

## INDIA'S POWER SECTOR REFORMS – A HISTORICAL PERSPECTIVE

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### 4.1 INTRODUCTION

This chapter traces the development of regulation of electricity in India, starting with the provisions of the Indian Electricity Act, 1910; the Electricity (Supply) Act, 1948; and the Industrial Policy Resolution of the Government of India 1948 which gave authority to central and state governments to regulate electricity in all its aspects: licensing, safety, tariffs, and other matters. The development of the power sector regulations are discussed with regard to its development, experiences and lessons learnt in three phases.

- Phase I covers the early years from the time electricity was first introduced in the country till 1948, when production and distribution of electricity was largely in the private sector and concentrated in major towns and cities.
- Phase II covers the five decades after independence. The development of power sector was a subject in the concurrent list of the Constitution of India. Each state had a vertically integrated, state-owned monopoly to distribute electricity in an assigned service area.
- Phase III – the reform phase - can be traced to 1991, but actual implementation started in 1995. This period is marked by growing commercial attitudes, attempts to attract private investment and participation, restructuring of utilities in several states, and establishment of IRCs (Independent Regulatory Commissions) at the Centre and States.

### 4.2 INDIA'S POWER SECTOR REFORMS-PRE INDEPENDENCE

India's power sector reforms have undergone in three distinct phases as regards to its regulation. In 1948, the SEBs (State Electricity Boards) were given the exclusive power (except for the then existing licensees) to distribute power in the states. Any purchase of power by a user or sale of power by any

other generator required the permission of the SEB concerned. After central government-owned generating stations came into being, the central government took powers to determine their tariffs and also inter-state transmission tariffs when the Power Grid Corporation of India was set up for the purpose.

#### **4.2.1 Phase I: The Early Years and Minimal Regulation**

The Power Sector in India had its beginnings at the turn of the nineteenth century. The first thermal station established by the Calcutta Electricity Supply Company started generating electricity in 1899. In 1902, the longest transmission line in the world was constructed from Shivasamudram to the Kolar Gold Fields in Karnataka. Much of India's Power Sector till 1947 was in private hands. The electricity supply companies were called distribution licensees and were privately owned. These often doubled up as transport companies in several major towns, running electric tramcars (as in Calcutta) or trolley buses or motorized buses (as in Bombay).

The Electricity Act, 1887 was in fact the first legislation regulating the generation, supply and use of electricity in the country. This was repealed and replaced by the Indian Electricity Act, 1903. Subsequently the 1903 Act gave way to the Indian Electricity Act, 1910. While the Acts of 1887 and 1903 established the need for regulating the electricity sector, the Indian Electricity Act, 1910 for the first time comprehensively created the basic legal framework for the electricity sector in the country. 'Supply of energy' was the main concept around which various provisions were woven as:

- **Licence**

Supply of energy was a licensed activity and the powers to grant licence were with the State Government. A person authorized by licence to supply energy in any specified area also had the authorization for laying down or placing electric supply-lines for the conveyance and transmission of energy. The Act delineated in detail the procedure for grant of licence. The State Government also had the powers to amend and revoke licence. Conditions of licence were stipulated in the Act itself.

While licence was necessary for a person to supply electricity, there was also the concept of non-licensees that is, the persons other than licensees who could undertake the business of supply of electricity with the sanction of the State Government. Thus, the 1910 Act broadly envisaged two categories of suppliers – one, the licensees and the other the sanction holders (non-licensees).

- **Competition**

This Act also laid the foundation for competition in the supply business. The two important aspects of competition in distribution sector, – viz., the concept of multiple licensee in the same area of supply and open access – have their genesis in the Indian Electricity Act, 1910 and the Electricity (Supply) Act, 1948. The grant of licence for any purpose, the 1910 Act reiterated (in section 3(2)(e)), shall not hinder or restrict the grant of licence to another person within the same area of supply for a like purpose. Thus, in the same area of supply more than one licensee could operate and compete with one another. Similarly, the Act also enabled (under section 27) a licensee to supply energy to any person outside the area of supply and to lay down electric supply lines, with authorization from the State Government. This concept, together with the concept in the Electricity (Supply) Act, 1948 – under section 43 A (1) (c) - of third party sale by a generating company, has fruited into the concept of open access in distribution.

- **Framework of Wires and Works**

Another important feature of the Indian Electricity Act, 1910 was that it provided in detail the framework for laying down of wires and other works. The provisions in this law about the works of licensees like opening and breaking of streets, railways and tramways, overhead lines etc., have formed the basis of carrying out of works by the licensees for almost a century. Pertinently, these provisions have by and large been retained in the Electricity Act, 2003.

- **Supply Conditions/Licensee-Consumer Relationship**

This Act defined the relationship between a licensee and a consumer. The universal service obligation – i.e. the obligation of the licensee to supply electricity to a consumer on demand - that is treated as an important feature of the 2003 Act has its roots in (section 22 of) the 1910 Act. The Act also laid down the methodology of charging for supply of electricity and also empowered the licensee to disconnect supply to a consumer for non-payment of charges. The legislation also envisaged the concept of meter for recording consumption of electricity and stipulated in detail the procedure for resolving disputes in this regard.

- **Transmission**

The major provisions relating to transmission in the Indian Electricity Act, 1910 were a later addition. These provisions were incorporated through an amendment in 1998. In fact, it was only in 1998 - through this amendment that transmission was recognized as an independent activity. The concepts of Transmission Utility both at the Center and in the States – with responsibilities inter alia of planning and coordination of transmission system - were introduced. These concepts of Transmission Utility (CTU and STU) have been retained in the Electricity Act, 2003.

- **Safety Measures**

The provisions regarding safety are the distinctive features of the Indian Electricity Act, 1910. Apart from providing in the Act itself for the protective clauses and appointment of Electrical Inspectors for ensuring enforcement of safety measures, the law created (through an amendment in 1937) a body called the Central Electricity Board (CEB) to frame rules inter alia on safety measures. The Indian Electricity Rules, 1956 framed by the CEB provide the model safety rules which have been specifically retained in the 2003 Act till the corresponding safety measures are specified under that Act.

- **Theft of Electricity**

The 1910 Act also stands out for detailed provisions relating to offences of theft of electricity and penalty for the offence. It defined what constitutes theft of electricity and provided for penalty for this and other related offences. Many of the provisions relating to the offences and penalties under the 1910 Act have been retained in the Electricity Act, 2003.

The industry was governed/ regulated by the provisions of the Indian Electricity Act, 1910. A Company could supply electricity to any area or individual after obtaining a license under Section 3 of the Act. The licensee had the exclusive right to supply power to all consumers within the specified area. Licensees could not sell assets of their companies without obtaining government permission. However, the grant of a license would not hinder or restrict the right of the government to grant a license to another entity within the same area of supply for a similar purpose.

Licensees had to maintain accounts in a prescribed format and make these records available for inspection. Though there was no regulation of tariff that could be charged to consumers, the maintenance of accounts and their inspection provided a check against misuse of monopoly market power by distribution licensees. Licensees had to supply power to all persons needing electricity in the area without discrimination. In return for this, licensees were given rights for executing works connected with the production and distribution of electricity by road cutting after obtaining necessary permission and paying compensation.

The legislation also provided for the establishment of a Central Electricity Board for the entire country. Members were to be drawn from all states uniformly. Electrical inspectors had to be appointed in each state. There were provisions for punishments for theft of power. There was only one regulatory agency- the State/ Central Government. In effect, the Indian Electricity Act provided for a regulatory framework that was in harmony with the structure of the industry at that time.

#### **4.2.2 Phase II: State-Dominated Industry and Old-Style Regulation**

After independence, the Industrial Policy Resolutions (1948 and 1956) as well as subsequent policy statements of the GoI (Government of India) sought state participation to accelerate the process of industrialization in the country.

The Indian Electricity Act, the Electricity (Supply) Act, and the Indian Electricity Rules provide the basic framework for the regulation of electricity in India. These have been amended from time to time to reflect the policy changes and to make them suitable to the changing environment. In 1948, the central government along with the state governments initiate the Electricity (Supply) Act, 1948. To provide for the co-ordinated development of electricity in India there was a need of a specific legislation and to meet this, on the broad lines of the Electricity (Supply) Act, 1926 in force in the United Kingdom, the Electricity (Supply) Bill, 1948 was introduced in the Central legislature as a specific legislation to facilitate the regional co-ordination in the development of electricity transcending the geographical limits of local bodies.

It was realised that in the absence of co-ordinated system, the generation is concentrated in the most efficient units and bulk supply of energy centralized under the direction and control of one authority is one of the factors that impedes the health and economical growth of Power Sector development in the country. Besides, it is becoming more and more apparent that if the benefits of electricity are to be extended to semi-urban and rural areas in the most efficient and economical manner consistent with the needs of an entire region, the area of development must transcend the geographical limits of a Municipality, a Cantonment Board or a Notified Area Committee, as the case may be. It has, therefore, become necessary that the appropriate Governments should be vested with the necessary legislative powers to link together under one control electrical development in contiguous areas by the establishment of what is generally known as the "Grid System".

The broad features and objectives of the act are as follows:

- **Nationalization of Electricity Sector**

After independence the electricity supply which was limited to cities/towns so far was to be spread across the country, especially in rural areas. This was seen as a social responsibility of the Government to provide electricity to all. Thus was created the institution of State Electricity Board (SEB) as an arm of the State Government to discharge this responsibility.

- **Constitution of State Electricity Board**

The Electricity (Supply) Act, 1948 mandated that every State shall constitute a State Electricity Board (SEB). It delineated in detail the composition and functions, roles and responsibilities of an SEB. The Act also enabled contiguous States to have a single Board. The responsibility of the Board was all pervasive. Its duties included:

- To arrange for the supply of electricity that may be required within the State and for the transmission and distribution of the same with particular reference to those areas which are not for the time being supplied or adequately supplied with electricity;
- To supply electricity to a licensee or other person requiring such supply;
- To exercise such control in relation to the generation, distribution and utilization of electricity within the State;
- To collect data on the demand for, and use of electricity and to formulate perspective plan, for the generation, transmission and supply of electricity within the State;
- To prepare and carry out schemes for transmission, distribution and generally for promoting the use of electricity within the State;
- To operate the generating stations under its control.

By themselves these responsibilities proclaimed the role of the SEB on almost all spheres of the power sector. Besides these specific functions the SEB had its role in some other aspects as well. It had some regulatory responsibilities with powers to frame regulations on several aspects and was the main

technical advisor of the State Government. The State Government exercised its powers to grant licence in consultation with the SEB. If a licensee or any person (other than the Central Government or any corporation or any Generating Company) intended to establish or acquire a new generating station, such licensee or person required consent of SEB if the capacity of such generating station was up to 25 MW and, consent of SEB and CEA for capacity above 25 MW. Further, the Board had the powers to adjust its tariffs to ensure statutory return (of not less than three percent) on the fixed assets. Also the licensees had to tender notice (of sixty days in advance) to SEB before enhancing tariff.

- **Constitution of Central Electricity Authority**

Creation of Central Electricity Authority (CEA) is another important feature of the 1948 Act. CEA was envisaged as the main technical arm of the Central Government. It had the role of a technical advisor to the State Government, SEB, Generating Company or any other agency. The Act also entrusted on the CEA regulatory responsibilities with powers to make regulations on certain aspects. The most important regulatory responsibility of the authority was the power of techno-economic clearance of generation projects. Schemes of the SEB or a Generating Company relating to establishment or acquisition of generating stations, tie-lines, sub-stations or transmission lines—which involved capital expenditure exceeding specified sum – required concurrence of CEA. In case of a thermal project, the scrutiny would also involve the question as to whether the location of the generating station is best suited to the region, taking into account the optimum utilization of fuel resources, the distance of load center, transportation facilities, water availability and environmental considerations.

- **Financial Principles of Tariff Fixation**

Another distinctive feature about the 1948 Act stems from the detailed provisions of financial principles for determination of tariff. The powers to fix tariff were vested in the Government: Under section 43 A (2), the tariff as also the terms and conditions of tariff for the Generating Companies wholly or partly owned by the Central Government were determined by the Central Government and those



for the Generating Companies wholly or partly owned by the State Government were determined by the concerned State Government. The norms regarding operation and plant load factor were laid down by the Central Electricity Authority. Depreciation rates were determined by the Central Government under this provision. Section 43 A (2) empowered the Central Government to determine rates of depreciation for tariff purposes, sections 68 and 75 A (3) stipulated that the depreciation for the purpose of preparation of accounts in respect of the SEB as well as the Generating Companies would be calculated at the rates determined under section 43 A (2).

While section 43 A stipulated the terms, conditions and tariff for sale of electricity by a Generating Company, section 59 provided for general principles of finance of the State Electricity Board. It empowered the SEB to adjust its tariff to ensure at least three percent return on its fixed asset. The State Government had the powers to allow higher percentage of return for the Board.

The most distinctive provision dealing with financial principles is the Sixth Schedule to the 1948 Act. The Schedule, which provided for the financial principles and their application for determination of tariff in respect of licensees stood the test of time down the decades and still continues to be the guiding principle in tariff determination for distribution licensees. The Schedule put in place a 'cost plus' approach to tariff determination – the approach of allowing "standard rate" of return on "capital base". The basic premise was that the licensee was to adjust his tariff so as to ensure that his "clear profit" does not, as far as possible, exceed the "reasonable return". Broadly "clear profit" meant the difference between income and expenditure and "reasonable return" meant capital base (prudent cost) plus standard rate of return (applied on capital base) plus some other income from investments etc.

There are, however, a number of other measures, especially at the state level were initiated as the Industries (Development and Regulation) Act, 1951, provided legislative backing for state ownership and regulation of key industries. The Industrial Policy Resolution (1956) categorized the generation and distribution of electricity in Schedule A. As such, the Constitution of India

had listed power as a subject in the concurrent list, on which both GOI and state governments could make laws. Designated a basic and capital-intensive sector, its future became the exclusive responsibility of the state. Since then the growth of the power sector in India has been predominantly in the public sector either through SEBs (State Electricity Boards) or central-government-owned generating and transmission companies. The Electricity Supply Act provided the framework for governance of the power sector. The important aspects of power regulation were placed under the CEA (Central Electricity Authority) and it was expected that CEA should advise governments or any other electricity company on all aspects of operation and maintenance of the Power system. It was charged with the responsibility of developing a sound and adequate national policy. It was also designated as the approving authority for Power projects. The techno-economic clearances issued under this section by the CEA are prerequisites for approval of any scheme by state governments.

The Electricity Supply Act provided a detailed methodology for framing tariffs that could be charged by licensees. It ensured that excess profits were equitably shared between the stakeholders. The SEBs were mandated to secure a minimum surplus of three per cent of the value of fixed assets after meeting all legitimate expenses. But over the years, several forms of government intrusiveness that beset the Indian public sector quite naturally enveloped electric utilities as well. Utilities increasingly became financially non-viable and incapable of meeting demand—qualitatively and quantitatively.

It was at this juncture that the GOI decided to attract private sector participation. In early 1992, the two Electricity Acts were amended to create a new legal, administrative and financial environment for attracting private investment into the Power Sector. Clearly offered was an invitation to *build-own-operate* plants of any size. The inducements offered through government notifications were attractive up to 100% foreign equity investment; a debt equity ratio of up to 4:1; a return on equity of up to 16% recoverable at a PLF (plant load factor) of 68.5%; repatriation of the entire dividend in US dollar terms (which would be a pass-through on the tariff and for which there was

protection of the exchange rate); capitalization of interest during construction; and so on. These returns on equity were extended to central government-owned companies whose rate on equity was raised from 10% in 1992 to 12% in 1994 and to 16% in 1998 in order to give them a 'level playing field' with foreign investors.

The system of government regulation that prevailed during this time had two interesting consequences. First, government-owned generating companies were allowed to charge tariffs that recovered costs as well as a return on equity and kept additional earnings like 'incentives'. Second, SEBs, even while being protected from competition, were discouraged by their political masters from recovering their costs through tariffs. With the advent of reforms and possible private sector participation (especially in distribution), the need for a well-designed regulatory mechanism gained urgency.

#### **4.2.3 Phase III: Transparency, Efficiency and Commercialization in the New-Style Regulation**

The traditional structure of vertically integrated, state-owned monopolies needed changes. The conceptual framework underlying the new legislation is that India's electricity system must be opened to competition. Competition is said to be possible only in generation and supply since T&D on wires are regarded as natural monopolies and not economical when duplicated yet the Act permits parallel lines for T&D. This was presumably done not only because the state-owned lines might not have capacity but also to ensure that the threat of parallel lines might ensure that access would not be denied as has been the tendency in some states. This denial has been supported by some SERCs either directly or through high wheeling charges.

The intention was that private participation in generation and distribution, in course of time in wholesale power trade, and with transmission also being opened to private investment; T&D (transmission and distribution) would remain localized monopolies, albeit with smaller areas. This was expected to enable yardstick competition to emerge. As a consequence, monopoly elements in the restructured power sector were to be regulated. As more

players - especially private emerged, there was expected to be a need to introduce a high degree of independence in the regulatory mechanism so that it could weigh the interests of all the stakeholders in a transparent fashion. There was little new private investment in generation, none in transmission, and distribution privatization made little progress. Regulation continued to be of primarily state-owned undertakings at the centre and the states.

To ensure accountability and transparency in industry transactions in the short run, the regulator was expected to induce a semblance of managerial responsibility (economy and efficiency) in the regulated utilities (state or privately-owned) and contain the subsidy burden of the sector on the government. The regulator would work towards achieving this objective through rationalizing tariffs, improving efficiencies, restricting subsidies to the bearing capacity of government, and forcing utilities to turn efficient by decreasing T&D losses and cutting costs.

The Electricity Regulatory Commissions Act enacted to bring the Indian Power Sector as a whole under independent regulation. The Act provided and facilitated the establishment of a regulatory commission at the centre called the CERC (Central Electricity Regulatory Commission) and one regulatory commission for each state, generically called the SERC (state electricity regulatory commission). The states could establish regulatory commissions either under the Electricity Regulatory Commissions Act or by enacting their own legislation.

The broad features of the Electricity Regulatory Commissions Act, 1998 are:

- **Distancing of Government from Regulation**

The Electricity Regulatory Commissions Act, 1998 added a new dimension to the development of the Power Sector in the Country. The significance of 1998 Act lies in the fact that this was the first legislation in the country through which the government sought to distance itself from regulations. One form of regulation, namely Tariff Regulation was distanced through this Act. Under the 1910 and 1948 Acts, powers of regulation including tariff regulations were vested in the Government. For instance, under section 43 A (2) of the 1948

Act, the tariff as also the terms and conditions of tariff for the Generating Companies wholly or partly owned by the Central Government were determined by the Central Government and those for the Generating Companies wholly or partly owned by the State Government were determined by the concerned State Government. Under section 59 of the 1948 Act the State Electricity Boards had the powers to adjust their tariffs. This concentration of power in the Government and Government organizations resulted in inefficiencies of various sorts, the most prominent manifestation being lack of rational and professional approach to tariff fixation. As part of the reforms strategy, it was, therefore, considered necessary to distance the sensitive aspect of tariff regulation from the political executives on to Independent Regulatory Commissions.

It would be pertinent to mention in this context that the journey of distancing of government from regulation that started in 1998 has culminated in the Electricity Act of 2003. While through the legislation of 1998 only one form of regulation (viz., tariff regulation) was distanced there is complete distancing of Government from almost all forms of regulation under the new Act of 2003.

- **CERC and SERCs**

The ERC Act, 1998 provided for Electricity Regulatory Commissions at the Center and in the States for rationalization of electricity tariff, transparent policies regarding subsidies etc. The objectives sought to be achieved through the institution of independent Regulatory Commissions can be broadly classified as under:

- Macro level objective - of transparency, accountability and professionalism in the tariff fixation process.
- Micro level objective - of rationalization of electricity tariff, transparency in terms of subsidies.

The 1998 Act also provided certain guiding principles for determination of tariff by the CERC and SERCs. In so far as tariff determination at the State level (i.e. by SERCs ) is concerned the cost plus approach and related principles and application provided for in the 1948 Act continued to remain one of the

guiding principles for SERCs. The Act provided that the State Commission could depart from these guiding principles factors only by recording the reasons in writing. The Central Government and the State Governments had the powers to give policy directions to the CERC and SERCs respectively, which were binding on the Commissions.

The conceptual framework underlying the new legislation is that India's electricity system must be opened to competition. In order to strengthen the new strategy, the forward-looking, reform-oriented Electricity Bill 2001 has been introduced in the Parliament. The Bill, inter-alia, contains stringent provisions for penalty in case of power thefts. The Bill also includes provision for reduction of cross subsidies and for payment of subsidies upfront by the State Governments to the State Power Utilities where such subsidies are considered unavoidable. The objective of the action plan was that this will lead to improvement in the operational and financial performance of the State Electricity Boards/Utilities with restoration of commercial viability in a few years. The chronology of the Power Sector reforms (till 2000) as outlined in Exhibit No. 4.1.

**Exhibit No. 4.1: Power Sector Reforms: Chronology (till 2000)**

Year	Major Developments
1991	The Electricity Laws (Amendment) Act, 1991--Notification. Amends the Indian Electricity Act, 1910 and the Electricity (Supply) Act, 1948 by <ul style="list-style-type: none"> <li>• Private Sector allowed to establish generation projects of all types (except nuclear)</li> <li>• 100% foreign investment &amp; ownership allowed</li> <li>• New pricing structure for sales to SEBs.</li> <li>• 5 Year Tax holiday; import duties slashed on power projects</li> </ul>
1992	Intensive wooing of foreign investors in US, Europe & Japan
1992-97	<ul style="list-style-type: none"> <li>• 8 projects given "fast-track" status.</li> <li>• sovereign guarantees from Central Government.</li> <li>• Seven reached financial closure</li> <li>• Dabhol (Enron), Bhadravati (Ispat), Jegurupadu (GVK), Vishakapatnam (Hinduja), Ib Valley (AES), Neyveli (CMS), Mangalore (Cogentrix)</li> </ul>
1995-96	World Bank Reform Model - First Test Case Orissa <ul style="list-style-type: none"> <li>• Orissa Electricity Reform Act passed</li> <li>• Establishment of Orissa Electricity Regulatory Commission</li> <li>• SEB unbundled into Orissa Power Generating Company (OPGC), Orissa Hydel Power Corporation (OHPC) and Grid Corporation of Orissa (GRIDCO)</li> <li>• Distribution privatized</li> </ul>

1996	<p>Chief Ministers Conference: Common Minimum Action Plan for Power: Recommend policy to create CERC and SERCs</p> <ul style="list-style-type: none"> <li>• Licensing, planning and other related functions to be delegated to SERCs.</li> <li>• Appeals against orders of SERCs to be in respective High Courts</li> <li>• SERC to determine retail tariffs, including wheeling charges etc., which will ensure a minimum overall 3% rate of return.</li> <li>• Cross -subsidization between categories of consumers may be allowed by SERCs, but no sector to pay less than 50% of the average cost of supply (cost of generation plus transmission and distribution). Tariffs for agricultural sector not to be less than Rs. 0.50 Kwh and to be brought to 50% of the average cost in not more than three years.</li> <li>• Recommendations of SERCs to be mandatory, but financial implications any deviations made by State/UT Government, to be provide for the explicitly in the State budget.</li> <li>• Fuel Adjustment Charges (FCA) to be automatically incorporated in the tariff .</li> <li>• Package of incentives and disincentives to encourage and facilitate the implementation of tariff rationalisation by the States.</li> <li>• States to allow maximum possible autonomy to the SEBs, which are to be restructured and corporatized and run on commercial basis. SEBs to professionalize their technical inventory manpower and project management practices.</li> </ul>
1997	<ul style="list-style-type: none"> <li>• CEA Clearance exempted for projects under 1000MW but State govt environment clearance required up to 250-500 MW</li> <li>• Liquid fuel policy -- naphtha allocations to IPPs</li> </ul>
1998	<ul style="list-style-type: none"> <li>• Mega-Power Policy: special incentives for the construction and operation of hydro-electric power plants of at least 500 MW and thermal plants of at least 1,000 MW.</li> <li>• The Electricity Laws (Amendment) Act, 1998 and Electricity Regulatory Commissions Ordinance -- Notification. <ul style="list-style-type: none"> <li>○ Creation of Central Transmission Utility</li> <li>○ STUs to be set up with government companies</li> <li>○ Establishment of CERC and SERCs</li> <li>○ Rationalization of electricity tariffs,</li> <li>○ Policies regarding subsidies</li> <li>○ Promotion of efficient and environmentally benign policies</li> </ul> </li> <li>• Power Grid notified as Central Transmission Utility Haryana Electricity Reforms Act: <ul style="list-style-type: none"> <li>○ HSEB unbundled into Haryana Vidyut Prasaran Nigam Ltd., a Trans Co. (HVPNL) and Haryana Power Corporation Ltd.</li> <li>○ Creation of HERC</li> <li>○ Two Government owned distribution companies viz. Uttar Haryana Bijli VitaranNigam Ltd. (UHBVNL) and Dakshin Haryana Bijli Vitaran Nigam (DHBVNL) have been established.</li> <li>○ DFID's technical co-operation grant of 15 million pounds available for reforms.</li> </ul> </li> </ul>
1999	<ul style="list-style-type: none"> <li>• Andhra Pradesh Electricity Reforms Act</li> <li>• APSEB unbundled into Andhra Pradesh Generation Company Ltd. <ul style="list-style-type: none"> <li>○ (APGENCO) and Andhra Pradesh Transmission Company Ltd. (APTRANSCO for transmission &amp; distribution)</li> <li>○ Creation of APERC</li> </ul> </li> <li>• Other Developments: <ul style="list-style-type: none"> <li>○ World Bank loan of US \$ 210 million under the APL</li> <li>○ DFID's 28 million pounds as technical co-operation grant.</li> <li>○ CIDA technical assistance of Canadian \$ 4 million.</li> </ul> </li> <li>• Karnataka Electricity Reforms Act</li> </ul>

	<ul style="list-style-type: none"> <li>○ KEB and KPCL transformed into new companies: Karnataka Power Transmission Corporation Ltd. (KPTCL) and Visvesvaraya Vidyut Nigama Ltd., a GENCO, (VVNL)</li> <li>○ Creation of KERC</li> <li>● Other Developments:             <ul style="list-style-type: none"> <li>○ KPTCL has carved out five Regional Business Centres (RBC) for five identified zones.</li> </ul> </li> </ul>
2000	<p>Power Ministers' Conference and Electricity Bill 2000 (draft):</p> <ul style="list-style-type: none"> <li>● Functional disaggregation of generation, transmission and distribution with a view to creating independent profit centres and accountability;</li> <li>● Reorganisation and restructuring of the State Electricity Boards in accordance with the model, phasing and sequencing to be determined by the respective State Governments</li> <li>● States to determine the extent, nature and pace of privatisation. (public sector entities may continue if the States find them sustainable);</li> <li>● Transmission to be separated as an independent function for creation of transmission highways that would enable viable public and private investments;</li> <li>● Amendments to the Indian Electricity Act, 1910 made in 1998 for facilitating private investment in transmission have been broadly retained except that the private transmission companies would be regulated by the Regulatory Commissions and Transmission Centres inst under the direction, supervision and control of the Central/State Transmission Utilities;</li> <li>● Present entitlements of States to cheaper power from existing generating stations to remain undisturbed;</li> <li>● Provision of compulsory metering for enhancing accountability and viability;</li> <li>● Central and State Electricity Regulatory Commissions to continue broadly on the lines of the Electricity Regulatory Commissions Act, 1998;</li> <li>● State Regulatory Commissions enjoined to recognise in their functioning the need for equitable supply of electricity to rural areas and to weaker sections;</li> <li>● Stringent provisions to minimize theft and misuse.</li> </ul>

Despite aggressive reform policies in the 90s, private sector participation was moderate at best, and the financial losses and cash flows of State Electricity Boards (SEBs) reached crisis proportions. Ironically, the Power Sector suffered a setback during a period of aggressive policy reforms. In this period, investment targets for both the public and private sectors fell dismally short of target. Therefore, the unbundling of the utilities into more 'manageable' size paved the way for the Electricity Act 2003.

#### **4.3 TRANSPARENCY, EFFICIENCY AND COMMERCIALIZATION IN THE NEW-STYLE: THE ELECTRICITY ACT - 2003**

The Electricity Act, 2003 unified central legislation replacing the three Acts of 1910, 1948, and 1998 (with their many subsequent amendments) started in late 1999. After eight or more drafts, the original ambitious Bill had been considerably diluted. The Standing Committee of Parliament produced an



exhaustive report with recommendations but the Act now in place has incorporated only a few of them. In the 'Background and Salient Features of the Act', the following are as follows:.

*"Competition with regulatory oversight is the framework around which the Electricity Act 2003 is woven – competition, to encourage efficiency in performance and regulatory oversight, to safeguard consumers' interests and at the same time ensure recovery of costs for the investors".*

The objectives of the Act are to consolidate the laws relating to generation, transmission, distribution, trading and use of electricity and generally for taking measures conducive to development of electricity industry, promoting competition therein, protecting interest of consumers and supply of electricity to all areas, rationalization of electricity tariff, ensuring transparent policies regarding subsidies, promotion of efficient and environmentally benign policies, Regulatory Commissions and establishment of Appellate Tribunal and for matters connected therewith or incidental thereto.

The Act permits free entry into generation unless there are safety and environmental considerations. Captive generation is to be freely permitted, not only for captive use in the promoter's own plants but also for use by a group of industries. Thus new capacities in generation can be supplied to members of such groups. This introduces the idea of trading in bulk electricity to be of use, electricity must be allowed open access to transmission lines. The earlier version of the Act allowed this for all generators subject to a surcharge on the normal wheeling charges and at the discretion of the regulator. There is complete distancing of Government from regulation and commercial activities in the new scenario envisaged in the law. The Government remains there only as a facilitator. The Act distances government from all forms of regulation, viz., licensing, controls over generation, captive generation, tariff fixation etc. It removes the bottlenecks in all activities – of generation, transmission, distribution and supply of electricity, and thereby creates a conducive environment for the development of the sector.

The Bill permits multiple licenses in T&D (as did the 1910 Act, witness BSES and Tata in Mumbai) in parallel T&D lines. This could forestall SEBs restricting transmission of captive generated electricity. Open access might make the SEBs lose their big and paying customers unless they take strong measures to retain them through tariff incentives, better service, and quality.

The Act implicitly allows distribution to be separated from supply. Thus the 'wires' can be tightly regulated as such. Supply circles limited even up to the level of substations could be given to private parties like newspaper vendors, cable operators, and rural cooperatives. A much wider choice of parties can thus be tapped for privatization of distribution than has been possible in the Orissa and Delhi privatization models.

The Act directly and indirectly compels state governments to improve the financial viability of SEBs by permitting tariffs for currently subsidized customers to cover more costs while pushing SEBs to improve efficiencies.

Another useful innovation in the Act is that it opens all aspects from generation to supply in the rural sector to private investment without restrictions. Entrepreneurial investors will have a great investment opportunity in supplying quality power to rural consumers. Possibly industries can locate in rural areas and benefit from better quality power.

It should be noted that the ideas in this Act are many steps forward from the early 1990s when the mere opening to private investment, followed by government sovereign guarantees and escrow accounts, was considered adequate to attract private investment. The Central government has put in place other policies at the same time to clean up the balance sheets of the state distribution utilities through securitization of debts, introducing a well-balanced set of carrots and sticks to State Governments to proceed with reforming their electricity sectors.

Competition is the hallmark of the new legislation. Upstream competition among generators has been ensured by providing for non-discriminatory open access in transmission from the outset. It means, in other words that the generators would be free to choose the distributors and the distributors to

choose their suppliers, and the owner of the transmission wires would be obliged to give non-discriminatory access to his transmission facilities for conveyance of electricity from the generator to the distributor, on payment of transmission charge. It is a salutary departure from the existing single buyer model where the transmission companies purchase power from the generating companies and in turn sell it to the distribution companies, leaving Hobson's choice to the distribution companies, of purchasing power only from the transmission company. Under the new law the transmission utility has been debarred from engaging in this kind of activity of buying and selling of electricity. This will definitely encourage genuine competition between generators leading to cost reduction in the long-run.

Downstream, competition has been encouraged in two ways - by providing for open access in distribution and by enabling more than one licensee in the same area of supply. Open access in distribution implies choice to the consumer to choose a supplier other than the distribution licensee of his area of supply. Cross-subsidies are not welcome and should be discontinued. But the socio-economic conditions of the country are such that we cannot think of doing away with the cross-subsidies overnight. This would seriously affect the vulnerable section of the society. The Electricity Act 2003, therefore, rightly provides for progressive reduction of cross-subsidies and consequently allows open access in distribution in phases after cross-subsidies are eliminated. The new law, however, is not restrictive in any sense. It allows open access even before elimination of cross-subsidies on payment of a surcharge, which would take care of the current level of cross-subsidies.

For rural areas the Act goes one step forward in facilitating entrepreneurship and in turn enabling choice to the consumers, by providing licence free generation and distribution of electricity. The Act provides that a person can engage in generation and distribution in a rural area to be notified by the State Government without the requirement of a licence. For remote areas where grid connectivity has not been extended or is difficult to extend, this framework of stand-alone system would go a long way in ensuring supply of electricity to consumers of such areas. For areas already connected with the

grid, this alternate mode of supply adds to the list of options available for a consumer to get supply of electricity.

The law is replete with promises for a conducive environment of growth. A person intending to engage in the business of thermal generation would no longer require techno-economic clearance (TEC) of Central Electricity Authority (CEA). A general feeling among the developers has been that excessive use – misuse on many an occasion - of this power has often led to cost over-runs and avoidable delays for many a project, thereby seriously affecting its viability. Further, in an era of competitive tariff based bids, approval of project costs as in TEC scheme has no relevance. Also with regulatory commissions having the powers to look into the costs of generation, the developers are expected to take due diligence in project costs.

The freedom for Captive Generation is another sequel to the policy of liberalization. The expression 'captive generation' has been defined to mean a power plant set up by any person to generate electricity primarily for his own use. This 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. Unlike in the Electricity (Supply) Act, 1948, the Electricity Act, 2003 does away with the requirement of approval/clearance of any authority (say, SEB/CEA) for setting up of captive generating plant. The new law also ensures non-discriminatory open access for conveyance of electricity generated from a captive generating plant to the destination of its own use, subject to availability of transmission capacity, on payment of transmission/ wheeling charges to be fixed by independent regulators. For such open access the person owning the captive generating plant has also been exempted from the requirement of payment of surcharge. Sale of surplus power from the captive generating plant to the grid is, however, subject to regulatory control at par with any other generating company. This liberal provision regarding captive generation would not only supplement the efforts towards capacity addition but also create competitive pressure on the existing utilities to bring their cost of supply at comparable levels with the captive generation cost.

The Act pushes competition also by recognizing trading (that is, the activity of purchase of power for resale thereof) as an independent activity. Trading is a licensed activity and any body meeting certain specified criteria can engage in this business by obtaining a licence from the regulatory commission.

Other liberal framework includes deregulation of tariff fixation on certain circumstances. For instance, the tariff for supply of electricity from a generating company to a licensee involving a short-term agreement (involving one year or less) may not be regulated - only ceilings would be determined in such cases. Where open access has been allowed to a consumer, he can reach an agreement with his supplier for purchase of electricity and the tariff for such transaction would not be regulated. Tariff determined through competitive bidding is also not to be regulated. Also in a situation where more than one licensee operates in the same area of supply, the Regulatory Commission may not fix the tariff for each such licensee but would fix only the maximum ceiling of tariff and the distribution licensees would be free to adjust their tariffs within that ceiling.

While liberalisation is the mantra, the Electricity Act does not encourage an unbridled growth for the sector. The regulators are supposed to put a check on the cost of generation through powers to regulate the tariffs for supply of electricity from a generating company to the distribution licensees on long-term power purchase agreements, as also with powers to look into the costs of generation. Control over the licensees has been ensured through powers of the regulators to specify terms and conditions of licence, amend, suspend and revoke the licence in case of serious and persistent default. The Regulatory Commissions are also required to specify performance standards for licensees. Failure to comply with the standards makes them liable to pay compensation to the affected person. The institution of the Regulatory Commission is a very important feature of the new law. There are provisions of appeal against the orders of the Regulatory Commissions. Unlike in the repealed laws, where appeal against the orders of the Regulatory Commissions used to lie before the High Court, such appeal under the new law lies before the Appellate Tribunal. The provision for Appellate Tribunal for Electricity meets the need for a specialized court of appeal to deal only with

electricity related cases. This is expected to ensure speedy disposal of cases and at the same time to provide technical expertise in decision on appeal.

As regards theft, the Act makes elaborate provisions to stem this menace. The focus is more on revenue realization. The Act introduces a new scheme in the form of assessment for 'unauthorised use' of electricity, which enables a licensee to make quick recovery of charges due and at the same time provides an opportunity to the person indulging in unauthorized use, to rid himself from any further liability or any action by paying the assessed sum. The Act makes a distinction between 'unauthorised use' and 'theft' of electricity. Theft is a criminal offence for which the penal provisions are very stringent. Fine is linked to quantum of energy stolen and financial gain on account of such theft. The Act also provides for search and seizure by officers authorized for the purpose by the State Government. While the provision for 'assessment for unauthorized use of electricity' provides an enabling framework for disposal of cases without going in for criminal proceeding and the provisions of 'theft of electricity' create the framework for prosecution of the criminal offence, the Act provides another framework in the form of 'compounding of offences' to settle theft cases on mutual agreement of the licensee and the person concerned on payment of compounding sums at rates provided for in the Act itself. For speedy trial of theft cases, the Act provides for constitution of Special Courts by each State.

The Electricity Act, 2003 is a progressive legislation in true sense of the term. It catalyses the activities for the stakeholders and also ensures a conducive environment for them to operate. The exercise of outgrowing the inertia of the past and in the process, reviewing and consolidating all the laws regulating a sector is momentous.

#### **4.4 FUNCTIONS OF THE ELECTRICITY REGULATORY COMMISSIONS UNDER THE 2003 ACT**

The functions of the CERC and SERCs under this Act are different from those under the 1998 Act. Here are the relevant extracts of the three distinct roles that ERCs have to play.

1. **Core role:** This role includes tariff regulation, monitoring quality of service, adjudicating disputes, enforcing licensing conditions, monitoring compliance, and redressing grievances.
2. **Recommendatory role:** If approval (of licenses, for example) does not come under its jurisdiction, the ERC can give its recommendations to the concerned authorities.
3. **Advisory role:** In this role, the ERC provides to the government on request, information and advice on matters of importance to the sector.

### **Central Electricity Regulatory Commission**

Sections 79 and 278 (powers to make regulations) must be read together to understand the extent of the role of the CERC. The CERC has the following responsibilities.

- (1) The central government shall discharge the following functions, namely
  - (a) To regulate the tariff of generating companies owned or controlled by the central government;
  - (b) To regulate the tariff of generating companies other than those owned or controlled by the central government specified in clause (a) if such generating companies enter into or otherwise have a composite scheme for generation and sale of electricity in more than one state;
  - (c) To regulate the interstate transmission of electricity;
  - (d) To determine tariff for interstate transmission of electricity;
  - (e) To issue licenses to persons to function as transmission licensee and electricity trader with respect to their interstate operations;
  - (f) To adjudicate upon disputes involving generating companies or transmission licensee and electricity trader with respect to their interstate operations;
  - (g) To levy fees for the purposes of this Act;
  - (h) To specify Grid Code having regard to Grid Standards;
  - (i) To specify and enforce the standards with respect to quality, continuity and reliability of service by licensees;

- (j) To fix the trading margin in the interstate trading of electricity, if considered necessary;
  - (k) To discharge such other functions as may be assigned under this Act.
- (2) The central commission shall advise the central government on all or any of the following matters, namely:
- (a) Formulation of the national electricity policy and tariff policy;
  - (b) Promotion of competition, efficiency and economy in activities of the electricity industry;
  - (c) Promotion of investment in electricity industry;
  - (d) Any other matter referred to the central commission by the government.

Section 178 gives powers to the central commission to make regulations. It adds some other functions primarily in relation to the SERCs. These enable national coordination on matters relating to open access, generation, and transmission tariffs and trading, matters not earlier provided in the old Act. The central commission may, by notification make regulations consistent with this Act and the rules generally to carry out the provisions of this Act.

The earlier Act had no provision for coordination between the CERC and SERCs. The FOIR (Forum of Indian Regulators) was voluntarily created; all members and chairpersons of ERCs would be its members, with the possible induction of all other regulators in the future. The FOIR enabled new SERCs to get to work quickly because of experience sharing. However, the FOIR did not enable the consistency in approach between SERCs that might also have resulted. Section 166 of the new Act has the following provisions.

- (1) The Central Government shall constitute a Coordination Committee consisting of the chairperson of the Central commission and members thereof, the chairperson of the Authority, representatives of the generating companies and transmission licensees engaged in inter-state transmission of electricity for smooth and coordinated development of the power system in the country.



- (2) The Central Government shall also constitute a forum of regulators comprising the chairperson of the central commission and chairpersons of the state commissions;
- (3) The chairperson of the central commission shall be the chairperson of the forum of regulators referred to in sub-section (2).

#### **4.5 STATE ELECTRICITY REGULATORY COMMISSIONS**

1. Section 86 lays down that the state commission shall discharge the following functions, namely
  - (a) determine the tariff for generation, supply, transmission and wheeling of electricity, wholesale bulk or retail as the case may be, within the state. Providing that where open access has been permitted to a category of consumers under section 42, the state commission shall determine only the wheeling charges and surcharge thereon, if any, for the said category of consumers;
  - (b) regulate electricity purchase and procurement process of distribution licensees including the price at which electricity shall be procured from the generating companies or licensees or from other sources and supply within the state; agreements for purchase of Power for distribution, and
  - (c) facilitate intrastate transmission and wheeling of electricity;
  - (d) Issue licenses to persons seeking to act as licensees, distribution licensees and electricity traders with respect to their Operations within the State;
  - (e) promote cogeneration and generation of electricity from renewable sources of energy by providing suitable measures for connectivity with the grid and sale of electricity to any person, and also specify for purchase of electricity from such sources, a percentage of the total consumption of electricity in the area of a distribution licensee;
  - (f) Adjudicate upon the disputes between the licensees, and generating companies and to refer any dispute to arbitration;
  - (g) Levy fee for the purposes of this Act;

- (h) Specify state grid code consistent with the grid code specified under clause (h) of sub section (1) of section 79;
  - (i) Specify or enforce standards with respect to quality, continuity and reliability of service by licensees;
  - (j) Fix the trading margin in the intrastate trading of electricity, if considered necessary, and
  - (k) Discharge such other functions as may be assigned to it under this Act.
2. The state commission shall advise the state government on all or any of the following matters, namely
- (a) Promotion of competition, efficiency and economy in activities of the electricity industry;
  - (b) Promotion of investment in electricity industry;
  - (c) reorganization and restructuring of electricity industry in the state;
  - (d) matters concerning generation, transmission, distribution and trading of electricity or any other matter referred to the state commission by the state government.

#### **4.6 PACING OF THE REFORMS AND STRATEGIES**

The restructuring of the SEBs have taken place in a phased manner as explained above but in the initial phase government policies to encourage greater private sector participation in the electricity generation, supply and distribution field failed to take off at a high pace. The financiers ,who were aware of this fact ,simply refused to lend money to IPPs, who are selling power to loss-making SEBs. The SEBs finances, tariff strategies and reform plans therefore came under greater scrutiny, from both domestic and international financiers. The SEBs would not become viable until they stop the theft, charge appropriate tariffs, and collect their revenue. As there was not much improvement in this respect, the business of private power in India requires concerted efforts to succeed.

There are several options available for reforms in power distribution; each with varying degree of private sector participation. A state government may choose any one or more models depending on the socio-economic and political environment. These alternatives could be divided into three broad categories:

1. Alternatives, without privatization of distribution and involving commercialization of existing SEBs and distribution by municipal or local Government organization, by cooperatives etc.
2. Alternatives providing only technical and managerial inputs through contracting individual services or management contract or leasing.
3. Alternatives involving existing licensees linking IPPs with distribution areas or joint ventures with private developers or outright sale.

In case of Delhi, the power distribution has been characterized by excessive energy losses, frequent interruptions in supply of power, lack of timely maintenance etc. The State Government weighed the privatization of distribution as a possible solution based on the information available in public domain. The intention of the reforms process was that the Delhi's electricity business would become self-sustaining within five years. It was necessary to minimize retail tariff shock. To ensure this, it would be necessary for the initial losses of the privatized entities selling at uneconomic tariffs to be subsidized by about 26 billion rupees (increased to 34.5 billion rupees) over the period.

There was to be no time gap between corporatization and privatization. Shell companies would be registered in advance and since the objective was privatization, not mere corporatization, the new entities were designed so that they should not incur losses before privatization. The philosophy behind private sector participation is that a private sector creates hard budget constraints, sets high performance standards, and depoliticizes the sector. It will ensure availability of the much needed financial resources for development of the sector and also bring in skills available in the private sector. The Delhi reform process has lessons from the experiences of many states like Orissa and Andhra Pradesh for setting the targets and direction of the reforms.

Though the reform programme has been initiated in many states, the pace and the direction of the reforms are still slow and constrained by many factors. Political will is an issue which plays an important role in determining the ultimate success of the reform programme.