CHAPTER – 2

POWER SECTOR REFORMS IN ANDHRA PRADESH
CHAPTER - 02

POWER SECTOR REFORMS IN ANDHRA PRADESH

2.1. INTRODUCTION :

Andhra Pradesh is one of the largest states in India with a population of over 77 millions and a geographical area of over 275 thousand sq.kms. It is rich with minerals and other natural resources including natural gas. Three major rivers Krishna, Godavari and Pennar flow across the state. The development of infrastructure is an important factor to sustain overall economic growth. Production of power is an important constituent of infrastructure in a rapidly growing economy. The state’s power sector is the third largest in the country. The state of Andhra Pradesh implemented reforms in power sector with the financial assistance and guidance from I.M.F and World Bank. At present, power is generated in Andhra Pradesh by 20 power stations. Out of them 5 are thermal stations located at Vijayawada, Rayalaseema, Kothagudem, (Kothagudem TV stage,), Ramagundam, and Nellore; 12 are hydel stations located in Muchkund, Tungabadhra, Nagarjuna Sagar, Pennur Ahobilam, Singur; 2 are mini hydel and one wind power station, APGENCO’s contribution to A.P. power system energy demand is 51.7 %. The rest of the demand has to be met from the private sector, central sector and purchase of electricity from other states.

Economic liberalization from early 1990’s has made it necessary for industry to be competitive by reducing cost. The quality and cost of power is an important factor for industries to be competitive and also for the welfare of the citizen, the ultimate consumers in the country. The single most significant event that the power sector witnessed was the passage of the Electricity Regulatory Act in July, 1998 by the Parliament for the establishment of Central Electricity Regulatory Commission (CERC) and for providing an option to the state governments to set up their State Electricity Regulatory Commissions (SERCs) to reform the electricity sector. Apart from this, it
was required to have a composite strategic approach to bring radical changes in the performance of the power sector. This can take the form of internal as well as external corrective measures including corporatization, privatization and others.

Substantial developments have taken place in power generation in India, stepping it up since independence from 1710 MW to 105000MW. However, on the flip side, the energy shortage of about 12 % and peak shortage of about 20 % continue to plague our economy. A study by Merrill Lynch further reveals that as against a national plant load factor (PLF) average of 63 %, State Electricity Boards (SEBs) have recorded Plant Load Factor of only 58 % along with high transmission and distribution (T&D) losses amounting to almost 23 %. Any amount of power generated in power stations is of little significance if a reliable and efficient system is not available to deliver the electricity to the consumer.

In late 1980’s and early 1990’s the most significant reason for economic slowdown is that the growth of infrastructure has not kept pace with the economic growth. Instead of providing a fillip, it has become the greatest bottleneck.

2.2. NEED FOR REFORMS IN POWER SECTOR:

The government of India fealty that the solution to the problems mentioned above lies in economic reforms. The main objective of reform in power sector is to promote the development of an efficient, commercially viable and competitive power sector.

A study by Merrill Lynch, based primarily on responses from the industry representation suggests that the competitively priced and good quality power was essential for being globally competitive. It was suggested that the SEB monopoly needs to be broken and competition introduced to improve service levels. A majority of responses indicated that unbundling and subsequent privatization of SEB was essential and should be expedited. It was also suggested that tariff rationalization and transparent subsidy allocation was of utmost importance. Responses from other consumer
organizations, individuals and NGOs broadly indicated that there is a need for reforms and improvement of consumer service standards.

The different alternative options for reforms which were suggested are broadly summarized as follows:

- An SEB to retain its existing identity. The three functions of SEBs viz. generation, transmission and distribution to be run as profit centers.
- Corporatization of SEBs without unbundling.
- Unbundling and corporatization of unbundled entities of SEBs.
- Unbundling, corporatization of unbundled entities of SEBs followed by privatization of distributing entity(s).

For achieving the above objectives, several steps have been undertaken. The Central Electricity Regulatory Commission (CERC) is in place at the national level. It is expected to help growth in the power sector by rationalizing tariffs, formulating clear policies on subsidy and promoting environmentally benign policies. While this is a major development, state governments are also expected to get their act together. It has been suggested that they must replicate the central initiative by setting up State Electricity Regulatory Commissions (SERCs); corporatizing and unbundling SEBs and creating a conducive climate of assured return for private investors, apart from clearing off the massive Rs.17,800 crore dues to central power companies, as a first step to improve financial health, create confidence among the industry, agriculture and general public which will, in turn, create credibility among private participants and accelerate the process of privatization. This would it is suggested, lead to a rapid expansion of the power supply at affordable prices to the consumers.

Furthermore, power utilities have to stop being vertically integrated monopolies and need to separate generation from transmission and distribution so that they can rationalize their management. The state of Orissa was the first state to ahead with the unbundling process, others such as Haryana and Andhra Pradesh followed soon after.
States such as Punjab, Maharashtra, Rajasthan, Uttar Pradesh, West Bengal, and Gujarat have also started reforms in power sector.

2.3. INTERNAL REFORM:

2.3.1. ELEMENTS OF REFORM:

The reform process should comprise internal reform, an independent regulatory framework and structural changes. The key elements of internal reform are developing human resources, reducing transmission and distribution losses, instituting anti-theft measures, carrying out and setting up consumer grievance redressal system.

a) LOSS REDUCTION:

The target for loss reduction was set to 1% per year for the technical losses and 3% per year for commercial losses in urban areas and 0.5% and 2% repetitively in rural areas. The overall collection efficiency was expected to be increased to 94% in two years (Ref. mseb.org).

b) ANTI-THEFT MEASURES:

Over the years, theft of energy in the states has been highly threatening the very viability of the power sector. Theft of power should become a cognizable offence and necessary legislation for this should be enacted soon.

c) ENERGY AUDIT AND METERING:

Energy audits should be carried out to identify areas where there is maximum opportunity to reduce losses and thereby collect more revenue. The monthly energy accounting data detailing the energy input, billed sales and Transmission and Distribution losses to be publicly displayed. Wherever feasible, computerized systems are to replace non-computerized systems.
d) DEMAND SIDE MANAGEMENT:

The reforms process also focuses on demand side management with the objective of improving efficiency in end-use of electricity. Focus on demand side management will reduce the need for additional generation capacity.

e) CONSUMER GRIEVANCE REDRESSAL SYSTEM:

The critical objective of reform is to improve the quality of service. SEB’s will have to further strengthen the existing systems to address consumer complaints. A consumer Charter of Rights has to be developed to focus on the needs of consumers.

f) INDEPENDENT REGULATORY FRAMEWORK:

Some state governments have already set up the electricity regulatory commissions (ERC’s) under the provisions of the Electricity Regulatory Commission Act, 1998. The state governments should be committed to take all steps necessary to facilitate and ensure that ERCs function smoothly in an independent manner.

g) TARIFF RATIONALIZATION:

ERC should broadly be guided by the following principles while determining tariffs. Tariffs should progressively reflect the cost of supply. Consumer’s interests should be safeguarded while reducing the cross-subsidies. Competition, efficiency and economical use of resources should be encouraged.

2.3.2 EXTERNAL REFORMS:
a) STRUCTURAL CHANGES:

In order to meet the objectives of power sector reforms, SEB’s operations would need to undergo a structural change. It is evident that SEB’s are currently very large
organizations, which prevent them from functioning efficiently. A vertically integrated SEB catering to the diverse needs of a customer base which is growing every year has some inherent limitations. Organization of the electricity industry into vertically integrated monopolies is no longer necessary in view of technological advances and a reduction in economies of scale.

For the power sector to be brought on the road to recovery it is necessary for various segments in the power business to be run by smaller, more manageable and commercially oriented smaller entities which would lead to closer supervision and greater efficiency. This would also lead to better customer service. In addition, unbundling is required to make the sector more amenable to competition.

b). POWER GENERATION:

The newly formed generating company(s) should initially be under State Government ownership. The splitting up of SEB plants into separate generating companies would enable competition to be introduced into the sector. Government may, at a later stage invite private sector participation in these companies after the successful privatization of distribution has been completed.

c). POWER TRANSMISSION:

The transmission business of SEB should be transferred to a separate transmission company and state governments will wholly own the transmission companies. The transmission company should be responsible for transmitting power from the generating company(s) and other sources of generation available to the State, for further supply to the distribution companies.
d). **POWER DISTRIBUTION:**

Since the distribution end of the business deals directly with the consumers and is responsible for collection, reform in distribution is vital if the power sector is to ultimately become self-sustaining. The distribution companies could initially be owned by the state governments and privatized in a phased manner. The distribution companies would enter into direct agreements with the generating company(s) for the purchase of power. Emphasis should also be given on electrifying rural areas.

**2.4. GOALS OF THE REFORMS:**

The Government of Andhra Pradesh arrived at the decision to restructure the power sector with the sole objective of creating conditions for the sustainable development of power sector through promotion of competition, efficiency, and transparency, attracting private finance and improving the efficiency and quality of the electricity services in the State.

The main objectives of reforms process are stated to be:

- To supply power to consumers under the most efficient conditions in terms of cost and quality, leading to the economic development of the state.

- To ensure that power sector generates profits.

Accordingly, the government of Andhra Pradesh appointed a High Level Committee on power in January 1995 headed by Sri. Hiten Bhaya a former member of Planning Commission, to study and recommend measures of reorganization of power sector in Andhra Pradesh so as to attract adequate resources to augment the generation, transmission and distribution networks and thus provide quality and reliable power supply to the consumer at a reasonable rate.
The Committee in its report stated that the existing vertically integrated APSEB (consisting of the three wings viz. Generation, transmission and distribution) is facing resources crunch, and suggested unbundling of the existing setup and creation of commercially viable and separate autonomous corporations for generation, transmission and distribution. The committee further suggested the creation of an autonomous Statutory Electricity Regulatory Commission to oversee and set standards of performance for the utilities and to rationalize the tariff structure.

2.5. OVERVIEW OF POWER SECTOR REFORMS IN ANDHRA PRADESH:

Andhra Pradesh State Electricity Board (APSEB) was formed in April 1959 under the provisions of the now repealed Electricity (Supply) Act 1948. The Board had been responsible for power generation, transmission, distribution and the overall development of power sector in the state. The state has the third highest installed generating capacity in the country. APSEB’s generating stations had operated at high levels of efficiency and ranged among the best-run power stations in the country.

The APSEB had maintained high levels of performance on the generation side and some of the generating stations had won awards for excellence in their performance. For example Vijayawada Thermal Power Station were awarded meritorious productivity award for the 17th time in succession during 1999-2000, while the Rayalaseema Thermal Project qualified for incentive award for three times in succession for operating the plant economically. Kothagudem Thermal Power Station-V also won the meritorious productivity award twice and gold medal for the first time during 1999-2000.

Though APSEB could fulfill the objective of its formation to a large extent, the demand for electric power outstripped the capacity and shortages in energy at peak demand have occurred, resulting in imposing of restrictions on power supply to HT/LT consumers, load shedding (scheduled and unscheduled), rostering of agricultural feeders to ensure a minimum supply of 9 hrs/day etc. The shortages resulted in poor voltage profile and low frequencies. In spite of technological advancements as the system got
overloaded the technical and commercial losses increased due to various techno socio-economic factors. Thus, as the losses - technical as well as financial - went up, the credit-worthiness of the Board declined. Inadequate resources stood in the way of upgradation and strengthening the power system to supply power satisfactorily to the end consumers. Further, new capacity additions/infrastructure development got bogged down due to lack of investment.

Andhra Pradesh State Electricity Board was bifurcated and restructured as Andhra Pradesh Power Generation Corporation (APGENCO) to look after generation and Andhra Pradesh Power Transmission Corporation (APTRANSCO) to look after transmission and distribution and sale of electricity in the state of Andhra Pradesh from 01-02-1999.

As per the first phase of reforms APTRANSCO is to look after transmission and distribution and sale of electricity in the State of Andhra Pradesh. The second statutory transfer scheme was notified on March 31, 2000 by Government of Andhra Pradesh as a part of second phase of reforms separating the transmission and bulk supply business from the distribution and retail supply business by creation of separate undertakings for distribution and retail supply business.

APTRANSCO retained the business of transmission and bulk supply while four distribution companies (DISCOMS) were constituted to undertake distribution and retail supply business. For this purpose, the state of Andhra Pradesh was carved into four geographically contiguous distribution zones (East, South, Central and North) and the distribution and retail business was segregated and vested respectively in four distribution companies.

- Eastern Power Distribution Company of Andhra Pradesh Limited with head quarters at Visakhapatnam (APEPDCL)
- Central Power Distribution Company of Andhra Pradesh Limited With Head quarters at Hyderabad (APCPDCL)
Northern Power Distribution Company of Andhra Pradesh Limited with head quarters at Warangal (APNPDCCL)
Southern Power Distribution Company of Andhra Pradesh Limited with head quarters at Tirupati (APSPDCL)

2.6. THE REFORM PROCESS:

The reforms process broadly consists of the following phases.

a). INFORMATION DISSEMINATION:

Reforms of the power sector in any country presents particular challenges because a number of groups are affected. The first step by the Andhra Pradesh government was to appoint a high level committee in 1996 that included two former chairmen of the APSEB. This report was generally considered impartial and professional and was made public in 1996. The APSEB began circulating bulletins in English and the local language, Telugu, about the urgent problems in the power sector and the need to address them quickly. The bulletins highlighted the growing gap between supply and demand, the increasing price of generating power and the rising deficits. Later bulletins discussed the issues of metering and billing, explaining commercial losses and theft of energy. An inexpensive pocket-size publication explaining the key issues in the power sector and the case for reforms was circulated all over the State, reflecting the government’s commitment to disseminate information on a massive state-wide scale.

Given the low literacy rates, particularly in rural areas, additional steps were necessary to inform key audiences and to obtain their active participation. Several films were produced and aired on the cable network throughout the state. In the film, a variety of participants from diverse social and professional backgrounds participated in the discussion and explored the merits of reforms.
The government issued “White Papers” on the State’s finances and the financial conditions of the APSEB. These were debated in the State legislative assembly. A discussion of the power sector figured prominently in episodes of the “Dial your C.M.”, a weekly televised program launched by the then Chief Minister’s office.

b). BUILDING SUPPORT AMONG ELECTRICITY BOARD EMPLOYEES:

It was a clear priority to gain support for reform within the monolith of APSEB and its 53,000 employees. The Chief Minister appointed a three-member cabinet sub-committee, including the finance minister and energy secretary to identify concerns and build support. Top-level management of APSEB accepted that reforms offered the only hope of restoring financial viability. But the rank and file as well as mid-level engineers and professionals had strong concerns about the impact of reforms on job security and conditions of employment even though in this case, overstaffing at the aggregate level was not seen to be an issue. The government offered assurances to workers and entered into negotiations over revised terms and conditions. After sustained efforts, the government was able to rally some 90 percent of the employees to its side. In late 1997, all except one of the unions representing APSEB employees signed new agreements defining terms and conditions of service protection of jobs and retrenchment due to restructuring.

c). STATE GOVERNMENT’S POLICY STATEMENT :

After receiving the recommendation of the high-level commission, the government issued its policy statement in February 1997, which outlined the proposed reforms.

The government in its policy highlighted the need for unbundling the existing set up and accepted the suggestion of the High Level Committee for creation of a statutory Electricity Regulatory Commission. The general policy statement was elaborated and
updated by the government of Andhra Pradesh in a detailed policy statement issued in October 1998.

d). REFORMS SETUP IN ANDHRA PRADESH:

For the successful implementation of reforms programme, the government of Andhra Pradesh created a steering committee headed by the Chief Secretary. It included officials of the government and some experts in energy sector. A task force headed by the Principal Secretary (Energy) Government of Andhra Pradesh, was created to interact and ensure close monitoring of the reforms process. Further, a reforms project management group headed by Chief Engineer and consisting of a group of officers of different disciplines of the Board was created in June 1997 to effectively plan and implement the reform and restructuring programme in the power sector. Ten working groups were set up in the first phase of reforms to assist in related functions such as planning and investment, legal and regulatory frame work, distribution companies, tariffs, HRD, financial restructuring, commercialization and asset identification and valuation. Keeping in view the importance of the financial restructuring, working group on financial restructuring was headed by the then Member (Finance) of the Board. The reform process was envisaged as a two phase process.

e). PHASE – 1 OF REFORMS PROCESS:

The first phase concentrated mainly on

1. Unbundling of APSEB in to APGENCO and APTRANSICO and tentative transfer of personnel and assets to the companies.
2. Creation of autonomous APERC
3. Formulation of investment plan.
4. Preparing a financial restructuring plan for the power sector
5. Forming reconstruction plan for organizing the distribution system into a number of viable entities.
In the first phase ICICI, SNC-LAVLIN, PWC were enlisted as consultants with financial help from international funding agencies such as the World Bank, IDA, and DFID.

The government of Andhra Pradesh approached the World Bank for extending financial support to the proposed reforms and restructuring programme of Andhra Pradesh power sector. The World Bank committed to extend assistance to the tune of 1000 million US dollars through adaptable programme of lending, through a series of 5 loans under Andhra Pradesh Power Sector Restructuring Project.

The state government invested assets and liabilities in APTRANSCO and APGENCO by a provisional transfer scheme valid for a period of one year from 1-2-1999. Transfer scheme of personnel consistent with tripartite agreement entered into between government of Andhra Pradesh, APSEB and employees Unions/Associations was also issued with effect from 1-2-1999.

f). PHASE – II OF REFORMS PROCESS:

In the second phase of reforms, the main focus was to be on activities connected with separation of the distribution function from transmission. The distribution system was to be divided into a number of viable, geographically separate distribution companies. It was also envisaged to induct private participation by forming joint venture distribution companies.

The government of Andhra Pradesh has committed in its letter of January 1999 to World Bank, to provide such support of about Rs.6,190/- crores to the new entities till they achieve a turn around and become net generators of resources. The second statutory transfer scheme was notified on March 31st 2000 by government of Andhra Pradesh as a part of second phase of reforms separating the transmission and bulk supply business from the distribution and retail supply business by creation of separate undertakings for distribution and retail supply business.
2.7. THE ELECTRICITY ACT 2003 AND SUBSEQUENT INITIATIVES:

The Electricity Act 2003 replaced the then existing Electricity Acts, and it came into force on 10-06-2003. The Electricity Act 2003, has several liberalized provisions such as the following to stimulate investors' interest in a joint venture with distribution companies:

- Open access in transmission immediately and in distribution in a tie frame to be decided by commission.
- Grant of license to two or more persons in the same area.
- Provision of local distribution in rural areas through panchayats, co-operatives, user associations, NGOs or franchises.
- Liberal definition and expansion of scope for captive generation.
- Consolidate the laws relating to generation, transmission, distribution, trade and use of electricity.
- Take measures conducive to development of electricity industry.
- Promote competition.
- Promote the interests of consumers.
- Supply electricity to all areas
- Rationalize electricity tariff.
- Erase transparent policies regarding subsidies.

In order to achieve the above objectives the Electricity Act has introduced several innovative concepts including a new concept called “Open Access”.

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<th>S.No.</th>
<th>Category</th>
<th>Key Factor</th>
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<tr>
<td>1</td>
<td>Objectives</td>
<td>Encouraging autonomous regulation with separation of policy regulation and operational aspects. Rationalizing tariff and lowering the cross subsidization levels, creating competition in the industry, ensuring supply of electricity to all areas and protecting consumer interests.</td>
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<td>2</td>
<td>Policy</td>
<td>A national electricity plan shall be prepared in accordance with National Electricity Policy every 5 years, National policy on stand alone systems for rural areas and non-conventional energy systems and National policy on electrification and local distribution in rural areas.</td>
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<td>3</td>
<td>Restructuring</td>
<td>State governments will have the freedom to decide the sequence and phases of restructuring and also retain the integrated structure of the SEB for a limited period. Introduction of the concept of power trading as a distinct activity and the introduction of the spot market for bulk electricity.</td>
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<td>4</td>
<td>Generating</td>
<td>Generators can contract directly with Distribution Companies (DISCOMs). DISCOMs can have embedded generation. Captive generation allowed freely can supply to associates. Elimination of licensing requirement and techno-economic clearances for generation projects except hydel projects.</td>
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<td>5</td>
<td>Transmission And Distribution</td>
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<td>Consumer Protection</td>
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2.8. OPPORTUNITIES:

The Electricity Act 2003 sees the open access provision as the most important instrument to transform the monolithic electricity utility structure existing now, into a competitive sector. One can immediately identify the following opportunities of Open Access provision:

- SEBs would be relieved of the need to meet industrial load growth requirements.
- There would be more capacity additions.
- Consumer migrations from the SEBs would free their capacity to meet their own captive load growth.
- Idle capacities of captive power units would be utilized well.
- There would be lot of competitive pressure on the SEBs to improve their service and to reduce their tariff rates.

2.9. TECHNICAL INITIATIVES:

Technical initiatives undertaken include:

- Aggressive thermo vision scanning lines and substations for condition pre-motioning.
- Regular preventative maintenance of lines and substations – hot line Maintenance.
- Ushering of 400 KV era.
- State of art technologies adopted by introducing SLICON rubber insulators for high populated areas
- Adoption of optical fiber communication and Vsat communication.
- Numerical relays for control.
- Established unified load dispatch centre for efficient system operation. Following merit order dispatch and ABT.
Conducting regular load flow studies and fault analysis.
Scientific approach for preparation of estimates and procurements for works and equipment.
Optimization of construction costs.
Avoidance of time and cost overruns by close monitoring and supervision.

2.10. PERFORMANCE MONITORING INITIATIVES:

Performance monitoring initiatives as part of reforms are as under:

- Key performance indicators concept introduced in APTRANSCO.
- Power purchase cost with respect to regulatory targets.
- Power procurement volume with respect to targets.
- Revenue from DISCOMs.
- Availability factor (zone wise/circle wise) of transmission line.
- Transmission loss on critical lines (zone wise/circle wise).
- Physical and financial progress of network expansion and R & M Zone wise/Circle wise.
- Introduction of grading system for individuals at various levels and introduction of reward system for units like substations, stores, grid operations etc.

2.11. KEY PERFORMANCE INDICATORS IN DISTRIBUTION COMPANIES:

Several key performance indicators have been fixed for evaluating the technical, commercial and financial performance of the distribution companies like:

- Energy draw as w.r.t ARR targets.
- Metered sales w.r.t ARR targets.
- Loss reduction.
- Revenue demand w.r.t input.
• Revenue collections w.r.t demand.
• Customer service presently limited to DTR failure rate.
• Targets drilled down to section level.
• Introduction of grading system for individuals at various levels and introduction of reward system for locations/offices like substation, stores MRT etc.

2.12. COMPREHENSIVE SUPPORT PROVIDED BY GOVERNMENT OF ANDHRA PRADESH:

Some of the initiatives of Government of Andhra Pradesh for reforming and structuring the power sector in Andhra Pradesh are:

- Policy initiatives on unbundling the sector and issuance of Transfer Schemes for assets and employees.
- Employee buy-in of reforms through the Tripartite Agreements facilitated by the GoAP (Government of Andhra Pradesh is a signatory).
- Policy of competitive bidding for generation introduced in 1995.
- Enabling environment for capacity additions through back up guarantee to IPPs.
- Back up guarantee to various loans from multilateral/bilateral agencies & Transmission and Distribution infrastructure.

- Approval of Financial Restructuring Plan and sector Business plan and support.
- Enactment of stringent anti-theft law in Andhra Pradesh.
- Prompt and timely payment of revenue subsidy.

- Interim cash support to the utilities to meet financial adversities arising from external and uncontrollable business conditions.
2.13. INITIATIVES BY THE REGULATORY COMMISSION FOR SECTOR IMPROVEMENT:

a). GENERATION:

- Approval of new PPAs through stringent operational and tariff norms.
- Directive on adherence to merit order dispatch.

b). TRANSMISSION:

- Stringent transmission loss reduction target.
- Directive on implementation of boundary metering scheme.

2.14. CONCLUSION:

The journey of the power sector in Andhra Pradesh in the past more than six years was tough and encountered four years of continued drought in the state and consequent hydro generation failure.

The Government of Andhra Pradesh was forced to bring about dynamic changes in its policy statement in 1997. A.P.S.E.B. was made into two corporations (a). A.P. Genco and (b). A. P. Transco in the first phase of reforms. In the second phase of reforms A.P. Transco retained the business of transmission and bulk supply and four distribution companies (APEPDCL, APCPDCL, APNPDCL, and APSPDCL) were constituted to undertake distribution and retail supply business.

After the state Government undertook the reforms national and international funding agencies came forward to help finance the power sector reforms in the state. With regard to installed capacity, the average annual growth rate during 1995 to 1999 was 4.7 percent and it climbed to 9.06 percent during 1999 to 2003. Similarly the average annual growth rate of high tension consumers went up from 1.9 percent to 6.5
percent. Also the average annual growth rate of low tension consumers went from 5.6 percent to 8.9 percent. However, the average annual growth rate of total power generation marginally declined from 6.9 percent to 5.6 percent whereas the average annual growth rate of revenue declined from 20.4 percent to 12.7 percent.

Due to introduction of reforms in power sector private power producers entered the power industry causing an increase in the average annual growth rate of installed capacity during the reform period. Reforms have created the hope in the customers that the power sector can supply power with quality resulting in increase in the average annual growth rate of high tension and low tension consumers during the reform period. On the other hand there is certain delay in the execution of private projects due to different factors including delay in getting different permissions from the government both at the center and state level, resulting in the decrease in the average annual growth rate of power generation during reform period in spite of the high average annual growth rate of installed capacity. Decrease in the average annual growth rate of revenue during the reform period indicated that the government is required to take some steps in the area of revenue collection in the power sector.

The salient features of Power Sector in Andhra Pradesh have been presented in this chapter. This forms the background for the analysis of reforms in the power sector of Andhra Pradesh in the subsequent chapters.