

# **Effectiveness of Regulatory Structure in the Power Sector of Pakistan**

**Afia Malik**

## Background

- The electricity sector in Pakistan in the post 1958 period is dominated by two vertically integrated publicly owned utilities, WAPDA and KESC (Government was the operator as well as the regulator) . The performance of these two remained satisfactory until the early 1980s. After that the situation started deteriorating.
- Severe constraints in the availability of capital led to inadequate generation capacity and transmission infrastructure. Power supply lagged behind demand resulting in excessive shortage of electricity especially for the industrial and commercial consumers.
- Massive deterioration in governance and heavy losses in WAPDA and KESC, created the need for restructuring. It was realised that power generation and transmission capacity expansion and efficiency could only be achieved with the involvement of the private sector.
- The government in 1992 prepared the strategic plan for the privatisation of the power sector. It also approved the creation of an autonomous regulatory agency, National Electric Power Regulatory Authority (NEPRA) to introduce transparent and judicious economic regulation in the sector. NEPRA came into existence in December 1997.

## Reforms in the Power Sector

Some of the steps taken as apart of the reform process includes:

- Establishment of an autonomous regulatory agency, to introduce transparent and judicious economic regulation in the power sector of Pakistan. National Electric Power Regulatory Authority (NEPRA) was created under the NEPRA Act 1997 to ensure fair competition and consumer, producer and seller protection.
- Private Power and Infrastructure Board (PPIB) was established in 1994, to facilitate private investors.
- Unbundling of WAPDA's vertically integrated Power Wing into separate generation, transmission, and distribution companies (as in the 1997 NEPRA ACT and the 1998 WAPDA Act) in 1998. WAPDA has now been reorganised into four thermal generation companies called GENCOs, nine distribution companies called DISCOs, and one National Transmission and Dispatch Company (NTDC). The hydroelectric power development and operation functions remain with WAPDA.

## Reforms in the Power Sector (contd.)

- Pakistan Electric Power Company Private Limited (PEPCO) a separate agency within WAPDA is made responsible for the restructuring and preparation for privatisation for the generation and distribution companies in due course through the Privatisation Commission. Private sector participation is being encouraged to promote competition in the generation and distribution parts of the industry, while, NTDC would remain under state control and be responsible for national dispatch, transmission, and system planning as a 'single buyer'.
- Responsibility for the energy sector policy remains with the government.

## Objective of the Study

- The situation so far has hardly changed. WAPDA and KESC are still facing institutional and organisational weaknesses. The combined direct and indirect losses incurred by these utilities during the period 1996-to date have created large fiscal deficits, being covered through taxpayers money and through borrowings. What NEPRA, as an independent organisation has done so far and what it has not done, and why needs to be analysed.
- The quality of a regulatory agency is determined primarily by the quality of its governance. This paper intends to analyse the governance attributes with reference to NEPRA to find out to some extent the reasons behind the poor performance of the sector.
- The performance of the new regulatory setup (with their own particular economic and social problems and instrumental characteristics) remains under-researched in the context of developing countries, in general, and Pakistan, in particular. This paper will try to contribute to that research while studying the regulatory environment in the electricity sector of Pakistan.

## Dimensions of Regulation

- **Regulatory Substance:** refers to the content of regulation, that is, regulatory functions (setting of prices, quality-of-service, and entry-exit rules etc.).
- **Regulatory Governance:** refers to the institutional and legal design of the regulatory system. It is the framework within which regulatory decisions are made.
- The economic literature [Levy and Spiller (1994), Stern (2000), Stern and Holder (1999), Smith (1997), and Jacobs (2004)] has identified various governance characteristics for effective utility regulation. These include: regulatory autonomy; accountability; transparency; participation; credibility; predictability; and clarity of roles. The analysis on the regulatory effectiveness of NEPRA is based on some of these governance characteristics.

## Regulatory Framework

- The objective 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.
- Initially NEPRA was established as an autonomous body without any administrative control from the government. However, for the sake of interaction with Federal and Provincial Governments it was initially attached to the Ministry of Water and Power. Later linked to the Ministry of Law and Justice. However, since June 2000 NEPRA is directly attached with the Cabinet Division.
- Currently, NEPRA is working in an extremely centralised manner. All the decisions regarding tariffs and standards need to be approved by the government. It consists of a Chairman and four members (one from each province), all appointed by the government.

## Regulatory Framework (contd.)

Main Regulatory functions of NEPRA:

- Determination of tariff rates and terms and conditions;
- Grant of licenses, approval of power acquisition programmes;
- Setting 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; and
- Consumer rights and obligations, complaint redressal.

## Progress in the Issuance of licenses

Type of Company	Number	Capacity
Small Power Producers (SPPs)	25	400 MW
Isolated Generation Companies (IGCs)	6	52 MW
Independent Power Producers (IPPs)	18	4774 MW
Distribution Licenses	9	
Nuclear	2	
KESC and WAPDA Generation companies.	All	
Transmission license (NTDC)	1	

## Tariffs

- Since March 2001, an **Automatic Tariff Adjustment (ATA)** mechanism for fuel cost variations has been adopted, and applied every three months, i.e., adjusting consumer end tariff of the distribution companies in order to account for variations in the price of fuel. The idea is to capture the volatility of fuel price variations.
- NEPRA has decided the generation tariff for SPPs; three generation companies unbundled from WAPDA; NEPRA also granted NTDC with their use of system charge tariff and approved a list of generation companies selling electricity to the Central Power Purchase Agency (CPPA) for onward sale to the DISCOs according to their respective demands. Hydel tariff for WAPDAs hydel generation plants has also been approved.
- THE Automatic Tariff Adjustment for ex-WAPDA distribution companies was stopped from December 2003 as all distribution companies have applied separately for their tariffs. Detailed determinations of tariff review motions filed by the 8 DISCOs were issued in November 2004. As per the requirements in the determinations a mid year review of the tariff was conducted and tariff adjustments were made in February 2005.
- The increase in tariffs for IESCO, FESCO, LESCO, MEPCO, GEPCO, PESCO, HESCO and QESCO in Ps/kWh was 13.25, 12.22, 8.98, 10.32, 15.15, 11.81, 5.95, and 12.99 respectively. However, this is still waiting for government notification.

## Tariffs (contd.)

- NEPRA has the credit to establish for the first time in South Asia a CPI-X based multi-year tariff (MYT) regulatory framework. In 2002, NEPRA approved a framework of multi-year tariff for KESC, for seven years from its privatisation (in view of its expected privatisation in the near future).
- Secondly, in June 2004, NEPRA approved a CPI-X based MYT framework with an initial duration of five years for FSECO, in view of its expected privatisation. A multi year tariff has also been determined for JPC.
- This new framework is a radical shift from the rate of return regulation (where utilities are permitted a set rate of return on capital) regime to performance based regulation in the power sector of Pakistan [Raza (2003) and (2004)].

## Tariffs (contd.)

- Some of the amendments made in the tariff rate structure are: cross subsidies have been reduced by increasing the rates of subsidized classes; flat rates have been abolished; consumer bills have been simplified to include all the surcharges and additional surcharges in the overall rates in such a manner that only fixed and energy charges are reflected in consumer bills; consumers have been protected from frequent price variation by allowing only quarterly adjustment for fuel price adjustment; and unjustified demands of the utility such as charging on the basis of connected load and increase of rates to cover for inefficiencies has not been allowed.
- However, in the existing tariff regime there is no clear coordination between the end user tariff set by NEPRA and the unregulated price charged by NTDC for electricity purchases; and secondly, the current end-user tariffs for some customer categories (domestic consumers with largest share in consumption) are inadequate for cost recovery [IFC (2006)]. Tariff structure is not based on regional and consumer-specific long-run marginal cost but is used as an instrument to achieve political and socio-economic objectives

## Average End User Tariff

- The average end user tariff in Pakistan for fiscal year 2005 is estimated be around 3.93 Rs/KWh. It involves significant cross subsidies, from industrial and commercial consumers to agricultural and small (under 50 kWh per month) domestic consumers. Tariff structure is consistent throughout the country but is (besides cross subsidies) divided by consumption levels (tariff slabs); and for industrial consumers, it is divided into peak and off-peak charges.

## Quality of Service

- The Performance Standards (distribution) Rules, proposed by the authority, have been approved by the federal government and notified in the official gazette in January 2005.
- While the performance standards for transmission have been finalised, in the document titled Performance Standards (transmission) Rules 2005, on April 19, 2005, it is still waiting for its approval from the government.
- While the performance standards for the generation companies are yet to be drafted and are expected to be finalised by August 2006.
- NEPRA has not prescribed environmental standards, all the generation companies granted license by NEPRA are required to maintain environmental standards as may be prescribed by the Federal Environmental Protection Agency.

## Quality of Service (contd.)

- The authority approved the Grid Code on June 9, 2005, which was circulated to all stakeholders for enforcement and compliance. The distribution code for MEPCO, GEPCO, PESCO, HESCO, QESCO, and IESCO have also been approved. Guidelines on power Safety Code have also been approved by the authority for circulation to all generating, transmission and distribution companies, which will submit their respective power safety codes to NEPRA for approval.

## Privatisation

- Privatisation as such is not directly the function or responsibility of the NEPRA. But NEPRA has to facilitate the process to bring efficiency in the power sector and helps in ensuring competition where feasible.
- The privatisation process started at a slow speed. Kot Addu Power Plant (1638 MW) was the first to be privatised in 1996.
- In December 2005 a majority stake (73% of shares) in KESC was sold to a private investor. It is the major step although the process took many years to materialize.
- Next in line is the distribution company, FESCO. So far nothing has happened. It is because of the delay in the notification of the tariff approved by NEPRA. A multi year tariff has already been determined for JPC.
- All the short listed bidders are waiting for the resolution of the dispute between the Government and NEPRA.

## Consumer Affairs

- NEPRA has established a consumer affairs division to address complaints lodged by the consumers against the utility companies. Various consumer complaint hearings have been held.
- According to the NEPRA Annual Reports, NEPRA is 100 % successful in the redressal of complaints but according to the Consumer Rights version, NEPRA only deals with the complaints of industrial consumers and does not give weight to the complaints of domestic consumers.
- Moreover, though penalties exist in the law for malpractices, yet there exist no clues under which the aggrieved could be entitled to compensation of any kind [Humayun and Anjum (2000)].
- NEPRA is also encouraging and assisting the provincial governments to prescribe rules for the redressal of complaints.

## Regulatory Effectiveness of NEPRA

- The reform process around the world put in forefront the issue of efficient regulatory system for the utility industries. The utility industries, in addition to being highly capital intensive, have irreversible investments. Hence, an effective institutional framework is necessary for sustained and efficient level of its output growth.
- An independent regulatory institution, with a clearly defined legal framework is argued to be the solution for an effective institutional framework [Pachauri (2001) and Stern and Cubbin (2005)].
- The economic literature has identified various governance characteristics for effective utility regulation. The analysis on the regulatory effectiveness of NEPRA is based on some of these governance characteristics.

## Regulatory Autonomy

- *Independent regulator* can provide assurance to investors that prices, outputs and inputs will not come under the pressure of ‘regulatory capture’ and pressures from economic and political interest groups.
- NEPRA is not autonomous (or independent), as the government continues to exercise considerable control over it in matters of tariffs and pricing.
- They also need to be financially independent of the government. The independence of the regulator must be supported by sufficient funds; otherwise the regulator can be improperly influenced by cuts to its budgetary allocation, i.e., ‘political capture’.
- The most appropriate approach is levies charged from regulated services (license fee for regulated firms etc.). The NEPRA operations are funded from licensing fees, filing fees etc. as prescribed by it from time to time and approved by the Federal Government.
- However, there are instances where NEPRA compromised on its financial autonomy, e.g., WAPDA successor distribution companies who have been issued licenses delay the payment of fees (NEPRA Annual Report 2001-02); and secondly allowing the government to submit only a token amount of Rs. 1000 for the disposal of its tariff petition [Humayun and Anjum (2000)]. This can have a negative impact on consumer’s confidence in the regulatory arrangement.

## Regulatory Autonomy (contd.)

- The success of electricity restructuring in Argentina and Chile is attributed to a very large extent to the performance of their independent regulators [Stern (2000)].
- However, Pachauri (2001) while talking about South Asia argued that some of the challenges existing in these countries are much bigger and complex. Most of these countries have emerged from colonial rule. Even in countries where this was not the case, the structure of society has often been characterised by major divisions, largely feudal in character. The class structure and the social forces that exist are therefore, different from those that have been seen in the countries of the North, which have practised democracy for several decades. As a result, in these developing countries, it is extremely difficult to have an independent regulatory arrangement.

## Regulatory Expertise

- Inadequate regulatory (human capital) resources lead to poor decision making [Stern and Cubbin (2005)]. The key requirements for independence are the personal qualities of regulators that allow them to take independent decisions and resist improper pressure or incentives. Their technical knowledge, professional expertise, and institutional capacity to discharge its responsibilities count a lot. In addition, to prevent comeback from the affected parties, regulators must be appointed for fixed terms and protected from arbitrary removal.
- Power has used to be a provincial rather than a federal subject in Pakistan, therefore NEPRA comprises of nominees from the bureaucracy of the four provincial governments and now, a former military person is the chairman. All are appointed by the government. None of the members has the requisite professional background and relevant experience in a power sector regulatory framework. They are mostly retired bureaucrats, and serve only for a short period in NEPRA

## Regulatory Expertise (contd.)

- By the time, the regulator (member) may develop some understanding of the complexities of the sector his tenure is over. The selection for a new regulator often involves long delays. That's why sometimes NEPRA is without Chairman (in 2002-03), and sometimes without members (in 2005). This affects the smooth and effective functioning of the authority.
- NEPRA has not been able to develop expertise in relevant areas that could have facilitated effective interventions in the future.
- In addition, according to Nizam (2003) NEPRA has also not acquired the services of a professional support staff in a transparent manner that could establish a proper regulatory framework for the benefit of the consumers and producers alike. Most of the existing professional staff of NEPRA are ex-WAPDA employees with no exposure to regulatory concepts and functions or are drawn from the sectors, which have no relevance to the operational requirements of a power utility.
- There are no energy economists in NEPRA, therefore optimal tariff calculation, a complicated area, remains unexplored [Bari (2006)].

## Accountability

- Independence of the regulator 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 the proven misconduct or incapacity.
- Accountability depends upon access to information and when information is denied to the public no accountability can be expected. The regulators are feared to have the tendency to come under the influence of corporate interests; therefore, their proceedings should be held in a transparent manner by involving all the stakeholders, particularly, the consumers in a meaningful way. It is often argued that the IPPs controversy could have been avoided in Pakistan provided the procedures were followed in a transparent manner and by making all the relevant information available to the media and citizens. As the deals were kept secret, there were speculations of bribes; a crisis was thus created in the power sector with significant implications for the national economy and consumers.

## Participation

- As far as public participation is concerned, public hearings do take place in NEPRA (institutional arrangements are in place) but from the consumer point of view, little emphasis is given to ensure the quality of these hearings. Consumers are not allowed enough time to make their point or to examine the matter independently. Sometimes, they are not provided necessary documents, reports and data. Moreover, laws in NEPRA allow for a complete grievance redress mechanism, but it is meant for industrial consumers only while the domestic consumers are not properly entertained [Humayun and Anjum (2000)].

## 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 to counter organisational failures.
- *Independence, accountability and proficiency* of the energy regulators are crucial for credibility. Direct involvement by ministers in pricing and licensing decisions can undermine regulatory credibility, and hence investment.
- Smith (1997) notes the crucial importance of utility services in politics, e.g., electricity consumers as voters. For short-term political goals, politicians or parliamentarians turn down the justified increase in tariff (as in the case of Pakistan separate tariff determinations for all DISCOs have been reserved) at the expense of long-term benefits of consumers and investments. Investors being aware of organisational risks associated with their investments will demand high tariffs (as what happened in the case of IPPs in Pakistan) to compensate for increased risk or they will invest in industries with independent regulatory agencies (with no government involvement).

-

## Clarity of Roles

- Another issue highlighted by Jacob (2004) and Stern and Holder (1999) with reference to efficient regulatory mechanism is the clarity in the mission and roles of the regulator. In the case of Asian regulators Jacob (2004) observed many conflicting public policy missions.
- Government intervention and market competition go along together and are emphasised equally (so is in Pakistan).
- Here again there is a need for relevant expertise of the regulatory staff to define regulatory missions clearly and carry out the functions effectively. In the developing countries (including Pakistan) it is really difficult to find skills to staff regulatory institutions, to run new companies, and to provide for a policy capacity in the relevant ministries [Stern (2000)]. NEPRA has also realised the shortage of professional staff in the market with expertise in utility regulation.

## Delays in Process

- One more institutional weakness in the regulatory framework is the delay in the regulatory processes.
- It is found that the cumbersome bureaucratic procedure and lack of administrative efficiency cause enormous delays in the case of Pakistan. Multiple agencies are involved in the sector that is also a certain recipe for delays as it becomes necessary to get overall commitment (or approval) to required changes.
- For example, delay in the transfer of responsibilities from the government to the power regulator means ministers and civil servants giving up responsibilities they have exercised for many years.
- In the case of NEPRA activities, for instance, the authority is quite successful in the issuance of licenses, however the process is slow. Similarly, performance standards and codes for different segments in the power industry have been finalised to some extent but again it took quite a long time.

## Regulatory Experience

The empirical evidence of reform process has suggested that the experience is not very encouraging for the developing countries. Most of the studies have emphasised

- **the importance of strong institutions and regulatory quality;**

Reasons cited for poor performance in the developing countries being:

- **the weak legislations and poor implementation of rules and regulations;**
- **large enterprises still enjoying the economic powers;**
- **resources allocated to regulation are low;**
- **access to information is the key for better regulation, is also poor in developing countries; and**
- **weakness in public policy (governments lacked the co-ordination and planning capacities).**

## Conclusion

- NEPRA was formed to protect consumer interests in the area of electricity provision, and to ensure an efficient and competitive environment for the electricity generators and distributors, but it has so far not been able to achieve anything.
- The power sector is still affected by institutional and organisational weaknesses. WAPDA and KESC are still the inefficient giants that they used to be as a result of a weak governance structure, with inefficient and non-optimal tariffs, high line losses, and high level of corruption.
- The tariff structure is not based on long run marginal cost but used as an instrument to achieve political objectives.
- There is no competition at the level of distribution.
- Weak administrative governance in NEPRA in the form of lack of autonomy has resulted in the overall institutional inability to carry out the desired functions effectively. In addition, may be NEPRA is not competent enough (in terms of professional expertise) to supervise and control the power sector and establish a rational and equitable pricing regime.

## Conclusion (contd.)

- Or there may be some deficiency in the overall regulatory structure as highlighted by Laffont (1996) when infrastructure reforms were introduced in developing and transition economies, many of them had little experience to guide the design of regulatory mechanisms. Under pressure from multilateral institutions and international donors, many of these countries hastily adopted a regulatory model from the developed countries. These models were hardly modified to the political and institutional characteristics in these economies including lack of checks and balances, limited technical expertise, weak auditing, accounting and tax systems, and widespread corruption and regulatory capture. This may be what seems to be happening in Pakistan.
- Stern and Cubbins (2005), are of the view that regulatory institutions with good governance have the tendency to make fewer mistakes. In addition, they have the ability to identify mistakes and correct them quickly to establish a good regulatory practice.
- The secret of the spectacular success of Asian countries like Malaysia and South Korea and China also lies in good governance, with a proper system of checks and balances.

## Conclusion (contd.)

- According to Pachauri (2001) independent regulation in the true sense can play an important role in maximising the welfare of people and improvement in the efficiency of energy enterprises. Rigorous analysis and intellectual efforts can lead to a new paradigm of regulation and the rise of governance structures with reference to the local conditions of the developing countries.
- In Pakistan, a regulatory agency with good governance is needed. This is a necessary condition but not a sufficient condition for improving the overall performance of the sector. It should be accompanied by a well designed industry and market structures. The power industry itself also needs an effective governance framework.

**Thank You**

## Liabilities on the Federal Budget (Rs. In Billion)

	2003-04	2004-05	2005-06
WAPDA's Subsidy	15.6	26.56	33.21
WAPDA's non-recovery of loans	21.0	21.61	6.40
WAPDA's new loans	2.6	3.60	3.60
KESC's Equity	-	9.20	0.39
KESC's subsidy against an adjustment of additional surcharge against GST	1.5	2.20	2.66
KESC's subsidy	9.6	6.48	9.0

## Transmission and Distribution (T & D) Losses.

