



*Dewan P.N. Chopra Consultants Private Limited*

# **The Indian Power Sector**

## **An Overview**



Prepared By:  
Dewan P.N. Chopra Consultants Private Limited.  
H-57 Connaught Circus New Delhi-110001  
Ph: 24645891, 92,93  
E-mail: [dpnc@dpncindia.com](mailto:dpnc@dpncindia.com)



## Power and Alternative Sources of Energy

### General Overview

- India's annual energy consumption as per 2004–05 estimates stands at **572 million tonnes** oil equivalent (“MTOE”). The contribution of various energy sources towards meeting the same are as under (*KPMG Report, November 2007*)

Energy Sources	Contribution (%)
Coal	51%
Oil	36%
Gas	9%
Nuclear	2%
Hydro	2%

- At the above levels, there is a **supply deficit of over 70 GW** in the market. (*KPMG Report, November 2007*)
- Further, the existence of significant transmission inefficiencies means that there is an immediate **peak energy saving potential of 9.240 GW**. (*KPMG Report, November 2007*)
- As a result, the country is a Net Importer of almost all forms of energy.
- Based on our target economic growth rate of 8% - 9% per annum and an **estimated energy elasticity ratio of 0.8**, the total energy requirement for 2031–32 is estimated at **1,900 MTOE**, representing a four-fold increase in consumption requirements over the next 25 years. (*India Brand Equity Foundation*)
- In order to first bridge the aforementioned supply deficit and then meet the increasing energy consumption requirements, **investments aggregating US\$ 143 billion** (including US\$ 4.5 billion in power transmission projects) need to be mobilized towards the energy sector over the next 5 years. (*IDFC*)
- With a view to **stimulating private sector investments** - both domestic and foreign – in this sector, the government has implemented the **following initiatives:**



▪ ***Liberalization of FDI Regulations:***

- i. **100% FDI under the automatic route** is now permitted in all segments of power sector including trading;
- ii. Equal participation opportunities have been extended to both domestic and foreign investors.

*Source: DIPP*

▪ ***Fiscal Incentives***

- i. **Customs duty** on import of capital goods for Mega Power Projects has been **reduced** to nil.
- ii. **Ten year tax holiday** under section 80IA of the Income Tax Act is available to enterprises engaged in development, operation and maintenance of power generation projects, subject to compliance with conditions prescribed therein.

- Subsequent to ratifying the **Kyoto protocol**, an institutional mechanism to govern the setting up and operation of a **“carbon emissions exchange”** is in the process of being established. Such a move is likely to result in substantial investments in clean sources of energy as the carbon credits that would be earned through the same would serve as a significant revenue stream for the investor.

➤ The success of the above incentives can be gauged from the following facts:

- The Power Sector has received **US\$ 2.73 billion in FDI** between April 2000 and July 2008 (*DIPP*)
- Of the total corporate investments announced between January - June 2008, the power sector attracted the maximum amount, with announced investment aggregating **US\$ 40.84 billion** (*ASSOCHAM Study*)
- **40 GW** of generation capacity, at a cost of **US\$ 44 billion** is presently under execution (*India Brand Equity Foundation*)
- The private sector has already achieved financial closure of **4,400 MW of capacity generation**. (*KPMG Report, November 2007*)



## Sector Specific Opportunities

### *Coal*

- At 51%, Coal is the **single-largest source of energy** at the disposal of the power sector. (*KPMG Report, November 2007*)
- By 2011– 12, demand for coal is expected to increase to 730 MMT p.a., creating a **supply shortage of over 50 MMT**.
- India has the fourth largest proven coal reserves in the world, pegged at 96 billion tones, creating an **investment opportunity of US\$ 10 – 15 billion** over the next 5 years. (*Investment Commission of India*)

### *Oil*

- The demand for Oil – which is currently the second most important source of energy - is expected to grow from 119 MTOE in 2004 to **250 MTOE in 2025** at an annual growth rate of 3.6%. (*India Brand Equity Foundation*)
- However, domestic production for the corresponding period is expected to increase at approximately 2.6% only. (*India Brand Equity Foundation*)
- As a result, our **reliance on oil imports is likely to increase from its present level of 72% to 90% by 2025**. (*Investment Commission of India*)
- To combat this issue, the government has opened up the domestic oil sector for private participation under the **New Exploration Licensing Policy (NELP)**.
- Under the competitive bidding process prescribed under the NELP, investment commitments of **US\$ 8 billion towards oil exploration projects** have already been received. Bidding for more such projects is currently in progress and is expected to result in further investment inflows into this sector.



### ***Natural Gas***

- India has vast reserves of natural gas. More than **700 billion cubic meters** of natural gas have been discovered in the last decade alone.  
*(KPMG Report, November 2007)*
- Demand for Natural Gas is expected to grow at a **CAGR of 12%** over the next 5 years to reach 279 MMSCMD by 2012.
- The importance of natural gas as an energy source has witnessed a significant increase over the past decade on account of the following two reasons:
  - Rising popularity of compressed natural gas (CNG) as an alternative source of automotive fuel;
  - Increased penetration through availability of “piped gas” at residences; and
  - Imminent depletion of traditional energy sources such as coal and oil.

### ***Hydro Power***

- With its intricate network of rivers, substantial opportunities for generation of hydro-power exist in India.
- **Only 22% of the 150 GW hydroelectric potential in the country has been harnessed so far.** *(Economic Times 2008)*
- **Private participation** will play a key role in meeting the target requirement of an additional 45 GW over the next 10 years.

### ***Wind Energy***

- India is the **4th largest country in the world** in terms of installed wind energy. *(KPMG Report, November 2007)*
- India’s **potential of wind power is pegged at 45,000 MW** while its current capacity stands at only 7,660MW. *(Economic Times 2008)*
- Tax incentives, including availability of **accelerated depreciation @ 80%** under WDV method on cost incurred on setting up of wind turbine generators have resulted in significant private investment in this area.



### *Solar Energy*

- Despite the prevalence of an inherent advantage in the form of solar insolation, the potential for solar energy is virtually untapped in India.
- **India's installed solar – based capacity stands at a mere 100MW compared to its present potential of 50,000MW.**
- **Based on the substantial investment opportunities that exist in this sector, it is estimated that by 2031 – 32, solar power would be the single largest source of energy, contributing 1,200 MTOE i.e. more than 30% of our total expected requirements.** (*India Brand Equity Foundation*)

### *Nuclear Energy*

- By 2032, the government plans to raise the **contribution of nuclear energy from the current level of less than 3% to around 10%** of the country's installed capacity (*Angel Broking report*)
- The signing of the Indo – US nuclear deal has created significant opportunities for several players across the entire power supply chain, with an estimated **investment opportunity of US\$ 10 billion** over the next five years. (*JP Morgan estimate*)
- Further, India has among the world's largest reserves of alternative nuclear fuel – thorium. Accordingly, substantial investment opportunities are also likely to arise once commercial production based on thorium becomes feasible.



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