*Chapter 4*

# National Electric Power Regulatory Authority (NEPRA)

AFIA MALIK

## 4.1. BACKGROUND

Historically, in Pakistan, electricity sector policymaking, regulation, and service provision were all under Government's control. However, the lack of managerial capacity and fiscal resources restrict the Government from keeping pace with the growing demand for services.

The Government of Pakistan (GOP) in 1992 prepared a strategic plan for restructuring the electricity sector. It unbundles vertically integrated utility, WAPDA, into separate generation, transmission, and distribution companies for better management. The GOP invited private capital in the generation sector to augment state-owned generation resources. The establishment of an autonomous regulatory agency to introduce transparent and judicious economic regulation in the power sector of Pakistan was also part of this plan.

The National Electric Power Regulatory Authority (NEPRA) was established under Section 3 of the Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997 (NEPRA Act No. XL 1997) to regulate the provision of electric power services in Pakistan. To create a legal basis for developing a competitive electricity market, NEPRA Act got amended in 2018.

Initially, NEPRA was established as an autonomous organisation with no administrative control from the GOP. However, for better interaction with Federal and Provincial Governments, it was made an attached department to the Ministry of Water and Power. Later, it allied GOP through the Ministry of Law and Justice. Since 2000, NEPRA has been under the Cabinet Division.

### 4.1.1. NEPRA Act

As in the NEPRA Act 1997, the aim behind the formation of NEPRA was to have an independent regulatory body to improve the efficiency and availability of electric power services while protecting the interests of consumers, investors, and the operators equally, and to promote competition and deregulate power sector activities where competition exists.

Under the act, NEPRA's policy guidelines for power sector reforms revolve around: cost-effective tariff structure to ensure investments in the short run; expansion of generation, transmission, and distribution capacities in the long run to meet the growing energy demand; and to guarantee a reliable provision of electricity to consumers (Malik, 2007).

**Box 4.1**

**Major regulatory obligations under NEPRA Act No. XL 1997**

- *Grant of licenses, approval of power acquisition programmes.*
- *Determination of tariff, terms and conditions and rates.*
- *Prescription and enforcement of quality-of-service standards, approval of operating codes and investment standards.*
- *Industry structure/privatisation including the transition towards a competitive market where feasible.*
- *Consumer rights and obligations_ complaint redressal.*

However, the Regulation of Generation, Transmission and Distribution of Electric Power (Amendment) Act (2018) has increased its responsibilities. Its additional responsibilities include_

- to guarantee high standards of transparent, clear, and effective regulation of the electric power markets of Pakistan;
- specification of the legal framework within which a competitive electric power market can develop and sustain; and
- to manage conflict of interest between the state and the development of the electric power markets.

Appendix Table 4A states key amendments in NEPRA Act.

Besides, ensuring the elimination of energy poverty and facilitating the development of environment-friendly renewable electricity markets are among the foremost responsibilities of NEPRA.

**Box 4.2. NEPRA Mandate under Amended Act [Act No. XII of 2018]**

In addition to grant licences and tariff determination, NEPRA is given authority to

- *Specification of procedures & standards for registration of persons providing electric power services.*
- *Advisory to the Federal Government in the formulation of electricity plan, policy, and public sector projects.*
- *Specification and enforcement of performance standards for generation companies and persons licensed or registered under the Act.*
- *Specification of procedures & standards for investment programs by generation companies and persons licensed or registered under the Act.*
- *Specification of accounting standards and establish a uniform system of account by generation companies and persons licensed or registered under the Act.*
- *Ensuring efficient tariff structures and market design for sufficient liquidity in the markets.*
- *Specifying fees.*
- *Review of its own decisions.*
- *Settle dispute between licenses in accordance with the specified procedure.*
- *Issue guidelines and operating procedure to promote market development, including trading in accordance with national electricity plan and policy.*
- *Review of organisational affairs of generation companies and persons licensed or registered under the Act for efficient supply of services.*
- *Encourage uniform industry standards and code of conduct for generation companies and persons licensed or registered under the Act for efficient supply of services; and*
- *Submit report on the activities of generation companies and persons licensed or registered under the Act to the Federal Government.*

In short, under the amended act, NEPRA's policy guidelines revolve around creating a legal basis for moving to a competitive market structure.

### 4.1.2. Purpose of Evaluation

The purpose of this evaluation is to:

- Review the effectiveness of the National Electric Power Regulatory Authority (NEPRA), identify flaws in the current regulatory infrastructure, explore reasons behind these flaws, and suggest ways to improve it.
- The evaluation will explore the institutional and governance structure at NEPRA and its capacity to play its regulatory role effectively.

### 4.1.3. Methodology

For this evaluation, i.e., the regulatory effectiveness of NEPRA, a case study approach is adopted. The data is collected from interviews (interactive sessions) with officials (current and ex) at the authority, sector experts, and government officials. Besides, the evaluation relies on secondary data sources_ NEPRA Annual Reports, State of Industry Reports, and other published reports and documents available.

*Limitation*: The evaluation relies only on information (both qualitative and quantitative) gathered from informal interviews/discussions and published sources; a perception survey is not conducted.

### 4.1.4. Scope of Evaluation

The evaluation covers the subject matter under two main headings:

***Regulatory Mandate and its Effectiveness***

- What is the status of its policies, strategies, various processes (that is, regulatory framework) involved in_ the grant of licenses, the determination of tariffs, and the making of rules, regulations, standards, and specifications? What are the flaws in execution?
- To what extent its rules/ regulations are facilitating market development and competition?
- What is the impact of the regulatory framework at NEPRA on power sector outcomes? That is, did NEPRA achieve its objectives as in NEPRA Act, 1997?

***Regulatory Capacity***

- Does NEPRA as an institution has the competence and capacity to carry out its functions and achieve its objectives effectively?
- Does NEPRA Act facilitate an effective governance structure at NEPRA? To what extent does NEPRA Act facilitate its independent and effective functioning?

### 4.1.5. Structure of Evaluation

**Findings** in this evaluation are obtained from informal and detailed discussions and reviews of available documents.

**Recommendations** in the evaluation identify specific areas/ policies that can be modified for improved outcomes.

### 4.2. REGULATORY MANDATE AND ITS EFFECTIVENESS

*What is the status of its policies, strategies, various processes (that is regulatory framework) involved in the grant of licenses, in the determination of tariffs and in the making of rules, regulations, standards and specifications? What are the flaws in execution?*
*To what extent its rules/ regulations are facilitating market development and competition?*

***Findings***

NEPRA Act defines the mandate of NEPRA. It specifies its powers and functions. Rules and Regulations are fundamental instruments to achieve NEPRA's objectives and perform responsibilities under the Act. It is the prerogative of the Federal Government to make rules[40]. While NEPRA can only recommend or ask for it. But the government must consult the Authority and the Provincial Governments. While NEPRA has powers to formulate regulation, issue directives, codes, guidelines, circulars, or notifications as are necessary to carry out the purposes of the NEPRA Act.

NEPRA is a quasi-judicial organisation. It regulates the power sector of Pakistan. Its main functions include issuing licenses, determining tariffs, and monitoring energy companies for ensuring proper standards and quality of services. Additionally, it addresses consumer complaints. Section 14A (5) states that the authority shall perform its functions under the national electricity policy and plan, which, after a long delay, has been announced in the last week of June 2021.

To be effective, NEPRA needs to have processes to deliver licensing, determining tariffs, monitoring, review and assessment, and enforcement functions, including the withdrawal of previous authorisations. Within the broader framework of the 1997 Act, NEPRA has prescribed rules, regulations, guidelines, codes to oversee the power sector. Processes are defined clearly in the NEPRA Regulatory Framework (Figure 4.1). The processes allow for a timely response as rules, regulations, and guidelines mention the time frame.

However, after the amendment in 2018, new rules, regulations, and specifications of standards are required. As per the amended Act, distribution will be separate from the electricity supply by 2023, which requires new standards/rules/regulations. Similarly, a competitive (wholesale) market is envisaged to be developed. Section 50(1) of the NEPRA Act requires the secondary legislative instruments notified before 2018 to be brought in line with the amended NEPRA Act within one year from the date of coming into effect of the Regulation of Generation, Transmission, and Distribution of Electric Power (Amendment) Act, 2018. However, three years have passed, but the requisites are not in place. There are delays in finalising the rules/ regulations/ guidelines required for the market.

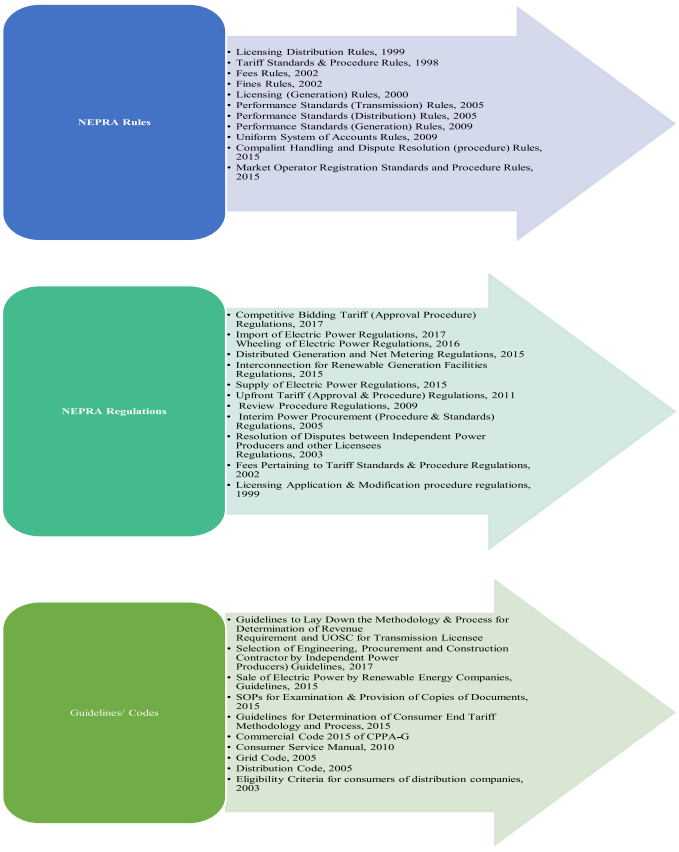
[40] This is through amendment in Section 12(d) in NEPRA Act XL of 1997. Before the amendment, NEPRA had the power to make rules.

Its latest Annual Report 2020-21, its websites and inquiry at various levels revealed that most of these new rules/ regulations are still in the making process. As of now, only three regulations have been notified:

- NEPRA Licensing (Application, Modification, Extension and Cancellation) Procedure Regulations, 2021
- NEPRA (Fees) Regulations, 2021
- NEPRA (Selection of Operation and Maintenance Contractors by Generation Companies) Guidelines, 2021ocedure Regulations, 2021

NEPRA approved a Competitive Trading Bilateral Contract Market Model (CTBCM) on December 05, 2019, to be operational in April 2022. Three months have left, but pre-requisites are not in place. Beyond that, it was prepared under rules made before the passage of the amended NEPRA Act. Section 14A of the NEPRA Act requires the government to develop "an efficient and liquid power market design", along with any matter on development, reform, improvement, and sustainability of the power sector (more details in sub-section 4.2.5). NEPRA is fundamentally found to be weak in carrying out its functions in a timely and effective manner. It is elaborated further below in the discussion on the existing regulatory framework.

**Fig. 4.1. Regulatory Framework at NEPRA**



### 4.2.1. Grant of Licenses

Licensing is one of the principal activities at NEPRA. No company may carry out generation, transmission, and distribution without getting a license from NEPRA. NEPRA is performing this function in the light of NEPRA Licensing (Application and Modification Procedure) Regulations, 1999; NEPRA Licensing (Generation) Rules, 2000 and NEPRA Licensing (Distribution) Rules, 1999. As per the NEPRA regulations 1999, Section 5(2), license is an instrument used to allow market entry; an instrument to check the development of capacity more than required; fuel mix; to evaluate the professional ability of an operator to execute the project; and the financial viability of the project.

The NEPRA legal framework states the procedure for allotting licenses. The rules state licenses' fees, terms for issuance and renewal, revocation, and suspension; licensees' accounting practices and audit, provision of information, fines and penalties, resolution of disputes, and so on. In law, a time is specified in which NEPRA must approve or refuse a license application. The process involves a public hearing.

The process is cumbersome; in terms of the documentation required and the time involved in the final decision. In most cases, the time taken in making the final decision is more than what the rules prescribe. For instance, in the case of generation licenses to IPPs, the determinations took more than a year in some cases against the four months allowed time.[41]

There are provisions to force companies to relinquish licenses or permits for a legal or contractual violation. Penalties are allowed in law for violating contractual terms, but these are rarely applied. NEPRA, being a regulator, needs to ensure that generation plants are operational in compliance with their respective generation licenses. A proper check & balance process is required. But it is missing in NEPRA practices.

In the generation licensing decision, the professional ability of an operator to execute the project; and the financial and technical feasibility of the project are reviewed. But no focus to check the capacity required or towards fuel mix. The fact is it is the government that decides about the projects; the job of the regulator is to check for the technicalities and issue licenses. Officials at NEPRA complain about the non-availability of the national electricity plan to guide them.

Market entry regulatory framework has remained weak in Pakistan, mainly due to the limited role of NEPRA in Power Purchase Agreements. The prices and guarantees offered to new entrants in the generation sector did not allow competition among the generation companies. Contrary to NEPRA regulation, which says that the review and approval of a project are based on least-cost considerations, new contracts have been justified in filling the demand and supply deficit. NEPRA was not involved in the review and approval of the agreement, but it determines the generation tariff that will apply to a power plant, and the PPA must follow.

NEPRA competitive bidding tariffs (approval procedure) regulations were notified in 2008, amended in 2014, 2017, and then in 2019 but not applied in practice. The absence of competitive bidding for these projects and non-transparent procurement processes has always raised serious concerns about the potential for corruption. The guarantee clauses in power purchase agreements (PPA) with these IPPs have not only

[41] It is obvious from the dates on final decisions.

restrained the dispatching efficiency but overburdened the power sector and the government with hefty liabilities. Section 3(6) of NEPRA Licensing (Generation) Rules, 2000, allowed NEPRA for additional terms and conditions for a good cause. But it is the lack of regulatory oversight that today Pakistan's power sector is in a "capacity trap."

NEPRA issues licenses for generation, transmission, and distribution. After the amendment in the ACT in 2018, issuing licenses for an electricity supplier, market operator, system operator, and market trader is the mandate of NEPRA. Figure 4.2 describes license categories granted by NEPRA under Sections14B, 14C, 16, 17, 19, and 20 of the NEPRA Act up to June 2020. Figure 4.3 lists new license categories established under the amended Act.

**Fig. 4.2. Licenses Issued under Three Main Categories**

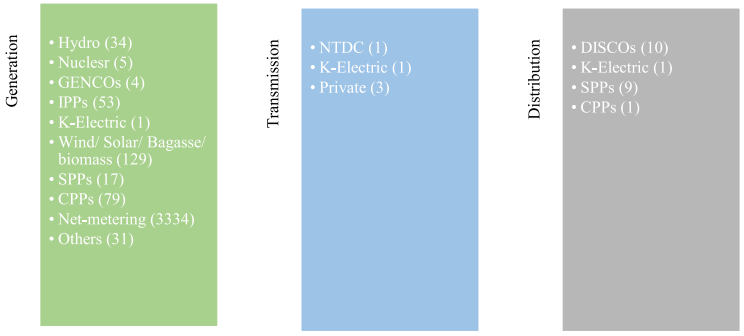



**Figure 4.3. New license Categories in the Amended NEPRA Act, 2018.**

For distributed generation (DG), the "National Electric Power Regulatory Authority (Alternative & Renewable Energy) Distributed Generation and Net Metering Regulations" (2015) specify the rules for connecting these generators to the primary grid. The regulator determines whether distributed generators can sell power back to the utility. As reported in Bacon (2019), new entrants (mainly solar) have faced problems getting through the various initial stages of approval. For both wind and solar, the number of Letters of Intent (LOI) issued with associated land allocation rights is greater than the land available and the interconnection potential of the grid. As a result, only those private participants who have links with the government have land identification and allocation and have moved on to the stage of conducting the feasibility; otherwise, not.

Another issue is the delay in getting the interconnection permit from NTDC. Under the influence of the Ministry, not only does NTDC take more than allowed 30 days (sometimes more than a year) to comment on the inter-connection study, its Planning department (responsible for interconnection permits) also delay the process. Though utilities are required to connect distributed generation assets to the grid within a specified period, this gets delayed generally.

Licensing for transmission and distribution licensing was not an issue in the past because of restricted market entry[42]. But with the implementation of CTBCM, market participation in transmission and energy supply will increase, thus increasing license requirements. NEPRA officials view the existing processes and procedures as not requiring immediate reform, but the experts had a different viewpoint.

### 4.2.2. Tariff Determination

NEPRA determines electricity tariff, keeping in view the principles of economic efficiency and service quality according to the prescribed Tariff Standards and Procedure Rules, 1998. Under Section 7 (3) of the NEPRA Act,1997, NEPRA has been bestowed with the power to determine tariff rates/ charges and other terms and conditions for supplying electric power services by generation, transmission, and distribution companies.

NEPRA Tariff Standards and Procedure Rules (1998) provide guidelines for process and parameters for setting tariffs. Licensee, consumer, or person interested in the tariff may file a petition with the NEPRA by submitting it before the Registrar along with such fee as may be determined by the Authority. On receipt of tariff petition, the process is followed as elaborated in Figure 4.4.

Tariff determined by NEPRA is forwarded to the Federal Government under Section 31(4) of the NEPRA Act for notification in the Official Gazette. NEPRA Act, 1997 states that the Federal Government may file a reconsideration request concerning the determination/decision of the authority in 15 days. The authority within 15 days shall decide upon the matter and intimate the Federal Government for notification in the official gazette. As per the rules, five days are allowed to file a motion for a recalculation; and ten days to file a review motion. The amended Act (2018) removed the reconsideration request, and tariff notification in the official gazette was required to be done within 15 days. However, through another amendment in 2021 (NEPRA ACT

[42] For the first time in 2015, a private transmission company was granted a license.

NO.XIV OF 2021), the number of days has increased from 15 to 30. At the same time, the reconsideration request within 30 days is also allowed.

Figure 4.5 elaborates the tariff structure for generation, transmission, and distribution, and Tariff Regime/ Procedures followed are elaborated in Figure 4.6.

**Fig. 4.4. Steps Involved in Tariff Notification**

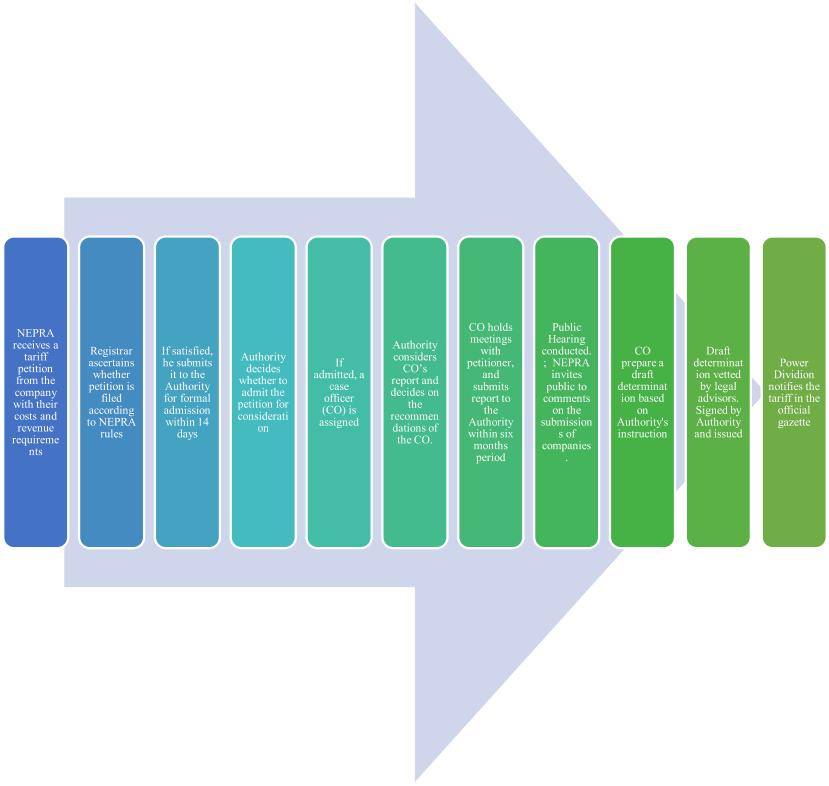



**Fig. 4.5. Tariff Structure**

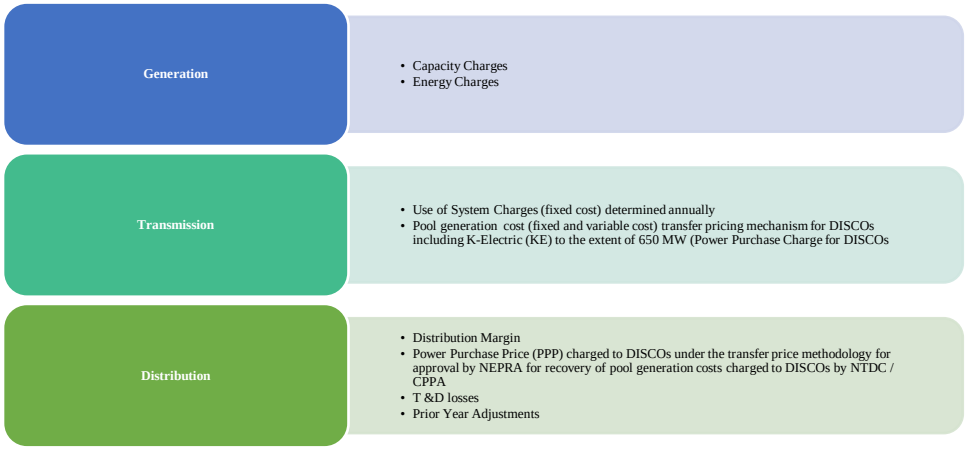
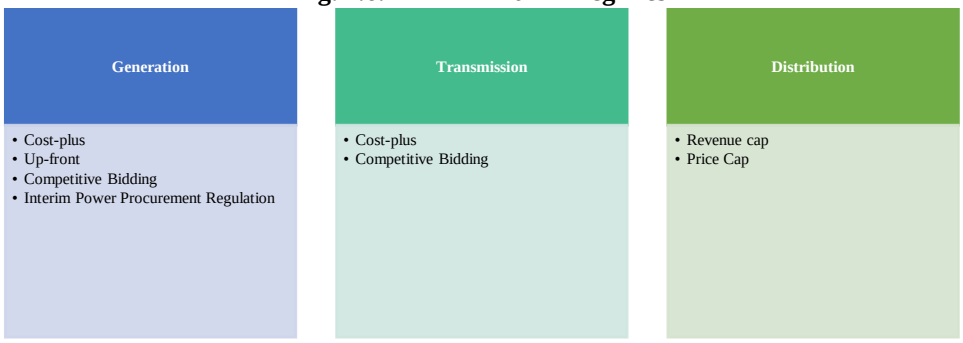


**Fig. 4.6. NEPRA Tariff Regimes**




Before the amendment in NEPRA Act, NEPRA determined consumer-end tariffs for each distribution company (DISCOs) separately. NEPRA determines consumer-end tariffs to recover the entire supply chain costs[43]. In deciding the average sale price, NEPRA considers the annual revenue requirement of DISCOs which includes all the costs involved. The main factors in the annual revenue requirements include power purchase price[44], net distribution margin[45], transmission and distribution (T&D) losses, and prior-year adjustments.[46]

The tariff so determined was different for each DISCO because of its distinct characteristics: the difference in annual revenue requirement and T & D losses. NEPRA used to make its valuation of cost and revenue requirements, determine the average sale price of each DISCO, set tariffs for different slabs of various categories of consumers for each DISCO, and send its recommendation to the Government of Pakistan (Power Division). The Government of Pakistan notified the final tariff for different consumer categories but the same across all DISCOs. Usually, the minimum consumer-end tariff for a particular consumer category among all DISCOs was adopted for application across the board to all DISCOs.

However, in the Amended Act, 2018, NEPRA shall determine a uniform tariff for distribution licensees wholly owned and controlled by a common shareholder based on their consolidated accounts. In the amended Act, it is further stated that NEPRA will take

[43]During the transition phase towards the complete corporatisation of the former WAPDA companies, the bulk tariffs charged for the electricity purchased by the distribution companies have been determined at the discretion of NTDC. Until 2000, a uniform bulk tariff was charged to all distribution companies to buy electricity. In 2001, a new pricing methodology was established, through which each distribution company would retain a margin that reflects its cash expenses, debt services, and line losses (but not capital expenditures or non-cash expenses).

[44]It includes the generation and transmission costs of the power a DISCO has projected to purchase.

[45]It is the difference between gross margin and other income of DISCO. Gross margin includes operation and maintenance (O&M) costs, depreciation and returns on the asset base of DISCO. Other income refers to remuneration of deferred credit, meter and rental income, late payment surcharge, profit on bank deposit, sale of scrap, income from non-utility operations, commission on PTV fees and miscellaneous incomes.

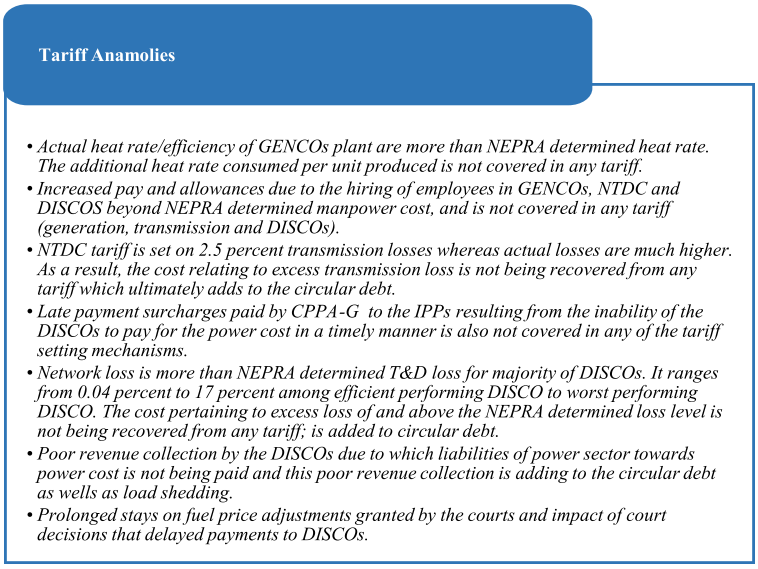
[46]It is the gap between the projected and the actual cost in the previous year, built into tariffs for that year. This adjustment is for the difference between the projected and actual electricity units purchased by DISCOs; the difference between the projected and actual distribution margins; the difference between actual and notified previous year adjustment; the difference between projected and actual other income; and the difference between the projected and actual consumption mix.

guidance from National Electricity Policy to determine, modify or revise rates, charges, and terms and conditions for the provision of electricity services. To sum up, the tariff structure in Pakistan is not based on regional and consumer-specific long-run marginal costs. It is used as an instrument to achieve political and socio-economic objectives. This is not NEPRA's fault, as Act binds the authority.

Apart from monthly fuel price adjustments, NEPRA also allows for quarterly adjustments in the determined tariff of DISCOs. It results from the regulatory failure, as it is made when DISCOs do not use the allowed energy quota and ask for a quarterly adjustment. Instead of regulating DISCOs, the burden is transferred to the consumers.

Over the years, the determinations process has seen delays, and the regulator has not allowed prudent cost (Figure 4.7). In the generation tariff, the BOOT tariff was applied to the BOO regime_ a payment of 80 percent plant cost in the first 10-15 years. The 15-18 percent returns on equity with return in dollars despite substantial cost incurred in Pakistani rupees caused huge capacity payments. Higher outages and higher capital costs were allowed making capacity purchase prices higher (Sohail, 2014).

**Fig. 4.7.**




For independent power plants (IPPs), the up-front tariff regime under Up-front Tariff (Approval & Procedure) Regulations, 2011, is generally applied by NEPRA. One of the reasons for the high cost of electricity generation in Pakistan, cited by many experts, was NEPRA's lack of capacity in determining up-front tariffs. For instance, imported coal power plants (under CPEC) had been built at $1.4 million per MW and a tariff almost double to a similar coal plant tariff under construction in UAE by the same Chinese company at the same time. The reason was the upfront tariff system of NEPRA. NEPRA estimated a high tariff.[47]

[47] https://www.syedakhtarali.com/2019/07/03/why-is-power-so-pricey/

Although, it would be unfair to attribute all tariff issues to NEPRA. Sometimes delays are from the side of a licensee or because of legal challenges[48] or government interventions due to political considerations. But still, it is primarily the regulator which will have to take responsibility and lead reform in this area, especially in terms of providing guidelines and solutions.

To give the credit where it is due, NEPRA established for the first time in South Asia a CPI-X based Multi-Year Tariff (MYT) regulatory framework. In 2002, NEPRA approved a framework of MYT for KESC (now K-Electric) for seven years from its privatisation (given its expected privatisation). Later, the same tariff regime was established for FESCO, IESCO, and GEPCO, anticipating their privatisation. K-electric got privatised in 2006. Ideally, now NEPRA should be regulating K-electric tariff and not determining. But the focus of NEPRA is on determining K-electric tariffs. Through multi-year tariff determination, K-electric still needs regulatory approvals for its investment decisions (Malik and Khawaja, 2021).

### 4.2.3. Performance Standards and Enforcement

According to section 7(2) clause c and section 34 of the NEPRA Act (XL of 1997), the authority is obliged to prescribe performance standards for the generation, transmission, and distribution companies for safe and reliable service.

All the required Standards under NEPRA Act 1997 for distribution, transmission, and generation are put in place, although after a long and delayed process. While after the amendment, new performance standards for the generation, transmission, distribution, electricity supply, and electricity trader are in the making. NEPRA has not prescribed environmental standards; all the generation companies granted a license by NEPRA are required to maintain environmental standards as may be defined by the Federal Environmental Protection Agency.

On papers, the regulatory framework for service quality is there[49]. All the companies (generation, transmission, and distribution) are bound by law to meet these standards for quality, supply, and commercial service; otherwise, they would be eligible for a fine or penalty. For quality-of-service enforcement, regulated entities must report various indicators, such as System Average Interruption Duration Index (SAIDI), System Average Interruption Frequency Index (SAIFI), voltage indicators, recovery rates, and transmission & distribution losses. NEPRA evaluates these, and the report is uploaded on its website.

But, in general, the enforcement mechanism is fragile at NEPRA. Fines are rarely applied (as is evident from NEPRA Annual Reports[50]); there is no consistent approach to applying a penalty if the company fails to meet standards. Above all, there is no evidence

[48] As per the NEPRA Annual Report 2019-20, the regulator is presently facing litigation in around 1304 cases pending before various courts. Some of the critical issues among others in litigation were Exclusivity of DISCOs, Inclusion of "surcharges" in the "Schedule of Tariff" by NEPRA upon re-consideration request filed by Federal Government, Fuel Adjustment Charges, Recovery of fixed charges during load-shedding.

[49] Old rules are applicable as long as the new ones are finalised and announced.

[50] In 2019-20, NEPRA imposed fines on DISCOs on account of violations of Performance Standards, Distribution Code, and other applicable documents and the occurrence of fatal accidents. Similarly, imposed 50 million fine on K-Electric on account of 19 fatal accidents in Karachi because of heavy rainfall during July and August 2019.

of recovery of these fines. NEPRA's role is limited to sending an advisory to the government about DISCO's performance. But the authority itself is unable to enforce these performance standards. At the same time, information on government response to NEPRA advisories is not available.

### 4.2.4. Consumer Affairs and Complaint

The Consumer Affairs Division (CAD) handles consumers' complaints. Consumers can approach NEPRA under NEPRA Complaint Handling and Dispute Resolution (Procedure) Rules, 2015 read with Section 39 of the NEPRA Act against a Licensee for breach of any provision of the Act or any Order, Rule, Regulation, License, or instructions made or issued thereunder. NEPRA has established Regional Offices to facilitate consumers for the speedy redressal of their grievances.

As reported in NEPRA Annual Reports, consumers complain about excessive billing, delay in the provision of connections, replacement of defective meters, low voltage problem, augmentation of transformers, non-receipt of electricity bills, delay in replacement of replacement damaged transformers, and excessive load shedding, etc. As the reported data revealed, on average, about 92 percent of complaints were resolved in the last five years. Any information from other resources is not available to countercheck NEPRA's claims.

### 4.2.5. Competitive Market Development

The driving force behind the Amended NEPRA Act is to guide NEPRA to adapt to new challenges involved in creating a competitive electricity market. Though, NEPRA was mandated in the previous Act to smooth the transition towards a competitive market where it is possible. But unfortunately, it didn't happen.

The Amendment creates a legal basis for the licensing of various stakeholders in the market to smooth the transition towards a 'competitive market' structure. Many new stakeholders (units) were introduced, which require the development of a comprehensive framework by the regulator to implement and enforce competitive market reforms.

Besides, under the NEPRA amended Act, the two distribution functions, 'wire or distribution network' and 'sale', must be separated by 2023, which traditionally were covered in a single distribution license. The amended Act also provides a gradual cessation of the licensing requirement for generation companies after 2023 and a complete exemption for 'Captive Power Plants' to obtain a license.

Under the amended Act, the regulator has been granted powers to monitor and enforce the competitive market. However, the amendments only provide a legal basis for developing a competitive electricity market, legal guidelines for guaranteeing de jure regulatory performance. The successful transition towards a competitive market requires de facto regulatory performance, which depends on significant preparation at NEPRA and the Power Division, Central Power Purchasing Agency-Guarantee (CPPA-G), PPIB, and other related institutions. It requires new pricing and procurement rules, new software at each entity, capacity building of staff to enable them to handle market forces while meeting their primary objective to supply electricity to consumers.

The USAID Report (2019) testifies what is informed by experts that various departments at NEPRA are not yet ready for this change. Management has little knowledge of different competitive market models_ their strengths and weaknesses. NEPRA's expertise to supervise long-term bilateral contracts and spot purchasing is minimal at present. It was NEPRA duty_ to ensure that the CTBCM is in line with the amended NEPRA Act. It was also its job to evaluate whether the sector conditions are suitable enough for the competitive market model to be implemented[51]. Unfortunately, this has not been done. The irony is, CTBCM was evaluated by a foreign consultant, on behalf of NEPRA, who hardly understood ground realities. Some experts view that due to market intricacies and complexities, the fear is it (CTBCM) will crash.

So far, the only plus point is to facilitate wheeling of power; NEPRA made NEPRA (Wheeling of Electric Power) Regulations in 2016. Under these regulations, generation companies connected to the transmission and distribution networks or those who intend to be connected can transport their power using the transmission network of NTDC or distribution networks of DISCOs to the Bulk Power Consumers. It is the first step considered towards developing the market.[52]

*What is the impact of regulatory framework at NEPRA on power sector outcomes? Did NEPRA achieve its objectives as stated in NEPRA Act, 1997?*

***Findings***

What ultimately matters are sectors outcomes, not regulatory processes. The key objective behind the formation of NEPRA was to develop and pursue a regulatory framework to improve efficiency and reliability and provide affordable electricity to consumers while protecting the interests of consumers, investors, and operators equally. In addition, facilitating the transition from a protected monopoly structure to a competitive environment was also NEPRA mandate in NEPRA Act 1997.

### 4.2.6. A Balance between Consumer, Investor, and Operator

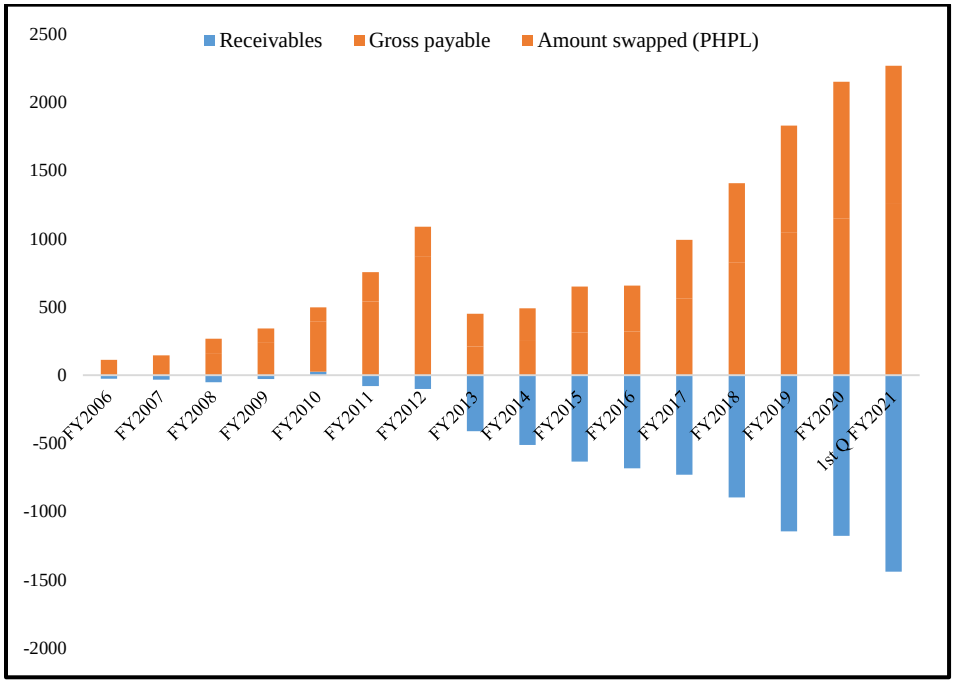
NEPRA was mandated to create a balance between investors and consumers, where it failed as the problems faced in the power sector in the last two decades are un-exemplary. Consumers remained the worst sufferers of the government fiscal and

[51]Wholesale market must meet specific pre-requisites. Financially viable and a reliable payment chain. The creditworthiness of all, particularly distribution utilities, is critical. Another pre-requisite for the wholesale market is many buyers and sellers in a market. We don't have enough buyers and sellers to compete. On the generation side, all the independent power plants and even state-owned generation companies, despite being inefficient, are all under take-or-pay contracts. There isn't enough free generation capacity available_ to be traded in the market. In the CTBCM, because of take-or-pay contracts, the distribution companies (DISCOs) would be required to provide a credit cover for future electricity procurement. The status of DISCOs balance sheets suggests that it is not possible. If buyers are not financially sound, how will the market function? The benefits of competition are unlikely to pass to end-users if there is a significant concentration of market power either in the generation or the distribution sector. Sufficient transmission infrastructure and stable macroeconomic and political environment are not present_ these support market development.

[52]Bulk Power Consumers wanted to pursue 'Wheeling of Power' under the Wheeling Regime. But hurdles are being created by Power Division & CPPA-G to protect DISCOs.

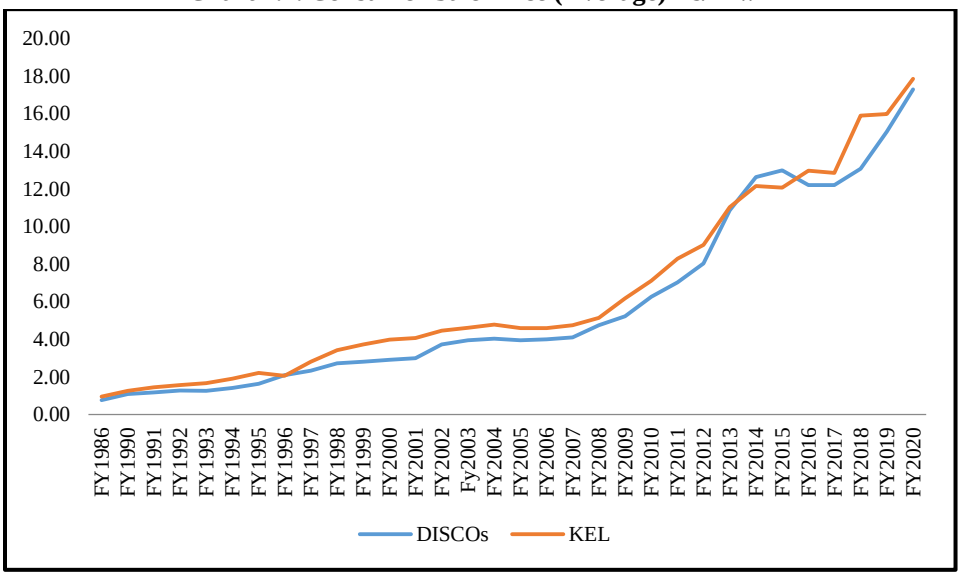
financial issues due to enormous and rising circular debt (Chart 4.1). Power outages of 8 to 10 hours in urban areas and up to 16 hours in rural areas and a significant increase in electricity prices (Chart 4.2 and Chart 4.3).

**Chart 4.1. Circular Debt Growth**



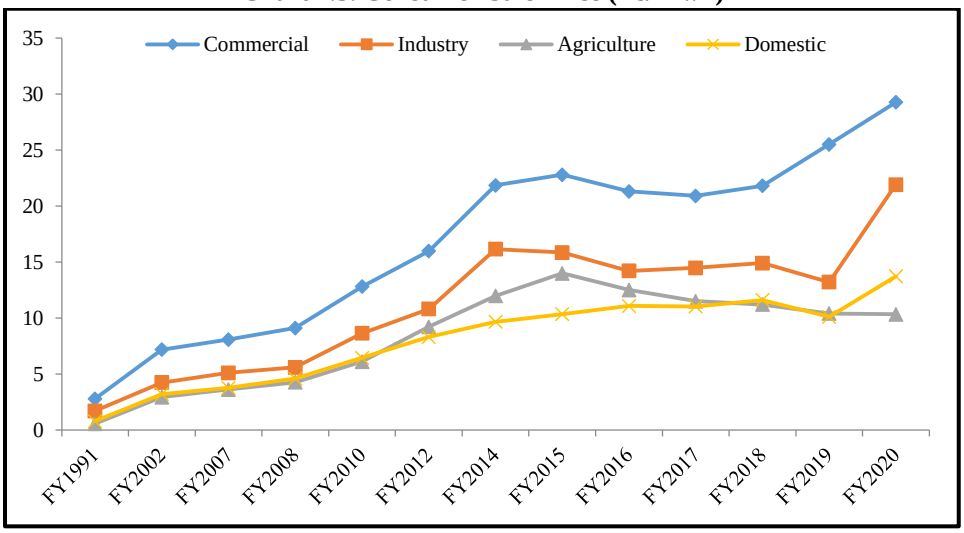

*Source:* NEPRA State of Industry Reports, CPPA-G Annual Reports, and Various Government Documents.

**Chart 4.2. Consumer Sale Price (Average) Rs/ KwH**




*Source:* Electricity Marketing Data (Various Years) and NEPRA State of Industry Report (Various Years).

**Chart 4.3. Consumer Sale Price (Rs/ Kwh)**




*Source:* Electricity Marketing Data (Various Years) and NEPRA State of Industry Report (Various Years).

While power sector policies allowed unreasonably very high profits to independent power plants,[53] excess payments have been made to power producers because of either misreporting by the producers or regulatory oversight (Report on the Power Sector, 2020).

Pakistan has the highest cost of electricity across all major consumer groups in South Asia (Table 4.1). Some of our low value-added exports rely heavily on electricity consumption. The high cost of electricity has reduced the competitiveness of our exports, thereby impacting the country's trade deficit and balance of payment. Large cross-subsidies (especially in favour of domestic and agriculture consumers) and heavy tax incidence are contributing to grid defection by large consumers (industry, commercial and high-end consumers) (Report on the Power Sector, 2020).

Table 4.1

*Cost of Electricity- Regional Comparison*

| Cents/ KwH | Residential | Commercial | Industry |
|---|---|---|---|
| Pakistan | 1.3-15.4 | 12.4-15.9 | 11.8-12.5 |
| India | 4.2-11.2 | 8.4-11.9 | 10.9 |
| Bangladesh | 4.1-12.6 | 10.8 | 6.8 |

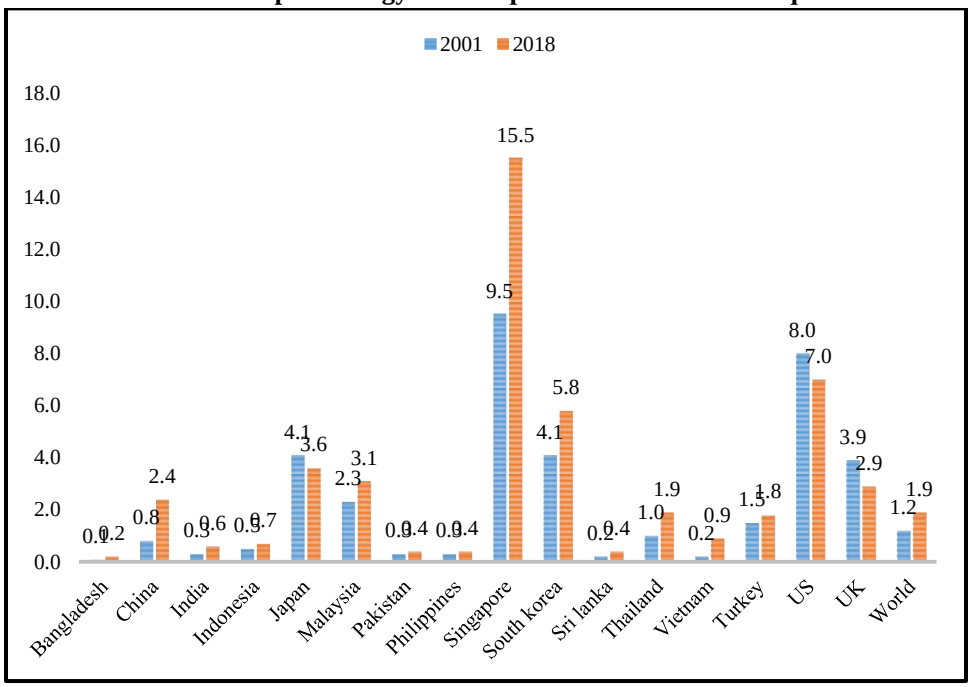
*Source:* Power Sector Report, 2020.

Although energy poverty was not directly NEPRA's mandate under the 1997 Act, being a regulator, consumer welfare was. Around 29 percent of our population has no access to electricity. The situation is worse in rural areas. Despite all the growth in electricity consumption over the years, Pakistan's electricity consumption per capita is

[53] Profits generated were as high as 18.26 times the investment, and dividends were taken out as high as 22 times the investment (Report on the Power Sector, 2020).

meagre compared to other developing countries (Chart 4.4). Under the amended Act, one of the NEPRA objectives is to alleviate energy poverty. However, no specific activity at NEPRA is noticeable to provide an enabling environment for increasing access to those who are under-served or un-served.

**Chart 4.4.Per Capita Energy Consumption in Tonnes of Oil Equivalent**




*Source:* BP Statistical Review of World Energy.

### 4.2.7. Efficiency, Reliability, and Financial Viability

A regulator makes no serious effort to minimise if not eliminate inefficiencies in the public sector generation (GENCOs) and distribution companies (DISCOs). The performance of (GENCOs) remained lacking in terms of all Key Performance Indicators (KPI) for the past many years. These GENCOs are running below their net available capacities because the desired maintenance and scheduled outages over the years (as per standard industry practices) are not in place. Lack of maintenance has increased their cost of generation. These power plants have not only poor operational results, the workforce, which is already on the higher side on a per MW basis, remained idle due to their closure and non-operation, contributing towards higher cost of generation. The Framework of Economic Growth by PIDE (2020) reports a loss of Rs 251.6 billion due to inefficiency in these public sector generation companies.

Similarly, the KPIs indicate poor performance and inefficiency of state-owned distribution companies (DISCOs) and even privatised utility K-Electric (Table 4.2, 4.3 and 4.4). One of the policy tools adopted by NEPRA to improve the operational performance is to set some targets for T & D losses for each DISCO in their revenue

requirements. Via this tool, NEPRA anticipates that DISCOs would improve their operational efficiency to avoid deficits. However, this strategy has not worked in most of the DISCOs. Instead, when the respective DISCO does not meet the target, it is added to the payables of that individual distribution company, as it is not compensated by tariff differential subsidy.

Likewise, in tariff determination, NEPRA counts 100 percent recovery. However, the reported recovery percentage of DISCOs remained around 90 percent. Wrong energy billing is also responsible for low recoveries by DISCOs. Overloaded transformers and transmission lines also constrain the transmission system. Regarding reducing T&D loss levels, improving bill recovery, and achieving performance standards and license conditions, NEPRA is either reluctant or has no authority to apply penalties for non-compliance with quality standards. Besides, issues in NEPRA specified technical standards were also highlighted by some experts. According to them, faults in technical standards specified by NEPRA are responsible for high system losses.[54]

These indicate regulatory oversight in monitoring and enforcement of KPIs in the generation, transmission, and distribution companies. These inefficiencies jeopardise sectors' financial viability and negate NEPRA's objective to ensure a reliable electricity supply to consumers. NEPRA lacks the authority to make DISCOs accountable for their performance, whether operational and commercial inefficiency or over-billing to consumers. Similar is its role regarding the accountability of generation companies (whether in the public or private sector). In particular, the enforcement of service quality is weak. There is no mechanism to incentivise good performance or impose a penalty in case of poor performance. NEPRA is not effective in monitoring power sector companies.

Table 4.2

*Distribution Losses*

| FY | 2006 | 2009 | 2012 | 2015 | 2018 | 2019 | 2020 |
|---|---|---|---|---|---|---|---|
| PESCO | 34.1 | 37.4 | 36.0 | 34.81 | 38.15 | 36.6 | 38.69 |
| TESCO | | | | 21.68 | 12.47 | 11.97 | 16.19 |
| IESCO | 13.2 | 10.8 | 9.5 | 9.41 | 9.14 | 8.9 | 8.69 |
| GEPCO | 10.2 | 10.7 | 11.2 | 10.72 | 10.01 | 9.9 | 9.51 |
| LESCO | 13.1 | 13.3 | 13.5 | 14.10 | 13.83 | 13.2 | 12.4 |
| FESCO | 11.6 | 10.7 | 10.9 | 11.03 | 10.53 | 9.8 | 9.62 |
| MEPCO | 20.5 | 18.4 | 17.9 | 15.50 | 16.59 | 15.8 | 15.23 |
| HESCO | 39.2 | 35.1 | 27.7 | 27.08 | 29.88 | 29.5 | 28.82 |
| SEPCO | | | 39.5 | 38.29 | 36.67 | 37.0 | 36.27 |
| QESCO | 20.7 | 20.4 | 20.9 | 23.10 | 22.44 | 23.6 | 26.68 |
| K-El | 37.5 | 38.5 | 29.7 | 23.7 | 20.4 | 19.1 | 19.8 |

*Source:* NEPRA State of Industry Report (Various Years).

[54] Power sector technical experts were not consulted effectively when these standards were specified.

Table 4.3

*% Recovery*

| FY | 2008 | 2010 | 2012 | 2014 | 2016 | 2018 | 2019 | 2020 |
|---|---|---|---|---|---|---|---|---|
| PESCO | 92 | 85 | 83 | 86 | 89 | 89 | 89 | 88 |
| TESCO | | | | 7 | 437 | 67 | 68 | 68 |
| IESCO | 98 | 96 | 96 | 90 | 91 | 90 | 88 | 90 |
| GEPCO | 98 | 96 | 99 | 96 | 99 | 97 | 96 | 94 |
| LESCO | 98 | 96 | 96 | 98 | 99 | 98 | 98 | 95 |
| FESCO | 99 | 97 | 100 | 100 | 100 | 99.6 | 99.2 | 94 |
| MEPCO | 97 | 94 | 97 | 96 | 100 | 97 | 99 | 93 |
| HESCO | 77 | 60 | 69 | 79 | 72 | 77 | 75 | 73 |
| SEPCO | | | 51 | 60 | 55 | 60 | 63 | 57 |
| QESCO | 86 | 76 | 36 | 42 | 72 | 26 | 27 | 49 |
| K-El | | 100 | 91 | 87 | 88 | 91 | 92.6 | 92.1 |

*Source:* NEPRA State of Industry Report (Various Years).

Table 4.4

*Overloading of Distribution Transformers*

| | Total Distribution Transformers | | % Distribution Transformers loaded above 80 % | |
|---|---|---|---|---|
| DISCOs | 2015-16 | 2019-20 | 2015-16 | 2019-20 |
| PESCO | 60365 | 77307 | 31.99 | 4.50 |
| TESCO | 15634 | 18903 | 1.11 | 35.35 |
| IESCO | 45438 | 50210 | 6.83 | 3.31 |
| GEPCO | 60080 | 72007 | 2.58 | 2.70 |
| LESCO | 97048 | 116030 | 43.23 | 22.19 |
| FESCO | 97761 | 113079 | 3.36 | 0.58 |
| MEPCO | 152806 | 178730 | 4.65 | 3.26 |
| HESCO | 35334 | 37896 | 23.59 | 3.20 |
| SEPCO | 35029 | 38616 | 18.39 | 6.93 |
| QESCO | 53646 | 62337 | 16.30 | 10.93 |
| K-El | 653141 | | 15.31 | |

*Source:* NEPRA State of Industry Report (Various Years).

### 4.2.8. Privatisation and Market Competition

Privatisation was not directly the function or responsibility of NEPRA, not even after the amended Act. But under law, NEPRA was supposed to facilitate the process to bring efficiency in the power sector and help ensure competition where feasible. The privatisation process remained slow in the last two decades. Except for K-electric and Kot Addu Power Plant, the privatisation of ex-WAPDA distribution companies has been pending. After unbundling, these distribution companies have been corporatised with independent Boards of Directors, yet operationally they are still under the administrative control of the Government.

Moving toward market competition_ it represents the central element of the sector reform program. It has still not been implemented in Pakistan -- partly because of the lack of government willingness and capacity and partly because of the exemptions given to IPPs -- whose operations were exempted from market forces by sovereign guarantees provided by the Government of Pakistan. Thus, restricting free generation capacity available for a competitive market. As discussed earlier, the Government and NEPRA as a regulator are equally responsible.

Besides, a financially viable sector and a reliable payment chain are crucial for a market (details in sub-section 4.2.5). The creditworthiness of all, in particular distribution utilities, is critical. Presently, the power sector is not fully solvent; its deficit, circular debt, is rising continuously and has reached an all-time high of Rs. 2.4 trillion. One of the significant institutional weaknesses in the electricity sector is in the regulatory process_ compromising the efficiency of both private and state-owned companies.

NEPRA's job as a regulator was to resolve all the power sector problems, including system losses, rising costs, high tariffs, and generation capacity challenges. Again, the outcome of regulatory oversight is that the circular debt emerged for the first time in 2006. Since then, it has been there and rising. NEPRA has not done anything to control this debt from rising in so many years. Increasing costs of generation and sector inefficiencies, anomalies in tariff methods and delays in tariff determinations are responsible for the circular debt issue. If NEPRA had played an effective role, the power sector scenario could have differed.

An overall assessment of NEPRA regulatory performance and its effectiveness indicates that the overall de jure performance is high, meaning a regulatory system with many necessary qualities for the power sector. However, de facto performance highlights a significantly poor regulatory functioning in practice. The regulatory reform required to transition towards a competitive market has historically been resisted in Pakistan. NEPRA, an autonomous organisation (by law), didn't make serious efforts to improve regulatory infrastructure in the power sector. NEPRA has been unsuccessful in developing and pursuing a regulatory framework to guarantee reliable, efficient, and affordable electricity. Effective regulation creates a balance in the interests of all stakeholders. When investors achieve fair returns, consumers receive quality service, and governments are not allowed political exploitation. NEPRA failed in creating this balance.

Only the institutional capacity of a regulator can ensure that all its' regulatory decisions and requirements are met effectively in a timely and correct manner. That is, it is possible only when the regulator has qualified staff, a well-coordinated organisational setup, sufficient funds, and the powers to take decisions autonomously and balance all stakeholders. But at the same time, the regulator should also be accountable for all its decisions. The next part of this evaluation explores NEPRA's regulatory capacity to find the reason.

## 4.3. REGULATORY CAPACITY

*Does NEPRA has competence and institutional capacity to carry out its functions and achieve its objectives effectively?*

***Findings***

Section 3 (1) defines the *governing structure* at NEPRA. The 'Authority' is the governing body. The 'Authority' consists of a chairman to be appointed by the Federal Government; and four members, one from each province, to be appointed by the Federal Government after considering the recommendations of the respective Provincial Governments. At the same time, section 3(2) states that the Vice-Chairman shall be appointed from amongst the members for one year, by rotation.

As in the amended Act, power sector experience will be preferred in selecting the Chairman and four members (Box 4.3), which is a positive change. The aim of the amendment is apparently to make the Authority more responsive to the needs and challenges in the power sector.

Currently, the Chairman and three members are all engineers with experience directly/ indirectly in the power sector. Member Punjab completed his tenure a few months back, and he was from the civil service of Pakistan (District Management Group). New member Punjab is yet to be appointed by the Government. The selection for a new regulator or a member often involves delays, thus overburdening the rest of the members and affecting NEPRA's capacity to deliver timely.

**Box 4.3**
**Experience/ Qualification of the Authority**

***1997 Act**, Section 3 (3) states that the Chairman shall be an eminent professional of known integrity and competence with at least twenty years of related experience in law, business, engineering, finance, accounting, economics, or the power industry. At the same time, Section 3 (4) states that every member shall be a professional of known integrity and competence with at least fifteen years of related experience in law, business, engineering, finance, accounting, economics, or the power business.*

***2018 Amended Act**, Section 3 (3) states that the Chairman shall be a person known for his integrity and eminence and having experience of not less than twelve years in any relevant field including law, business, engineering, finance, accounting, or economics, preferably in the electric power services business. The same rule applies to four members, as stated in Section (4).*

As per Section 5(1), the 'Authority' has powers to perform its functions and conduct proceedings under regulations made under this Act. As per section 5(2) of the Act, the 'Authority' to decide must have three members to make up a quorum. Meanwhile, the 'Authority' may delegate powers to the Chairman, member, officer, or a special tribunal constituted under section 11, all or any of its powers to carry out its functions or duties under this Act. However, the *decision-making* is only at the top, and various departments only provide inputs when required.

Over the years, NEPRA has become increasingly more centralised, overburdening 'Authority' in such routine matters which otherwise could have been dispensed at the lower level. It has increased regulatory meetings on every subject, which not only delays decisions but affects its quality. NEPRA Annual Report 2021 reported that the 'Authority' held 542 regulatory meetings and 142 hearings in FY2021. Although some

staff members at NEPRA claimed that except for licensing and tariff determination[55], the Authority does delicate powers at the lower level, the opposite was the view when asked the same question to other experts' outside NEPRA. Meanwhile, the enormous number of regulatory meetings held in 2020-21 confirmed other experts' views.

Due process of consultations with all stakeholders, including consumers through public hearings, is followed. However, experts observed that the time allocated to general consumers is relatively small.

NEPRA is designed with various units/ departments corresponding to each essential function of the regulatory body as in NEPRA Act, 1997, i.e., licensing, tariff, consumer affairs & complaint and monitoring and enforcement. Then there is the legal department, information technology department, coordination and implementation department, finance, media, and human resource (development and management) departments to support the departments mentioned above. There are specific roles and responsibilities for each staff member within these departments. Apart, so far, no significant change is evident in its organisational structure in the light of the amended Act to support the development of a competitive electricity market.

The critical challenge in this kind of setup is the *lack of communications across various units*. NEPRA officials claim that good communication exists between departments and staff members when required to respond to organisational priorities. But, while analysing NEPRA's intended objectives in the previous section, one can observe no progress regarding market development, competition, elimination of inefficiencies, or privatisation. Delays were also observed in the execution of its desired duties. It could be because of a lack of inter-departmental communication. Most issues and discussions occur at the managerial level among individual departments (USAID, 2019). Additionally, the personnel of organisations dealing directly with NEPRA also pinpoint the lack of communications between units at NEPRA.

### 4.3.1. Human Resource Capacity

Adequate human capital resources are essential for quick and effective decision-making. The personal qualification of a regulator is also a key in independent decision-making. Under section 3(3), the experience requirements have been reduced. But their association with the power sector is made compulsory. The new selection criteria and process may favour evaluating an individual's capabilities and adequacy for a position based on their performance and not only on the length of service. The Act has enabled a selection based on technical/academic strengths and performance. This amendment will block the appointment of retired civil servants, or army officials as members or chairman, which used to be the practice at NEPRA. In the past, NEPRA leadership had problems in terms of regulatory expertise as people from bureaucracy or military didn't have power sector backgrounds. By the time the regulator (or member) may develop some understanding of the sector's complexities, their tenure is over.

The regulator must play a proactive role as an independent entity for effective regulation. In the past, this role was found missing in the case of NEPRA. That's why the Authority often faced criticism regarding its role in the sector. However, it is expected

[55] According to them, licensing and tariff determination are done at the authority level, as the law says so.

that the amendments in experience qualification of the 'governing body' at NEPRA will increase the proactive role of the regulator.

Regarding other staff, NEPRA has not developed expertise in relevant areas that may facilitate effective interventions. NEPRA is statutorily empowered to enhance its *human resources*, that is, to appoint employees, consultants, experts, advisers, etc., on such terms and conditions as the regulator deems fit. The Act also lays down a requirement of prescribing these conditions through statutory regulations. The Authority is hindered in terms of professionals for competent working. NEPRA engaged international consultants to evaluate IGCEP, CTBCM, wheeling and supply regime, etc. (NEPRA Annual Report, 2019-20).

In addition, NEPRA has not acquired the services of professional support staff transparently that could establish a proper regulatory framework for consumers and producers alike. Most of the existing professional staff have zero to trim exposure to regulatory concepts and functions or are drawn from the sectors which have no relevance to the operational requirements of a power utility. The severe constraint identified in all interviews, whether at NEPRA or with experts, is the lack of competent staff with regulatory knowledge, experience, and training. The view at the organisation is they don't find suitable/ qualified persons.[56]

Due to the lack of expertise and capacity, NEPRA could not determine the right upfront tariff for private sector generation projects. It is the lack of knowledge that NEPRA, so far, is unable to develop or explore new tariff methodology to counter excess installed capacity or improve the sector's financial viability. There are several instances where DISCOs, K-electric, and even provinces, in case net hydel profit, remained unsatisfied with NEPRA decisions and often went to courts against NEPRA determinations.

It is the lack of capacity that emergency planning and preparedness are inadequate; in the preparation to participate in national decision-making and communiqué concerning power sector challenges. Above all, there are delays in preparing the regulatory framework required to establish and develop a competitive market. There is no evidence of a separate research wing at NEPRA. No direct funding for research activities is evident in its financial statements. A research department may help handle challenges related to market development, give information on new technologies developed globally, and give input in government policy and planning, keeping in mind the ground realities. However, NEPRA, being aware of the need to improve its human resource capacity, is taking steps.[57]

Theoretically, to be effective, NEPRA as a regulatory body must have some regulatory standards, regulatory guides, and internal guidance for use by the regulatory staff. This suite of documentation not only needs to exist, but it needs to be reviewed regularly and updated according to need. But it is revealed in an informal discussion with

[56]Despite repeated attempts, NEPRA did not share information on professional staff, i.e., number of economists, engineers, tariff specialists, lawyers etc.

[57]The chairman's message in the NEPRA Annual Report 2019-20 mentions the development of online training programs on different subjects for the employees to enhance their professional knowledge and skills. Besides, the Massachusetts Institute of Technology (MIT) and Florence School of Regulation were engaged in the capacity building of NEPRA employees.

the staff that set-up at NEPRA is no different from other organisations (especially in the public sector). Most of the training programs are also not very helpful, as the ground realities in Pakistan differ from other countries. The report on NEPRA (USAID, 2019) revealed that the officials at the authority are learning from experience.

In the amended Act, Section 10A provides *legal protection* to NEPRA authority, officers, and employees for their actions in good faith or intended to be done in pursuance of this Act or any rules or regulations made. This provision shall facilitate officers in carrying out their functions, particularly monitoring and enforcement, without fear of courts. However, in Pakistan, there is a tendency for frivolous litigation by vested interests to evade regulatory measures against them. For instance, a petition against the initiation of investigations or inspections by the regulator may impede regulatory action. NEPRA Annual Report (2021) reports that 1293 litigations are pending in different courts as of June 06, 2021, in which a decision of NEPRA is challenged, or NEPRA is made a party. A significant number of pending cases also indicates a shortage of a good legal team at NEPRA, also pointed out by experts.

Some positive developments have occurred in the IT department since 2015-16. The department is evolving to introduce e-governance, paper-less environment, and Open Electricity Data concept in NEPRA. As a first step, NEPRA Dashboard is developed. In 2019-20, the digitisation of files and records started, which will be made available in the SharePoint ECM intranet server. Besides, NEPRA launched the online complaint management system for the public in 2018, expected to be functional soon. Similarly, e-licensing is also on the cards. The hope is once e-licensing is in practice, the delay issue (discussed in previous Section) would resolve to some extent.

Besides, NEPRA has made departmental KPI's to measure success based on specific goals and targets for departments and staff to prove the effectiveness of their performance for achieving their departmental objectives (NEPRA Annual Report 2020-21). This positive step needs appreciation.

### 4.3.2. Financial Capacity

Regarding NEPRA's financial resources, the 'Authority' approves the annual budget of NEPRA to ensure effective monitoring and control of operating and capital receipt/spending items. In pursuance of section 14 of the NEPRA Act, the statutory audit of annual accounts of NEPRA is carried out by the Auditor General of Pakistan. Similarly, an external audit of NEPRA accounts is also carried out annually via some well-reputed chartered accountant firm. This initiative by NEPRA needs appreciation, as NEPRA is not bound by Act to do so.

The Federal Government provided the initial funding of NEPRA, an amount of Rs 100.5 million. Since then, NEPRA has been meeting its expenses from licensing fees and filing fees for tariff applications. At present, an annual license fee is its primary source of income. NEPRA collects annual license fees under the base rates, as defined in NEPRA (Fees) Rules, 2002 computed/indexed with the most recent Consumer Price Index (CPI) published every month by the Pakistan Bureau of Statistics (PBS) (NEPRA Annual Report, 2020). NEPRA surplus income after-tax increases continuously (Table 4.5), indicating NEPRA has sufficient financial capacity to carry out its functions.

Under total administrative expenses, salaries, and benefits account for 76 percent to 80 percent in the last five years, whereas the budget allocated for training and development remained 1 percent or less of total administrative expenses (Table 4.5). It indicates NEPRA's priority in upgrading its human capacity.

Table 4.5

*NEPRA Income and Expenditure Account (Rs Million)*

| Year | Fee Income | Other Income | Administrative Expenses | Finance Cost | Tax | Surplus after tax | Other Adjustments | Total Comprehensive Income |
|---|---|---|---|---|---|---|---|---|
| 2016 | 918.96 | 36.2 | 815.1 | 4.1 | 38.2 | 97.8 | (14.5) | 83.4 |
| 2017 | 1026.4 | 29.4 | 935.6 | 4.0 | 43.8 | 72.4 | (14.9) | 57.4 |
| 2018 | 1163.4 | 34.8 | 1013.5 | 3.95 | 53.2 | 127.6 | (15.5) | 112.02 |
| 2019 | 1264.0 | 69.8 | 1047.1 | 3.9 | 114.2 | 168.5 | (50.5) | 118.1 |
| 2020 | 1405.03 | 115.5 | 1157.2 | 3.7 | 123.9 | 235.7 | (48.02) | 187.7 |
| 2021 | 1880.3 | 67.2 | 1335.2 | 2.9 | 182.6 | 426.8 | 34.6 | 461.4 |

*Source:* NEPRA Annual Financial Statements (Various Years).

Via section 12 of the Finance Act 2012, NEPRA must deposit its surplus funds, fines, and penalties with the Federal Consolidated Fund (FCF) of the Government of Pakistan. As evident from its financial statements, NEPRA has deposited its surplus funds since 2011 (Table 4.6). Although, NEPRA claims that this is not affecting its financial planning and management. In the future, the amendment may hamper maintaining high human resource standards, IT standards, IT systems, research & development activities, extensive consultations with stakeholders, etc. Besides, these surpluses also raise the question of a high fee collected by NEPRA, as suggested by some licensees from time to time (Khan and Qawi, 2014).

Table 4.6

*NEPRA Surplus Transferred to Federal Consolidated Fund (Rs Million)*

| Year | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 300 | 400 | 111.5 | 73.4 | 126.7 | 83.4 | 57.4 | 112.02 | 118.1 | 187.7 | 461.4 |

*Source:* NEPRA Annual Financial Statements (Various Years).

As mentioned above, NEPRA has the power to determine its structure and allocation of budget. In comparison, in India, the regulator's budget comes directly from the government budget (Bacon, 2019). NEPRA's funding is established by law (NEPRA Act) and is taken from license fees, filing fees, etc., as prescribed by it from time to time and approved by the Federal Government. Therefore, there is no chance of influence or 'political capture'.

The success or failure of power sector restructuring, i.e., development of the competitive market, depends upon the effective and independent functioning of NEPRA. As discussed above, NEPRA has its funds; therefore, it must have the power to invest or otherwise utilise them. Even if there is a surplus, the Authority has the right to use them to pursue their stated objective.

NEPRA as a regulator is performing policy functions of the state. It is established as a body independent from the influence of ministries, so it must function free of bureaucratic considerations. NEPRA, giving up its surplus to the Federal Consolidated Fund and asking the government to make up for shortfall (if any) in its expenditures may make it vulnerable to political and bureaucratic pressures, thus, affecting its effectiveness.

*Does NEPRA Act, facilitates effective governance structure at NEPRA? To what extent does NEPRA Act facilitates its independent and effective functioning?*

***Findings***

Independent regulation (in the true sense) can play an essential role in maximising people's welfare and improving the efficiency of the power sector companies.

### 4.3.3. Administrative Autonomy

Administrative autonomy is a critical aspect of a regulatory mandate. In the law, NEPRA needs to be provided with powers to perform licensing; determine tariffs; specify standards, review, and assess their implementation; and regulate processes. To be effective, NEPRA should be independent of the influence of power sector companies (it regulates); and also independent from the influence of the Ministry of Energy (Power Division) _who is effectually running public sector energy companies, i.e., generation companies (GENCOs), National Transmission and Dispatch Company (NTDC) and state-owned distribution companies (DISCOs).

By the provisions of the Act, NEPRA is an autonomous organisation under the Cabinet Division according to rule Schedule II of Rule 3(3) Distribution of Business among the Divisions. In the past, efforts were made by the Ministry to bring NEPRA directly under it for better coordination, but provinces resisted the attempt.

However, amendments in the law, which have given more powers in some respects, have compromised regulatory independence in others. For instance, Under Section 14A (5), NEPRA must perform its regulatory duties per Pakistan Electricity Policy and Plan. The law states that NEPRA will implement its clauses through various rules and regulations. The authority is empowered to "issue such directives, codes, guidelines, circulars or notifications as are necessary to carry out the purposes of this Act and the rules and regulations made hereunder." Regarding rules or regulations_ previously, NEPRA was empowered (under Section 12D) to make or repeal rules or regulations. The amended Act (under Section 46 and 47) is only authorised to "recommend rules or make or repeal regulations". It may further reduce the regulatory autonomy of NEPRA in carrying out its functions effectively.

The rules and regulations provide processes and guidelines to determine tariffs, issue licenses, and monitor the company's performance. If the rules give enough leeway to NEPRA to obtain all necessary information, the regulator would be able to take decisions objectively based purely on technical considerations. Otherwise, NEPRA's ability to make objective assessments could be affected (USAID, 2018).

NEPRA is not autonomous in its decisions on consumer-end tariffs as the government continues to exercise considerable control over it. Thus, affecting NEPRA's

effectiveness in determining/regulating consumer-end tariffs. Although there is no formal condition or rule allowing the Ministry to reverse NEPRA's decisions, major decisions, i.e., tariffs rates, are subject to Ministry approval. The regulator determines tariffs and can only recommend, which the Ministry notify. Moreover, the Ministry may ask NEPRA to re-reconsider its determined tariffs or charges.

Besides, under section 31 (31) of the amended Act, NEPRA powers to perform its functions have been reduced if not curtailed. Under this clause, NEPRA determines a *uniform* tariff for all government-owned DISCOs based on their consolidated financial accounts. However, differentiated tariffs are allowed in the case of privatised utilities (currently only K-Electric). It will create difficulty for the regulator to evaluate the managerial performance of DISCOs based on objective criteria and accordingly reward or penalise them. For effective monitoring of DISCOS, company-specific performance, challenges, and issues must be compiled and assessed regularly. However, when DISCOs financial accounts are consolidated, the disparity among companies will be camouflaged, thus, creating difficulty for NEPRA to evaluate each company independently.

Additionally, in recent years, particularly in generation projects under China Pakistan Economic Corridor (CPEC), the government has influenced the tariffs that NEPRA determines. Undue interference and influence of the government hamper the independent functioning, affecting the consumers and producers. The success of electricity restructuring in Argentina and Chile is attributed to a considerable extent to the performance of their independent regulators (Stern, 2000).

On the other side, NEPRA is given some autonomy in enforcing regulatory standards, rules, etc. Section 27(A) allowed NEPRA to investigate any matter violating this Act or any rule, regulation, code, or license issued under the Act. NEPRA is empowered to appoint investigating officers and levy fines on licensees found to violate the Act. The power to conduct the investigation was not with NEPRA in the past. The authority had to request the police, NAB, FIA, or other agencies to perform the required investigations. This change will help NEPRA conduct its affairs regarding enforcement more effectively.

But again, even though NEPRA's decisions are legally binding. However, there is no reliable penalty if the distribution or generation company fails to meet the regulatory standard in practice. NEPRA lacks the authority to make DISCOs accountable for their performance, whether related to operational and commercial inefficiency or over-billing to consumers. Similar is its role concerning the accountability of generation companies (whether in the public or private sector). In particular, the enforcement of service quality is weak (as mentioned in Section 4.2.3). A mechanism to incentivise good performance or penalty in case of poor performance is not in place. In other words, the de facto decision-making autonomy is much lower than de jure.

To enforce its integrity, NEPRA sends advisories to the Ministry of Energy (Power Division) from time to time for effective utilisation of available generation sources and improving efficiency in the distribution companies. But unfortunately, their advisories are generally ignored.

### 4.3.4. Accountability & Transparency

The regulator's independence needs to be compliant with measures to ensure that the regulator is accountable for its action. For accountability of the regulator, legislation

should ensure *transparency* of the decision-making process; detailed justifications of decisions; opportunities for all interested parties to take part in public hearings; and provisions for the removal of regulators in case of proven misconduct or incapacity. Proper checks and balances can ensure that the regulator does not drift away from its mandate, engage in corrupt practices, or become grossly inefficient (Malik, 2007).

According to Section 42 of the NEPRA Act, NEPRA must prepare its Annual Reports and the State of Electric Power Services Report. NEPRA shall submit the report to the Council of Common Interests (CCI) and the Federal Government. No doubt, NEPRA has been publishing its Annual Reports since 2003-04 and State of Industry Reports since 2006 regularly. These reports are available on its website. But as such, these are never evaluated at the Federal level, in CCI, or at any other forum.

According to the NEPRA Act, the regulator shall maintain public files open in a convenient form for public inspection; only those files which Authority deems fit. This Act also establishes that NEPRA shall maintain complete and accurate books of accounts of its actual expenses and receipts, which shall be audited annually by the Auditor General of Pakistan. There are also several rules, procedures, and guidelines that provide transparency to the distinct regulatory processes.

As mentioned earlier in Section 4.3.2, in pursuance of section 14 of the NEPRA Act, the statutory audit of annual accounts of NEPRA is carried out by the Auditor General of Pakistan. Similarly, an external audit of NEPRA accounts is also carried. Moreover, transparency at NEPRA is ensured through public participation in the decision-making process by holding public hearings, inviting written comments of stakeholders and the public, availability of public documents including rules, regulations, licenses, tariff determinations, petitions, etc., on the NEPRA website. Most of the NEPRA's decisions are publicly available on their website. However, information regarding its institutional capacity_ its staff expertise is not publicly available.

The law also allowed for removing the Chairman or any member. Section 4(2) says that the Federal Government may remove the Chairman or a member after he is found incompetent or found guilty of misconduct in an inquiry by the Federal Public Service Commission. Though, no such example exists.

The amended Act (section 12 A) allows establishing an Appellate Tribunal, chaired by a former high court judge nominated by the Federal Government or provinces, by rotation. Besides, the Tribunal will have member finance and member electricity nominated by the Federal Government or provinces by rotation. Under the 1997 Act, concerning legal appeals, there were legally established processes to allow regulated companies or other affected parties to challenge or appeal decisions of NEPRA. The process is defined in NEPRA (Procedure for filing appeals) Regulations, 2012. The appeal body was NEPRA itself. However, there was a provision for resorting to courts if dissatisfied with the NEPRA appeal system.

This provision of Appellate Court may provide a forum to check or review NEPRA decisions. It may be considered accountability, as the orders and determinations of the Appellate Tribunal shall be binding on the Authority. Though appealable before the High Court. The formation of an Appellate Court is standard in other countries (USAID, 2018). However, apprehension is that this provision may compromise the independent decision-making of the Authority if the Tribunal makes decisions under the government's influence.

### 4.3.5. Credibility

In the optimal design of any regulatory institution, there is always a risk of organisational failure unless credibility and transparency in regulatory decisions are in place. Direct involvement of ministers/ bureaucrats in pricing and licensing decisions can affect regulatory credibility and investment decisions (as in CPEC power projects). Politicians turn down the justified increase in tariff for short-term political goals at the expense of long-term benefits of consumers and investments, thus undermining regulatory credibility. In the absence of regulatory credibility, investors being aware of organisational risks associated with their investments will demand high tariffs (as happened in IPPs) to compensate for increased risk. The preference of any investor would always be to invest in industries with an independent regulatory agency (with no government involvement).

A well-informed regulatory framework is a key to improving utility efficiency, mainly when the privatised operator is working in a monopoly environment. But the opposite is the case in the electricity distribution sector of Pakistan. NEPRA's bias in favour of government-owned companies was talked about by many.

### 4.3.6. Clarity of Roles and Objectives

In the case of Asian regulators, as Jacob (2004) observed, many conflicting public policy missions, government intervention, and market competition go along together and are emphasised equally. So is in Pakistan. Powers and functions are spelt out in Section 7(1) and (2). About NEPRA and government relationship, section 7(2ab) is clear that it will aid and advise the Federal Government in formulating the national electricity plan.

However, about electricity tariffs, section 7(2ac) states that it is the responsibility of NEPRA to ensure efficient tariff structures and market design for sufficient liquidity in the power markets. In contrast, section 31(4) is contradictory. It states that the authority in the public interest determines a uniform tariff for distribution licensees wholly owned and controlled by a common shareholder, based on their consolidated accounts. This clause challenges the efficient tariff structure condition, as the uniform tariff cannot justify the true market principal, where electricity prices reflect the actual cost of service. Besides, this provision of uniform tariffs will seriously jeopardise any effort or incentive for efficiency. Lack of clarity in roles and objectives makes the regulator's job difficult and less effective.

The weak administrative governance in the form of lack of sufficient autonomy and ambiguity in roles in NEPRA results in the overall institutional inability to carry out the desired function effectively. The fundamental constraint highlighted in the evaluation is the lack of capacity at NEPRA to carry out its tasks on time. As we find in previous sections, NEPRA lacks professional expertise to supervise and control the power sector and the authority to establish a rational pricing regime. NEPRA is self-sufficient financially but lacks the human resource capacity to carry out its functions effectively. Without strengthening the regulatory capacity legally and administratively_ to monitor sector, service quality and enforce the prescribed standards, it is impossible to provide tangible benefits to electricity consumers and other stakeholders.

## 4.4. RECOMMENDATIONS

- There is an urgent need to simplify regulatory processes to minimise delays (because of sludge) in approvals and enhance Federal Government and NEPRA coordination.
- There is a need for clear worded law with provisions for NEPRA's autonomy in decision-making. The law should bar any government interference in the independent decision making of the authority. Only detailed guidelines in the law can restrict undue political influence.
    - The current lack of clarity on roles and functions and autonomy in decision making can open the door to undue government interventions in NEPRA operations. Like countries in Europe (EU, 2019), NEPRA statutes should explicitly determine adequate criteria to ensure the regulator's independence from politics.
- NEPRA is in the process of making new rules/regulations/guidelines in line with the Amended Act; must complete it at the earliest to ensure that the requisite regulatory framework is in place before the formal commencement of competitive wholesale market.
- One of the NEPRA objectives is to alleviate energy poverty; NEPRA must provide an enabling environment for increasing access to those who are under-served or un-served; strategies to promote sustainable energy for all. Ensure standards and measures which encourage the provision of low-cost meters for urban poor and facilitation of distributed generation for rural areas all over the country.
- In law, NEPRA is allowed to play an advisory role purely. Its recommendations must be made publicly available, as well as the government's responses. Moreover, if the government body receiving the recommendations rejects or modifies them, it is required to provide a public explanation for doing so. That will ensure the regulators' integrity.
- The monitoring and enforcement department needs to be strengthened and redefined and should focus on the overall performance of the power sector. Review/ revise the existing standards for the energy companies to improve their performance.
- The transition towards a competitive market requires substantial preparation at NEPRA; NEPRA needs to build the capacity of its staff to work and cope with sector challenges and market forces while meeting their obligations as a regulator. That is,
    - By employing more specialised staff equipped with better and advanced techniques and sufficient background knowledge of Pakistan's Power sector. E.g., One of the ways to reduce the tariff determination challenges is to strengthen NEPRA's tariff division by employing tariff specialists and economists. Those who can manage to incorporate all prudent costs in the final tariff, and who have the knowledge and capacity to explore new tariff methodologies to ensure the sector's financial viability and ensure competitive electricity tariffs to reduce the cost of doing business and the country's trade deficit.

- A research wing at NEPRA may help handle challenges related to market development, information on new regulatory techniques developed worldwide and give input in government policy and planning, keeping in mind the ground realities. NEPRA needs to improve its institutional capacity to supervise the electricity business; acclimatise itself with newer challenges being emerged because of a constantly evolving technological framework of the sector, including smart grid development, distributed generation, grid integration, and development of new innovative models of financing. That is only possible if the authority has a research wing of its own.
- Negligible expense by NEPRA in training and development, in the presence of surplus accounts, emphasised the need to invest more in training and development of its staff for improving efficiency in its regulatory duties.

- Some external factors are also influencing the effectiveness of NEPRA. The most important of these are the court orders. The judiciary must take great care to ensure that its intervention does not deter regulatory decision-making. A robust in-house litigation team is required at NEPRA to defend stay orders and other regulatory decisions before the courts.
- Decentralisation of decision-making powers for effective and speedy decisions in routine matters is suggested. The power sector used to have such a structure under WAPDA.
- More use of information and communication technologies is recommended to minimise delays. To improve coordination among the departments, something like e-office and digitisation of its operations can be helpful.
- For effective accountability, NEPRA reports (Annual and State of the Industry) must also be evaluated by independent experts, just like its financial reports.

## REFERENCES


Bacon, R. (2019). Learning from power sector reform: The case of Pakistan. The World Bank, Washington DC. (Policy Research Working Paper No. 8842).

EU (2019). Assessing the independence and effectiveness of National Regulatory Authorities in the Field of Energy. https://op.europa.eu/en/publication-detail/-/publication/e5f886d6-917d-11e9-9369-01aa75ed71a1/language-en

Jacobs, S. (2004). Governance of Asian utilities: New regulators struggle in difficult environments. The Governance Brief, ADB Quarterly Publication, Issue 10, Governance and Regional Cooperation Division, Regional and Sustainable Development Department.

Khan, N. J. & Qawi, A. (2014). The impact of institutional design on regulatory performance. Diagnostic Report by JICA Consultants (unpublished).

Malik, A. (2007). Effectiveness of regulatory structure in the power sector of Pakistan. Pakistan Institute of Development Economics, Islamabad. (PIDE Working Paper No. 25).

NEPRA (Various Years). *Annual reports*, Islamabad: National Electric Power Regulatory Authority.

Malik, A. & Khawaja, I. (2021). Urban resilience and its impact on electricity provision in Karachi, Islamabad and Peshawar. Pakistan Institute of Development Economics (PIDE), Islamabad. (PIDE Urban Monograph Series).

PIDE (2020). Framework of economic growth. Pakistan Institute of Development Economics, Islamabad.

Report on the Power Sector (2020). Prepared by Committee for Power Sector Audit, Circular Debt Resolution, and Future Roadmap, Ministry of Energy, Pakistan.

Sohail, A. (2014). *Review of energy sector with focus on electricity tariff determination, in solutions for energy crisis in Pakistan*, Volume II.

Stern, J. (2000). Electricity and telecommunication regulation in small and developing countries. (Regulation Initiative Working Paper Series No. 41).

USAID (2018). Review of Amended Act, 2018, Final Report, Sustainable Energy for Pakistan (SEP) Project, United States Agency for International Development.

USAID (2019). Energy Regulatory Partnership_ Pakistan, Final Report on A Limited – Scope Assessment of License Requirements and Conditions for the Regulatory oversight of the Electric Power Competitive Market Environment in Pakistan, United States Agency for International Development.

**Annex 4A: Key Modifications in New NEPRA Act**

- *It defines market operator, electricity trader, electricity seller and system operator; and identify their responsibilities, qualifications, and duties of each of them. The Amendment creates a legal basis for the licensing of all these by the authority.*
- *NEPRA is mandated to perform its regulatory functions in accordance with the national electricity policy and national electricity plan, which the government will prepare and update with the approval of the Council of Common Interests (CCI).*
- *Appellate Tribunal (appointed by the Federal Government) is allowed to which aggrieved parties can appeal against any NEPRA decision. Previously, complaint or grievance redressal was through high courts or through tribunals that NEPRA itself was authorised to establish.*
- *NEPRA powers to 'make or repeal rules or regulations' is replaced with NEPRA powers to 'recommend rules, or to make or repeal regulations.*
- *NEPRA will determine a uniform tariff for all government-owned DISCOs, based on their consolidated financial accounts. Differentiated tariffs are allowed only for privatised utilities (currently only K-Electric).*
- *NEPRA is now authorised to conduct investigations required for managing its*
  *regulatory affairs, appointing investigating officers, and levy fines on licensees that are found to be in violation of the Act. The quantum of the fines has been enhanced. Earlier NEPRA had to request the police, NAB, FIA or other agencies to conduct the required investigations. This provision will thus add further clout to NEPRA's decisions and help strengthen their enforcement.*
- *The Amendment eliminates Section 22, which required the addition of*