

Power Sector Reforms in India

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Abstract: India faces endemic electrical energy and peaking shortages. The Power Sector is plagued with mounting commercial losses due to various inefficiencies, colossal commercial and technical losses and increasing subsidy burden on the states. These shortages have had a very detrimental effect on the overall economic growth of the country. In order to re-vitalise the sector and improve the techno-economic performance, the Government of India initiated the reform process in 1991. This paper analyses the pre-reform era and identifies the key concerns which led to the initiation of the reforms. It also analyses the likely impact of the major policy and regulatory initiatives that have been undertaken since 1991 including the provisions of the new enactments which have come into force eventually in the form of The Electricity Act, 2003. This paper details out the key features of the Act and its likely impact on the Indian electricity industry in the emerging scenario. The paper also discusses major issues like role of Regulator in the new regime, issue of open access, power trading, introduction of power markets and role of Appellate Tribunal for Electricity in harmonizing the orders of the various regulators.

Résumé : L'Inde fait face à endémique d'énergie électrique et les déficits de pointe. Le Secteur de l'Énergie Electrique est tourmenté de pertes commerciales augmentant à cause de différentes inefficacités, les pertes commerciales et techniques colossales et le poids de subvention augmentant sur les états. Ces pertes ont un effet très nuisible sur la croissance économique générale du pays. Afin de revitaliser le secteur et améliorer la performance techno économique, le Gouvernement Indien a initié le processus de réforme en 1991. Cet article analyse l'ère d'avant réforme et identifie les inquiétudes principales qui ont mené à l'initiation de réformes. Celui-ci aussi analyse les conséquences d'initiatives de la politique et d'initiatives réglementaires qu'on a entrepris depuis 1991 ci-inclus les provisions de nouvelles dispositions qui sont finalement appliqués sous forme de Le Loi sur l'Electricité de 2003. Cet article donne les détails à propos d'aspects importants de Loi et son impact probable sur l'industrie d'électricité de l'Inde dans la situation émergent. L'article discute aussi les questions clés comme le commerce d'électricité, le rôle de régulateur dans le nouveau régime, la question d'accès libre, l'introduction aux marchés de l'électricité et le rôle du Cour d'Appel pour l'électricité pour harmoniser les ordres de différents régulateurs.

Introduction

In line with the Industrial Policy Resolution of 1948, the government played a dominant role in initiating and regulating development in key sectors of the economy which inter alia included the Indian Electricity Sector. According to the Seventh Schedule of the India's Constitution, "Electricity" is a concurrent subject thereby implying that both the Parliament of India and the State Legislatures are empowered to make laws on the subject of "Electricity" - Sl. No. 38 of List-III -Concurrent List (Acharya). Thus, with Independence, the principle that both the Central Government and the States should be able to legislate on power was embodied in the Constitution. Shortly after this, legislative authority was more formally divided in the Electricity Supply Act of 1948. The Act provided for the establishment of the Central Electricity Authority (CEA) and of State Electricity Boards (SEBs) which were to become the main agencies for supplying power throughout India. The SEBs were autonomous bodies responsible for the development and operation of generation, transmission and distribution in the "most economical and efficient way". The mandate for the CEA was spelt out clearly in the Act: to develop national plans and help formulate national power policy, to report the progress of the electricity supply industry, to provide technical assistance, to advise Central Government/ State Government/Boards/generating company, act as arbitrator between State or Board or licensees, to train personnel in the sector, to promote research and, in general, to facilitate efficient power supply. Its role, however, was essentially advisory rather than executive. The Industrial Policy Resolution of 1956 reserved the generation and distribution of electricity almost exclusively for the states, letting, existing private licensees, however, to continue. This led to the gradual domination of the electricity sector by government enterprises. Amendment in 1976 enabled generation companies to be set up by the central and state governments resulting in the establishment of National Thermal Power Corporation Ltd. (NTPC Ltd.), National Hydro Power Corporation Ltd. (NHPC), North Eastern Electric Power Corporation Ltd. (NEEPCO), Mysore (now Karnataka) Power Corporation and Water & Power Consultancy Services (a consulting firm), etc.

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The development of the sector took place essentially through various public sector utilities – some under the central government and the majority under the state governments – between them they accounted for more than 95% ownership.

Until the 1980s, electricity services in most developing countries of the world, as also in many developed countries of Europe, were delivered by state-owned monopolies. It was considered that monopolies were best suited to deliver electricity services, as they enjoyed economies of scale and scope. In India also reflecting the same sentiment, until 1991, the sector in the states was managed by one large, vertically integrated entity that generated, transmitted and distributed power, under the respective State Ministries of Power. The rationale for state-owned integrated electric utilities reflected the internationally common view that electricity sector was a natural monopoly with the exception of US and Japan (Dossani, 2004).

However, in many instances, the absence of competition led to poor quality of services, sub optimal utilization of resources, and little consideration for consumer interests. The inability of state-owned enterprises to deliver services in an efficient and cost-effective manner led to reassessment of the policies relating to the provision of services, and there was a growing perception that corporatisation of the sectors could improve efficiencies, quality of service and improve the bottomline. As countries began to open up their electricity sector to private sector participation, they realized the need for new mechanism to balance the interests of the various stakeholders, to ensure the viability of the industry and reduce transaction costs associated with privatization. However, recent global experience has shown that generation is not a natural monopoly. As such, generation can be separated from distribution and competition can be introduced in generation. Juskow (1998) proposes privatisation of the generation sector leading towards competition in bulk supply through transmission access, while distribution network could remain a natural monopoly along with availability of retail choices to consumers. Hawdon (1996) using data envelopment analysis of productive efficiency of power sector in 82 countries has found that privatizing groups of eight countries exhibit significantly higher efficiency than non-privatising groups.

Taking cue from UK and the USA and developing countries like Argentina, Chile, Brazil, Philippines and Pakistan, the Indian government also commenced the restructuring of the Indian power sector which commenced with the unbundling, corporatisation and privatization of Orissa power utility. The Indian power sector has witnessed significant changes since early 1990s. Beginning with allowing private investment in power generation in 1991, initiating regulatory reforms through Electricity Regulatory Commissions Act, 1998, the Indian government has enacted the Electricity Act, 2003 which seeks a paradigm shift. In fact the decade of the 1990s has been the one of experimentation with new governance paradigms not only in India but in many parts of the world as well. Till then the governance of the electricity sector was based on the following tenets: the public sector was the best avenue for delivering infrastructure services, and the private sector's presence in it was to be restricted, if not prohibited; public sector entities would serve the public interest the best; parliamentary democracy provided sufficient accountability to protect consumers' interest and to ensure efficiency

This approach to governance in the power sector led to prices of electricity being fixed on political considerations and not on costs, huge cross-subsidies for some class of consumers which led to endemic power shortages, unsatisfactory operational efficiencies and mounting financial and commercial losses of State Electricity Boards (SEBs), poor quality of services, huge transmission and distribution losses etc. This poor state of affairs prompted the Government of India to make a number of policy and regulatory changes – focusing essentially on better fiscal and operational management and control of the power industry and also for attracting private capital and rely more on market forces and competition in order to improve the delivery of the electricity to consumers.

Policy changes that have been initiated are in tune with the global trends and take care of policy, institutional and regulatory issues and are expected to address technical and financial challenges facing the Indian power sector. This paper takes brief account of the state of affairs of the Indian power sector and of concerns that have prompted various steps taken by the central and the state governments for the development of the sector. It details out the key features of the Act and its likely impact on the Indian electricity industry in the emerging scenario – which

comprise the structural as well as the policy related issues impacting the generation, transmission and distribution of power. The paper also discusses major issues like role of regulator in the new regime, issue of open access, power trading, introduction of power markets and role of Appellate Tribunal for Electricity in harmonizing the orders of the various regulators keeping in mind the federal nature of the Indian electricity industry. So as to understand the role of Appellate Tribunal in ensuring uniformity of policy, rules and regulations for the entire power sector of the country, some case studies have been discussed.

The Indian Electricity Sector:

Electricity is central to achieving economic, social and environmental objectives of sustainable human development. In the present digital age electricity has emerged as the most crucial and critical input for sustaining the process of economic as well as social development. Development of different sectors of economy is not possible without matching development of the electricity sector. In fact it has become essential ingredient for improving the quality of life and its absence is usually associated with poverty and poor quality of life. Though the Indian power sector has achieved substantial growth during the post-independence era, the sector has been ailing from serious functional problems during the past few decades.

Per capita consumption of electricity in India increased from 178 kWh in 1985-86 to 338 kWh in 1996-97 (GOI, 2002b) and to 665 kWh in 2005-06 (General Review, 2007). This level of per capita consumption is less than 1/20 of that prevailing in the US, less than half that in China against the world average of 2400 kWh and the OECD average of 6900 kWh (IEA data). The power sector annually avails a substantial share of the outlay of the national economic plan (about 13–18%) (GOI, 2002c), but most of the State Electricity Boards (SEBs) in India have been working under resource crunch and operating at massive commercial losses. According to the Government of India reports (Bajjal, 1999, GOI, 2001b,d; Parikh and Radhakrishna, 2002) inefficiencies were mainly due to:

- Unsatisfactory operational efficiencies, with the availability of thermal plants at less than 80 percent, losses (including theft of power) as high as 20 to 21 percent;
- High transmission and distribution losses substantially higher than normal technical standards, with a high component on non-technical losses, accounted for by poor/inadequate metering and high incidence of theft of energy;
- Poor billing and collection, because of incorrect reporting and billing, and inadequate collection efforts, tampering with meters and misreporting in collusion with consumers;
- Imbalance in the mix of generation sources and undesirable proliferation of captive generating units; and
- Unmanageable size and monolithic structure, making it unwieldy, inefficient and unresponsive to change as well manpower related problems; poor productivity, low skills and lack of training for up gradation, low motivation levels.

This was coupled with some states having Generating Plant Load factor (PLF) as low as 40% due to lack of transmission capacity, proper maintenance of plants and supply of coal (GOI, 2002c). Also the rate of damage of distribution transformers was very high - for instance as high as 35 percent yearly in some circles of Haryana, leading to a life expectancy of only a few years, as compared to 40 years in western countries. Further, it emerged that real figure of technical plus non-technical losses was around 40-50 percent (Task Force Report, 2004). Consequently, the electricity services provided to the consumers by these SEBs - both in terms of quality and quantity - are 'poor'. As the supply of electricity over a period of time was viewed as public service, over the years the operation and financial condition of the SEBs began to deteriorate. In addition, substantial amount of energy generated was lost on account of Transmission and Distribution (T&D) losses. As a consequence, the SEBs were unable to achieve the targeted capacity addition. Further, the increase in dues from the SEBs to the Central Power Sector Undertakings (CPSUs) compounded the problem of capacity addition in the sector as even the CPSUs were stretched to meet the targets. This led to a situation where the supply-demand gap of electricity consistently widened over the years and most of the States in India are facing acute electricity shortage. The energy deficit

increased to 11.5% and peak deficit to 18% by 1990/91 (GOI, 2002b). While there has been sub optimal capacity addition in the sector, the financial conditions of the SEBs deteriorated over the years. The annual commercial losses (without subsidy) also showed a spiraling trend increasing to over Rs 330,000 million during 2001-02, which is equivalent to about 1.5% of India's Gross Domestic Product. Gross subsidy which was Rs 202,100 million in 1996-97 more than doubled to about Rs. 430,000 million in 2000-2001(GOI, 2002c). The average rate of return (without subsidy) of the SEBs has reduced to minus 44.1% in 2001-2002 from minus 12.7 in 1992-93(GOI, 2002c). The gap between the average cost of supply and average tariff increased from 50 paise/kWh in 1996-97 to 110 paise/kWh in 2001-02 thereby entailing huge losses to SEBs(GOI, 2002c). The generating capacity additions were totally inadequate to meet the burgeoning demand and consequently the deficits in electrical energy and peak power requirement became the order of the day. Internal governance mechanisms designed to make SEBs function like commercial entities failed miserably and the SEB design seemed hopelessly flawed and in dire need of mending or revamp. Thus there was a general approved consensus that maintaining this status quo will be detrimental to the nation and may harm the sector itself. It was in this situation that in 1991 Government of India decided to radically restructure the power sector through a set of comprehensive reforms.

Power Sector Reforms

The first reform phase began in 1991 with the introduction of Independent Power Producers (IPP) paradigm. Government initiated reform process due to the following reasons: (i) the ever-widening gap between the demand and availability of electricity, (ii) the poor technical and financial performance of the State Electricity Boards and (iii) inability of the Central and State Governments to finance and mobilize resources for generation capacity expansion projects, making third party investment in power sector imperative. The initial step in this direction has been the amendment of legislation governing the electricity sector in 1991. The Indian Electricity Act, 1910 and the Electricity (Supply) Act, 1948 were amended to attract private investment in power generation. The first policy statement of October 19991, titled the Government of India Resolution – Policy on Private Participation in Power Sector, achieved the following:

- it allowed the private sector to “set up thermal projects, hydroelectric projects, and wind/solar energy projects of any size”. Generators were invited to submit unsolicited proposals to SEBs for the purpose;
- it allowed the private sector to “supply and distribute energy in a specified area, ... (even without ownership of) a generating station”;
- foreign ownership up to 100% was allowed;
- the contract between the generator and the SEB would be a long-term power purchase agreement (PPA) offering a guaranteed return on equity of 16%. Foreign investors would receive exchange rate protection up to the benchmark return and for servicing the costs of foreign debt.

This facilitated the tapping of domestic and foreign capital markets, provided assured returns on investment and reduced legal hassles to allow the private investors to set-up generation capacities or operate as licensee in distribution segments, which were hitherto a monopoly of the SEBs. Private power initiative in generation banked on long-term power purchase agreements. However, the distribution was not privatized. Further, the policy did not have any provision aimed at improving the fiscal health of SEBs, which is a prerequisite for the viability of the PPA.

The National Development Council set up in 1993 was the first official body to steer the reform process. The Committee recommended the following:

- the industry should be re-oriented to be accountable to the consumers;
- foremost reform needed in the state power sector is to restore the autonomy of the state power utilities;
- The State Government must distance itself from the management of the SEBs to enable the latter to have necessary technical, managerial and financial autonomy;

- In the long run, the SEBs should function as corporate bodies;
- Minimum tariff should be gradually be increased so that it is not less than 50% of the average cost of generation and distribution of electricity during the year;
- Objective of the scheme of private sector participation in the power sector should be to attract domestic and foreign investment in a competitive environment so that the consumer of the retail may get power so generated at the least cost;
- Stringent measures for unauthorized use and theft

Having experienced success in restructuring the electricity industry in the Latin American countries, World Bank put forth power sector reforms as a necessary condition for future assistance to power sector in the recipient countries (Rajan, 2000). Therefore, at the urging of the World Bank, Orissa was the first state to enact, in 1996, comprehensive power sector reform act involving (1) an independent regulatory commission, (2) unbundling of the State Electricity Board (SEB) into separate generation, transmission and distribution entities, and (3) eventual privatization, particularly of distribution. The rationale for choosing Orissa was that the share of agriculture as a percentage of the total energy consumed being less than 10% would mean that the problems associated with agriculture tariff subsidy would not be there thereby reducing the political fallout of the reform process. The state was in dire need for reforms with its performance reaching an all-time low – peak shortages increased from 24% in 1991-92 to 37% in 1993-94; PLF went down from a low of 34% in 1990-91 to 29% in 1994-95; tariff did not cover cost – they were 78% of cost in 1991-92 and went down to 71% in 1993-94; in 1993-94 revenue was Rs. 3.34 billion short of the required 3 % return on the capital employed (Ranganathan, 2004). The financing requirement for the sector was estimated at \$995 million by the World Bank and this amount was neither available with the State Government nor the utility – therefore this was an incentive for the State Government that they would get this loan from the World Bank if they agreed to reform (Ranganathan, 2004). The ‘Orissa Model’ was based on functional unbundling and corporatisation of the SEB into generation, transmission and distribution companies. Subsequently the companies were privatized. The Orissa Electricity Regulatory Commission (OERC) was set-up under the Orissa Electricity Reforms Act 1995. Subsequently, Haryana and Andhra Pradesh followed suit but did not privatise the distribution companies. The main functions of State Electricity Regulatory Commission (SERC) include licensing for undertaking business in its jurisdiction and the setting of tariffs for Transmission and Distribution (T&D) businesses. For the purpose of tariff determination, the SERCs followed costs-plus tariff-setting approach as already in vogue (Sankar and Ramachandra, 2000).

In 1995, these measures were further strengthened by a Mega Power Policy, whereby plants above 1000MW capacity would receive additional incentives in the form of a 10-year tax holiday anytime during the first fifteen years, exemption of customs duty for imports, reduced hassles for clearances, etc. This also provided for the setting up of Power Trading Corporation (PTC) to act as an intermediary between the private developers of mega projects and the SEBs. Though independent power producers (IPPs) evinced interest for adding generation capacity for about 95,000MW, only 6500MW was added during the eighth and ninth five-year plans (1992–2002) (WEC Report, 2002). Further, out of a targeted capacity addition of 17,588 MW from the private sector during the ninth Five-year plan (1997–2002), a mere 5061MW only materialized (GOIe, 2002).

The Ministry of Power organized discussions between the Centre and the States in October and December 1996, from which emerged the “Common Minimum National Action Plan for Power” (CMNAP). The CMNAP recommended:

- That the SEBs be corporatized, initially within the existing framework of public ownership followed by gradual privatization;
- That the SEBs focus on improving efficiency in both generation and distribution via reorganization, efficient metering and energy audits;
- The creation of independent State Electricity Regulatory Commissions (SERCs), answerable only to the state High Court;
- That tariffs be set—“with immediate effect”—to earn a return on capital employed of at least 3%;

- Cross-subsidization be continued provided that no user pays less than 50% of its average costs. A 3-year phase-in was allowed for farmers only, who would immediately pay at least Rs 0.50/kWh;
- Simplification of procedures, including that adjustments for changes in fuel charges be “automatically incorporated” in the tariff structure as a pass-through cost. This concept was incorporated in the June 1997 guidelines for private sector participation in generation.

The CMNAP formed the basis for the June, 1997 guidelines on generation in power sector. However, the 1996/97 reforms were not comprehensive as it had altogether neglected the reforms in the distribution sector which were essential to improve the fiscal health of the SEBs. Reforms at the central level were initiated in 1998, through the enactment of the Electricity Regulatory Commissions Act, which provided for the setting up of the Central Electricity Regulatory Commission (CERC) and state level regulatory commissions. This Act was primarily enacted to distance the government from determination and also to introduce professionalism in tariff determination through an independent agency. Central Electricity Regulatory Commission was formed on 26 April 1999 and State Electricity Regulatory Commissions (SERCs) have been set up in twenty five (25) States and are already functioning and have been notified in four (4) other states. Most of the States have initiated reform process and some have made substantial progress in restructuring of the power sector. Tariff Orders have been issued by twenty (20) SERCs and thirteen (13) states have unbundled/corporatised and nine (9) are expected to follow suit shortly. The main functions of CERC include regulating tariffs of generating companies, owned or controlled by the Government of India and any other generating company catering to more than one state, and also tariffs for the inter-state transmission of electricity. Apart from this, significant steps taken by CERC include introduction of Availability Based Tariff (ABT), Indian Electricity Grid Code, and Guidelines for transmission licensing, open access Regulations, Trading Regulations and fixing of trading margins, etc. ABT has been instrumental in bringing discipline to the grid by providing frequency linked incentives and disincentives. In the ABT, a two-part tariff is supplemented with a charge for Unscheduled Interchange (UI) for the supply and consumption of energy in variation from the pre-committed daily schedule and depending on grid frequency at that point of time. The regulatory changes have brought transparency to the tariff-making process. They have also led to the rationalization of distribution tariffs, thereby arresting increases of cross-subsidy in the system. Public hearings have been able to give voice to consumers in raising their concerns and contribute constructively to the regulatory process. In order to address the consumer complaints, SERCs have come up with a complaint-handling system.

Due to poor capacity addition by the IPPs, the need for distribution reforms was recognized. It was towards this effort that in the Meeting of the Chief Ministers on Power Sector Reforms was held in March 2001 where some level of political convergence concerning the reforms emerged. The most important step to improve the bottomline of the sector is effective and creative management to reduce technical and commercial losses and increase revenues. The resulting revenues along with performance-tied grants from government and multilateral and bilateral agencies can be used to improve technical performance involving reduction of T&D losses and improvement of power quality (frequency, voltage, continuity). Towards this effort, the Accelerated Power Development & Reform Program (APDRP) was launched in February 2001 by the Union government to promote distribution reforms and provide transitional finance for the SEBs undertaking reforms. The main objectives pertaining to distribution reform are aimed at achieving 100% metering, conducting energy audits, improving HT/LT ratio, replacement of distribution transformers and the use of IT solutions to ensure accountability. The APDRP aims at reduction of AT&C losses, bring about commercial viability, reduce outages & interruptions and increase consumer satisfaction

This program has two components namely the **Investment Component** which covers strengthening and up gradation of sub-transmission and distribution and the **Incentive Component** which is a grant for states/Utilities towards reduction of cash losses with 2000-01 as the base year. Eight (8) states namely Andhra Pradesh, Gujarat, Haryana, Kerala, Maharashtra, Punjab, Rajasthan and West Bengal have been the recipient of such incentive totaling Rs. 17233 million.

Most of the SEBs were on the verge of financial collapse. Large amount of SEBs debts to Central Public Sector Utilities (CPSUs) and the railways cast a shadow on their balance sheet. One-time settlement scheme of SEB debts

was initiated and came into effect from 17 April, 2002 as a tripartite agreement between the respective State Government, the Ministry of Finance and the Reserve Bank of India (RBI) (Ahluwalia, 2000). As per this scheme, 60% of the surcharge and interest on delayed payment as of 30 September 2001 is waived. The scheme securitises the remaining surcharge and interest and the full principal amount through tax free bonds to be issued through Reserve Bank of India by the respective state governments. It also provides for recovery of future defaults exceeding 90 days from the funds due to the state.

The Electricity Act, 2003

Recognizing the need for the Reform process covering the entire facets of the electricity sector comprising generation, transmission and distribution to the consumers, a comprehensive Electricity Bill was drafted in 2000 following a wide consultative process. After a number of amendments, the bill finally sailed through the legislative process and was enacted on 10 June, 2003. It replaces the three existing legislations governing the power sector, namely Indian Electricity Act, 1910, the Electricity (Supply) Act, 1948 and the Electricity Regulatory Commissions Act, 1998. The Electricity Act, 2003 mandates that Regulatory Commissions shall regulate tariff and issue of licenses and that State Electricity Boards (SEBs) will no longer exist in the existing form and will be restructured into separate generation, transmission and distribution entities. Regulatory function has been taken away from the purview of the government. The Electricity Act, 2003 mandates licensee-free thermal generation, non-discriminatory open access of the transmission system and gradual implementation of open access in the distribution system which will pave way for creation of power market in India. The main provisions of the act are:

- De-licensing of thermal generation and captive generation.
- Open access in distribution to be introduced in phases
- Provision for license-free generation and distribution in rural areas and provision for management of rural distribution by Panchayats, Cooperative Societies, non-government organizations, franchisees, etc.
- Non-discriminatory open access in transmission.
- Multiple licensing in distribution.
- Mandatory metering of all electricity supplies.
- Adoption of multi-year tariff principles.
- Provision for cross-subsidy surcharge on direct sale to consumers.
- Power Trading recognized as a distinct activity with ceilings on trading margins to be fixed by the Regulatory Commissions.
- Upfront payment of subsidies by the States.
- Setting up of an Appellate Tribunal to hear appeals against the decisions of the CERC and the SERCs.

The Act is aimed at providing an investor friendly environment for potential developers in the power sector by removing administrative hurdles in the development of power projects and shall provide impetus to distribution reform to be undertaken in India. Provisions like de-licensing of thermal generation, open access and multiple licensing; no surcharge for captive generation shall be the basis for a competitive environment in the Indian power sector. Provisions of open access would be instrumental in the development of competitive power markets, and multi year tariffs shall bring in necessary incentives for performance improvement and to reduce regulatory risk.

Evaluation of the Reform Process

Power sector reform is a long process and its impacts would be known after a long time. Though it is difficult to predict the outcome of the reform process, a mid course review of developments could, however, help learn from the past mistakes and take some mid-course corrective measures. Indeed, advocates for the power sector reforms argue that the proposed changes will bring better quality of power at lower rates, with positive effects on economy and society at large. In India the initial impetus of the reform was on the generation side rather than the distribution side where the actual problem lay. Distribution reform was given thrust by incentive based schemes like the

Accelerated Power Development and Reform Program (APDRP). Thirteen (13) SEBs and Electricity Departments have unbundled and corporatised and another nine (9) are expected shortly, political compulsions to go ahead with privatization has forced many state governments to repeatedly postpone the same in their respective states.

Bacon and Besant–Jones (2001) advocate that privatization of the distribution and supply functions ought to be carried out first. This facilitates the entry of potential investors in the generation by improving the creditworthiness of buyers of power from the generators. The same model had been adopted for Orissa reforms, however, it has not yielded the desired results and it is ranked 21st amongst 29 states by ICRA/CRISIL, 2006 (Report on Rating of State Power Sectors, 2006). In the case of Orissa, post privatization, the operations of distribution companies are not viable as the tariffs that have been fixed by the regulator are based on normative T & D loss of 35% against the actual losses that were estimated to be around 45–47% (Anoop Singh, 2006). Revenues from sale of the government stake in Orissa were not ploughed back into the sector which limited the government's ability to influence the future developments in the sector. However, Orissa provided a powerful demonstration effect for other states to follow and learn from its experiences.

The World Bank's staff appraisal report on Orissa, before commencing of the reforms, has targeted a reduction of T&D losses to the level of 25% by the year 2001 but this has not been realized at all (Orissa Power Sector Restructuring, 1996). The picture of Haryana, UP, AP and Karnataka also are not different. In the case of these States, the losses showed an increasing trend and are currently above 30%. In AP and Karnataka the percentage of T&D losses have shown about two-fold increase while undergoing restructuring. Regarding the growth in per capita consumption of electricity, the rates in these States except that of AP have not indicated any substantial improvement above the national average growth rate of 3.5%.

In the 'Delhi model' some of these lacunae were taken care of to some extent. Involvement of Regulators at all stages of privatization and long-term tariff profile led to the reduction of regulatory uncertainty. However, it continues with the single-model buyer approach as in the case of Orissa and other restructured state utilities. In the Delhi model, phased reduction in T&D losses, revenue collections and transitional financial assistance (subsidy) are the three critical areas.

Today India, like many Asian economies, has achieved impressive rates of economic growth. Real economic growth has averaged 6.0 percent during the 11-year period from 1992–93 to 2004–05. By contrast, American economic growth has averaged a mere 3.5 percent per year for the past several decades and growth within the European Union has been even lower (Reineberg, 2006). An analysis of the actual growth in per capita real GDP and electricity generation estimated from the time series data since 1990-91 shows that elasticity of electricity consumption with respect to GDP is around 1.06 compared to 1.30 for the period since 1980-81 (Integrated Energy Policy, 2006) and is likely to reduce further during the forthcoming 10th Plan, 11th Plan, 12th Plan, 13th Plan and 14th Plan as is the trend in other countries. However, for India, the energy elasticity of GDP growth will fall very substantially as rising income levels will foster life style changes that are more energy intense. This means that 8% GDP growth will not be possible unless annual growth in electricity generation is around 8 % during the 10th - 14th Plans.

The Electricity Act : what it entails

As this Act shall overrule all previous acts, this will pave way for providing greater clarity to the regulators as well as the judicial system. The Act provides a comprehensive yet flexible legislative framework that would ensure power development and at the same time the sector will move towards competitive market scenario. Competition with regulatory oversight are the cardinal principals around which the entire Act is woven – competition to encourage efficiency in performance and regulatory oversight to protect the interest of all the stake holders with special emphasis on protecting the consumers and ensuring recovery of costs for the investors. The Act entails encouraging private sector participation in generation, transmission and distribution with the role of the Governments being relegated to advisory in nature. The act also obviates the requirement of each State

Governments to pass its own Reform Act and has introduced new concepts like power trading and open access. The Act aims to establish market-based regime in the electricity sector. The Act promotes rationalization of tariff, ensures transparent policies regarding subsidies, promotes efficient and environmentally benign policies, constitution of Regulatory Commissions and the establishment of Appellate Tribunal for Electricity, etc. measures that cover all facts of the electricity industry and shall have a major bearing on the structure of the sector which hitherto existed.

Introduction of competition is the main feature of the new legislation - non-discriminatory open access in transmission has introduced competition amongst the generators at the outset. This entails that the generators can choose any distributors and distributors their suppliers with the transmission wires providers obliged to give non-discriminatory open access for transmission of electricity from generator to supplier on payment of transmission charges which would lead to the emergence of the Multi Buyer Model (MBM) markets in the near future.

Competition on the distribution end had also been introduced by providing for open access in distribution and by allowing more than one licensee in the same area of the supply. Open access in distribution shall pave way for the consumer to have choice of supplier. The concept of have more than one licensee in same area shall also give the consumers choice to choose their supplier. The law is replete with promise for growth in the sector – controls in thermal generation have been totally done away with. Freedom for captive generation alongwith non-discriminatory open access for conveyance of electricity generated from captive station to the destination of its own use and to any consumer (on payment of surcharge) subject to availability of the transmission system on payment of transmission/wheeling charges to be determined by an independent regulator is also another such provision. A major thrust to promote competition has been given by recognizing trading (i.e. the activity of purchase of power for resale thereof) as an independent activity. While liberalization is the cornerstone, the Electricity Act does not encourage unbridled growth of the sector – Regulatory Commissions have been envisaged as the watchdogs and have to regulate tariff, specify performance standards for licensees. The Act envisages Appellate Tribunal for Electricity (specialized court) which would go a long way in ensuring speedy disposal of cases and at the same time to provide technical expertise in decision on appeal. Further, for safeguarding the interests of the consumers, the Act mandates every distribution licensee to set up grievance redressal forum. Appeal against the forum lies before the Ombudsman to be appointed by the State Commission. As regards, theft of electricity, the Act makes elaborate provisions to curb this menace.

The mantra of competition in all facets of the electricity industry that has been enshrined in The Electricity Act, 2003 will lead to improved efficiency and better customer service standards and the wholesale and eventually retail markets shall provide choice to end users in terms of supplier, reliability of supply and competitive tariffs which would in times to come be market determined.

Role of Government :

The role of the Government as envisaged in this Act is that of a facilitator through Policy instruments. The policies are meant to provide the roadmap for future development of the power sector in India. There are four policies that the Central Government is required to frame; viz.

- **National Electricity Policy and Tariff Policy:** The Act empowers the Central Government to prepare the National Electricity Policy and Tariff Policy in consultation with the State Governments and Central Electricity Authority (CEA). These policies have to be prepared for development of power systems based on optimal utilization of resources such as coal, natural gas, nuclear substances, hydro and renewable sources of energy. These policies have to be published and are also subject to review or revision in consultation with the State Governments and CEA. Further, in accordance with National Electricity Policy, the CEA has to prepare National Electricity Plan after inviting suggestions from all stake holders and notify it once in five years. Such Plan can be notified by CEA after obtaining approval from the Central

Government and incorporating directions, if any, given by the Central Government while granting such approval.

- ***National Policy on stand alone systems for rural areas and non-conventional energy systems:*** The Central Government after consultation with the State Governments shall prepare and notify a national policy, permitting stand alone systems (including those based on renewable sources of energy and other conventional sources of energy) for rural areas.
- ***National Policy on electrification and local distribution in rural areas:*** The Central Government in consultation with State Governments and State Commissions shall formulate a national policy for rural electrification and for bulk purchase of power and management of local distribution in rural areas through Panchayats Institution, user's association, co-operative societies, non-governmental organizations or franchisees.

At the national level, the responsibility of planning rests with CEA and the National Electricity Plan notified by CEA shall form the basis for future capacity addition in generation and transmission networks. The Act mandates that Regulatory Commissions shall be guided by the National Electricity Policy, National Electricity Plans and Tariff Policy in discharge of their functions. Further the Regulatory Commissions are to be guided by any direction of the government (Central Government for CERC and State Government for SERC) pertaining to any policy involving public interest.

Impact on Generation :

Despite making massive capacity addition since the time of inception – present capacity being 1,32,000 MW (General Review, 2007) the industry has not been able to meet the burgeoning demand of reliable and cost-effective supply. The demand has continued to grow at a compound annual rate of growth of nearly 8% (Das et al, 1999) has far outstripped the supply leading to a widening of gap and endemic shortages. The Electricity Act makes a departure from the old regime as regards generation and lays the foundation for creation of a competitive environment by removing entry barriers. Generation has been recognized as an activity that does not require licence. The earlier controls (in the form of techno-economic clearance (TEC) of CEA) for thermal generation have been dispensed with. However, hydro electric power projects would still require TEC in order to ensure that there is optimal exploitation of the hydro potential of the river basin as well as other technical considerations such as dam design and safety and also to take care of the inter-state river issues. Any generating company (which now includes association or body of individuals, whether incorporated or not) may set up a generating station if it complies with the technical standards relating to grid connectivity as specified by CEA. Provisions pertaining to non-discriminatory open access in transmission shall enable generators to sell their power to any entity – distribution company/trading company/directly to consumers which shall foster competition. Further, Section 63 of the Act encourages procurement of power through competitive bidding.

Captive Generating Plants :

Harnessing unutilized captive generation capacity has also been addressed by this Act. The installed capacity of captive generation of 1 MW or more was estimated to be in excess of 27,500 MW (Captive Report, 2001) in 2001. i.e more than one-fifth of the total installed capacity. The policies to set up captive stations hitherto had not been uniform and very state specific and there was wide variation in certain pricing policies in respect of wheeling and banking charges, standby charges and requirement to compensate for entire T&D losses for wheeling of energy, fuel use and restrictions in captive power plant size (SEB to seek approval of CEA if plant capacity is more than 25MW) required have impeded the growth of captive stations. Such restrictions and controls on the captive generation have been dispensed with in the Act. As per Section 2(8) The expression “captive generating plant” has been defined to mean a generating plant set up by a person to generate electricity primarily for his own use and includes a power plant set up by any co-operative society or association of persons for generating electricity primarily for use of members of such co-operative society or association (consume at least 51 percent of electricity generated from such a plant). Thus the definition of captive generation enables setting up of group captive plants.

Further, open access for conveyance of energy generated from such plant to the destination of his own use is allowed and for this, unlike in the case of open access consumers, no surcharge is payable so long as it is for his own use. Any surplus power generated by the plants can be offloaded into the grid. Supply of electricity from such plants to the grid shall be regulated in the same manner as generating stations of the generating company. Provisions on non discriminatory open access, power trading and transparent wheeling charges based on economics should provide the right environment for harnessing the spare captive capacity since multiple avenues are available to the generators for selling their output. The liberal provision regarding captive generation shall enable consumers to meet their requirements of electricity if the existing utility is unable to meet their demand in terms of quantity, quality and reliability of supply. This shall force the existing utilities to improve their performance also.

Impact on Transmission

A robust transmission network is an essential pre-requisite for power market operations. In fact some of the experts have recommended that the market reforms should commence with transmission and not with generation. Joskow vide referring to the development of competitive power markets in US had commented *“Transmission networks provide the essential supporting platform upon which competitive wholesale markets depend. Transmission congestion effectively reduces the geographic expense of competition, increases the incidence of locational market power and can limit entry of competing generators. A well functioning transmission network is a critical component of a programme to create robust competitive wholesale and retail markets for electricity. Yet the legacy transmission network that we inherit from the era of large number of vertically integrated regulated firms was not designed to promote competition among generators over large geographic areas, focused on interconnecting generators and loads within individual utility control areas and did not take local market power and other market performance problems into account when investments were made. It should come as no surprise that the legacy network is not well suited for supporting competitive wholesale markets and that significant investments will be required to adapt the legacy network to its new role”*.

In India, the development of the power transmission system has essentially been taken care of by Powergrid Corporation of India Ltd. (PGCIL) at the central level and by the State Electricity Boards at the state level with CEA playing a supervisory role for overall development of efficient transmission network across the country. For having efficient economical integrated transmission and supply system the Government of India had constituted Region-wise Regional Load Despatch Centres (RLDCs). Through the Electricity Laws (Amendment) Act, 1998, a proviso was made to treat transmission as a distinct activity under the Indian Electricity Act, 1910 and the Indian Electricity (Supply) Act, 1948 and to empower the Central Government or the CERC to grant transmission licenses in case of inter-state transmission of energy and the State Government or the SERC in the case intra -state transmission of energy. This Act also introduced the concept of transmission utility with the prime responsibility for planning and coordination of the transmission system - Central Transmission Utility (CTU) for interstate transmission system and State Transmission Utility (STU) for intrastate transmission system. The Government of India has for the time being designated POWERGRID as CTU. The Act of 1998 has allowed independent transmission service providers to set up transmission lines for inter- state and intra –state transactions, but under the direction, control and supervision of the CTU/STU. The RLDC which was mandated to coordinate the integrated operation of the power system in a particular region are required by law to be operated by a CTU.

The Electricity Act, 2003, has continued with the concept of planning and coordination of the transmission system still being vested with the transmission utility, however, the new enactment has brought about some changes in the role of transmission utilities. The transmission utilities (prior to The Electricity Act, 2003) were empowered to approve the application of a person for grant of license before the Regulatory Commission actually granted license to such persons and the transmission utilities themselves were deemed licensees which led to conflict of interest. Therefore, the new law provides that the transmission utilities shall have only a recommendatory role in grant of transmission licenses and the Regulator shall have the powers to grant the same. The new Act envisions multiple licenses in parallel transmission and distribution lines - such proviso has been made for private licensees for inter-state and intra-state transmission of electricity. Non-discriminatory open access is the fundamental

requirement of the Electricity Act upon which the entire competitive framework rests. The law mandates that it shall be the duty of the transmission utility/licensee to provide non-discriminatory open access to its transmission system to every licensee and generating company and also to consumers after open access in distribution is introduced as per provisions of Section 42. Open access in transmission thus enables the licensees (distribution licensees and traders) and generating companies the right to use the transmission system without any discrimination. This would entail that the distribution licensee could procure power any source and would also allow traders and generating companies to directly sell electricity to the distribution companies of their choice and pave way for Multi Buyer Model market. To ensure that such markets are operational transmission capacity in the country would need to come up in such a fashion that would ensure direct flow to the bulk consumers along with inter-regional links having sufficient capacity for interconnectivity of all the regions. This would generate competition amongst sellers and help in reduction of generation/procurement costs. With the purpose of ensuring neutrality in transmission of electricity and guarantee non-discriminatory open access in the transmission system, the Act debars the transmission utility from engaging in trading in electricity. This shall ensure that the transmission utilities/licensees would not have any commercial interest and would be responsible only for maintenance and up-keep of their transmission networks/facilities and would be entitled to transmission charges for the use of these networks/facilities. For better management of day to day operations, the Central Government can establish National Load Despatch Centre (NLDC) for optimum scheduling and dispatch of electricity among the Regional Load Despatch Centres. The NLDC shall be operated by a Government Company and shall not engage in the business of trading in electricity. The RLDC and SLDC shall also not engage in the business of trading and shall comply with the principles, guidelines and methodologies in respect of wheeling and optimum scheduling and dispatch of electricity as the Central Commission/SERC may specify.

Bulk electricity supply business which was hitherto being undertaken by the Transmission Companies of the States shall cease to exist in their present form where they are presently purchasing power from the generating companies through long term PPA's and then reselling the same as well as wheeling all rolled into one business. In the new set up, the transmission companies shall be responsible for operating and maintaining transmission networks for which they shall be entitled to recover wheeling charges. The transmission utilities shall plan and coordinate development of transmission networks to ensure congestion does not occur.

Impact on Distribution:

Private sector participation on the generation side has materialised in a number of states, however, on the distribution side it is still in a nascent stage with privatization of distribution completed in the states of Orissa and Delhi. SEBs in India have functioned as government departments and their operations have lacked commercial orientation. The fall out has been that the objective of supplying good quality and reliable power to the consumers at the most efficient price has been compromised. The irrational tariff policies being adopted by the SEBs has resulted in widening of gap between the cost of supply and average tariff over the years and has had a negative impact on both the industrial and commercial sectors which has greatly impacted the competitiveness of these sectors. The gap has increased from a level of 50 paise/kWh in 1996-97 to about 110/kWh paise in 2001-02. This has led to burgeoning commercial losses over the years and the industrial and commercial consumers facing the maximum brunt as these two sectors were cross-subsidizing the lower tariffs of the agricultural and domestic sector which were due to political compulsions. Unrealistic tariff coupled with cross subsidy has been the bane of problems being encountered by the Indian power sector which has resulted in industry seeking other alternatives for sourcing of their energy needs – the share of industry in the total energy sales is showing a declining trend, in 2001-02 it was 29% as against 33% in 1996-97 (GOI, 2002c).

The experience of a decade of electricity reforms in the India has made it apparent that unless the distribution segment of the industry is efficient and solvent, any solution to the problems of the power sector may not be adequate. Changes in the distribution segment are generally more visible and have a direct impact on consumers and hence most difficult to implement. It was with this backdrop that as the private sector would be driven by

commercial principles it would bring about improvements in operational efficiency. Further, private sector participation coupled with strong competitive market scenario would result in meeting the objective of better quality and lower tariffs. Participation by private sector would also introduce a kind of “peer effect” on the public sector of the kind experienced in the Indian telecom sector.

Like transmission, distribution of electricity also being a natural monopoly has been envisaged as a licensed activity under the Electricity Act, 2003. Distribution of electricity involves both supply and wires business. A distribution licensee is required to supply electricity to consumers and at the same time build, own and maintain his distribution system. This is true even in cases where more than one licensee operates in the same area of supply. The Act envisions two facets of competition in distribution - open access to consumers and multiple licensees in the same area of supply. Open access to consumers shall enable consumers to get supply from a person other than the distribution licensee of his area of supply by using the distribution system of such distribution licensee. Open access in distribution shall be introduced in phases to take care of cross-subsidies. The law provides open access in distribution would be allowed by the State Commissions in stages with a proviso that if open access is allowed a surcharge will be levied by the State Commission to take care of the requirements of current level of cross-subsidy and the fixed cost arising out of the licensee’s obligation to supply. The law, therefore, balances the right of the consumers to procure electricity from a source of his own choice as well as takes care of the legitimate rights of the existing licensees. The Act mandates that the State Commission shall within five years (i.e. January, 2009) necessarily allow open access to consumers having demand exceeding one megawatt. Open access shall also encourage competition amongst the suppliers and exert on the existing utilities to improve their performance both in terms of quality and price in order to ensure that they do not lose their existing customers.

While the provision of open access in distribution is expected to benefit primarily the bulk consumers, the provision enabling multiple licensees in the same area of supply could benefit the common consumers. It envisages a situation where a consumer would have a real choice of supplier to get supply of electricity. This would end the monopoly of any single supplier in a given area of supply. Competition amongst the suppliers would help improve the quality of power and reduce cost of supply. In fact, in order to encourage competition amongst multiple licensees in the same area of supply, the law mandates that the Regulatory Commissions would determine only the ceiling price for designated area and within this ceiling the licensees would be free to adjust their tariffs keeping in view the competition being faced.

The Act also mandates that every distribution licensee is required to give supply of electricity to a consumer within his area of supply within one month after receipt of the application requiring such supply. There are, however, certain circumstances in which this period of one month can be extended. Where a distribution licensee fails to supply within a stipulated period, he shall be liable to penalty. This provision safeguards the interest of the consumers and ensures improved performance on the part of the licensee. The Act mandates that no licensee shall supply electricity after the expiry of two years from the appointed date, except through installation of a correct meter in accordance with the regulations of CEA. Further, CEA may direct installation of meters at any stage of generation, transmission or distribution or trading of electricity as it may deem fit. Metering at different stages would ensure that risks related to data uncertainty (base line data pertaining to T&D losses etc. like in the case of Orissa and Delhi) due to unmetered supply and thefts shall be mitigated. Once the metering at all stages is achieved it would result in transparency in the sector due to availability of better information/effective monitoring of operations of the utility which in turn would lead to a more transparent tariff regime and consumers shall benefit from better quality and reliability of supply and in the long run help state governments in reducing subsidy and charging tariff reflective of costs. Distribution licensee is empowered to recover charges/expenses/security and disconnect supply for non-payment of dues. Distribution losses are mainly due to high component of theft, the exact amount of which cannot be determined due to lack of metering. Prior to this Act, disconnection of supply even in case of non-paying customers could not be administered due to political influence on SEBs. The Act explicitly provides for stringent disconnection provisions which coupled with independent State Commissions should help utilities cut their losses and improve quality and reliability of supply to paying customers. The anti theft provisions, however, ensure that honest consumers are not unnecessarily harassed.

Tariff Principles:

Hitherto the tariff was computed using cost plus methodology – approach following standard rate of return on capital base. However, the Electricity Act, 2003 makes a departure and does not mandate any specific method for tariff determination. The determination of terms and conditions of tariff has been left to the realm of the Regulatory Commission and only guiding principle have been stipulated which inter-alia include performance based regulations, the multi-year tariff principles. The Act mandates that the Regulatory Commission ensure that the tariff reflects the cost of supply of electricity and also reduces cost subsidies within a specified time period. As regards tariff determination, the law empowers the Regulatory Commissions to fix tariff for – (i) supply of electricity by a generating company to a distribution licensee through long term agreement; (ii) transmission of electricity; (iii) wheeling of electricity and (iv) retail sale of electricity. However, the Act envisages in case of shortage of electricity the appropriate Commission may fix the minimum and maximum ceiling of tariff for sale or purchase of electricity in pursuance of an agreement, entered into between a generating company and a licensee for a period not exceeding one year to ensure reasonable price of electricity. Further, tariff determined through competitive bidding is also not to be regulated and where more than one licensee operates in the same area of supply, the Regulatory Commission may fix maximum ceiling of tariff and the distribution licensees shall be free to adjust their tariff within the ceiling.

Trading and Marketing Development.

The Electricity Act, 2003 recognises trading as an independent licensed activity. Trading has been defined as an activity of purchase of electricity for sale thereof. The Act mandates that for undertaking trading in electricity, licenses shall be granted by the Regulatory Commissions - Central Commission for inter-state trading and the State Commissions for intra-state trading. The Regulatory Commissions are required to specify the technical requirements, requirement of capital adequacy and credit worthiness for being electricity trader, duties and obligations of the traders and also to fix trading margins, if considered necessary. CERC has already notified such regulations for inter-state trading. The Act permits generating companies and distribution licensees to engage in trading, however, the transmission utilities and transmission licensees have not been allowed to trade in electricity.

As regards development of power market a cautious approach towards development of full fledged market of electricity has been envisioned keeping in view the present scenario of shortages prevalent in the sector. The responsibility of development of such markets vests jointly with both the Government and the Regulatory Commissions. The Government is to define a road map through the National Electricity Policy based on which the Regulatory Commissions shall guide the development of the power market.

Regulatory Commission:

Independent regulator which has been introduced through the enactment of the Electricity Regulatory Commissions Act, 1998 has grown into a very dominant institution under the Electricity Act, 2003. The ERC Act, 1998 empowered the Regulatory Commissions for only tariff fixation whereas the Act, 2003, bestows all regulatory responsibilities on this institution. The role of regulator is very crucial for the development of free and open market structure, promoting competition and protecting the interest of all stakeholders. The enactment of 2003 Act distances Government from regulation and transfers all regulatory responsibilities to independent Regulatory Commissions. The Act mandates setting up of a Regulatory Commissions at both the central as well as state level and in order to ensure uniformity in approach it has been provided that the principles and methodologies specified by CERC for determination of tariff for generating companies and transmission licensees be the guiding principles for State Commission. Central Government as per the provisions of the Act has formulated the National Electricity Policy and Tariff Policy and Regulatory Commissions would be guided by these policies in discharge of their functions. Regulatory Commissions are required to grant license, amend, revoke and suspend licensee, regulate the

performance of the licensee, adjudicate upon disputes, regulate phasing out of open access in distribution and determine open access surcharge etc. Facilitation of open access in transmission has to be ensured by the CERC whereas the open access in distribution is the responsibility of the State Commission. It is a well known principle that in order to ensure viability of the sector and at the same time protecting the interest of the consumers one has to allow for all “efficiently incurred costs” (with realistic and uniformly applicable efficiency benchmarks) in tariff setting but disallowing inefficiencies being passed on to the consumers. Regulatory Commissions would, therefore, play crucial role in tariff fixation where the tariff has to be reflective of the cost and cross subsidy has to be progressively reduced. The challenge being more severe in view of the fact that agriculture is the back bone of Indian economy and has till date enjoyed highly subsidised flat tariff. Another issue which would require urgent attention of the regulator is determination of minimum level of transmission and distribution losses. The regulator have also to ensure that the operating and financial norms for tariff fixation take into account the fair assessment of the risks involved in the electricity sector.

Consumer Protection:

Before the enactment of the Electricity Act, 2003 the sector has been driven by populist measures which were politically motivated, promoted subsidization regimes and has led to inefficient operations of the utilities resulting in poor quality and reliability of power supply to consumers. It is a general belief that once the unbundling of the sector takes place and privatization is introduced the quality and reliability and availability of power in the country would improve. However, the same is not a certainty as has been the case in the Australian Power Sector Restructuring Programme (Sharma, 2003). The Act mandates creation of Grievance Redressal Forum for redressal of grievances of consumers in a time bound manner. The guidelines for the formulation of Redressal Forum have to be specified by the State Commission. Appeal against the Redressal Forum lies before an Ombudsman to be appointed/designated by State Commission. The Act provides protection to the consumers with reference to standard of performance. Failure of compliance of the performance standard makes the licensee liable to pay compensation to the affected person. Licensee are required to periodically submit information to the Regulatory Commission about the compliance of performance standard. The Act also provide for specific penalty and punishment such as imprisonment for electricity theft or theft of electrical lines, tampering of meters or deliberate or negligent wastage of electrical energy. The Act further provides that no sum due from consumers can be recovered after a period of two years unless the same was continuously shown as recoverable. The Act provides for a constitution of District Level Committee by the State Government inter-alia to review the quality of power supply and consumer satisfaction. The Act has also made it the policy of the Government to endeavour to provide electricity to all areas thereby ensuring power supply to all .

Appellate Tribunal:

The Electricity Act, 2003 mandates establishment of the Appellate Tribunal for Electricity for hearing appeals against the orders of the Regulatory Commission and adjudicating officers by notification by the Central Government. Hitherto appeals against the orders of the Regulatory Commissions had to be filed in the High Court. The Appellate Tribunal has been constituted to provide technical expertise in decision making and has the same powers as vested in a Civil Court. An order made by the Appellate Tribunal shall be executable as a decree by the Civil Court. It is a specialized tribunal which shall look into the cases of the electricity and energy sectors and has led to speedy disposal of cases. Apart from hearing appeals, the Tribunal ensures that the Regulatory Commissions discharge their statutory functions. Appeals against orders of the Appellate Tribunal lies before the Supreme Court. In a short period of its existence, the Appellate Tribunal has disposed of over four hundred appeals from various stakeholders such as generators, transmission and distribution licencees, traders etc.

Case studies:

Presented below are few case studies which have been taken from the various orders issued by the Appellate Tribunal from their website.

Case Study-I : Regulator to apply prudence check to expenditure at tariff determination stage and not curtail project plans considered essential by licensees

An appeal had been preferred by transmission utility against the orders issued by the Regulatory Commission in respect of approval of its Annual Revenue Requirements (ARR). The transmission company had claimed Rs. 9917 million as the ARR amount for the year 2006-07 against which the Regulatory Commission allowed only Rs.6815 million leaving a gap of Rs.3102 million. This was done by the Regulatory Commission by appointing a committee to review and examine the capital investment proposal and then accepting the recommendation of the said committee. It was contended by the transmission company that the Regulatory Commission ought not to have reduced the quantum of investment when it is within the domain of the utility to plan and coordinate investment for improvement of the transmission system. It was further contended that the transmission utility had technical experts for making such an estimate and acceptance of their proposal merits acceptance and the fact that lesser investment had been done in the previous years should not be a ground for slashing down the investment proposal. The Appellate Tribunal while deciding the matter took into cognizance the various provisions of the Electricity Act inter-alia including Section 86 (2), 84(4), Section 42, 43 etc. As per the provisions of the 86(2) which is advisory in nature, it is clear that the legislature has left it to the utilities to decide their plans of investment or improvement of system or expansion to meet the demand of power within their area including up gradation and maintenance for better and quality generation, transmission or supply, as the case may be. It is the commercial decision of the utility which is within its domain and not liable to be interfered till the utility claims return on such investment, interest on capital expenditure and depreciation. It is at this stage that the Regulatory Commission undertakes prudence check and if deemed appropriate allows the claim. It was further observed by the Tribunal that the Committee that had been appointed by the Regulatory Commission did not opine that the proposed capital investment are not at all required or otherwise not suitable nor an inefficient proposal. Further, Section 11 of the State Electricity Reforms Act, 1999 also did not confer such power on the Commission. Further the Regulatory Commission overlooked the fact that the transmission utility was engaged in transmitting power throughout the state for the bulk supply as well as distribution and has an obligation to maintain the supply as well as maintain the quality of supply even when the demand could have increased in future. This obviously means that the transmission utility has to plan in advance and has to ensure that it is able to supply power as demanded from time to time more so with the open access provision provided in the Act. The mere fact that the transmission utility's proposal is over ambitious keeping in view their past performance cannot be reason enough for disallowing investment. As regards the protection of consumers the question does not arise at this juncture as the transmission utility would be able to charge from the consumers only after tariff has been determined by the Regulatory Commission which would apply the prudence check for the investment prior to notification of tariff. It was, therefore, held that the Regulatory Commission had not acted reasonably or fairly in interfering in the internal commercial management and domain of the transmission utility with respect to its commercial plan and proposal to invest.

Case Study-II : Return on Equity permissible even on Government grants forming part of equity

An appeal was filed by a generator against the order of the Regulatory Commission against disallowance of their claim for tariff which inter-alia included disallowance of return on equity(ROE). The details of this particular issue (i.e. ROE) are as under:-

Pursuant to the bifurcation of the state, the appellant generator, a wholly owned undertaking of the state Government was vested with generating power from the nine hydro generating stations which were allocated to the state. The generator indicated that the Regulatory Commission had declined to allow return equity on the plea that the generator had not invested its own fund and no funds have been invested in creating/acquiring the assets. The generating company contended that the view of the Regulatory Commission is contrary to law and practice as the Commission is disallowing ROE merely on the premise that no notification or allocation has been made by the succeeding State Government. It was contended that prior to bifurcation the Regulatory Commission of the erstwhile composite state had while notifying tariff in respect of seven generating stations which has since been vested with the appellant, capital had been assessed. As such the appellant generator was entitled to ROE. It was

argued on behalf of Regulatory Commission that since the state Government had not allocated the amount into funds and liabilities the generator was not entitled to claim ROE till such time such allocation is made. It was also indicated that the shareholder is entitled to ROE which in the present case happened to the State Government and the Government having failed to take such a decision, there is no justification to claim ROE. Another argument put forth on behalf of the Commission was that the State Government had levied cess which was in substitution of ROE and as such ROE was not tenable.

The Appellate Tribunal observed that merely because there is no notification or allocation indicating the capital or investment or such other sum cannot be reason enough to deny return of equity. Further the cess being levied by the State Government is on consumption of electricity is in the exercise of its legislative power. The cess collected goes to the state exchequer and even though it may ultimately go for implementation of projects for generation does not mean that it is an income to the generator in substitute of ROE. It was, therefore, held that based on the Regulatory Commission order of the composite state which had fixed the capital cost on gross fixed asset basis be taken into consideration and ROE be provided on 30% of the said capital base, being normative equity. If such a portion of ROE on normative basis is not allowed, on the reasoning that the Government has not issued a notification or allocation or fixed either as equity or loan or subsidy or a grant, on a later date, this will not be possible for the Commission to put back the clock or reopen the matter and review the tariff retrospectively and eventually liability has to be fastened on the new generation of consumer ultimately.

Case Study-III : Management Decisions in the absence of misconduct or impropriety to be honoured by the Regulatory Commission

An appeal was filed by a transmission company against the orders that had been passed by the Regulatory Commission in respect of tariff to be payable by the transmission company to a generating company with whom they had entered into a Power Purchase Agreement (PPA). The PPA had been entered into between the parties on 15.12.1997 and amended by supplementary agreements dated 25.05.1999, 13.09.1999 and 25.01.2001. During the middle of the year 2001 dispute arose between the transmission company and the generator with respect to the fixed charges payable in terms of the PPA- the issue being whether fixed charges payable were at the fixed rate of US \$ 0.04 per kWh as claimed by the generator or it was based on actuals subject to a maximum of US \$ 0.04 per kWh as claimed by the Transmission company. The State Government based on the advice of the Advocate General on 01.12.2001 decided that the transmission company should pay fixed charges to the generator at US \$ 0.04 per kWh. The transmission company filed its ARR for the year 2001-02 and 2002-03 before the Regulatory Commission on 15.02.2002. While approving the ARR the Regulatory Commission directed the transmission company to seek appropriate judicial determination of dispute as per the provisions of the PPA. Accordingly, the dispute was referred to an Arbitral Tribunal consisting of three former judges of Supreme Court. The Arbitral Tribunal decided that the generator is entitled for payment of fixed charges at US \$ 0.04 per kWh. The transmission company filed an application before the State Commission for allowing the amount paid and payable to the generator as per the award passed by the Arbitral Tribunal. The said request was rejected by the State Commission on the view that the transmission company had not chosen to further challenge the Arbitral Award. Being aggrieved, the transmission company filed an appeal with the High Court. The Division Bench of the High Court remanded the entire matter to the State Commission for de-novo consideration as the consumers had not been afforded an opportunity. The Commission after hearing the concerned parties rejected the claim of the transmission company to include the additional cost paid consequent to the award passed by the Arbitral Tribunal primarily on two grounds- (i) transmission company has not challenged the award passed by the Arbitral Tribunal by preferring an appeal and (ii) the supplemental agreement to the PPA dated 14.12.1997 were entered into after the constitution of the Regulatory Commission and could not be treated as validly concluded contract and the same are not saved by the proviso of Section 27(1) of the State Electricity Reforms Act, 1999. Hence the appeal.

The Appellate Tribunal noted that the Arbitral Tribunal had passed an award holding that the generating company is entitled to fix charges at US \$ 0.04 per kWh for the electricity generated and supplied by generator to the transmission company in terms of PPA dated 16.07.1997 after a stiff contest. Therefore, concedingly a conscious decision was taken by the transmission company to accept the award. The award has reached finality. Further, the case of Regulatory Commission and the other respondents is not that the Arbitral proceedings is a collusive one and

there is no challenge to the award either directly or indirectly alleging either collusion or fraud or any other vitiating circumstances with the Arbitral Award. The Arbitrators had interpreted the terms of PPA and have accordingly passed an award. In the absence of any collusion, fraud or want of bonafide it is not open to the contesting respondents much less to the Regulatory Commission to ignore the legal effect of the award which came to be passed in terms of PPA after following the procedure. Further, the PPA was concluded before the commencement of the States Electricity Reforms Act, 1999 and is saved by Section 27 of this Act. Proviso to sub-section 2 of Section 27 provides that the contract concluded by the State Government and/by the Board with generation and transmission companies prior to the commencement of the Act, shall be deemed to have been approved by the Commission under the provision of the Act and the same shall be given effect by the Commission. By the said statutory fiction the contract is deemed to have been approved by the Regulatory Commission, and in law such fiction should be taken to its logical end which means the terms of PPA are binding and it is obligatory for the Commission to give effect to such a contract including the consequences of the award passed in terms of PPA, which provides for resolution of disputes by mechanism of arbitration. Further, it is not necessary to challenge all the Arbitral Awards as the scope of interference with the Award is very limited in the absence of misconduct or otherwise impropriety on the part of Arbitral Tribunal. The view of the Regulatory Commission that the Arbitration Award and the consequences thereof could not be passed on to the consumer is a total misconception apart from being misdirection in law and cannot be sustained. Further various grievance with respect to arbitral proceedings or failure to prefer an appeal or notice not having been given to consumer at large with respect to passing award and the decision to accept the award was not intimated to the consumers are no reasons at all in the eye of law nor they could be sustained nor there is logic or justification behind it. The utility is managed by well qualified and experienced personnel and all the actions or decision taken are in the usual course of carrying on the business of the utility and in the absence of any collusion or fraud the action of the utility is bonafide and deserves to be sustained. In view of the above the decision of the Regulatory Commission cannot be sustained legally and deserves to be reversed as it is a misdirection and illegality.

Conclusion

It is expected that The Electricity Act, 2003 shall bring about the turnaround of the Indian Power Industry and shall be the role model for other countries undergoing such transformation. It is expected that the various provisions of the Act would pave way for much needed investment in the sector which would result in capacity addition. Open access provision shall provide impetus for greater competition and emergence of multi-buyer model markets in the future where the electricity prices would be market driven. Reforms envisaged on the distribution front would result in better quality of supply of electricity at reasonable and cost reflective price. Effective metering and reduction of cross subsidies shall result in reduction of prices of electricity. Various provisions pertaining to safeguarding the interest of the consumers shall ensure that the rights of consumers are protected. Appellate Tribunal, a unique feature of this Act, ensures expeditious disposal of appeals against decisions of Regulators and thus enhance investors confidence resulting in increased private sector participation. On the whole the Electricity Act is expected to usher a new era in the Indian power sector.

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