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Deregulation of Power System in India: A Review

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Abstract
World-wide, many countries and jurisdictions are advancing down the road of electricity privatization, deregulation, and competition. As the deregulation process develops questions are often raised about design of existing markets. Studies and descriptions of market designs are common but it is more difficult to discover the success or failure of initiatives in other countries and markets. Indian power industry restructuring with a limited level of competition, since 1991, has already been introduced at generation level by allowing participation of Independent Power Producers (IPPs). It is felt that the prevailing conditions in the country are good only for wholesale competition and not for the retail competition at this moment. A suitable model is suggested based on the current and future market participants.

1. Introduction

Electricity is a concurrent subject in the Indian Constitution, where decision-making and implementation involve both the State and Central governments. Power development in India has been carried out predominantly by the State controlled electricity boards. Till 1990, the power sector in India was evolved as a public monopoly. The power sector was governed by the Indian Electricity Act 1910 and the Electricity Supply Act 1948. The Ministry of Power (MOP) has overall authority for power sector development. The activities of the MOP include active formulating policies and plans, processing power projects for investment decisions, research and development, formulating legislation pertaining to power generation and supply, and providing the required linkages between other ministries and departments in the Central government, State governments and the planning commission. Electricity Supply Industry (ESI), throughout the world, is undergoing restructuring for better utilization of the resources and for providing quality service and choice to the consumer at competitive prices. In India, a limited level of competition, since 1991, has already been introduced at generation level by allowing participation of Independent Power Producers (IPPs). In order to ensure coordinated development of regional national grids, separation of generation and transmission business at central sector has taken place during 1992-93 by amalgamating and transferring the transmission assets of central and joint sector to Power Grid Corporation of India Limited (PGCIL). Separation of the three organs of electric power business i.e. generation, transmission and distribution at state level has already been done in several States, followed by privatization of distribution in Orissa and Delhi. The independent regulatory bodies have been formed at central level and also in most of the states. These regulatory bodies have been established primarily for rationalization of electricity tariff, formulation of transparent policies regarding subsidies and promotion of efficient and environmentally benign policies. In addition, Central Transmission Utility (CTU) at the national level and State Transmission Utilities (STUs) at the state level have also been made effective after enactment of Electricity (Laws) Amendments Act, 1998. Further, private sector is now permitted to invest in all the three facets of electricity, i.e., generation, transmission and distribution. This paper presents an overview of present scenario on power industry in India and highlights the reform processes, which is underway in several forms. A suitable model is suggested which can be effectively implemented in the present condition.

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2. Need of Deregulation

Some driving forces of deregulation may be attributed to:

- The chronic energy shortage facing the country, which is largely rooted in past years of poor management, poor workforce training, inadequate deployment of technical resources and nonchalant attitude of government to the electricity industry.
- Over the last two decades, huge funds have been invested in NEPA and state rural electrification schemes across the country with poor returns on investment (ROI)
- Pressure on government to raise funds to balance budget, infrastructure development, job creation, social services, pay debt and carry out economic reform.
- Introduction of competition in the industry as ameans of improving industry efficiency that will result in providing lower energy prices to end-users.
- Lack of price transparency in utility operations hence consumers and regulators demand price transparency and declaration of cross subsidies among different users.
- Like many other publicly owned institutions, corruption, inefficiency and managerial incompetence prevailed.
- The electricity industry showed inconsistent policy direction and lack of a strategy framework for its sustainable development.
- Policy decisions by past governments in the ESI were based on political or administrative interests, instead of efficient resource allocation and cost recovery necessary for economic development.

2.1 Technical issues of Deregulation

- Rehabilitation of existing electricity infrastructure to ensure a smooth transition to deregulation and privatization.
- Provision and maintenance of infrastructure, workforce training and development for generation, transmission and distribution, reliability and security of supply.
- Modernization of supporting infrastructure, provision of adequate Information a computer technology (ICT) facilities for effective communications, control

3. Challenges

Many governments around the world have deregulated and privatized their electricity systems since the mid-1980s. The principal beneficiaries of privatization have been the consultants and the banks, building societies, insurance companies, pension funds and other industrial and commercial companies that were able to invest in the newly privatized services and/or provide loans to those who do. The banks and consultants have advised on privatization schemes and helped draw up deregulation legislation around the world. They have collected fees from brokering the purchase of independent power producers (IPPs) worldwide and have been involved in energy trading themselves. One of the big disappointments of deregulation is that the competition does not have the expected effect. Tariffs have often increased, rather than, as expected decreasing. There have been huge additional costs and cost increases stemming from the reduced benefits of coordination, the increased complexity of the system, scheduling, and other operating procedures.

One reason is that, unlike state or municipality owned companies, which might agree to a very low or even zero return on their equity, a private owner will ask for a return that will cover his investment including a premium for risk. As PC Watts stated that energy generation is a capital-intensive industry. Rate of return regulated utilities get cheap capital. Their stocks do not require high rates of return and their bonds are highly rated. If for example, we assume that half the cost of generating electricity is capital cost and that the cost of the capital is increased by deregulation from, say, 8 percent to 16 percent, deregulation will drive up the average cost of the electricity by 50 percent". Black outs, price spikes, price manipulation, bankruptcies and electricity shortages have resulted from this worldwide wave of electricity privatization and deregulation. Despite the many failures of electricity privatization and deregulation around the world there is still pressure on governments to privatize remaining government-owned systems. To support their claims advocates need models of successful privatization and deregulation that they can use to persuade governments that the IMF and the World Bank can't coerce. It is for this reason that Australia has been misrepresented as a case study of successful electricity deregulation and privatization.

4. Conclusions

Electricity reform process in India is already in action although at a slow pace. Several state electricity broads are being unbundled into three distinct corporations namely Generation, Transmission and distribution. The distribution system are being horizontally broken down into manageable Discos with separate accountability and privatized for better efficiency in metering, billing and revenue collection. The system operation functions at the regional and national level can be with central transmission utility, while state transmission utilities may manage load dispatch centers in line with TSO concepts and these should not be allowed to have financial interest in the trading of power.

One power pool in each state managed by STUs and one in regional basis CTU may be established. REBs can assume the responsibility to operate the regional power exchanges. Since REBs are proposed for managing the power exchanges,

Certain important planning and operational functions should be transferred to the RLDCs. All the non-competitive old generators and old IPP having old contracts shall remain under regulatory control of the regulatory commissions and should supply power to the state power pools only at the regulated price.

Information flow is one of the main concerns along with the Distribution Management System (DMS), which is presently at a very nascent stage. These must be properly addressed before adopting competition at retail level.

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