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Review of Risks in Power Sector Development in India

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Abstract—*India is a developing Country and has seen a steep increase in the power requirements in the last few decades. The rate of increase of the population is much higher as compared to the rate at which this industry is growing. For the production of power through any source there is an essential requirement of a built infrastructure which has the capabilities to sustain the needs of the present and future population. This sustainable development requires an investment of large funds for which the public sector alone is not sufficient.*

1. INTRODUCTION

A huge capacity of additional power generation has been planned by the Government of India in order to achieve its Aim of Power to all. However even considering the proposed capacity additions by the Government of India, the private sector would have a share of only 17.7 per cent, which is very low as compared to the actual power requirements for sustaining the needs of the rapidly increasing population of our Country. This huge capacity addition may not be feasible viewing from the pace of development of ongoing and proposed new projects

This paper deals with identifying the key risks which the private players in the Infrastructure Industry face while investing in such power projects in terms of infrastructure development, and also identify the bottlenecks in the application of a PPP model in this field of infrastructure development in our Country and the Author has also tried to identify the reasons for the nonexistence of a PPP model in this area of infrastructure development.

Even after having installed power generation capacity of 225 GW and power demand of 135 GW (as of May 2013), India faced a peak power deficit of 9% (12 GW) .

These power shortages had an adverse effect on the country's economy. In 2012-13, power shortages in India accounted for a 6 GDP loss of USD 68 billion (0.4% of GDP) , impacting multiple industries like agriculture, manufacturing, services etc. Improvement of this sector is essential for the economic well-being of the country and enhancement of the quality of life of citizens. As per the 12th Five Year Plan, the future expansion in power generation capacity in India is planned around 88GW. In order to meet this capacity, investment in the transmission sector needs to be increased. For this purpose, an investment of USD 35 in the power transmission sector. Of this, about USD 19 billion is planned to come from Power Grid Corporation of India Limited. The remaining USD 16 billion 46% of the total investments, needs to be secured from private players. This percentage requirement is very large but the participation from the private sector is very limited due to the various constraints identified by the Author through this paper.

2. METHODOLOGY

Through this paper the Authors have tried to review the literature available on various risks associated with the power sector and find out the various hindrances faced by the Private players while investing this sector.

Through this the Authors have also tried to bring to light the various driving factors which hamper private sector participation in the development of power sector in India which is actually the need of the hour for a developing country like India.

3. LITERATURE REVIEW

Given the financial constraints in the Public Sector, the private participation in the power sector development has been considered essential for meeting this capacity addition and to meet the growing demand for power in the Country.

The most crucial area of concern is that there is no PPP model for power project in the central sector nor in the states also there are no PPP projects existing for the development of Power projects. The extent of private parties is also limited as the power projects have either been developed by the public sector or by the private sector as Independent Power Producers (IPP), Captive Power Plants (CPP) and Merchant Power Plants (MPP)[1]

Even though the Government through its power sector reform has tried to encourage the participation of the private sector in development of power projects, the response to this has not much encouraging.

Project Risk	Description	Solutions
Shortage in coal supply	Power requirement over the past few years has largely been dominated by coal generation, However, the stringent rules and norms brought about recently by the MoEF over award of coal blocks have left many developers devoid of coal linkages. Even state Governments are repeatedly under tremendous pressure due to lack of adequate and timely supply of coal Securing fuel from imported coal markets is also becoming increasingly costly and uncertain which is leading to increased project costs.2	1. Allotment of higher tonnes of coal reserves through effective competitive bidding and improve short term availability through open market • Complete de-regulation of the power sector to allow private participation and move to market based pricing and also promote PPP • Single Window Clearances for PPP projects. • Develop a complete logistics plan for transportation of fuel • Enhance gas production and imports from neighboring gas rich countries Techno
Land Acquisition & clearances	Land is a basic necessity or pre-requisite for development of power generation projects.3 A number of projects are either cancelled or delayed due to non-availability of land or difficulties in land acquisition. Another major hurdle is securing the required clearances. There are a number of clearances required from the MoEF, MOA and other government bodies.	Land to be made available for power project development • Fair setting of land prices for power ventures and release of land where the project development is not taking place. • Time-bound award of clearances (setting up efficient process with high degree of transparency)
Issues pertaining to competitive bidding	Competitive bidding in power generation and transmission is viewed as a major fundamental change – a move towards a competitive market, which would attract private sector participation and also help in discovering competitive prices in a largely regulated market. The typical duration for which companies quote their tariffs in competitive bidding scenario, is 25 years and 35 years for generation and transmission, respectively.5 The duration is fixed considering the life of assets and the period within which companies would be able to recover their costs at reasonable tariffs. The results in competitive bids in the recent past in India indicate that the tariffs discovered have been in most cases significantly lower than regulated tariffs. There are risks associated with projects that, if the bidder does not cover/hedge, would expose the bidder to a potential downside over a 25/35 year period.6	Revision of bidding framework/evaluative criteria to ensure less default in case of projects awarded through competitive bidding.4 • Put in place a mechanism to check Irrational exuberance in bidding • Mechanism to prevent the defaulting bidders from participating in subsequent bids.
Worsening financial health of the distribution sector	The low collections and cash deficit scenario of the distribution sector severely impacts the financial viability of generation and transmission sectors. Although power procurement through competitive bidding has been undertaken by a number of states with adequate payment security mechanisms in place (like LC and Escrow arrangements), this is not a viable solution in the long run.7	Making the business viable so that downstream generation and transmission businesses are able to recover their revenues. • Reduction in credit days to manageable limits especially in largest states like Uttar Pradesh, Madhya Pradesh, Jharkhand and Karnataka among others. • Liquidation of outstanding payables (above 1 year) through financial restructuring (FRP) measures.

Project execution challenge	The major players in India Power Sector have shown strong operational capabilities but have fared poorly in project management and execution. Investment of time, effort and money in developing project planning and project execution capabilities, streamlining of business processes and adoption of advanced technologies in the sector would enable the investors overcome such strategic hurdles to a large extent.8	On time and within cost execution of projects.10 • Streamlined business processes, effective controls and transparency. • Efficient inflow of right technologies and skills.9 • Combination of in house and outsource activities. • Use of right project management tools followed by timely monitoring and corrective actions.11

4. FINDINGS

Many projects have encountered unforeseen delays in the power sector there have been delays with respect to delays in finalization of power purchase agreement (PPA) guarantees and counter-guarantees, environmental clearances, legally enforceable contracts for fuel supplies, continuous losses by State Electricity Boards (SEBs) arising both from inadequate tariff and from Aggregated Technical and Commercial losses, policy issues such as inability of SEBs and State Governments to provide acceptable payment security to the private power suppliers, delay in finalization of fuel supply agreement & fuel transportation agreement problems in sourcing coal supply to thermal power stations need a relook to encourage private participation.

This discouraged the private investors in power generation as they faced insecurity of payment and hence expansion of private investment in this sector was constrained.

The top 10 risks identified for power and utilities companies

- Significant changes in the cost of capital Power and utilities were more likely than those in any other sector and reported continuing difficulty in arranging for capital. This is likely attributable to the sheer scale of the investment needs in the sector.
- Compliance and regulatory risks .Traditional regulatory interactions are being supplemented by often-contradictory pressures regarding environmental impact, efficiency etc.
- Political intervention in power and utilities markets and the impact of politics is increasingly being felt in areas of planning permissions, tariff setting, renewable energy targets, access to fuel supplies and smart grids etc.
- Uncertainty in climate policy and carbon pricing the objective of lowering carbon emissions from power generation continues to drive the transformation in the industry, but the failure of governments to meet key emissions objectives means that policy is at a crossroads. Market-based approaches to carbon pricing are losing out to direct regulation of emissions.
- Commodity price volatility Commodity price volatility has been extraordinary in recent years and may be here to stay. Volatile prices not only impose short-term losses, they can produce stranded investments.
- Managing planning and public acceptance risk This risk encapsulates citing issues around major infrastructure developments and corporate social responsibility (CSR). Fortunately, the sector is accustomed to the challenges, and power and utilities executives were less likely than those in any other sector to feel that public pressures had risen dramatically in recent years.
- War for talent-The war for talent is intensifying, partly because of demographic pressures, and partly because of competition from other sectors. The power and utilities sector must compete with other industries for talent and executives report weaknesses in their staff development programs.
- Backlash against renewable subsidies The expense of renewable energy means it relies heavily on subsidies and, in the event of a public backlash, these subsidies may be removed. Austerity measures in many countries heighten risks
- Inefficient use of low-carbon technologies Transformation of the industry through the implementation of green technologies — including nuclear energy, renewable energy and carbon capture and storage (CCS) — carries considerable risk. Executives report concerns regarding regulation, innovation and employee skills.
- Economic shocks and resulting short-term energy demand shocks The threat of a double-dip recession is significant and could have a knock-on effect on energy demand, particularly in heavily industrialized countries.

5. WAY FORWARD

Further Requirements for encouraging PPP practices can be by taking key initiatives across the energy value chain as discussed below:

- More clarity in policy framework is required in matters related to pricing of energy, the target market structure, cross-border investments, and imports and exports of energy products.
- Stronger independent regulatory mechanism is required to enable the development of a competitive market structure and to facilitate a level playing field for all.
- Well-functioning and integrated energy markets are important to attract investments and bring efficiency in the sector.

- To develop markets, multiple players should be allowed in the energy sector in the first instance followed by the development of the organized marketplace in the form of exchanges for energy products.
- A well-functioning market enables transparency and competition, sets the right price signals, and enables liquidity for different players.
- Physical markets would enable energy derivative products that meet the important objective of risk management for the different players.

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