

Summary	1
Introduction	2
Market	3
Inputs & Technology	3
Policy	4

SUMMARY

If the Finance Minister Yashwant Sinha's speech is anything to go by, the government is finally getting concerned about the deep mess the power sector is in. Sinha made many positive noises in his budget speech – the need for people to pay for public services, the need for SEBs to get their act together, the need for power sector to deliver and so forth.

It is high time the politicians got their act together on power. The last ten years of attempted reforms have produced practically no positive result. The showcase private sector project in generation – Enron's Dabhol Power Company, located in Maharashtra – has run into severe trouble, with Maharashtra State Electricity Board refusing to pay for what it calls 'costly power'. Transmission and distribution areas have started witnessing some developments, but the pace remains slow.

Supply deficits remain high (over 10 percent overall, and about 18 percent peaking), distribution losses are still over 20 percent, most state electricity boards are making losses, annual capacity addition remains at 3,000-4,000MW levels, way below the required 8-10,000 MWs.

This note gives a brief overall picture of the power (or electricity) sector in India. ET Intelligence Group (ETIG) also has more focussed notes on individual segments – generation, transmission and distribution – on this site.

INTRODUCTION

The sector was government controlled till 1991. As a result, the key players are a handful of PSUs (three in generation and one for transmission) and 19 State Electricity Boards (SEBs) – which had generation and distribution and tariff setting functions. Till 1991 private sector was confined to five “licensees”, which existed pre-independence in some key cities and escaped privatization. By the nineties the sector had developed some serious problems – sub-economical tariffs (like very low or zero for agriculture), overstaffing at SEBs, and large

Overall supply remains less than requirement (see table below), though the level of shortage appears to have reduced in recent years.

Table – Power Supply Deficits

Year	Overall Shortage (%)	Peak Shortage (%)
1993-94	7.3	18.3
1994-95	7.4	16.5
1995-96	9.2	18.3
1996-97	11.5	18.5
1997-98	8.1	11.3
April'98-Jan'99	5.5	11.1

Source: Annual Report – Ministry of Power

The reduction in shortages is partly because of the economic slowdown, and therefore could be reversed with the improvement in economic growth. Lack of generation capacity is not the only reason for a deficit scenario. Transmission and distribution (T&D) losses is another reason.

Table: Transmission and Distribution (T&D) losses

Year	T&D losses (%)
1993-94	21.41
1994-95	21.13
1995-96	22.27
1996-97	23.41
1997-98	21.80
1998-99	20.80

Source: Annual Report – Ministry of Power

These losses are much above normally acceptable level (below 10%) of T&D losses. Theft of power is a key reason for the large loss. Yashwant Sinha gave a call for 100 percent metering of power. However, how well that is followed remains to be seen. Corruption will be a key inhibiting factor.

Since 1991, private sector participation has been allowed in generation (IPP route), transmission and distribution (privatization of SEBs and select areas within them).

MARKET

Size & structure

Generation - Total generating capacity in India was 96,000 MW in March-2000. Thermal power constitutes about 73 percent and hydro about 24 percent of this.

In a reflection of the controlled status of the sector till 1991, about 95 percent of generation capacity is with the public sector, with 3 central utilities comprising 34 percent of total Indian capacity. The SEBs have another about 59 percent. The largest individual producer is a PSU – National Thermal Power Corporation (NTPC) with about 17,000 MW, which also makes it a world-class player. There are five private companies, called ‘distribution licencees’ which own another about 4,000 MW. Private sector participation was allowed in 1991 through the IPP route. Total IPP capacity is currently about 2,500MW.

Transmission and Distribution (T&D) – Transmission involves moving generated power from sources to distribution grids, which distribute power among final consumers. Distribution is with SEBs and the five private licencees – which distribute power in select cities. T&D as a whole is divided into five regional grids – Northern, Western, Southern, Eastern and North-Eastern grids. Each of these has a Regional Electricity Board. A central government owned utility – Power Grid Corporation of India (PGCIL), was set in 1989 to accelerate development of a National Grid.

Demand

Like any infrastructure sector, Electricity demand estimation is a complicated exercise. As per Ministry of Power, demand for electricity should grow at a multiple of 1.4x to the economy growth, i.e. the growth in Gross Domestic Product (GDP). By this yardstick, a 6 percent growth in GDP, which is what India is averaging currently, should result in a 9 percent additional electricity requirement. Various studies have estimated the requirement for additional generating capacity at about 10,000 MW/annum. This is required to bridge existing deficits and cope with expected future demand resulting from overall growth in economy. Investment in generation needs concomitant investment in T&D.

INPUTS & TECHNOLOGY

Raw materials are coal and lignite for thermal. India has large coal reserves. However, there are some issues on supply as pointed out by financiers. However, coal mining has been allowed. IPPs can try to arrange dedicated captive coal supply. Current coal production is largely with Coal India. The key issue is to have contracted supply of coal to secure financial closure of a new project.

For capital equipment and technology, the business has large global suppliers and a few Indian companies. The typical model is to have a turnkey EPC contract with global majors like ABB, GE, Siemens, Daewoo or Mitsubishi. BHEL, an Indian PSU, is also capable of delivering the entire project machinery. Some Indian companies like L&T, Thermax and BSES are also starting to undertake EPC. In short, technology is easily available. O&M contracts (operations and maintenance) are common amongst IPPs with promoters of no previous experience.

POLICY

Government policy is the most critical element of this sector. Responsibility for electricity supply is shared between Government of India (GoI) and the States.

Department of Power (DoP) within the Ministry of Power is the apex regulatory body. The next important outfit is Central Electricity Authority (CEA), which reports to the DoP. CEA is responsible for developing national power policy and co-ordinate between various parties involved in the power industry, i.e., state governments, state electricity boards (SEBs) and other agencies involved in generation and supply of electricity. Powers of the CEA have diminished in the nineties, driven by the reform impetus. For example, CEA now gives techno-economic clearance for projects only over Rs.1000 crores (Rs.10 bn), as against all projects earlier.

An important new regulatory body, the Central Electricity Regulatory Commission (CERC) has been set-up recently. CERC's main mandate is to set bulk tariffs for all Central generating and transmission utilities.

Licensing, planning and other related functions could also be delegated to CERC as and when the Central Government notifies it. Power Trading Corporation (PTC) is another independent regulatory body being set-up to arrange trading in electricity on commercial terms.

SEBs are the main bodies at the state level, which have the mandate of regulating and as well as generation and T&D at the state level. There are 19 SEBs, one each for most states and one for 7 northeastern states. SEBs authorizes the 5 "licensees" to distribute power in their respective areas and fix tariffs to be charged by these licencees. IPPs also have to deal with SEBs for tariff and sale agreements. Recently, though, State Electricity Regulatory Commissions (SERCs) are being set-up which would will undertake tariff fixation.

Important policy measures –

- Private sector has been allowed to set up generating units of any size, for captive or external supply under Independent Power Producer (IPP) status. This can be with 100 percent foreign equity. Captive power units can supply surplus power to SEBs.
- SEBs are being gradually reformed with assistance of World Bank. This involves various measures, like, hiving off of generating assets and distribution areas to the private sector.
- Private sector has can bid for transmission projects.
- The largest number of policy measures have been announced to attract investment in the generation segment – like for fast-track projects, liquid fuel projects and the latest mega power projects. The first two have shown mixed results. Mega power policy is the focus area of the current government.

Important acts and GOI notifications -

- Electricity Laws (Amendment) Act, 1991
- Electricity Laws (Amendment) Act, 1998
- GOI Resolution – Policy on private participation in the power sector – 1991

- Depreciation norms for licensees – 1994
- Depreciation norms for generating companies – 1994
- Tariff Notification – 1992
- Operating norms for diesel and lignite based power plants - 1995

A key issue has been lack of clarity on policy direction. The liberalization started off with generation, whereas problems were more with distribution, SEBs was making losses. There have been various shifts in government focus in generation, from fast track to mega and from MOU route to competitive bidding.

ETintelligence.com