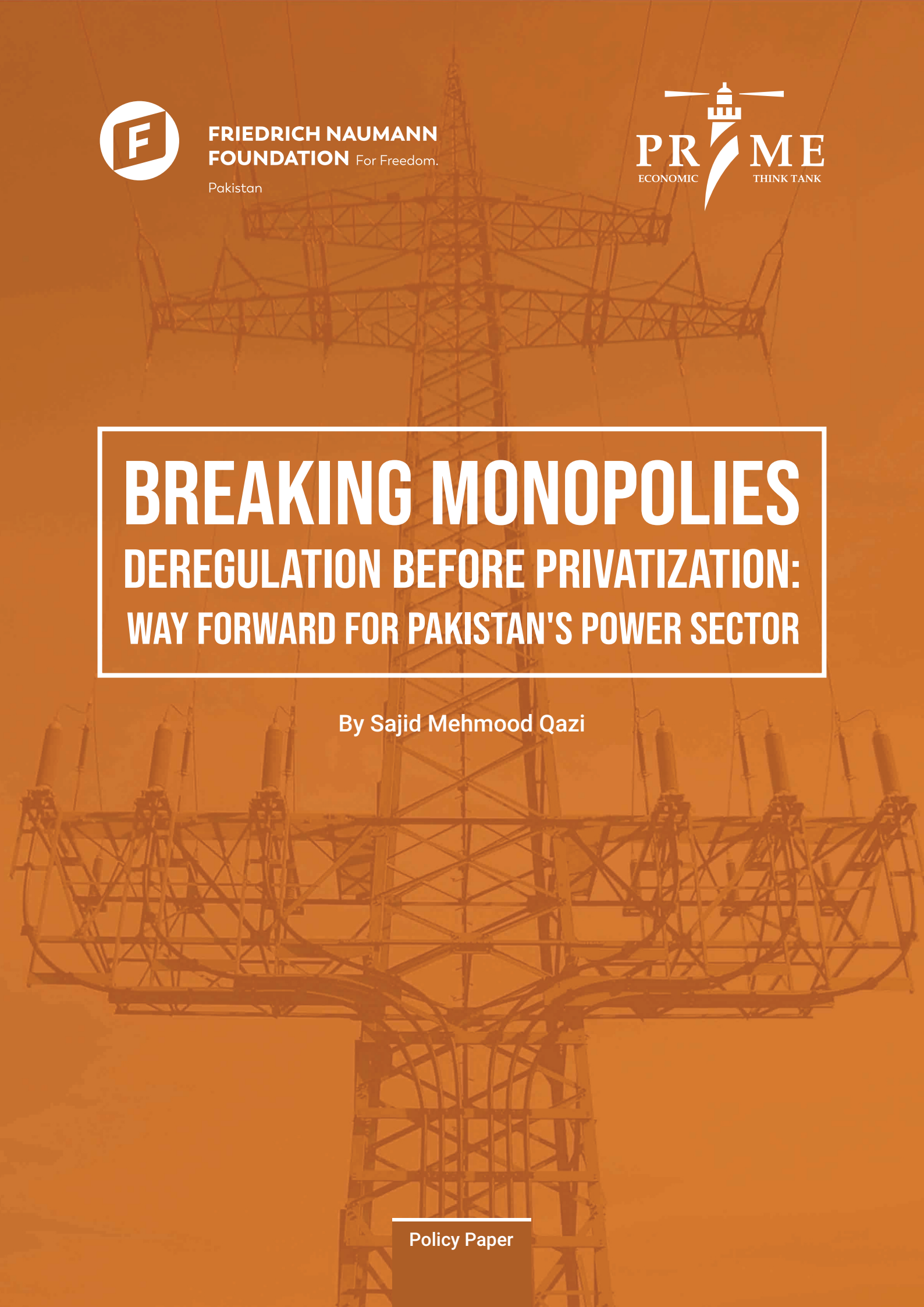

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# BREAKING MONOPOLIES

## DEREGULATION BEFORE PRIVATIZATION: WAY FORWARD FOR PAKISTAN'S POWER SECTOR

By Sajid Mehmood Qazi

Policy Paper

**Publisher**
Friedrich Naumann Foundation for Freedom
Post Box 1733
Islamabad 44000 – Pakistan.
pakistan@freiheit.org | www.freiheit.org/pakistan @FNFPakistan

**Author**
Sajid Mehmood Qazi
Sajid Mehmood Qazi, a seasoned civil servant with nearly 30 years of experience, specializes in governance and regulatory challenges in Pakistan's energy and finance sectors. Currently the Additional Secretary in the Revenue Division, he has held leadership roles in the Petroleum and Finance Divisions and Pakistan Mineral Development Corporation. A Chevening Scholar with an LL.M. in Law and Development from the University of Warwick, Mr. Qazi has extensive expertise in corporate governance, energy economics, and public administration.

**Research Assistant**
Hafsa Saeed
Hafsa Saeed is a Data Analyst at PRIME, holding a Master's degree in Business Analytics from FAST NU, Islamabad and a BS degree in Economics & Finance from International Islamic University, Islamabad. At PRIME, she contributes to a range of research projects, reports, and articles, with a focus on data analysis, research, and strategy.

**Partner**
Policy Research Institute of Market Economy (PRIME)
**Phone:** +92 (51) 8 31 43 38
**Website:** https://primeinstitute.org
**Email:** info@primeinstitute.org

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# ABSTRACT

This report argues that deregulation must precede privatization in Pakistan's power sector to avoid replacing public monopolies with private ones, which would perpetuate inefficiencies and poor service outcomes. Pakistan's current single-buyer model restricts competition, driving up costs and operational challenges.

Drawing insights from global cases such as the successes of the UK and Chile and the failures of California and Mexico, as well as India's energy market transformation, the report illustrates that deregulation can drive market efficiency, reduce costs, and enhance service quality.

Pakistan's own experience in deregulating its telecommunications sector further highlights the value of a regulatory framework that supports competition and attracts investment. A phased roadmap is proposed for the privatization of Distribution Companies (DISCOs), recommending the creation of competitive wholesale and retail markets, tariff deregulation, and open access to transmission networks, with the National Electric Power Regulatory Authority (NEPRA) and other regulatory bodies playing key roles.

The report ultimately advocates a comprehensive deregulation strategy to ensure privatization delivers efficiency gains, cost reductions, and service improvements, aligning Pakistan's power sector reforms with global best practices.

# INTRODUCTION

## 1.1 Background and Context

The privatization of public utilities has been a key component of economic reforms globally, aimed at enhancing efficiency, reducing fiscal burdens, and improving service delivery through market mechanisms. In Pakistan, the power sector has long been marred by flawed policy choices, inefficiencies, financial losses, and service delivery challenges, primarily due to outdated infrastructure, mismanagement, and a lack of competition. The government's control over the power sector, characterized by a single-buyer market model where only the government is allowed to purchase and sell electricity, has further compounded these issues. This monopolistic framework has stifled competition, limited private sector participation, and led to high costs and poor service quality for consumers.

Despite recognizing the need for reform, previous privatization efforts in Pakistan's power sector have been largely unsuccessful due to the absence of adequate regulatory frameworks. Privatization without proper deregulation risks replacing public monopolies with private ones, which can perpetuate inefficiencies and fail to deliver the intended benefits to consumers. The case of Pakistan's telecommunications sector provides a contrasting success story: its privatization, accompanied by comprehensive deregulation and liberalization policies, transformed the industry, inviting private investment, enhancing competition, and significantly improving services for consumers.

The ongoing debate around the privatization of Pakistan's Distribution Companies (DISCOs) underscores the need for a carefully crafted approach that prioritizes deregulation. Drawing from both domestic and international experiences, this report argues that deregulation should precede privatization to foster a competitive and well-regulated power market. By analyzing the current landscape of the power sector, reviewing successful and failed privatization models, and proposing a deregulation framework, this research aims to offer policymakers a roadmap for the sustainable and effective privatization of DISCOs in Pakistan.

The goal is to move away from the inefficiencies of a single-buyer market towards a multi-party system where numerous buyers and sellers can engage in electricity transactions, promoting competition, reducing costs, and ultimately benefiting consumers. Through this approach, Pakistan can align its power sector reforms with global best practices, ensuring that privatization leads to real improvements in efficiency and service delivery rather than merely shifting ownership from public to private hands without addressing underlying structural issues.

## 1.2 Purpose of the Report

The primary purpose of this report is to present a vision for the privatization of Distribution Companies (DISCOs) in Pakistan's power sector, with a strong emphasis on the need for deregulation as a foundational step. Recognizing the critical issues that arise when privatization is pursued without adequate regulatory reform, this report aims to provide policymakers with clear guidance on how to avoid the pitfalls of

privatization without ensuring competition. The central thesis is that deregulation, which involves reducing government control and allowing for a competitive market environment, is essential for realizing the full benefits of privatization, such as improved efficiency, enhanced service quality, and lower costs for consumers.

This report seeks to address several key objectives: first, to critically analyze the existing single-buyer model in Pakistan's power sector and highlight its inefficiencies and limitations. By identifying the structural flaws of the current system, the report aims to underscore the urgency of introducing a multi-buyer and multi-seller market model.

Second, the report intends to draw lessons from both successful and unsuccessful examples of privatization and deregulation, including Pakistan's own telecommunications sector and the experience of Mexico's telecom industry under Carlos Slim. These case studies will serve to illustrate the broader implications of privatization strategies and the crucial role of regulatory frameworks in shaping outcomes.

Moreover, the report aims to offer a detailed roadmap for the privatization of DISCOs, including phased approaches and specific policy recommendations for implementing deregulation. It will provide a comprehensive analysis of the regulatory reforms needed to ensure a level playing field for private investors, prevent monopolistic behaviors, and protect consumer interests. By doing so, the report intends to foster a deeper understanding among policymakers, stakeholders, and industry experts of the critical interdependence between privatization and deregulation in the power sector.

Ultimately, the purpose of this report is not only to advocate for the privatization of DISCOs but also to emphasize that privatization, in the absence of a robust and competitive regulatory environment, can lead to outcomes that are counterproductive to the goals of economic efficiency and consumer welfare. The recommendations put forth in this report aim to provide actionable insights that can guide the government of Pakistan in reforming its power sector, thereby setting the stage for a more dynamic, efficient, and consumer-friendly electricity market.

## 1.3 Scope and Methodology

This report focuses on the privatization and deregulation of Distribution Companies (DISCOs) within Pakistan's power sector, emphasizing the interlinked nature of these two processes. The scope of the research includes a detailed examination of the current regulatory and operational landscape of Pakistan's electricity market, particularly the single-buyer model dominated by government control. The report aims to identify the inherent inefficiencies of this model and propose a transition to a competitive market structure with multiple buyers and sellers.

The report employs a qualitative research methodology, integrating the present state of power sector in the country with respect to policy making and regulation and comparing and contrasting it with the other countries' experiences in energy transition from centralized state control to market based, open and competitive environment. Most of the data and information is mined from the published reports of NEPRA and other online credible sources and research reports published by professionals and institutions like PIDE and SDPI.

# CURRENT LANDSCAPE OF PAKISTAN'S POWER SECTOR

Power sector in Pakistan is highly over regulated. Starting from electricity generation to transmission to distribution to fixing of tariffs to developing of infrastructure, everything is completely under the strict control and ownership of the government[1]. Even when the generation of electricity was outsourced to the private investors, the government controlled and dictated the private power policy to the IPPs in terms of structure of the power purchase agreement on the cost-plus basis including the tariff and the decision as to which fuel is to be used by the IPPs to generate the electricity.

Pakistan's energy sector operates under a heavily state-controlled monopoly, where the power and even gas sectors are dominated by public entities. When the private sector is introduced to the current setup, its participation is highly regulated through contracts with state-controlled bodies, resulting in a system more concerned with rent-seeking than efficiency. The outcome of this structure is inflated costs, which are often higher than they should be due to a lack of competition and innovation. The private sector is incentivized to secure favorable contracts from the state, rather than reducing costs and improving service delivery[2].

The pricing model in the energy sector compounds the inefficiencies. Across electricity, petroleum and gas, a "Cost Plus" pricing regime is prevalent. This approach allows regulators to determine what constitutes a "cost" and then sets consumer prices by allowing cost recovery plus a predetermined profit margin. This eliminates market-driven competition, as companies have no real incentive to reduce costs or operate efficiently[3]. In contrast, if the market were allowed to determine prices, competition would push companies to innovate and reduce costs, ultimately benefiting the consumer.

Another significant flaw is the influence of interest groups, who are able to extract subsidies from the government. While these subsidies are intended to reduce the cost of energy for the general public, they often benefit specific sectors disproportionately, adding to the overall cost of providing energy. The financial burden of these subsidies falls on taxpayers and consumers, and for political reasons, the government often does not fully recover the cost of providing energy[4]. This failure to recover costs, combined with the influence of powerful interest groups, distorts the energy market further.

Moreover, the non-collection of billed energy costs is a chronic issue, exacerbated by political compulsions that prevent the government from enforcing its writ in certain

[1] Tahir B. Cheema, Nadeem Ul Haque, and Afia Malik, "Power Sector: An Enigma With No Easy Solutions," PIDE, 2022, p.16, https://pide.org.pk/research/power-sector-an-enigma-with-no-easy-solution/

[2] Nadeem Babar, "The Pakistan Energy Conundrum," April 19, 2024, PIDE, Hybrid Seminar, https://pide.org.pk/webinar/the-pakistan-energy-conundrum/

[3] Ibid.

[4] Mohammad Younus Dagha and Hammad Ezad, 2024, "Unfair Power Tariff for Trade and Industry: The Impact of Cross-Subsidisation," Policy Working Paper, Federation of Pakistan Chambers of Commerce and Industry, https://fpcci.org.pk/wp-content/uploads/2024/01/Unfair-Power-Tariff-for-Trade-and-Industry-Impact-of-Cross-Subsidisati.pdf

areas. As a result, non-payment of energy bills has become an entrenched practice, particularly in politically sensitive areas. This culture of entitlement places an additional financial strain on the energy sector, pushing up costs for those who do pay their bills, while contributing to the growth of circular debt.

This state of affairs has led to a system characterized by inefficiency and waste. In most cases, state-owned entities like the distribution companies (DISCOs), the National Transmission and Dispatch Company (NTDC), and the Sui gas companies operate without competitive pressure. With no market forces to drive efficiency, these entities accumulate losses, inefficiencies, and malpractices, which are then passed on to consumers in the form of higher energy costs. This lack of competition perpetuates the inefficiencies that are embedded into the approved cost of service delivery[5].

When the full cost of energy is not recovered, the government steps in to provide subsidies, but these subsidies are often not fully funded. Instead, the government issues guarantees, allowing state-owned enterprises to borrow, which contributes to the accumulation of circular debt. This debt is periodically retired through further borrowing, increasing the overall cost of service delivery without addressing the root causes of inefficiency. As the cost of borrowing rises, so does the cost of energy, pushing the sector into a deeper financial crisis.

Policy failures have compounded these issues. One such example is when the Government of Pakistan (GoP) decided to set up power plants based on imported fuels. No wonder today, Pakistan's energy sector is heavily dependent on imported fuels, which makes the country vulnerable to external price shocks. In 2023, nearly 47% of electricity generation relied on imported fuels, which further strained the system as global energy prices surged[6]. During the period 2013-2019, a total of 9000 MW of power generation was added all based on imported fuels—4800 MW on LNG and 4200 MW on imported coal.

Another policy failure is that Pakistan has a system designed to produce electricity to meet the peak summer demand but in almost six months of the year the demand is less than half of the summer demand. For example, in the year 2022-23, the peak summer demand was 31000 MW while in the remaining non summer months of the same year the actual demand was about 12500 MW[7]. To cater for such seasonal variation in energy consumption the government needed to develop a seasonal and peaking based energy generation policy, but Pakistan opted for a flawed policy of creating a generation capacity based on the peak summer months' numbers translating into expensive surplus capacity for which Pakistan needs to pay in any case.

Another policy flaw is that Pakistan has built the generation plants in the South of the country where the unit cost is much less than in the North but unfortunately our transmission infrastructure does not support the dispatch of more than 2500 MW of

[5] Nadeem Babar, "The Pakistan Energy Conundrum," April 19, 2024, PIDE, Hybrid Seminar, https://pide.org.pk/webinar/the-pakistan-energy-conundrum/

[6] Hassaan Rafique,"Pakistan's Energy Sector Reliance on Imported Fuel & Rising Circular Debt", June 19, 2023, Medium, https://medium.com/econdata-pub/pakistans-energy-sector-reliance-on-imported-fuel-rising-circular-debt-f733001e9308

[7] Nadeem Babar, "The Pakistan Energy Conundrum," April 19, 2024, PIDE, Hybrid Seminar, https://pide.org.pk/webinar/the-pakistan-energy-conundrum/

electricity from South to North. Thus, during the winter months when the hydro electricity production goes down and Pakistan tries to get the additional amount from South, the country suffers blackouts as the system is not designed to take this additional load.

The government's inability to enforce its authority over bill collections has also contributed to the financial instability of the sector. In many parts of the country, non-payment of energy bills is treated as a right, with no consequences for those who fail to pay. This widespread disregard for payment obligations undermines the financial viability of the energy sector and increases costs for those who do pay their bills[8]. Instead of addressing the root causes of these inefficiencies, the government and regulatory bodies have relied on overregulation as a stopgap measure, further stifling competition and discouraging private sector participation. On the other hand, K-Electric has consistently achieved higher bill collection rates than other Pakistani DISCOs, primarily due to Advanced Metering Infrastructure (AMI)[9] and targeted load-shedding, which help monitor usage accurately and reduce losses. KE's customer-centric approach, technological integration, and flexible payment options have further improved trust and compliance, resulting in more efficient bill collection.

The culmination of these issues is a snowball effect, where the revenues collected from energy sales consistently fall short of the cost of delivery. This shortfall leads to the accumulation of circular debt, which is financed through borrowing. As borrowing costs rise, the overall cost of energy delivery increases, leading to higher tariffs for consumers. This, in turn, contributes to demand destruction and increased theft, further compounding the financial crisis in the energy sector.

The power sector equation is straightforward but unsustainable: the cost of delivering electricity includes generation costs, transmission and distribution (T&D) costs, and aggregate technical and commercial (ATC) losses, which consist of non-collection and theft. However, revenue comes primarily from bill collections and government subsidies, which are insufficient to cover the rising costs. High interest rates, a depreciating currency, and a dependency on imported fuels have pushed the cost of delivery beyond what can be recovered through tariffs, leading to the accumulation of circular debt. In some DISCOs, ATC losses are so high that they threaten the financial sustainability of the entire system[10].

## 2.1 Overview of DISCOs

### Overview of DISCOs Performance in Pakistan

Distribution Companies (DISCOs) in Pakistan are responsible for delivering electricity to end-users across the country. However, their performance has been persistently subpar, characterized by high transmission and distribution (T&D) losses, poor financial

[8] "State of Industry Report," NEPRA, (2023), p.179

[9] Mushtaq Ghumman, "NEPRA proposes 'key' structural changes in Discos," *Business Recorder*, February 27, 2024, https://www.brecorder.com/news/40290868. See also "K-Electric launches star rewards to encourage timely bill payments," *The News*, October 2, 2024, https://www.thenews.com.pk/print/1235804-k-electric-launches-ke-star-rewards-to-encourage-timely-bill-payments

[10] "State of Industry Report," *NEPRA*, (2023), p.179

health, and significant service delivery challenges. These issues have severely impacted the efficiency and reliability of Pakistan's power sector.

### Operational Inefficiencies

DISCOs in Pakistan continue to grapple with high T&D losses, which significantly exceed international benchmarks. As of 2023, the average T&D loss across DISCOs stands at approximately 17-18%, compared to a global average of around 8%. Some DISCOs, such as Peshawar Electric Supply Company (PESCO) and Quetta Electric Supply Company (QESCO), report even higher losses, reaching up to 35-40%. These losses are a combination of technical losses, due to outdated and poorly maintained infrastructure, and non-technical losses, including theft and meter tampering [11].

### Financial Performance

Financially, DISCOs are in a dire state, with accumulated losses amounting to over PKR 1.5 trillion (about USD 5.4 billion) as of 2023. The receivables from various consumer categories, including government departments, stand at more than PKR 1 trillion. Circular debt, a persistent issue in Pakistan's energy sector, continues to grow, driven in large part by DISCOs' inability to recover costs due to inefficiencies and poor governance. The circular debt stood at approximately PKR 2.4 trillion by mid-2024[12], a substantial portion of which is attributed to the poor financial management and performance of DISCOs.

### Service Delivery Challenges

Service delivery remains a significant challenge for DISCOs, with frequent power outages and voltage fluctuations affecting millions of consumers daily. On average, consumers in Pakistan experience about 8-10 hours of load shedding per day, particularly in rural areas, due to the inability of DISCOs to meet demand effectively. Customer dissatisfaction is further compounded by poor complaint resolution mechanisms and inadequate customer service. According to the National Electric Power Regulatory Authority (NEPRA)[13], the number of consumer complaints against DISCOs increased by 15% in 2023, reflecting widespread dissatisfaction with service quality.

### Regulatory and Governance Issues

Governance issues continue to plague DISCOs, with significant political interference and lack of accountability affecting their operations. Despite regulatory oversight by NEPRA, enforcement of standards and penalties remains inconsistent, allowing inefficiencies and mismanagement to persist. Many DISCOs lack the autonomy needed to implement operational improvements or tariff adjustments, which are often delayed due to bureaucratic hurdles. As a result, the financial and operational reforms necessary for improving performance are frequently stalled or inadequately executed[14].

The performance of DISCOs in Pakistan is a clear indicator of the urgent need for

[11] Ibid, see Table 66 for break up numbers of each DISCO and KE.

[12] "Power sector circular debt to hit Rs2.8trn despite 51% hike in electricity tariff," *Profit*, September 24, 2024, https://profit.pakistantoday.com.pk/2024/09/24/power-sector-circular-debt-to-hit-rs2-8trn-despite-51-hike-in-electricity-tariff/

[13] "NEPRA Annual Report 2022-23," *NEPRA*, p.50, https://nepra.org.pk/publications/Annual%20Reports/Annual%20Report%202022-23.pdf

[14] Afia Malik, "Readings in Pakistan's Energy Challenges," *PIDE*, 2024, p.41, https://pide.org.pk/research/readings-in-pakistans-energy-challenges/

comprehensive reform. The high T&D losses[15], mounting financial deficits, poor service delivery, and weak governance structures highlight the systemic issues that continue to undermine the efficiency and sustainability of Pakistan's power sector. Addressing these challenges through targeted regulatory and structural reforms, including deregulation and the introduction of competitive market dynamics, is essential for transforming DISCOs into efficient and consumer-oriented entities.

## 2.2 Regulatory Environment of Pakistan's Power Sector

The regulatory environment of Pakistan's power sector is governed by the National Electric Power Regulatory Authority (NEPRA), which was established under the NEPRA Act of 1997. NEPRA's responsibilities include setting tariffs, licensing power entities, ensuring compliance with performance standards, and protecting consumer interests. Despite these mandates, NEPRA's regulatory oversight has been marked by significant weaknesses, leading to inefficiencies and financial losses for consumers.

### Centralized Control and Market Structure

The power sector operates under a single-buyer model controlled by the government through the Central Power Purchasing Agency (CPPA-G), which purchases electricity from all generators and sells it to Distribution Companies (DISCOs). This model stifles competition and innovation, as private sector participation in direct electricity sales is not allowed. NEPRA has not effectively pushed for a transition towards a multi-buyer, multi-seller market structure, which could enhance efficiency and reduce costs for consumers.

### Tariff Determination and Subsidies

One of NEPRA's critical roles is to set cost-reflective tariffs that balance the interests of consumers, DISCOs, and power producers. However, political pressures and delays in tariff adjustments have often led to tariffs that are not reflective of the actual costs, resulting in substantial financial losses. For example, NEPRA has frequently delayed passing on the actual cost of fuel price adjustments to consumers, which creates a financial burden that eventually accumulates as circular debt. In 2023 alone, delayed fuel price adjustments and subsequent power purchase cost under-recoveries contributed to over PKR 200 billion in additional financial burden, indirectly borne by consumers through increased future tariffs and surcharges[16].

### Weak Enforcement of Performance Standards

NEPRA has set performance standards for DISCOs, including targets for reducing Transmission and Distribution (T&D) losses and improving revenue collection. However, enforcement of these standards has been weak. For instance, despite setting T&D loss reduction targets, many DISCOs consistently fail to meet these goals, with some like PESCO and SEPCO reporting losses as high as 35-

[15] "State of Industry Report," *NEPRA*, (2023), p.88

[16] This anomaly crept in Pakistan's system 2003 onwards when tariffs were frozen between 2003-2007 by the then military regime for political expediency giving rise to the phenomenon of Circular Debt. For further details, see Afia Malik, "Readings in Pakistan's Energy Challenges," *PIDE*, 2024, p.41, https://pide.org.pk/research/readings-in-pakistans-energy-challenges/

40%[17]. NEPRA's inability to enforce penalties or incentivize compliance has allowed these inefficiencies to persist, leading to higher costs that are ultimately passed on to consumers in the form of higher tariffs or surcharges.

### Ineffective Governance and Accountability

NEPRA's regulatory decisions are often influenced by political and bureaucratic pressures, which undermine its independence and effectiveness. A specific example of this is the handling of power purchase agreements (PPAs) with independent power producers (IPPs). NEPRA has been criticized for approving PPAs with guaranteed capacity payments that do not account for actual demand, resulting in consumers paying for unused electricity. In 2023/24, it was reported that capacity payments to IPPs amounted to over PKR 970 billion, a significant portion of which was for electricity that was not utilized, directly translating into higher consumer tariffs.[18]

### Inadequate Consumer Protection and Advocacy

NEPRA's Consumer Affairs Division is responsible for addressing consumer complaints, but the process is often slow and inadequate. For example, frequent overbilling complaints from consumers have highlighted discrepancies in meter readings and billing accuracy. In 2023, NEPRA received over 35,000 complaints[19] related to overbilling, yet resolution rates remained low, with many consumers forced to pay inflated bills due to lengthy dispute resolution processes. This lack of effective consumer advocacy and protection measures contributes to financial losses for consumers who are overcharged and under-served.

NEPRA's weaknesses in enforcement, delayed tariff adjustments, inadequate consumer protection, and susceptibility to political influence have led to significant financial losses for consumers. The inability to enforce compliance with performance standards and the continuation of a centralized, inefficient market structure further exacerbate these issues. Addressing these regulatory shortcomings is essential to create a more competitive, transparent, and consumer-friendly power sector that minimizes financial losses and delivers better services to the public.

## 2.3 Single-Buyer Market Model and its Limitations

In the Single-Buyer Market Model, the government or a designated entity acts as the sole purchaser of electricity from all generators, including independent power producers (IPPs) and public sector generation companies. In Pakistan, this role is fulfilled by the Central Power Purchasing Agency (Guarantee) Limited (CPPA-G), which buys electricity from generators and sells it to Distribution Companies (DISCOs) for distribution to end-users. This model has been the backbone of Pakistan's power sector for decades, but it comes with several

[17] "State of Industry Report," *NEPRA*, (2023), para.11

[18] "Govt pays Rs979 billion to 33 IPPs in capacity payments during FY2023-24," *Profit*, September 13, 2024, https://profit.pakistantoday.com.pk/2024/09/13/govt-pays-rs979-billion-to-33-ipps-in-capacity-payments-during-fy2023-24/

[19] "NEPRA Annual Report 2022-23," *NEPRA*, p.50,

inherent limitations that hinder the sector's efficiency, competitiveness, and overall performance.

### Lack of Competition and Market Efficiency

One of the primary drawbacks of the Single-Buyer Model is the absence of competition, which stifles efficiency and innovation. Since CPPA-G is the only buyer, power producers have little incentive to improve their operations or reduce costs, as they are assured of a market for their output regardless of performance. This lack of competitive pressure often leads to higher costs for consumers, as inefficiencies and cost overruns by generators are passed on through tariffs set by NEPRA. Moreover, the DISCOs, being the only entities allowed to sell electricity to end-users, face little competition, resulting in poor service delivery, high transmission and distribution losses, and limited accountability.

### Financial Burden and Circular Debt

The Single-Buyer Model has also contributed significantly to the accumulation of circular debt in Pakistan's power sector. Under this model, CPPA-G is responsible for paying all power producers, but delays in payments from DISCOs, compounded by their high losses and poor bill collection, create a cash flow shortfall. This shortfall forces CPPA-G to delay payments to generators, which in turn disrupts fuel supplies and maintenance schedules, further compromising the reliability of electricity supply. As of mid-2024, Pakistan's circular debt had surged to approximately PKR 2.4 trillion,[20] with a significant portion attributable to inefficiencies inherent in the Single-Buyer Model. This debt not only strains government finances but also impacts the overall economic stability of the country.

### Limited Private Sector Participation

The Single-Buyer Model restricts the role of the private sector in power trading, limiting their participation to generation only. Private entities cannot directly sell electricity to consumers or other businesses, thereby curbing the development of a more dynamic, market-driven electricity sector. This restriction has discouraged private investment in the power sector, as potential investors perceive high regulatory risks and limited opportunities for returns on investment. For example, private companies that might otherwise invest in renewable energy solutions or innovative technologies are deterred by the lack of a direct market access, thus slowing down the diversification and modernization of the energy mix in Pakistan.

### Regulatory and Governance Challenges

The Single-Buyer Model also imposes significant regulatory and governance challenges. Since all transactions are funneled through a single entity, CPPA-G, the complexity of managing contracts, setting tariffs, and ensuring compliance increases. NEPRA's role becomes more cumbersome as it has to regulate a monopolistic buying

[20] "Power sector circular debt to hit Rs2.8trn despite 51% hike in electricity tariff," *Profit*, September 24, 2024, https://profit.pakistantoday.com.pk/2024/09/24/power-sector-circular-debt-to-hit-rs2-8trn-despite-51-hike-in-electricity-tariff/

process rather than overseeing a competitive market with multiple participants. This centralized control often leads to political interference, with tariff settings and power purchase agreements influenced by non-market considerations, further eroding the efficiency and transparency of the power sector.

### Barriers to Market-Based Reforms

The continuation of the Single-Buyer Model presents significant barriers to implementing market-based reforms that could enhance sector performance. Transitioning to a multi-buyer, multi-seller model would introduce competitive dynamics where multiple buyers, such as industrial consumers, retailers, or private utilities, could directly purchase electricity from generators. This shift would incentivize efficiency improvements, reduce costs, and enhance service quality. However, entrenched interests and the complexities of restructuring the existing model have slowed progress towards such reforms, perpetuating a cycle of inefficiency and financial instability.

The Single-Buyer Market Model in Pakistan's power sector is fundamentally limited by its lack of competition, inefficiencies, financial vulnerabilities, and regulatory challenges. Moving towards a more liberalized and competitive market structure is essential to address these limitations and create a more resilient, efficient, and consumer-friendly power sector. This shift would not only improve service delivery but also attract greater private investment, drive innovation, and ultimately reduce costs for consumers.

# THE CASE FOR DEREGULATION PRIOR TO PRIVATIZATION

## 3.1 Understanding Deregulation: Definitions and Benefits

Deregulation refers to the process of reducing or eliminating government regulations and restrictions in a specific industry, with the objective of fostering a more competitive and efficient market environment. In the context of the power sector, deregulation involves opening up the generation, transmission, and distribution of electricity to competition, allowing multiple private players to operate and compete within the market. This process typically includes the removal of monopolistic structures, the introduction of market-driven pricing mechanisms, and the reduction of government intervention in operational and pricing decisions. Deregulation does not imply the absence of oversight but rather shifts the role of regulators from direct control to setting and enforcing fair competition rules, ensuring market transparency, and protecting consumer interests.

### Benefits of Deregulation

#### Increased Competition and Efficiency

Deregulation paves the way for increased competition among power producers, suppliers, and distributors. By breaking down monopolistic barriers and allowing multiple entities to enter the market, deregulation fosters an environment where companies are incentivized to improve their operational efficiencies, reduce costs, and innovate to attract customers.[21] For example, in deregulated markets, power producers compete to offer electricity at the lowest cost, which can significantly drive down prices for consumers. Competition also pushes companies to invest in new technologies, such as smart grids and renewable energy sources, which can further enhance efficiency and sustainability.

#### Enhanced Consumer Choice and Service Quality

One of the key benefits of deregulation is the empowerment of consumers through greater choice. In a deregulated power market, consumers are no longer tied to a single service provider; they can choose from multiple suppliers based on price, service quality, and other value-added offerings. This competitive pressure compels power companies to improve their service quality, reduce outages, and offer better customer support to retain and attract consumers. Enhanced consumer choice also allows for more tailored energy solutions, such as green energy options or customized pricing plans, aligning services more closely with consumer preferences and needs.

#### Lower Prices and Cost Reflective Tariffs

Deregulation helps align electricity prices with market realities, enabling cost-reflective tariffs that better reflect the actual cost of production, transmission, and distribution. By allowing market forces to determine prices, deregulation reduces the inefficiencies and

[21] Will Kenton, "Deregulation: Definition, History, Effects, and Purpose," *Investopedia*, 2024, https://www.investopedia.com/terms/d/deregulate.asp.

distortions caused by government-set tariffs that may be influenced by political considerations rather than economic fundamentals. In many deregulated markets worldwide, this shift has led to overall lower electricity prices for consumers and businesses, as competition drives down costs and eliminates the need for government subsidies that often burden public finances.

### Attracting Private Investment and Innovation

Deregulation creates a more attractive environment for private investment by reducing regulatory barriers and uncertainties. Investors are more willing to enter a market where they have the freedom to set prices, operate efficiently, and innovate without excessive government constraints. This influx of private capital can lead to significant improvements in infrastructure, such as the modernization of aging grids, the expansion of renewable energy capacity, and the development of advanced metering technologies. Deregulation thus plays a crucial role in driving the modernization and diversification of the energy sector, supporting broader economic growth and energy security goals.

### Improved Transparency and Accountability

In a deregulated market, the shift from a monopolistic to a competitive environment enhances transparency and accountability. Regulatory authorities focus on ensuring a level playing field, monitoring market behavior, and preventing anti-competitive practices rather than micro-managing operational decisions. This shift in regulatory focus increases transparency in how prices are set, how services are delivered, and how companies perform relative to their competitors. Enhanced transparency and accountability help build consumer trust and ensure that the market operates fairly and efficiently.

Deregulation offers a pathway to transforming the power sector by introducing competition, enhancing efficiency, and providing consumers with more choices and better services. While the process requires careful planning and strong regulatory oversight to avoid market abuses, the potential benefits of deregulation—such as lower costs, improved service quality, and increased investment—make it a compelling approach for countries like Pakistan seeking to modernize their power sectors and address longstanding inefficiencies.

## 3.2 Risks of Privatization Without Deregulation

Privatization of state-owned enterprises, such as power distribution companies (DISCOs), is often pursued to enhance efficiency, reduce fiscal burdens on the government, and improve service delivery. However, without the accompanying step of deregulation, privatization can create a new set of challenges and risks, potentially leading to outcomes that are detrimental to consumers, the economy, and the overall market structure.

### Creation of Private Monopolies

One of the primary risks of privatization without deregulation is the creation of private monopolies. When state-owned entities are privatized but the market remains uncompetitive, the new private owners can operate without significant competitive pressure, effectively replacing a public monopoly with a private one. This lack of competition can lead to the perpetuation of

inefficiencies, high prices, and poor service quality. Without regulatory frameworks that encourage competition, private entities may prioritize profit maximization over optimum service delivery to consumer, exploiting their dominant market position to set higher prices or reduce service investments.

### Case of K-Electric: Privatization Without Desired Outcomes

The privatization of K-Electric (KE), Pakistan's only privatized power utility, illustrates the risks of privatization without deregulation. Despite being privatized in 2005, K-Electric is still heavily regulated by the government, which sets tariffs and other operational parameters, discouraging the entry of competitors and stifling market competition. As a result, KE continues to operate as a de facto monopoly in Karachi, with little incentive to improve service quality or reduce costs. The continued government intervention and regulatory constraints have prevented KE from fully realizing the efficiencies and consumer benefits typically expected from privatization.

Additionally, KE's financial reliance on government subsidies has not diminished post-privatization. For instance, K-Electric has received significant subsidies under the Tariff Differential Subsidy (TDS) scheme to cover the gap between the cost of electricity and the consumer tariffs set by the government. In FY2023, KE received over PKR 80 billion under TDS and other heads[22], highlighting the ongoing financial dependency on the government despite being a privatized entity. This reliance on subsidies distorts market signals and undermines the principle of cost-reflective tariffs, thereby negating the potential benefits of privatization.

### Limited Consumer Benefits and Increased Costs

In the absence of deregulation, privatization often fails to deliver the anticipated consumer benefits such as lower prices, improved service quality, and greater choice. Private companies operating in a non-competitive environment have little incentive to lower costs or enhance service delivery. In fact, the drive for profit may lead to cost-cutting measures that compromise service standards, as the focus shifts to increasing shareholder returns rather than addressing consumer needs. Additionally, without deregulation, tariffs and pricing mechanisms may continue to be dictated by outdated regulatory practices rather than market dynamics, leaving consumers burdened with high costs and limited options for recourse.

### Regulatory Challenges and Ineffective Oversight

Privatization without deregulation can strain existing regulatory frameworks, which may be ill-equipped to handle the complexities of overseeing privatized entities. Regulatory bodies like NEPRA in Pakistan may struggle to enforce compliance, set fair tariffs, or prevent anti-competitive behaviors without a robust, market-oriented regulatory framework in place. This can result in regulatory capture, where privatized entities exert undue influence over regulators, skewing decisions in their favor at the expense of consumers. Moreover, weak regulatory oversight can lead

[22] Muhstaq Ghumman, "KE Seeks Rs 635bn allocation for Tariff Differential Subsidy," *Business Recorder*, February 18, 2023, https://www.brecorder.com/news/40227072

to inconsistencies in service delivery, pricing, and investment in infrastructure, further undermining the objectives of privatization.

### Reduced Accountability and Transparency

State-owned enterprises, despite their inefficiencies, are generally accountable to the public and subject to government oversight. Privatization can dilute this accountability, especially when deregulation does not accompany the process. Private companies may not be as transparent in their operations, decision-making processes, or financial disclosures, making it difficult for regulators, policymakers, and the public to hold them accountable. This lack of transparency can erode consumer trust, lead to regulatory complacency, and allow private operators to engage in practices that are not in the best interests of the public.

### Social and Economic Inequities

Privatization without deregulation can exacerbate social and economic inequities. In a non-competitive market, private companies may prioritize profitable customers, such as industrial and commercial users, over less profitable segments like residential or rural consumers. This can result in uneven access to essential services, where marginalized or low-income groups face higher costs, reduced service reliability, or outright exclusion. Furthermore, privatization efforts that focus solely on revenue generation without considering broader socio-economic impacts can undermine efforts to ensure equitable service delivery across different regions and demographic groups. The risks of privatization without deregulation highlight the importance of a comprehensive approach that includes market liberalization and robust regulatory reforms. Without these measures, privatization may not only fail to achieve its intended benefits but could also lead to adverse outcomes such as private monopolies, higher consumer costs, and weakened regulatory oversight. The case of K-Electric exemplifies how privatization without deregulation can result in ongoing inefficiencies and financial dependencies, demonstrating the need for a clear roadmap for deregulation that fosters competition, ensures accountability, and prioritizes consumer welfare.

## 3.3 Lessons from Global Examples: Successes and Failures

Global experiences in the privatization and deregulation of power sectors provide critical insights into what drives success and what pitfalls to avoid. By examining these international cases, Pakistan can draw lessons that are highly relevant for its ongoing efforts to reform its national power sector.

### Successes

### United Kingdom: Comprehensive Market Reforms

The UK's electricity market reforms in the 1980s and 1990s stand out as a model of success. After privatization, the UK government unbundled the vertically integrated electricity sector and established separate entities for generation, transmission, and distribution. The introduction of competitive wholesale and retail markets, coupled with strong oversight from the regulator Ofgem, led to significant improvements. From 1990 to 2010, electricity prices for industrial consumers decreased by 50% in real terms, and customer satisfaction increased significantly. Additionally, the UK attracted over £90 billion in investment in energy infrastructure between 2010 and

2020, much of it focused on renewable energy, which now makes up over 40% of the UK's electricity generation mix[23]. This success demonstrates the importance of aligning privatization with liberalization and effective regulation to ensure a competitive and efficient market.

### Chile: Early Pioneer of Market Liberalization

Chile was one of the first countries to privatize and deregulate its electricity sector, starting in the 1980s. The reforms included unbundling and the establishment of competitive markets, which attracted substantial private investment. From 1986 to 2000, electricity coverage in Chile expanded from 66% to nearly 98%, driven by private investment and efficiency gains. Electricity prices fell by 30% for residential customers during this period.[24] Chile's experience illustrates how well-structured reforms can improve access, reduce costs, and enhance service quality, underscoring the potential benefits of aligning privatization with comprehensive deregulation.

## Failures

### California: A Deregulation Disaster

California's partial deregulation of the electricity market in the late 1990s is often cited as a key failure. The state allowed wholesale market competition but kept retail prices capped, leading to a disconnect between market costs and consumer prices. The situation was worsened by market manipulation, notably by Enron, resulting in severe supply shortages and blackouts in 2000-2001. The crisis cost the state an estimated USD 40 billion in increased energy costs and economic disruptions, and retail electricity prices soared by over 300% in some areas.[25] The California case underscores the need for robust regulatory oversight and comprehensive reform strategies that address market dynamics and consumer protections.

### Brazil: Regulatory Instability and Investment Gaps

Brazil's electricity sector reforms initially attracted private investment, but frequent regulatory changes and government interference undermined the sector's performance. In the early 2000s, Brazil faced significant blackouts, with the 2001 energy crisis affecting 95% of the population and leading to a 20% reduction in electricity consumption. The inconsistent regulatory environment, characterized by tariff freezes and arbitrary policy shifts, deterred long-term investments, leading to underinvestment in critical infrastructure.[26] As a result, the reliability of electricity supply diminished, and the country faced ongoing challenges in meeting growing demand. This example illustrates the critical need for regulatory stability to maintain investor confidence and ensure sustainable improvements in the power sector.

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[23] Jinqi Liu, Jihong Wang, and Joel Cardinal, "Evolution and Reform of UK Electricity Market," *Renewable and Sustainable Energy Reviews* 161 no.10 (2022), https://www.sciencedirect.com/science/article/pii/S1364032122002313

[24] Pablo Serra, "Chile's Electricity Markets: Four Decades on from Their Original Design," *Energy Strategy Reviews* 39 no.3-4 (2022), https://doi.org/10.1016/j.esr.2021.100798

[25] "2000-2001 California Electricity Crises," *Wikipedia*, https://en.wikipedia.org/wiki/2000%E2%80%932001_California_electricity_crisis

[26] Sunil Tankha, "From Market to Plan: Lessons from Brazilian Power Reforms on Reducing Risks in the Provision of Public Services," *Policy & Society,* Volume 27, no. 2 (2008): 151-162. https://doi.org/10.1016/j.polsoc.2008.09.002

## Mexico: Privatization Without Deregulation

Mexico's privatization of Telmex without concurrent deregulation created a private monopoly, leading to high costs and limited service improvements. The privatization of Mexico's state-owned telecom company, Telmex, in 1990 significantly enriched billionaire Carlos Slim but led to poor service quality and high costs for ordinary citizens. Slim, through his conglomerate Grupo Carso, acquired a controlling stake in Telmex for USD 1.8 billion.[27] By the late 1990s, Telmex had become a near-monopoly, controlling over 90% of Mexico's landline market. This dominance allowed Slim to amass a fortune, making him one of the wealthiest individuals globally, with his net worth peaking at over USD 70 billion in 2013. However, this consolidation of market power came at the expense of consumers. Mexico's telecom services remained among the most expensive in the OECD,[28] with citizens paying 40% more than the average for mobile services in 2010. Meanwhile, infrastructure improvements lagged, and service quality suffered. Despite deregulation efforts, Telmex's market dominance slowed competition, leading to inadequate investments in rural areas and a digital divide that persists to this day. The monopolistic control Carlos Slim's empire exercised over the telecom sector enriched him but negatively impacted millions of Mexicans, particularly low-income citizens who struggled with both affordability and accessibility of services.

In the power sector, similar challenges have emerged. The Federal Electricity Commission (CFE) remains dominant, and despite attempts at reform, private participation is limited by restrictive regulations. Mexico's electricity prices are among the highest in Latin America, with industrial users paying nearly double the regional average. Additionally, despite privatization efforts, CFE still controls most of generation capacity, and private companies face numerous regulatory hurdles.[29] This case highlights the dangers of privatizing without fostering a competitive market environment, as it can lead to monopolistic behavior that harms consumers and stifles innovation. These global examples provide valuable lessons for Pakistan's power sector reforms. The successes in the UK and Chile demonstrate the importance of aligning privatization with market liberalization and strong, independent regulation. Conversely, the failures in California, Brazil, and Mexico underline the risks of incomplete or poorly executed reforms, including regulatory weaknesses, market manipulation, and the persistence of monopolistic structures. For Pakistan, a balanced approach that incorporates lessons from these global cases can help achieve the intended benefits of privatization and deregulation while minimizing potential risks.

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[27] Jesse Emspak, "How Carlos Slim Built His Fortune," *Investopedia*, 2024, https://www.investopedia.com/articles/investing/103114/how-carlos-slim-built-his-fortune.asp

[28] "*OECD Review of Telecommunication Policy and Regulation in Mexico*," OECD, 2012, http://dx.doi.org/10.1787/9789264060111-en.

[29] Israel Alpizar–Castro and Carlos Rodríguez–Monroy, "Review of Mexico's Energy Reform in 2013: Background, Analysis of the Reform and Reactions," *Renewable and Sustainable Energy Reviews* 58 no.5 (2016): 725-736. https://www.sciencedirect.com/science/article/abs/pii/S1364032115016743

# INDIA'S ENERGY MARKET TRANSFORMATION

Next door in India, the power sector has undergone a significant transformation through market-based reforms, making it a notable example of how electricity can be commodified and traded efficiently. Key to this transformation has been the establishment of energy exchanges and the shift from a centrally controlled to a market-driven electricity sector.

## 4.1 Overview of India's Power Sector Reforms

India's power sector reforms began in earnest in the 1990s, with the unbundling of State Electricity Boards (SEBs) into separate entities for generation, transmission, and distribution. A major milestone was the enactment of the Electricity Act of 2003, which mandated open access to the transmission and distribution networks, promoted competition, and encouraged private sector participation. This act provided a comprehensive framework for the liberalization of India's power sector and set the stage for further market-based reforms[30].

### Establishment of Energy Exchanges

To foster competition and improve market efficiency, India established the Indian Energy Exchange (IEX) in 2008 and Power Exchange India Limited (PXIL) in 2010. These platforms introduced a market-driven approach to electricity trading, allowing participants to buy and sell electricity through day-ahead and real-time markets.

As of 2023, the IEX handles over 95% of the short-term power trading in India, with an average monthly volume of about 7,000-8,000 million units (MU) traded. In the fiscal year 2022-2023, IEX recorded a total traded volume of over 91,500 MU, reflecting the growing reliance on market-based mechanisms for electricity procurement. The average price of electricity on the IEX in 2022 was around INR 4.70 per unit (approximately USD 0.06), demonstrating competitive pricing that often undercuts bilateral contracts and long-term power purchase agreements[31].

### Commodification of Electricity as a Tradeable Product

The introduction of energy exchanges transformed electricity into a tradeable commodity, allowing it to be bought and sold much like other commodities such as oil or natural gas. This commodification has several key benefits:

- **Efficient Price Discovery:** Electricity prices on the exchanges are determined by real-time supply and demand, promoting transparency and market efficiency. This dynamic pricing mechanism helps prevent over-reliance on costly peak power and reduces

[30] Navroz K. Dubash and Sudhir Chella Rajan, "The Politics of Power Sector Reform in India," *World Resources Institute*, 2001, http://pdf.wri.org/power_politics/india.pdf

[31] Vasant Surdeo, "Power Sector Policies in India: History and Evolution," *Jindal Journal of Public Policy* 3, no. 1 (2017): 115-129, https://pure.jgu.edu.in/id/eprint/2148/1/Surdeo2017.pdf

procurement costs for distribution companies (DISCOs).

- **Enhanced Grid Management:** The availability of short-term and real-time markets allows better grid management and integration of renewable energy sources. In 2022, renewables accounted for over 40% of the total traded volume on the IEX, highlighting the exchanges' role in facilitating the transition to a cleaner energy mix.[32]
- **Growth in Private Participation:** Since the establishment of the exchanges, private participation in the power sector has increased significantly. As of 2023, private companies account for nearly 50% of India's installed generation capacity, up from less than 10% in the early 2000s.[33] This has led to more investment, innovation, and competition within the sector.

## 4.2 Impact on Competition, Pricing, and Market Efficiency

The commodification of electricity and the operational success of energy exchanges have driven profound changes in India's power market:

- **Reduced Prices and Volatility:** The IEX has contributed to lower and more stable electricity prices by enabling DISCOMs and other buyers to source power at competitive rates. This has resulted in savings of up to 15-20% on average for buyers compared to traditional procurement methods.
- Improved Resource Utilization: The real-time market has facilitated better utilization of generation assets, allowing for more flexible and efficient dispatch of electricity. This has helped India reduce the reliance on expensive peak load plants and improve the overall efficiency of the power system.
- **Significant Market Growth:** From just 2,000 MU traded in its first year, the IEX has grown exponentially, with volumes traded in July 2024 alone reached 10,093 MU registering a 29% increase from the last year[34]. This growth underscores the success of market liberalization in promoting a vibrant and competitive electricity market.

India's journey demonstrates the transformative potential of commodifying electricity and establishing energy exchanges to promote market efficiency, competition, and innovation. For Pakistan, India's experience offers valuable lessons on the importance of comprehensive market reforms, the need for robust trading platforms, and the critical role of transparent and competitive market structures in driving sectoral improvement.

[32] "Total electricity volume trade on IEX grows 9% to 7,392 million units in November," *Moneycontrol*, December 5, 2022, https://www.moneycontrol.com/news/economy-2/total-electricity-volume-trade-on-iex-grows-9-to-7392-million-units-in-november-9651781.html.
[33] "Power Sector at a Glance ALL INDIA," Ministry of Power, Government of India, 2023, https://powermin.gov.in/en/content/power-sector-glance-all-India.
[34] "IEX records 56 percent surge in trading volume, hits 13,250 MU in July 2024," *ET EnergyWorld*, August 5, 2024, https://energy.economictimes.indiatimes.com/news/iex-records-56-percent-surge-in-trading-volume-hits-13250-mu-in-july-2024/112289873

# PAKISTAN'S EXPERIENCE WITH PTCL PRIVATIZATION AND TELECOM DEREGULATION

## 5.1 Overview of PTCL Privatization

Pakistan's telecommunications sector witnessed a significant transformation with the privatization of Pakistan Telecommunication Company Limited (PTCL) in 2006. The government sold a 26% stake in PTCL, along with management control, to Etisalat, a UAE-based telecom operator, for USD 2.6 billion.[35] This marked one of the largest privatization deals in Pakistan's history and set the stage for further liberalization of the telecom sector.

Before privatization, PTCL held a monopoly over Pakistan's telecom services. The sector faced challenges such as high tariffs, limited consumer choice, and inadequate service quality. The sale of PTCL was a strategic move aimed at improving efficiency, attracting foreign investment, and expanding the sector's infrastructure.

### Regulatory Reforms in the Telecom Sector

Alongside PTCL's privatization, the government introduced regulatory reforms by introducing Deregulation Policy 2003. This watershed policy was executed through the Pakistan Telecommunication Authority (PTA) to create a competitive environment in the telecom industry. These reforms included:

1. **Liberalization of the Market:** The telecom sector was opened to private companies, resulting in the entry of several key players such as Telenor, Mobilink (now Jazz), Ufone, Zong, and Warid (later merged with Jazz).
2. **Licensing and Spectrum Allocation:** PTA introduced transparent licensing procedures and auctioned spectrum bands, allowing private operators to offer cellular services and broadband internet. The entry of multiple players intensified competition.
3. **Deregulation of Tariffs:** Competition led to significant reductions in telecom tariffs, making services more affordable for consumers.[36]

## 5.2 Creation of a Competitive Market Environment

Since the privatization and deregulation of the telecom sector, the industry has experienced rapid growth, driven by competition and innovation. Key developments include:

1. **Mobile Penetration:** Pakistan's mobile phone penetration skyrocketed from 12% in 2006 to over 85% by 2023. The number of mobile subscribers grew to 195 million,[37] representing a large portion of the country's population.
2. **Internet and Broadband Services:** With deregulation and the introduction of 3G and 4G services, broadband

[35] Amir Saeed and Mukaram Ali Khan, "Impact Analysis of Privatization of PTCL in Pakistan," *Journal of the Punjab University Historical Society* 30, no. 2 (2017): 9-20, https://pu.edu.pk/images/journal/HistoryPStudies/PDF_Files/2_V-30-No2-Dec17.pdf

[36] For a detailed review of PTA's mandate please visit https://www.pta.gov.pk/assets/media/annual_report.pdf

[37] "Telecommunications in Pakistan," *Wikipedia*, https://en.wikipedia.org/wiki/Telecommunications_in_Pakistan.

subscriptions rose from a mere 2 million in 2013 to over 115 million by 2022,[38] expanding access to digital services in both urban and rural areas.

3. **Revenue Growth:** The telecom sector has contributed significantly to Pakistan's economy. In 2022 alone, the telecom industry generated approximately PKR 694 billion (USD 2.6 billion) in revenues, while also contributing PKR 222 billion (USD 822 million)[39] in taxes.
4. **Foreign Direct Investment (FDI):** The telecom sector became a major source of foreign direct investment in Pakistan. Between 2019 and 2022, the sector attracted around USD 1.4 billion in FDI,[40] supporting infrastructure development and technological advancements.
5. **Improvement in Service Quality:** Competition among telecom operators has led to improvements in service quality, coverage, and customer satisfaction. Companies have expanded network coverage, even in remote and rural areas, improving connectivity across the country.

## 5.3 Successes and Lessons Learned for the Power Sector

The success of PTCL's privatization and the deregulation of the telecom sector offers several key lessons for Pakistan's power sector:

1. **Regulatory Strengthening:** The Pakistan Telecommunication Authority (PTA) played a crucial role in ensuring that privatization was followed by strong regulatory oversight. This ensured a level playing field for all operators, fostering competition and innovation. Similarly, a strong regulatory framework will be essential in the power sector to manage the transition from monopoly to a competitive market.
2. **Consumer-Centric Policies:** The deregulation of telecom services led to a focus on consumer needs, driving down costs and improving service quality. A similar approach in the power sector could benefit consumers through competitive pricing, improved service reliability, and broader access to electricity.
3. **Increased Investments:** The privatization and deregulation of telecom services attracted substantial foreign and domestic investments, which boosted infrastructure development and service expansion. If properly managed, a similar strategy in the power sector could lead to enhanced generation, transmission, and distribution capacities.
4. **Gradual Transition:** Telecom deregulation and privatization were phased over several years, allowing time for the market to adjust and for private operators to enter. A phased approach in the power sector could help mitigate the risks of market instability during the transition.

By comparing Pakistan's telecom sector experience with the potential for power sector reforms, policymakers can draw valuable insights on how to implement successful privatization and deregulation strategies.

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[38] Ibid.

[39] "Telecom Revenues Rise to PKR 694 Billion in 2022: PTA Annual Report," *Pakistan Telecommunication Authority*, 2022, https://www.pta.gov.pk/category/telecom-revenues-rise-to-pkr-694-billion-in-2022-pta-annual-report-182980759-2023-06-01

[40] "Pakistan's telecom sector generates Rs850bn in FY2022-23: PTA report," *Profit*, January 30, 2024, https://profit.pakistantoday.com.pk/2024/01/30/pakistans-telecom-sector-generates-rs850bn-in-fy2022-23-pta-report/

# ROLE OF NEPRA AND THE POWER DIVISION IN THE CONTEXT OF DEREGULATION

## 6.1 Critical Examination of NEPRA and the Power Division

The National Electric Power Regulatory Authority (NEPRA) and the Power Division of the Ministry of Energy are central to Pakistan's power sector's regulatory and policy framework. NEPRA, established in 1997, was tasked with promoting fair competition, protecting consumer interests, and ensuring reliable and cost-effective electricity supply. It is responsible for tariff determination, licensing, and overseeing the sector's operational and financial performance. The Power Division, on the other hand, is in charge of policy formulation, strategic planning, and implementation of sectoral reforms, including oversight of state-owned power entities such as the Central Power Purchasing Agency (CPPA) and distribution companies (DISCOs).

Despite these defined roles, the effectiveness of NEPRA and the Power Division in fostering a deregulated, competitive market has been limited. NEPRA's tariff regulation often leads to inflexible pricing structures that do not reflect market dynamics or incentivize efficiency among DISCOs and Independent Power Producers (IPPs). This rigid approach results in cost inefficiencies being passed on to consumers through high electricity tariffs. Furthermore, NEPRA's complex licensing procedures and regulatory compliance requirements have created high entry barriers for new market participants, stifling competition and discouraging private investment in the sector.

The Power Division's role in policy execution has also been marked by inconsistencies. Although it has introduced various reform initiatives, including the unbundling of the power sector and the introduction of the NEPRA-driven Competitive Trading Bilateral Contract Market (CTBCM), the Power Division has struggled to implement these reforms effectively. This inconsistency has led to a policy environment where market liberalization efforts are frequently undermined by conflicting regulations, political considerations, and the reluctance of entrenched stakeholders to relinquish control.

## 6.2 Why CTBCM Has Not Been Fully Implemented

The seed of CTBCM was planted in 1992 when the government of Pakistan introduced the Strategic Plan to introduce the competitive wholesale electricity market by the year 2002. The CTBCM framework was envisioned as a transformative step towards a competitive electricity market, aiming to allow producers and consumers to engage in direct bilateral contracts, thus reducing the monopoly power of the CPPA. However, several structural and regulatory challenges have impeded its full implementation.

Firstly, the NEPRA and the Power Division have been delegating all necessary power and mandate to implement the CTBCM to those government entities who are neither trained nor ready to take on this gigantic task. In fact, these agencies like CCPA-G, NTDC,

AEDB and PPIB stand to lose their power and position held over the decades in a single buyer model that it will be a conflict of interest to ask them to complete the CTBCM project. Ironically, after amending the NEPRA Act in 2018 to achieve the objectives of the competitive electricity market, the Authority started considering granting the license to AEDB and PPIB to play the role of an Independent Auction Administrator to oversee the procurement of new capacities through auction.[41] Similarly, the Authority has granted the System Operator License to NTDC which entails overseeing system operations, dispatch, and integrated planning for the country's power system under the proposed CTBCM. Since the CTBCM outlines a restructuring and division of functions being currently performed by CPPA-G i.e.

(i) Market Operator to develop and administer the market, and

(ii) Special Purpose Agent to manage legacy contract, the NEPRA has granted CPPA-G the Market Operator License on May 31, 2022 and approved the Market Commercial Code (MCC).[42] The CPPA-G was directed by the Authority to conduct testing and implement the MCC for a period of six month without imposing any financial obligation to market participants, concluding by November 2022. CPPA-G was also required to submit a final test run report within seven days of the test run period. The submission of this report is a necessary to declare the Commercial Operation Date, marking the formal commencement of the CTBCM. However, as per NEPRA Annual Report 2022-23, the CCPA-G has failed to submit the final test run report and the *Authority is in the process of initiating legal proceedings against CPPA-G*.[43]

Secondly, the market structure's inherent limitations have slowed the CTBCM rollout. The existing power purchase agreements (PPAs) between the government and IPPs, often spanning 20-30 years with guaranteed returns, have constrained the flexibility required to move towards a competitive market. Many of these PPAs include take-or-pay clauses, obligating payments to IPPs regardless of actual electricity demand, which burdens the sector financially and makes the transition to a bilateral contract market complex.

Thirdly, NEPRA's regulatory framework has not adapted sufficiently to facilitate CTBCM's requirements. The current tariff structure, heavily regulated by NEPRA, is not conducive to a market where prices should ideally be determined through supply and demand dynamics. The authority's control over tariffs and the lack of real-time pricing mechanisms limit the incentive for DISCOs and consumers to engage in bilateral trading. Furthermore, NEPRA's licensing regulations for power producers and suppliers have remained stringent, with lengthy approval processes and compliance obligations, discouraging new entrants from participating in a competitive market environment.

[41] "NEPRA Annual Report 2022-23," *NEPRA*, p.29, https://nepra.org.pk/publications/Annual%20Reports/Annual%20Report%202022-23.pdf
[42] Ibid, p.55.
[43] Ibid, p.56.

Fourthly, the power transmission and distribution infrastructure in Pakistan is inadequately equipped to support a competitive market model. Transmission constraints, high distribution losses (averaging around 17-20% of generated power), and the lack of an advanced metering infrastructure make it challenging to ensure reliable and transparent trading. Additionally, the Central Power Purchasing Agency (CPPA) has proposed a fee of Rs 27/kWh[44] as a "rent" for using the transmission and distribution network by private buyers and sellers. This fee is excessively high and contrary to the very spirit of CTBCM, acting as a significant deterrent to market participants. Such a high toll discourages private sector participation by making bilateral trading economically unviable, thereby undermining the CTBCM's goal of fostering a competitive electricity market.

## 6.3 CTBCM Implementation: One Step Forward Two Steps Back

On 9th October, 2024, the leading newspapers reported that the Cabinet Committee on Energy headed by the PM has approved a summary by Power Division proposing the incorporation of a Company called "Independent System and Market Operator (ISMO)" under the Company's Act 2017.[45] The new company will take over the System Operator functions from NTDC and Market Operator functions from the CPPA-G. Reportedly, the new company will precede the much delayed introduction of the CTBCM. Submission of this summary and its approval indicates the confusion prevailing at the higher echelon of power sector decision makers in the country. After wasting considerable time in firming up the idea of a competitive electricity market since the 1992 Strategic Plan and issuing licenses to companies like NTDC and CPPA-G, to administer the CTBCM, now Pakistan is proposing a new company to do the job. Now this new company will be incorporated, then its Board of Directors will be constituted followed by a long and arduous task of recruiting its CEO, CFO, Company Secretary and a plethora of experts and other functionaries. Only time will tell whether this new SOE will realize the dream of a truly competitive and efficient electricity market in Pakistan.

Introducing a multi-buyer, multi-seller model requires significant regulatory and infrastructural changes. NEPRA would need to shift its role from a tariff-setting authority to a market facilitator, ensuring transparency, enforcing anti-competitive regulations, and protecting consumer interests. The Power Division would need to spearhead the unbundling of the transmission network, creating an independent system operator at the earliest to manage grid operations and market settlements impartially. Additionally, investments in transmission and distribution infrastructure, such as smart grids and advanced metering systems, are imperative to support complex market transactions and maintain grid stability in a liberalized environment.

[44] Nadeem Babar, "The Pakistan Energy Conundrum," April 19, 2024, *PIDE*, Hybrid Seminar, https://pide.org.pk/webinar/the-pakistan-energy-conundrum/
[45] Mushtaq Ghumman, "ISMO: CCoE approves proposal by power division," *Business Recorder*, October 10, 2024, https://www.brecorder.com/news/40326370

## 6.4 Ensuring Competitive Market Dynamics

The establishment of a truly competitive power market in Pakistan hinges on fostering an environment where market dynamics—rather than regulatory dictates—drive investment, pricing, and operational efficiency. To achieve this, a series of actions are required:

- **Market Infrastructure Development:** A critical first step is developing market infrastructure, including a transparent and efficient electricity trading platform. This platform should facilitate real-time trading, market clearing, and settlement processes, allowing market participants to trade electricity based on demand fluctuations and generation availability.
- **Regulatory Transformation:** NEPRA's regulatory focus must evolve from direct tariff control to overseeing market conduct, ensuring fair competition, and preventing market manipulation. This includes setting clear market rules, introducing a spot market for electricity trading, and ensuring open access to the transmission network for all market participants.
- **Consumer Empowerment:** Introducing mechanisms that empower consumers to participate actively in the market is essential. This includes enabling large consumers to procure power directly from producers and gradually introducing retail competition, where smaller consumers can choose their electricity suppliers based on service quality and price.
- Transition Management: The transition to a competitive market model must be carefully managed to avoid market instability. This includes phasing out long-term PPAs, restructuring DISCOs to operate efficiently in a competitive environment, and establishing transitional support mechanisms to protect vulnerable consumers from price volatility.

Despite the introduction of CTBCM and the efforts of NEPRA and the Power Division, the power sector remains far from achieving the desired level of deregulation and competitiveness. Addressing these challenges requires a holistic approach that dismantles the existing monopolistic structures, fosters market dynamics, and aligns regulatory frameworks with the principles of a liberalized market. Without these reforms, Pakistan's power sector will continue to struggle with inefficiencies, high costs, and inadequate service delivery.

# ROADMAP FOR PRIVATIZATION AND DEREGULATION OF DISCOs

## 7.1 Introduction of Deregulation Measures

Before initiating the full privatization of DISCOs, it is crucial to establish a robust deregulation framework that encourages competition, improves efficiency, and fosters market-driven pricing. Since DISCOs are already corporatized, with independent Boards of Directors and Managing Directors, the immediate focus should shift to deregulating the electricity market to create a conducive environment for future privatization. Key deregulation measures include:

- **Establishing a Competitive Wholesale Market:** Develop a functional wholesale electricity market where power producers, DISCOs, and large consumers can participate in real-time trading. This market should facilitate competitive pricing based on supply and demand dynamics, promoting operational efficiency and cost reduction across the sector. An electricity exchange should be established to serve as a transparent platform for power trading, with rules that ensure market liquidity and price transparency.
- **Implementing Retail Competition:** Gradually introduce retail competition by allowing large industrial and commercial consumers to choose their electricity suppliers. This step enables DISCOs and new market entrants to compete on price and service quality, driving market efficiency and consumer benefits. Retail competition can be piloted in select regions, with safeguards in place to ensure a smooth transition and to monitor the impacts on both consumers and the market.
- **Tariff Deregulation:** NEPRA should transition from a direct tariff-setting role to a more flexible regulatory approach that allows prices to be determined by market forces. While initially, this could apply to specific consumer segments (e.g., industrial consumers), the scope should gradually expand to include all consumer categories. This deregulation will incentivize DISCOs to enhance their operational efficiency, reduce losses, and provide cost-effective services.
- **Open Access to Transmission and Distribution Networks:** To facilitate competition, it is essential to grant open access to the transmission and distribution networks for all market participants. NEPRA should enforce regulations that ensure non-discriminatory access to these networks, enabling power producers to sell electricity directly to consumers. The high "rent" fee of Rs 27/kWh proposed by the CPPA for network usage must be reviewed and adjusted to reasonable levels to prevent discouraging private sector participation in the Competitive Trading Bilateral Contract Market (CTBCM).

## 7.2 Phased Approach to Privatization

With the deregulation framework in place, the focus can then shift to the privatization of DISCOs through a phased approach. This strategy ensures that privatization occurs in a market environment capable of supporting competition and efficiency:

- **Phase 1: Strategic Minority Stake Sales:** The government should begin by selling a minority stake (e.g., 26-49%) in selected DISCOs to strategic investors with expertise in power distribution. This approach allows the government to retain a controlling interest while leveraging private sector management skills, technology, and capital to improve service delivery. The participation of strategic investors will also signal the market's readiness for competition and encourage further investments.
- **Phase 2: Full Privatization in a Competitive Market:** Once the competitive market dynamics are established, the government can proceed to full privatization by gradually divesting its remaining shares in DISCOs. This phase should coincide with the maturation of the wholesale and retail electricity markets, ensuring that multiple buyers and sellers are actively participating. Full privatization under a competitive framework will promote market efficiency, service quality, and consumer choice.

## 7.3 Role of the Government/Power Division and NEPRA

The government, operating through the Power Division, and NEPRA must play coordinated and proactive roles in implementing deregulation and guiding the privatization process:

- **Power Division Role:** The Power Division, should act as an enabler of market development by providing clear policy direction, addressing legislative gaps, and ensuring a transparent and predictable regulatory environment. The Power Division should also oversee the entire transition process, ensuring policy alignment and monitoring progress. Additionally, it should establish a transition fund to mitigate potential market shocks and support vulnerable consumer groups during the shift to a deregulated market.
- **NEPRA's Role:** NEPRA must evolve to become a market facilitator rather than a direct price regulator. Its responsibilities should include overseeing the market's conduct, ensuring open access to the network, preventing anti-competitive practices, and protecting consumer interests. NEPRA should also focus on developing a robust regulatory framework for the wholesale and retail markets, including clear rules for market entry, trading, and settlement. Furthermore, NEPRA should work closely with the Power Division to synchronize regulatory measures with policy initiatives.

## 7.4 Potential Obstacles to Deregulation and Privatization

The transition towards deregulation and privatization may face several challenges:

- **Resistance from Stakeholders:** Various stakeholders, including labor unions, provincial governments, and

established market players like SOEs, may resist deregulation due to concerns over job security, loss of control, and market uncertainties. Effective stakeholder engagement and transparent communication will be vital to addressing these concerns.

- **Market Readiness and Infrastructure:** Existing power transmission and distribution infrastructure may not be fully equipped to handle a competitive market. Upgrading this infrastructure, including the deployment of smart grids and advanced metering systems, is essential for reliable market operations.
- **Financial Viability of DISCOs:** While corporatized, many DISCOs continue to face financial challenges, high distribution losses, and low revenue collection rates. Ensuring their financial health is essential to make them attractive to private investors and to prevent market failures post-privatization.
- **Regulatory and Policy Inconsistencies:** The government and NEPRA must maintain consistent and coherent regulatory policies to avoid creating an uncertain environment for investors and market participants, which could undermine the transition process.

## 7.5 Strategies for Managing Transition and Stakeholders' Expectations

Managing the transition to a deregulated and privatized power sector requires careful planning and stakeholder management:

- **Stakeholder Engagement and Communication:** Engage all stakeholders—including government entities, industry players, labor unions, and consumers—in the reform process. Transparent communication regarding the benefits, goals, and timelines of deregulation and privatization is the key to securing stakeholder support and minimizing resistance.
- **Pilot Projects and Gradual Implementation:** Implement pilot projects in select regions to demonstrate the benefits of deregulation and privatization. This approach allows for learning and adjustments, providing a blueprint for scaling up the reforms nationwide.
- **Social Protection Mechanisms:** Introduce social protection measures to mitigate the impact of deregulation on vulnerable consumers. These measures can include targeted subsidies, support programs for low-income households, and mechanisms to manage tariff volatility during the transition.
- **Capacity Building and Institutional Strengthening:** Invest in capacity building for NEPRA, the Power Division, DISCOs, and market participants to ensure they are equipped to operate effectively in a deregulated environment. This includes training on market operations, compliance, and risk management.
- **Continuous Monitoring and Evaluation:** Establish a framework for ongoing monitoring and evaluation to track progress, assess market performance, and identify areas for improvement. Regular assessments ensure that the deregulation and privatization process remain on course and can adapt to changing market conditions.

By prioritizing the introduction of deregulation measures before moving toward full privatization, Pakistan can create a competitive electricity market that attracts investment, enhances service quality, and offers consumers greater choice. This roadmap provides a structured approach to achieving a liberalized power sector that balances the interests of all stakeholders and ensures long-term sustainability.

## 7.6 Next Steps for Policymakers

- **Formulate a Comprehensive Deregulation Policy:** Policymakers should develop a detailed deregulation policy framework that outlines the phased introduction of wholesale and retail competition, tariff deregulation, and open access provisions. This policy should be backed by a clear implementation timeline and measurable benchmarks.
- **Pilot Implementation and Monitoring:** Initiate pilot projects in select regions to test the deregulation framework and demonstrate its benefits. Use these pilots to refine market mechanisms, address operational challenges, and build stakeholder confidence. Establish a robust monitoring and evaluation mechanism to track progress and ensure policy effectiveness.
- **Engage Stakeholders:** Engage all relevant stakeholders, including government agencies, industry players, labor unions, and consumers, in the reform process. Facilitate dialogue and communicate the long-term benefits of deregulation and privatization to secure stakeholder support and mitigate resistance.
- **Capacity Building and Institutional Strengthening:** Enhance the capacity of NEPRA, the Power Division, DISCOs, and market participants to operate effectively in a deregulated environment. Invest in training programs and institutional reforms to support market operations, compliance, and risk management.
- **Legislate and Enforce Regulatory Reforms:** Introduce legislative reforms to support market liberalization and enforce regulatory changes that facilitate competition and protect consumer interests. Address regulatory gaps, streamline market entry processes, and ensure a level playing field for all market participants.
- **Prepare for Full Privatization:** Begin preparations for the phased privatization of DISCOs by conducting financial audits, performance benchmarking, and identifying strategic investors. Ensure that the privatization process aligns with market liberalization goals and safeguards consumer interests.

By following this roadmap, policymakers can transform Pakistan's power sector into a competitive, efficient, and consumer-centric market. The prioritized introduction of deregulation measures, supported by a phased approach to privatization, will foster a sustainable and resilient power sector that meets the country's growing energy needs.

# CONCLUSION

In summary, this report emphasizes the critical need for deregulation prior to privatization in Pakistan's power sector to foster a competitive, consumer-focused market. The current single-buyer model has led to inefficiencies, high costs, and subpar service quality, issues compounded by the lack of competitive pressure. Lessons from Pakistan's telecommunications sector and international energy market reforms underscore that deregulation can attract investment, drive down prices, and improve service delivery by creating an environment where competition flourishes. By implementing a phased approach to privatization, supported by robust regulatory reforms and infrastructure improvements, Pakistan can transform its power sector into a sustainable, efficient, and transparent system that benefits consumers and contributes to broader economic growth. This research provides policymakers with actionable steps to achieve these objectives, ensuring that privatization leads to genuine improvements rather than a mere transfer of monopoly control.

# BIBLIOGRAPHY


"2000-2001 California Electricity Crises." *Wikipedia.* https://en.wikipedia.org/wiki/2000%E2%80%932001_California_electricity_crisis

Alpizar–Castro, Israel and Carlos Rodríguez–Monroy. "Review of Mexico's Energy Reform in 2013: Background. Analysis of the Reform and Reactions." *Renewable and Sustainable Energy Reviews* 58 no.5 (2016): 725-736. https://www.sciencedirect.com/science/article/abs/pii/S1364032115016743

Babar, Nadeem."The Pakistan Energy Conundrum." April 19, 2024. PIDE. Hybrid Seminar. https://pide.org.pk/webinar/the-pakistan-energy-conundrum/

Cheema. Tahir B., Nadeem Ul Haque. and Afia Malik. "Power Sector: An Enigma With No Easy Solutions." *PIDE*. 2022. https://pide.org.pk/research/power-sector-an-enigma-with-no-easy-solution/

Dagha, Mohammad Younus and Hammad Ezad. 2024. "Unfair Power Tariff for Trade and Industry: The Impact of Cross-Subsidisation." Policy Working Paper. Federation of Pakistan Chambers of Commerce and Industry. https://fpcci.org.pk/wp-content/uploads/2024/01/Unfair-Power-Tariff-for-Trade-and-Industry-Impact-of-Cross-Subsidisati.pdf

Dubash, Navroz K., and Sudhir Chella Rajan. "The Politics of Power Sector Reform in India." *World Resources Institute*. 2001. http://pdf.wri.org/power_politics/india.pdf

Emspak, Jesse. "How Carlos Slim Built His Fortune." *Investopedia.* 2024. https://www.investopedia.com/articles/investing/103114/how-carlos-slim-built-his-fortune.asp

Ghumman, Mushtaq. "KE Seeks Rs 635bn allocation for Tariff Differential Subsidy." Business Recorder. February 18, 2023. https://www.brecorder.com/news/40227072

Ghumman, Mushtaq. "NEPRA proposes 'key' structural changes in Discos." *Business Recorder.* February 27, 2024. https://www.brecorder.com/news/40290868

Ghumman, Mushtaq. "ISMO: CCoE approves proposal by power division." *Business Recorder.* October 10, 2024. *https://www.brecorder.com/news/40326370*

"Govt pays Rs979 billion to 33 IPPs in capacity payments during FY2023-24." *Profit.* September 13, 2024. https://profit.pakistantoday.com.pk/2024/09/13/govt-pays-rs979-billion-to-33-ipps-in-capacity-payments-during-fy2023-24/

"IEX records 56 percent surge in trading volume. hits 13.250 MU in July 2024." *ET EnergyWorld*. August 5, 2024. https://energy.economictimes.indiatimes.com/news/iex-records-56-percent-surge-in-trading-volume-hits-13250-mu-in-july-2024/112289873

"K-Electric launches star rewards to encourage timely bill payments." *The News*. October 2, 2024. https://www.thenews.com.pk/print/1235804-k-electric-launches-ke-star-rewards-to-encourage-timely-bill-payments

Kenton, Will. “Deregulation: Definition. History. Effects. and Purpose.” I*nvestopedia*. 2024. https://www.investopedia.com/terms/d/deregulate.asp.

Liu, Jinqi, Jihong Wang. and Joel Cardinal. "Evolution and Reform of UK Electricity Market." *Renewable and Sustainable Energy Reviews* 161 no.10 (2022). https://www.sciencedirect.com/science/article/pii/S1364032122002313

Malik, Afia. “Readings in Pakistan's Energy Challenges.” *PIDE*. 2024. https://pide.org.pk/research/readings-in-pakistans-energy-challenges/

“NEPRA Annual Report 2022-23.” *NEPRA*. https://nepra.org.pk/publications/Annual%20Reports/Annual%20Report%202022-23.pdf

“OECD Review of Telecommunication Policy and Regulation in Mexico.” *OECD*. 2012. http://dx.doi.org/10.1787/9789264060111-en.

“Pakistan's telecom sector generates Rs850bn in FY2022-23: PTA report.” *Profit*. January 30, 2024. https://profit.pakistantoday.com.pk/2024/01/30/pakistans-telecom-sector-generates-rs850bn-in-fy2022-23-pta-report/

“Power Sector at a Glance ALL INDIA.” Ministry of Power. Government of India. 2023. https://powermin.gov.in/en/content/power-sector-glance-all-India.

“Power sector circular debt to hit Rs2.8trn despite 51% hike in electricity tariff.” *Profit*. September 24, 2024. https://profit.pakistantoday.com.pk/2024/09/24/power-sector-circular-debt-to-hit-rs2-8trn-despite-51-hike-in-electricity-tariff/

Rafique, Hassaan.“Pakistan's Energy Sector Reliance on Imported Fuel & Rising Circular Debt”. June 19, 2023. *Medium*. https://medium.com/econdata-pub/pakistans-energy-sector-reliance-on-imported-fuel-rising-circular-debt-f733001e9308

Saeed, Amir, and Mukaram Ali Khan. "Impact Analysis of Privatization of PTCL in Pakistan." *Journal of the Punjab University Historical Society* 30. no. 2 (2017): 9-20. https://pu.edu.pk/images/journal/HistoryPStudies/PDF_Files/2_V-30-No2-Dec17.pdf

Serra, Pablo. "Chile's Electricity Markets: Four Decades on from Their Original Design." *Energy Strategy Reviews* 39 no.3-4 (2022). https://doi.org/10.1016/j.esr.2021.100798

“State of Industry Report.” *NEPRA*. (2023).

Surdeo, Vasant. "Power Sector Policies in India: History and Evolution." *Jindal Journal of Public Policy* 3. no. 1 (2017): 115-129. https://pure.jgu.edu.in/id/eprint/2148/1/Surdeo2017.pdf

Tankha, Sunil. "From Market to Plan: Lessons from Brazilian Power Reforms on Reducing Risks in the Provision of Public Services." *Policy & Society*. Volume 27. no. 2 (2008): 151-162. https://doi.org/10.1016/j.polsoc.2008.09.002

"Telecommunications in Pakistan." *Wikipedia*. https://en.wikipedia.org/wiki/Telecommunications_in_Pakistan.

"Telecom Revenues Rise to PKR 694 Billion in 2022: PTA Annual Report." *Pakistan Telecommunication Authority.* 2022. https://www.pta.gov.pk/category/telecom-revenues-rise-to-pkr-694-billion-in-2022-pta-annual-report-182980759-2023-06-01

"Total electricity volume trade on IEX grows 9% to 7.392 million units in November." *Moneycontrol.* December 5, 2022. https://www.moneycontrol.com/news/economy-2/total-electricity-volume-trade-on-iex-grows-9-to-7392-million-units-in-november-9651781.html.

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FRIEDRICH NAUMANN FOUNDATION For Freedom.
Pakistan


First Floor, 15-E, Rehmat Center, Jinnah Ave, Block D,
Blue Area, Islamabad Capital Territory 44000
Tel: +92 (51) 831 4338
www.primeinstitute.org