POWER SECTOR A STUDY OF INDIA

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ABSTRACT

The Indian power sector has the fifth largest electricity generation capacity in the world and the world's third largest transmission and distribution network. The top four countries, viz., Japan, China and Russia together consume about 49 percent of the total power generated globally. The average per capita consumption of electricity in India is estimated to be 704 KW during 2008 – 09. However, this fairly low when compared to that of some of the developed and emerging nations such as US (--15,000 KWh) and China (--1,800 KWh). The world average stands at 2,300 kWh2. This paper highlights ambitious and goals of Indian power sector owing to which the power sector is poised for significant expansion. In order to provide availability of over 1000 units of per capita electricity by the year 2012 it has been estimated that need – based capacity addition of more than 100,000 MW would be required. This has resulted in massive addition plans being proposed in the subsectors of Generation Transmission and Distribution.

Keywords:- *Power Sector, Investment, Private, transmission, generation, distribution, global, thermal power and energy*

INTRODUCTION

As the Indian economy continues to surge ahead, its power sector has been expanding concurrently to support the growth rate. The demand for power is growing exponentially and the scope for the growth of this sector is immense. The overall power generation in the country has increased from 723.793 billion unit (BU) during 2008 -09 to 771.551 BU during the year 2009 – 10. According to the Ministry of Power, India's total installed capacity as on October 31, 2010 is 1,67,278.36 mega watt (MW). Thermal power plants account for 108,602.98 MW, followed by hydro power plants with a capacity of 37,328.40 MW. Renewable energy sources provide 16,786.98 MW of power and the remaining 4,560 MW comes from nuclear energy.

Within the thermal powers plants, coal-based power plants have an installed capacity of 89, 778, 38 MW, gas – based have a capacity of 17,624.85 MW and oil-based have a capacity of 1,199.75 MW. According to the Central Electricity Authority (CEA), a total of 34 projects were commissioned during 2009 -10 with a total capacity of 9,585 MW. These include 31 thermal power plants with a total capacity of 9,106 MW, one hydro power plant with a capacity 39 MW, and two nuclear power plants with a combined capacity of 440 MW. As on October 31, 2010, a total of 30 projects were commissioned during 2010 – 11, with a total capacity of 7,020 MW.

These include 22 thermal power plants with the total capacity of 6,569 MW and with hydro power plants with a capacity of 451 MW.

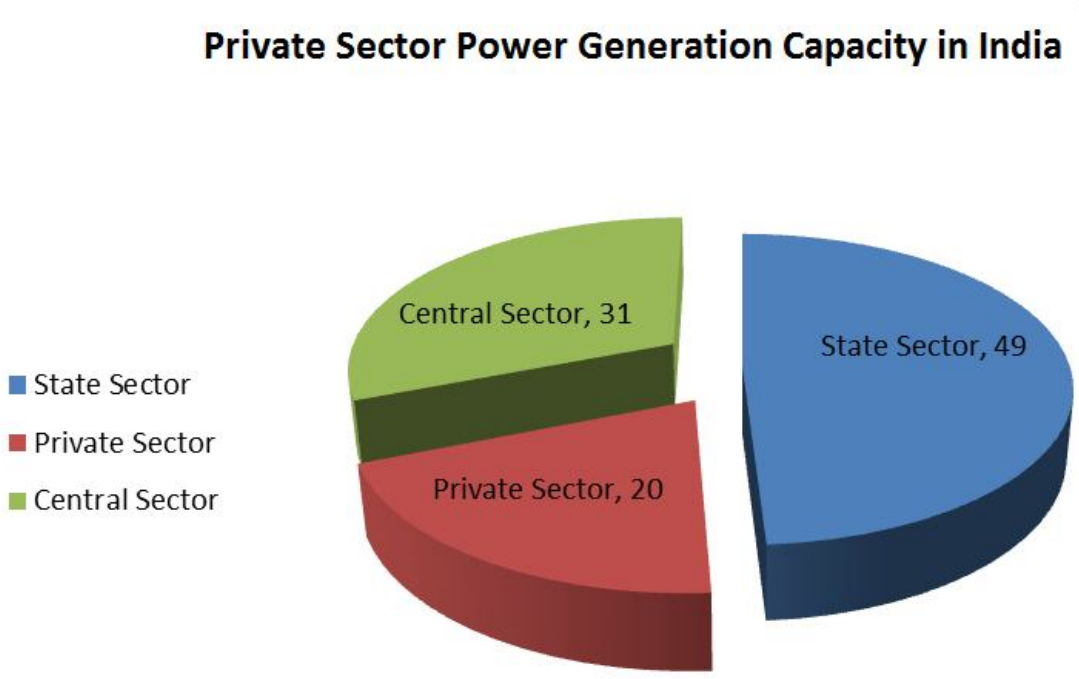

Figure 1: Break-up of Sector wise Power Generation Capacity in India

GROWTH POTENTIAL

As per the Economic Survey 2009 -10, the 11th Five Year Plan envisaged an additional capacity of 78,700 MW of which 19.9 percent was hydro, 75.8 percent was thermal and the rest was nuclear. The Centre has targeted capacity addition of 100,000 MW each in the 12th Five Year Plan (2012 -17 and 13 the Five Year Plan (2017 – 22), as informed by Union Minister of Power. India has launched its ambitious solar energy mission which aims to generate 20,000 MW of solar power by 2022.

INVESTMENTS

The scope for investment in the power sector over the next few years will be well over US$ 300 billion and given the large expansion programme in this sector, the country would definitely need a large amount of foreign direct investment (FDI). The government is targeting to electrify 10,000 remote villages across the country with an investment of US$ 112.1 million by March 2012. India expects investments of up to US$ 55 billion by 2015 in the renewable energy sector, which would generate 35,000 MW of power, stated, Indian Renewable Energy Development Agency (IREDA). According to the Department of Industry Policy and Promotion (DIPP), the

power sector has attracted foreign direct investment (FDI) worth US$ 677 million during April to August 2010. The cumulative FDI received by the power sector between April 2000 and August 2010 was US$ 5.30 billion. According to data released by Venture Intelligence, a Chennai – based research company, Private Equity (PE) investments in the country's power sector were worth US$ 1.1 billion in 2009 -10 with the total number of deals being 27. Private Equity investment in the conventional energy sector stood at US$ 694 million in 2009 -10 as compared to US$ 129 million in 2008 -09. As of October 19, 2010, PE investment in energy in 2010 -11 has reached US$ 834 million in 12 deals, stated Venture

GOVERNMENT INITIATIVES

The government has initiated several proactive steps to open the sector for the private players and realize the full potential of the country in the power sector.

- Introduction of Electricity Act 2003 and the notification of the National Electricity Policy 2005.
- Constitution of Independent State Electricity Regulatory Commissions in the states.

Providing income tax holiday for block 10 years in the first 15 years of operation and waiver of capital goods import duties on mega power projects (above 1,00MW generation capacity) 100 percent FDI is permitted under the automatic route for generation and transmission of electric energy produced in hydro – electric, coal / lignite –based thermal plants, oil – based thermal plants and gas – based thermal plants. Non – Conventional energy generation and distribution of electric energy generation and distribution of electric energy to household's industrial commercial power trading and other users. The government has also taken up some ambitious programmes like the Ultra Mega Power Projects (UMPP). Rajiv Gandhi Grameen Vidhyutikaran Yojana (RGGVY), Accelerated Rural Electrification Programme and the goal of Power for all by 2012 among others, to rapidly increase the installed capacity.

RENEWABLE ENERGY

The government, in Dec 2010 envisaged a stunningly ambitious renewable power generation capacity of 72,400 megawatt (mw; or 72.4 gigawatt / gw) by 2022, or more than four times the current 17 gw. The current working target for renewable power generation is 25 gw by March 2012. The target for solar power alone is 20 gw by 2020. India currently has peak total power generation capacity of 150 gw of which 11.3 percent of 17 gw, is in the renewable segment Nearly all of this is wind power. The new target means India will have to add around 55 gw in 12 years or 4.6 gw per year compared with the current run rate of around 2.2gw. The 72.4 gw goal, however, pales in comparison with what China aims for by 2020 500gw. That would be more than India's total power capacity of 55 gw – including thermal, hydel and renewable expected at that point in time. The 2022 target will increase the contribution of the renewable sector by nearly 500 basis points to around 15.9 percent. The renewable contributed just 4.4 percent to India's total electricity output, despite accounting for 11.3percent capacity. That's because unlike coal and hydel which tend to work found the clock, both wind and solar installations typically produce only 20 percent of actual capacity on a given day due to inconsistent wind and sunlight. Having

15.9 percent of the total capacity in renewable will help the country produce 6.4 percent of its total power from such sources.

DISTRIBUTION

While some progress has been made at reducing the Transmission and Distribution (T&D) losses, these still remain substantially higher than the global benchmarks at approximately 3.3 percent.

TRANSMISSION

The current installed transmission capacity is only 13 percent of the total installed generation capacity. With focus on increasing generation capacity over the next 8 -10 years, the corresponding investment in transmission sector is also expected augment. The Indian Government is plans to establish an integrated National Power Grid in the country by 2012 with close to 200,000 MW generation capacities and 37,700 MW of inter –regional power transfer capacity Considering that the current inter – regional power transfer capacity of 20,750 MW, this is indeed an ambitious objective for the country.

PRIVATE PLAYERS

Over the years the government has realized the importance of the private sector participation. The Electricity Act, 2003 was turning point in the reforms process which removed the need for license for generation projects, encouraged competition through international competitive bidding, identified transmission as a separate activity and invited a wider public and private sector participation among other things. These developments have given rise to new opportunities for the private sector especially in the power generation space. As a result, there have been a plethora of new projects announced by the privates announced by the private sector companies many of whom are negligible or have no prior experience in this sector.

Table 1

List of Compliant Stock in Power Sectors during the year 2009-10

Companies	Market Capitalization	Price Earning Ratio
NTPC	161404.88	18.76
Reliance Power	41627.39	145.12
Tata Power Co.	30612.99	34.7

JSW Energy	15974.09	14.64
Torrent Power	12673.47	10.48
GVK Power Infra	6569.47	65.86
PTC India	3684.7	32.34

Source: - Capitaline

Table 1 shows the performance of private player in power sector with upward trends the highest market capitalization is observe at NTPC at 161404.88 with 18.76 ratio and lowest is at PTC India at 3684.7 with 32.34 ratio. But the highest Ratio is observed at Tata Power at 145.12 with 30612.99. Other Companies Reliance Power 41627.39, JSW Energy 15974.09, Torrent Power 12673.47 and GVK Power Infra 6569.47.

CONCLUSION

India has historically failed to meet its power sector targets by a significant margin and with tremendous opportunities ahead; the power sector continues to be affected by the shortfall both on generation as well as transmission side. Opportunities in Generation are: Ultra Mega Power Plants (UMPP) – 9 projects of 4000 MW each, Coal-based plants at pithead or coastal locations (imported coal), Natural Gas/CNG-based turbines at load centers or near gas terminals, Hydro power potential of 150,000 MW is untapped as assessed by the Government of India, Renovation, modernization, up-rating and life extension of old thermal and hydro power plants, Opportunities in Transmission network ventures - additional 60,000 circuit km of Transmission network expected by 2012, Private sector participation possible through JV and 100 percent equity mode, Total investment opportunity of about US$150 billion over a 5-year horizon.

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