

## India Power and Distribution Transformers – Opportunities for US Companies

India has the fifth largest generation capacity in the world with an installed capacity of 152 GW as on 30 September 2009, which is about 4 percent of global power generation. The average per capita consumption of electricity in India is estimated to be 704 kWh during 2008–09. However, this is 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 kWh.

In order to provide availability of over 1000 units of per capita electricity by 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 sub-sectors of Generation Transmission and Distribution.

### **Transmission**

The current installed transmission capacity is only 13 percent of the total installed generation capacity<sup>3</sup>. With focus on increasing generation capacity over the next 8–10 years, the corresponding investments in the transmission sector is also expected to augment. The Ministry of Power 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.

Inter Regional Transmission Capacity

Voltage	2002	2005	2007
765 KV	0	0	1100
400 KV	1000	2400	7800
Others	4050	7050	8650
<b>Total</b>	<b>5050</b>	<b>9450</b>	<b>17550</b>

### **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 33 percent. In order to address some of the issues in this segment, reforms have been undertaken through unbundling the State Electricity Boards into separate Generation, Transmission and Distribution units and privatization of power

distribution has been initiated either through the outright privatization or the franchisee route; results of these initiatives have been somewhat mixed.

#### Transmission Capacity(MVA)

Fiscal year ended	Step-up transformers	Step-down transformers	Distribution transformers
1995	97153	256664	139976
1996	83952	291628	135852
1997	89462	283348	141974
1998	106564	319583	154172
1999	97937	344184	141974
2000	96157	379874	179931
2001	97901	382435	169119
2002	-	-	-
2003	117863	411288	196686
2004	130434	422138	206668

#### Capacity Addition During FY-10

Sector	MW	%age
State Sector	3,118	33
Central Sector	2,180	23
Private Sector	4,287	45
Total	9,585	

*Source: Ministry of Power*

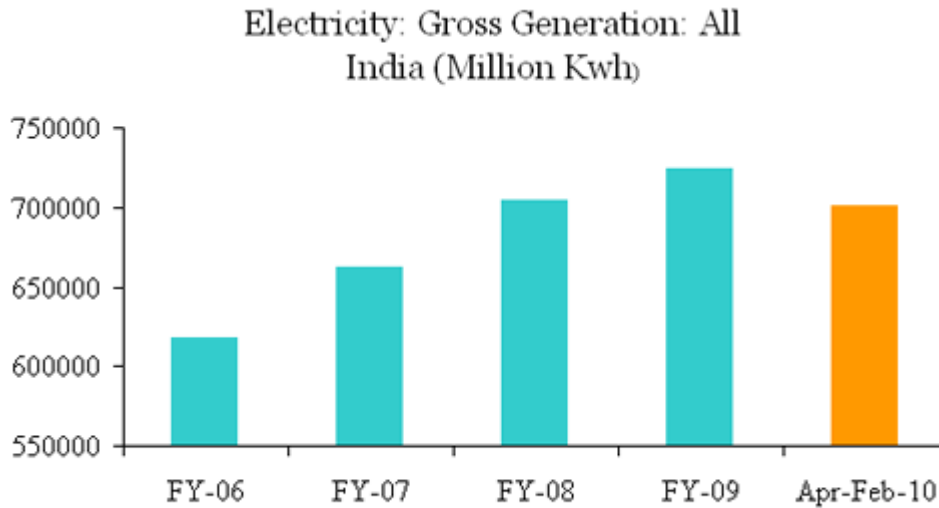
#### Government Plans

*Source: Ministry of Power*

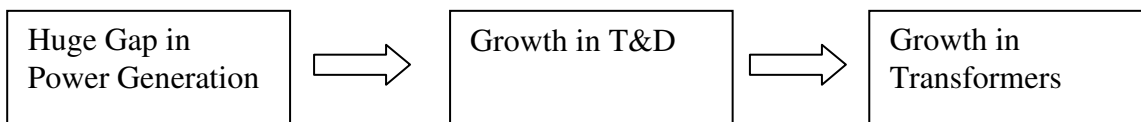
Type	XI Plan Period (2007-2012)				XII Plan Period (2013-2018)			
	Central	State	Private	Total	Central	State	Private	Total
Hydro	8,654	3,482	3,491	15,627	7,244	6,899	5,987	20,130
<b>Thermal</b>	<b>24,840</b>	<b>23,301</b>	<b>11,552</b>	<b>59,693</b>	<b>22,370</b>	<b>14,057</b>	<b>81,873</b>	<b>118,300</b>
Nuclear*	3,380	-	-	3,380	Included in Thermal Generation.			
Total Utility	<b>36,874</b>	<b>26,783</b>	<b>15,043</b>	<b>78,700</b>	<b>29,614</b>	<b>20,956</b>	<b>87,860</b>	<b>138,430</b>
% of Private Sector	<b>19%</b>				<b>63%</b>			
% of Thermal	<b>76%</b>				<b>85%*</b>			

**Growth**

Power generation in March 2010 grew by 8.3% (Y-o-Y) to 62,070 MW. In March 2010, thermal power and hydel power generation increased by a 7.3% and 16.6% respectively. FY10 recorded 6.6% growth in power generation to 771.55 billion kWh.



**Growth Drivers For Transformer Industry**



**Transformer Industry dynamics and opportunities**

The Indian Transformer industry which is a mature industry and more than five decades old, manufactures all types of transformers and can very well meet the country’s demand for transformers up to 800 KV now going up to 1200KV. The industry enjoys a good reputation in terms of quality, price and delivery in the domestic as well as overseas markets even in advanced countries.

The Indian transformer industry can generally be divided into distribution transformers, power transformers, generating transformer and other types of special transformers for welding, traction, furnace etc

### **Power Transformers**

They are oil filled transformers with its range spanning from 33KV – 765KV and above 10MVA capacity. Power transformers would account for about 60–62% of the total transformer industry in MVA terms. The total production of power transformers increased from 95,000 MVA in 2008 to 120,000 in 2009. This also includes exports to the tune of 18000MVA. The currently OBP has crossed more than 200,000 MVA spreading to end 2010.

### **Distribution Transformers**

A distribution transformer could either be oil filled or dry type by nature, with voltage ranging from 1.1– 33KV. Distribution transformers would account for the remaining 38–40% of the total transformer industry in MVA terms.

With the government striving to bridge the widening gap between the demand for and supply of power in the country, the demand for transmission and distribution equipment is expected to be high in the coming years. Further, the strengthening of the transmission and distribution grid under the APDRP scheme and the increased allocation under the RGGVY will also boost demand. In 2010–11, production of transformers is expected to rise by 26.7 per cent as per CMIE expectations. According to data compiled by CMIE, over 1.7 lakh mw of power generating capacities are scheduled to be added in the country by March 2013. An expansion of the transmission and distribution grid will be essential to distribute this power to the entire country. Over 9,400 ckt kms of transmission and distribution lines are scheduled to be added by March 2013. In January 2010, total transformer production was 26.5 per cent higher compared to January 2009. Production during the period April 2009–January 2010 stood at 1.3 lakh mva, up from 1.2 lakh mva in the corresponding year ago period. Further, the replacement demand from transformers installed during the sixth and seventh five year plans will also aid demand. Going forward industry prospects look promising.

## FACT SHEET

### ABOUT US

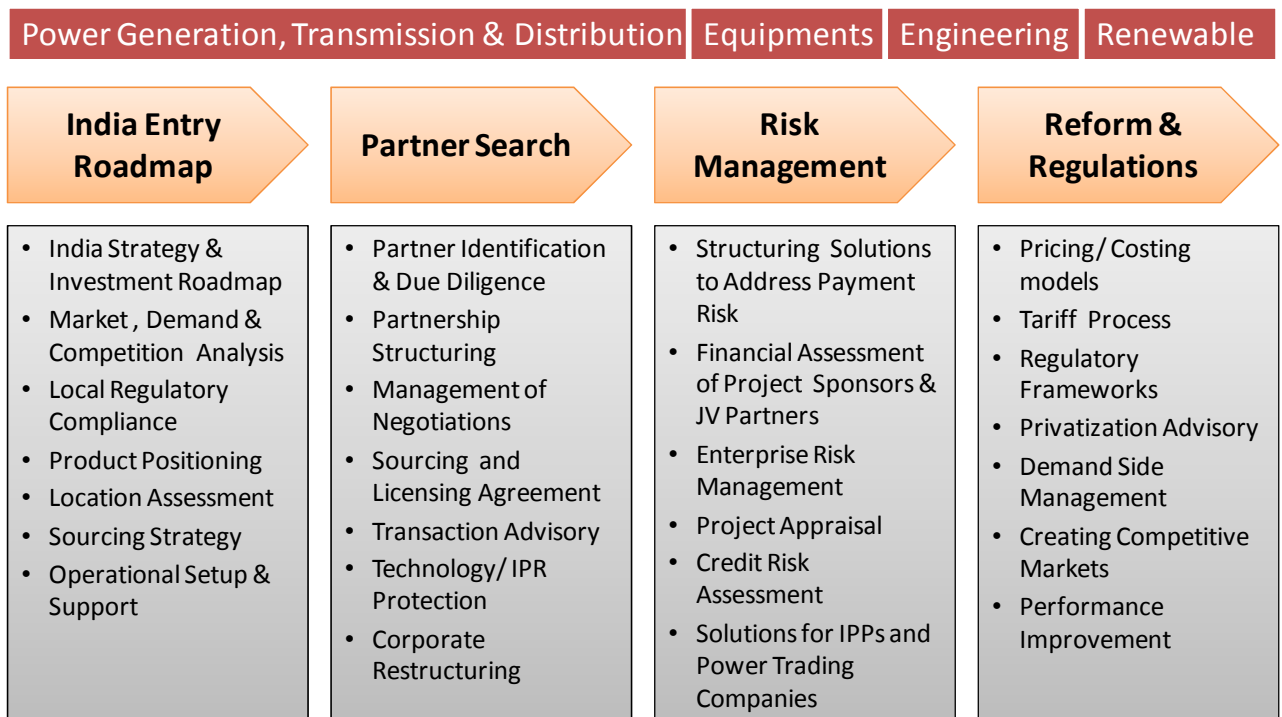
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Our mission is to enable our clients to transform their business by adding India as a key part of their global footprint. Our clients benefit from our local presence, strong relationships, knowledge of local business practice, experience, and financial expertise.

### OUR PROFESSIONALS

Our team possesses a deep understanding of the business environment, both in the US and India and is well connected with companies, financial institutions, governmental agencies, and private equity firms in both markets. We have an established track record of over 15 years and 1,000 engagements providing advisory services to a diversified client base across energy, manufacturing, infrastructure, and retail. We also work with multilateral and bilateral government agencies, banks and financial institutions, and regulators. We are headquartered in New York with eight offices in India.

### OUR SERVICES



## REPRESENTATIVE EXPERIENCE

Below is a partial list of our power related engagements in India for North American and European companies:

- ✚ India Entry Strategy for a global power developer, including location assessment, investment roadmap, and partner search
- ✚ Risk Assessment of a copper cathode manufacturing project for a financial investor that included market, technical, business, and financial risks
- ✚ India Market Study and Commercial Viability Assessment for setting up a 150 MW power plant in India for a global power generation company
- ✚ Preparation of India Entry Strategy for a leading global EPC contractor, including power sector policy and regulatory framework, market size, and investment/ implementation roadmap
- ✚ Assessment and Due Diligence of joint venture partner for a global power project investor
- ✚ Assistance in developing a cost-to-serve model for a leading power distribution company, including collection of field data, consumer based load curve, and voltage-level losses
- ✚ Entry Strategy into the gas transportation business, including analysis of bulk supply to industrial consumers, availability, and price elasticity of gas
- ✚ Contracting strategy for a proposed coal based power plant, including demand-supply situation, simulation of merit order situation, assessment of financial health of utilities and market analysis
- ✚ Power sector financing and strategy study for the Asian Development Bank (ADB)

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PHILIPS



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