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ECONOMIC REFORMS IN POWER SECTOR TO ELIMINATE DISTORTIONS AND TO MAINTAIN ECONOMY POTENTIALS

Shylaja Mudigonda,
Research Scholar,Department of Economics,Osmania University,Hyderabad,Telangana.

ABSTRACT
Power sector plays an essential part in the economic progress of a nation and it is important to provide for sufficient electricity to provide for appropriate growth outcomes. Power sector plays an essential part in the economic progress of a nation and it is important to provide for sufficient electricity to provide for appropriate growth outcomes. Power sector in India in the pre-independence period was plagued with operational deficiencies like shortages in peak demands of electricity and improper planning of available resources. As a result, there were certain initiatives by the government post-independence to revive the dwindling sector but results were not up to the mark. There were a set of reforms post 1990s again which were implemented with a vision to achieve the required results but to no avail. Reasons behind the apparent failure of reforms have been cited as poor design of reforms and improper allocation of responsibilities. The paper here attempts to review the existing literature and looks at the need of power sector reforms and the path of unfolding of those reforms in India. It further explains the relevant structure of a reform process and why most of the initiatives undertaken did not yield the much awaited outcomes. The various factors as huge losses, poor performance of SEBs, theft and corruption in the power sector has led to the introduction of reforms, are discussed. The paper also discusses the steps taken and to be taken by the center and the states governments, introduction of new Electricity Bill, rationalization of tariffs and protection of the laws of the land provided to the private sector. In the last, it is concluded that the success of the reforms lies in the co-operative actions of the center and the state governments. Reasons behind the apparent failure of reforms have been cited as poor design of reforms and improper allocation of responsibilities. The paper here attempts to review the existing literature and looks at the need of power sector reforms and the path of unfolding of those reforms in India. It further explains the relevant structure of a reform process and why most of the initiatives undertaken did not yield the much awaited outcomes.
Key words: Government role, huge financial losses, poor SEBs, tariff rationalization

1.0 INTRODUCTION:
In this paper, we provide an analysis of the social and political context in which power sector reforms have taken place in India. We focus on the character and effects of that reform and the roles and responses of different players. We have tried to place these issues within their institutional context and examine the extent to which the political interests shaping the reform agenda have addressed public benefits. By public benefits, here we mean pricing of electricity, expanding services to rural areas and environmental dimensions of providing electricity. We also place emphasis on the governance processes necessary to achieve these objectives. The

decade of the 1990s in India is significant in economic terms for the growing interest in privatization and the actual transfer of ownership of assets in many areas from public to private hands. This period is also remarkable for the transformation that took place in governance patterns from direct regulation by the state to independent, para-statal regulation. Many of these changes were evident in major sectors such as finance and banking, insurance, telecommunications and power, where state ownership was, until recently, widely justified on grounds of "natural monopoly" and "public service." While the recent shifts in the discourse on public policy, as well as changes in ownership and governance structures seem to reflect international trends, there are broadly divergent views on their causes and impacts. Supporters of restructuring maintain that it is essential to respond to serious fiscal and credibility crises. Public divestment, even in service-oriented sectors, is necessary because government can no longer afford to support loss-making enterprises. Also, the conflicting roles of government as owner, provider and rule-maker in these enterprises have lead to corruption and poor performance, deepening the suspicion that more government cannot be part of the solution. Thus, it is argued, a competitive private sector would relieve the government of its losses and allow it to divert its resources towards its primary development and governance functions (such as health care, education and sound monetary policy). Similarly, independent, transparent governance would reduce the scope for corruption while regulating private monopolies or partial monopolies. In opposition to this view is an argument gaining some popular momentum, as reflected in the growing political reaction to globalization, which states that these changes are driven by vested interests to allow powerful multinational corporations to buy off the state's resources at bargain prices, and that they would ultimately pave the way for them to gain control over public programs and policies. From this perspective, the fiscal and governance crises in many public enterprises are overrated and, where not, may be addressed through internal reform that has not been seriously considered

2.0 LITERATURE REVIEW

Ros (1999), in his research examined the effects of privatization or competition on key telecommunication variables , such as network expansion and efficiency Using a fixed-effectsmodel , the researcher found that during the 1986—1995 time period, those countries that have at least 50% of the assets of their main telecommunication provider in the private sector have significantly higher main lines per 100 inhabitants and to a lesser degree have higher growth in the main lines per 100 inhabitants. Privatization is positively associated with main lines per employee and growth in main lines per employee. While competition is not found to affect network expansion, it is found to positively affected efficiency as measured in main lines per employee. The research also found that those countries that have at least fifty percent of the assets of their main telecommunications providers in the private sector and permit competition either in local , long-distance or international services have higher level of efficiency than those countries that have either just privatized or permit competition.

Jamasb et al. (2004) in their study proposes a set of indicators for developing a coherent framework for studying the electricity reforms for studying electricity reforms in developing

countries. The researchers classify approaches to analyzing electricity reforms into three broad categories: (i) econometric methods (ii) efficiency and productivity analysis methods, and (iii) individual or comparative studies. According to them, efficiency and productivity analyses are suitable for measuring the effectiveness with which inputs are transformed to outputs, relative to best practice. Jamasb et al. (2004) also maintain that single or multi-country case studies are suitable when in depth investigation or qualitative analysis is needed. The proper study of economic reforms requires an analysis of its impact and an assessment of the role of those factors that were influential in determining its outcome. Any such analysis generally involve measuring (and there by quantifying) specific aspects of cause and effect. Almost invariably, this involves using both quantitative and qualitative indicators.

Nepal & Jamasb (2009) The research quantitatively explores high-level links between power sector reforms and wider institutional reforms in the economy for a set of 27 diverse countries in rapid political and economic transition since 1990. Panel-data econometrics based on bias corrected dynamic fixed effect analysis (LSDVC) is performed to assess the impact of reforms on macroeconomic and power sector outcomes. The results indicate that power sector reform is indeed a more complicated process than initially perceived. The results also show that power sector reform is greatly inter-dependent with reforms in other sectors in the economy. They concluded that the success of power sector reforms on outcomes in developing countries will largely depend on the extent in which countries are able to synchronize inter-sector reforms in the economy.

3.0 NEED OF REFORMS IN INDIA POWER SECTOR The power sector in India has gone through zigzag changes in ownership structure over the years as is revealed below. It went from private sector to the public sector and then came back to the private sector. Initially, electricity supply was the domain of private parties, who chose to supply only to urban centres and areas around them. These state of affairs continued till just after independence. But, in 1948, the Electricity Supply Act was enacted, leading to establishment of State Electricity Boards (SEBs). These SEBs took over the licensees operating in the private sector and enlarged the customer base by bringing in rural areas under their operation. Over the years, in contrast to the well-functioning central entities, the SEBs showed signs of sickness like, huge Financial Losses, high T&D Losses, Power Shortage, Irrational and Unremunerated Tariff Structure, Collection Losses and Plant Load Factor etc.

Year 1880: Supply of electricity began in India with a small hydroelectric plant in Darjeeling, operated by a privatparty

Year 1948: Electricity Supply Act was enacted by the Government of India, leading to establishment of State Electricity Boards, which took over the licensees operating in the private sector

Year 1991: Central Government instituted policy to attract private sector to participate in generation, transmission, and distribution of electricity, under license from State Government

Table Performance of State Electricity Boards In Nineties

S. No	States	T&D Loss In %		Profit / (Loss) In Rs Crs	
		1992-93	1996-97	1992-93	1996-97
1	Andhra Pradesh	19.2	30.1	-4	-89
2	Bihar	20.5	25.3	-279.6	-370.2
3	Gujarat	21.1	18.2	100	-770
4	Haryana	25.4	31.7	-368.3	-275.6
5	Karnataka	18.7	18.5	32.2	60.7
6	Kerala	21	20	-65.3	-218.8
7	Madhya Pradesh	22.2	19.3	-112.9	-322.1
8	Maharashtra	16.4	15.3	161.6	111.8
9	Orissa	23.5	45.1	26	-257.9
10	Punjab	18.7	18	-626.3	-1346
11	Rajasthan	24.5	25.3	22.1	-506.6
12	Tamil Nadu	17.5	17	92.4	-194.8
13	Uttar Pradesh	24.1	24.6	-807.5	-63.8
14	West Bengal	23.7	20.1	-257.5	-483.1

In the mid-nineties, the average tariff per unit (KWh) paid by the domestic consumers in the country was 58% of the average cost per unit, whereas that paid by the agricultural consumers (for electricity used to lift water for irrigation) was 12% of the average cost. The gross subsidy in the sale of electricity was about 1.1 per cent of the national GDP for the country. Inefficiencies of the Electricity Boards, partly facilitated by the state ownership and lack of autonomy, accountability and adequate incentives for their employees have also contributed to financial difficulties.

4.0 PERFORMANCE OF GENERATION FROM CONVENTIONAL SOURCES:

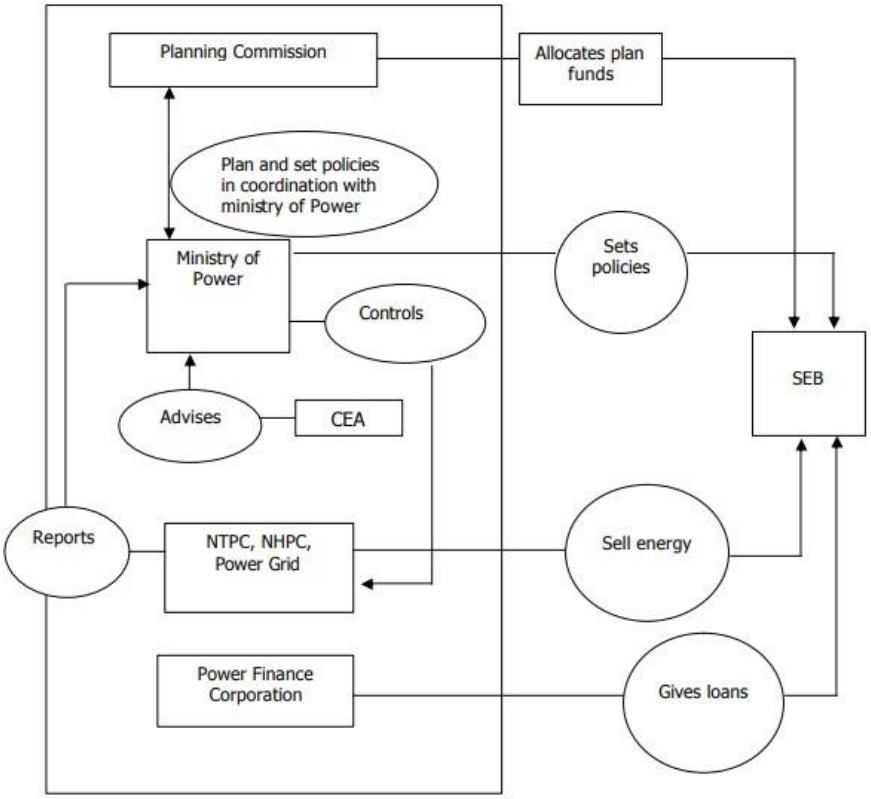
The electricity generation target of conventional sources for the year 2019-20 has been fixed as 1330 Billion Unit (BU). i.e. growth of around 6.46% over actual conventional generation of 1249.337 BU for the previous year (2018-19). The conventional generation during 2018-19 was 1249.337 BU as compared to 1206.306 BU generated during 2017-18, representing a growth of about 3.57%.

Table Generation and growth in conventional generation in the country during 2009-10 to 2019-20

Year	Energy Generation from Conventional Sources	% of growth
2009-10	771.551	6.6
2010-11	811.143	5.56
2011-12	876.887	8.11
2012-13	912.056	4.01
2013-14	967.150	6.04
2014-15	1048.673	8.43
2015-16	1107.822	5.64
2016-17	1160.141	4.72
2017-18	1206.306	3.98
2018-19	1249.337	3.57
2019-20*	651.509	0.28

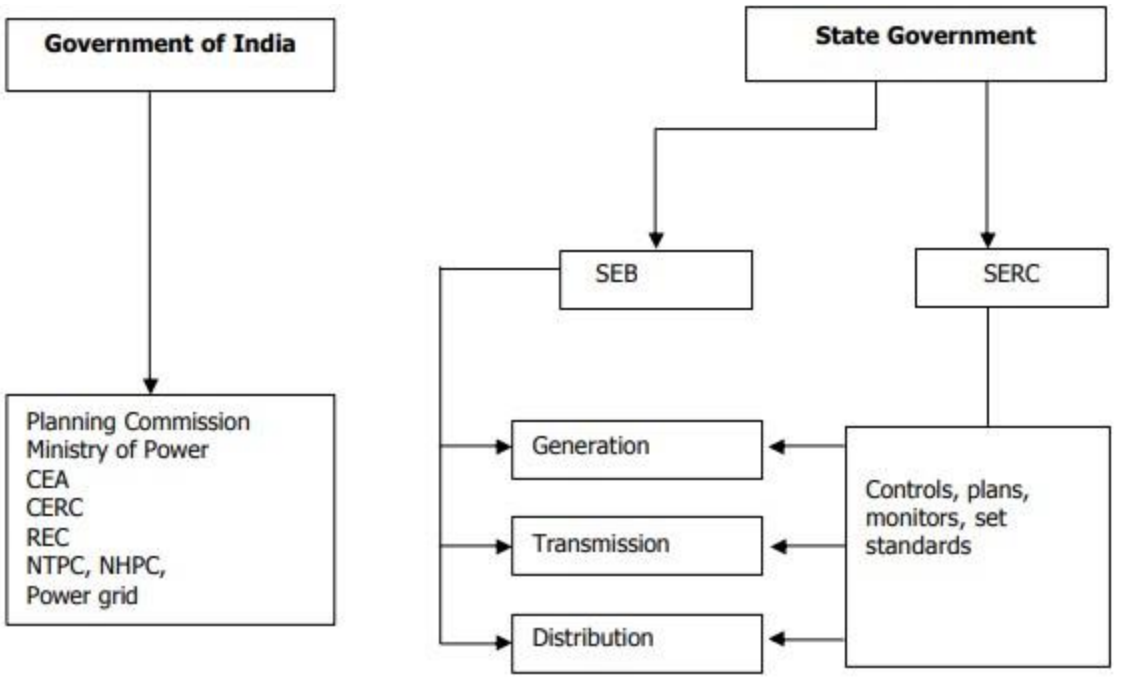
5.0 GOVERNANCE OF POWER SECTOR: REFORMS

Prior to the implementation of reforms, the state government (department, minister, bureaucracy, judiciary, regulators, and political leaders and SEBs) was mainly responsible for generation, transmission, distribution and delivery of electricity. Along with, the central government, the Planning Commission, Power Ministry, Central Electricity Authority (CEA), Power Finance Corporation (PFC) National Thermal Corporations (NTPC) and the National Hydro Power Corporation (NHPC) influence the policies related to power governance



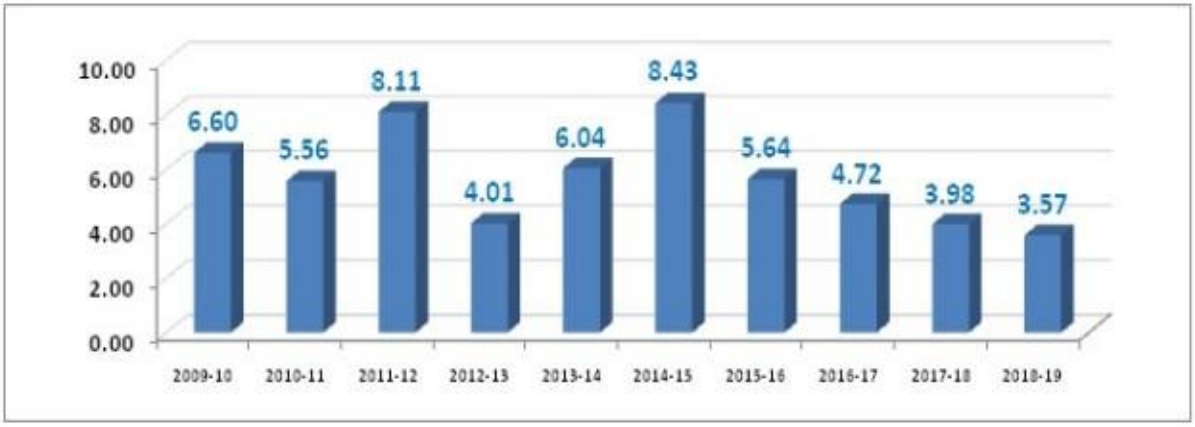
Governance of Power Sector: Before Reforms

However, after the implementation of reforms, these responsibilities were partially and/or fully transferred to independent regulatory authorities, private companies and civil society and people's organisations



Governance of Power Sector: After Reforms

GENERATION GROWTH (%)



6.0 AN INNOVATIVE ANALYSIS OF POWER DISTORTIONS:

Going beyond fiscal costs, the report measures the impact of distortions on consumer wellbeing, producer surplus, and the environment.

To that end, the report surveys the entire power supply chain from fuel supply to power generation, transmission, distribution, and eventually, consumers.
The report underscores three types of distortions that lead to most inefficiency:

1. Institutional distortions that arise from weak governance and inefficient allocation of inputs and outputs of the electricity sector.
2. Regulatory distortions coming from price regulation, subsidies, and cross-subsidies.
3. Social distortions that cause environmental and health damages.

Put together, these distortions have contributed to fuel shortages, inefficient electricity generation and delivery, and wasteful consumption.

People in old Delhi in Chawri Bazaar, the famous old market in Delhi, India (c) Shutterstock Because of low access rates and low quality of supply, per capita electricity consumption in South Asia is the second-lowest in the world (after Sub-Saharan Africa). At 707 kilowatt hours (kWh) a year in 2014, it is less than a quarter of the world average.

- Multiple problems affect electricity supply, including the misallocation of fuel supply, inefficient electricity generation and dispatch of power plants, high losses in distribution, underpricing of energy, and inadequate pricing of emissions from fossil fuel–based electricity generation.
- Lack of reliable access to electricity is associated with lower income, higher poverty,

poorer health and education, and less gender equality. Unreliable power supply also adversely affects the operation and growth of firms, contributing to substantial business losses.

- The full economic cost of distortions in the power sector is far greater than the fiscal cost of energy subsidies.

Specifically:

- It is important to rationalize the price of energy so as to incentivize investment and conservation. The increased revenue from energy sales could be spent promoting more sustainable long-term growth. Meanwhile, utilities would have the resources to invest in the long-term reliability of the grid and provide higher quality service to all.
- However, in the absence of other reforms, too narrow a focus on liberalizing energy prices may be inadequate and, given the current inefficiencies in the sector, would lead to excessively high electricity costs, putting added stress on the poor and most vulnerable.
- Rather, increasing efficiency should be the main priority, together with a gradual increase in energy prices and targeted assistance to mitigate the impact on consumers.

- Addressing institutional distortions would yield huge efficiency gains. For example, allocating coal and gas based on transparent market rules rather than administrative orders would promote a more productive use of fuel, and implementing merit-based power dispatch would lead to greater reliance on the most efficient power plant.
- Adequate incentives would help improve the operating performance of utilities. Corporatizing utilities without fundamental changes in the incentives they face cannot guarantee improved operating efficiency.

7.0 CONCLUSION: Power sector reforms in India were introduced with an intention to improve the earlier condition of the sector but the results show that there has not been any evident change. The major characteristics for a successful reform process were not satisfied by the power sector reforms. Even after imitating the other developed countries to achieve sufficiency in electricity, we continued to face high amount of corruption and technical losses which indicate the underlying political situations. The paper shows that simply implementing reforms is not the answer to the problem, it is important to implement reforms in the presence of political soundness and acceptability by general public. Every nation has a diverse structure and topography which accrues for different solutions for the same problem and similarly, to correct the institutional issues in the reforms, it is important to look for local solutions which will be in synchronization with the country. Future scope of the study of Indian power sector

reforms is quite vast considering the after effects of reforms have just started to pour in even though in little amount. The business model of the state power utilities in India are largely constrained by what regulations allow them to do. Several reviewed paper acknowledges the fact that the sustained financial losses are plagued by untenable and irrational tariff structure not reflecting the cost of power and is based on subsidies built in with strong political influence and the electricity has been made as an instrument of political patronage. The next generation reform should focus more on generating more revenue and by containing huge commercial losses. Rationalization of present tariff structure, direct transfer of subsidies to targeted beneficiaries and a major institutional reform to revamp of the existing structure of the state power regulator and to create a strong institutional mechanism for effective and efficient function of the regulator without political intervention. The needed policy interventions by the Government to formulate strategies for the next generation reforms in distribution sector has been suggested. This paper would be of immense value to the policy planning bodies in India 'NITI Aayog', Ministry of Power, Government of India, central and state governments for successful planning and implementation of the Next Generation distribution reforms in power sector in India.

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