IDENTIFYING THE ROLE OF POLICIES AND REGULATORY FRAMEWORK FOR PRIVATE INVESTMENT IN THE THERMAL POWER SECTOR

1.0 Introduction:

Power Sector in India derives its finance from the government, private players, World Bank, public issues and other global funds. Power Ministry of India has set up Power Finance Corporation Ltd. for financing of the power sector. Power Finance Corporation Ltd. is a nodal agency for development of Ultra Mega Power Projects (UMPPs) and to operate Distribution Reforms scheme under Restructured Accelerated Power Development Reform Programme (RAPDRP).

1.1 Thermal Power in India:

It is mainly generated through coal and forms the major share of the source of power generation in India. The current installed capacity of electricity generation in the country is 1,64,385.80 MW as on 30-09-2010 against only 1362 MW in 1947. Out of total installed capacity of 1,06,517.98 MW, 64% is Thermal Power consisting of Coal (53.4%), Gas (10.5%) and Diesel (0.7%). The peak and average shortage is 12.7% and 10.51% as of March 2010. The per capita consumption of electricity is 733.54 units (2008-09) compared to global average of 2600 units. This is due to inadequacies in generation, transmission & distribution as well as inefficient use of electricity. Very high level of technical and commercial losses and lack of commercial approach in management of utilities has led to unsustainable financial operations. Cross-subsidies have risen to unsustainable levels. Inadequacies in distribution networks have been one of the major reasons for poor quality of supply.

The power sector in India is dominated by the government. The State and Central Government sectors account for 52.5% and 34% respectively of the generation capacity respectively while the private sector accounts for about 13.5%. The bulk of the transmission and distribution functions are with State utilities.
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Power Sector which had been funded mainly through budgetary support and external borrowing was opened to private sector in 1991. Electricity is considered key driver for targeted 8 to 10% economic growth of India. The vast Indian power market offers one of the highest growth opportunities for private developers.

Electricity Act, 2003 provides an enabling framework for accelerated and more efficient development of the power sector. This act has been enacted with the objective of opening up the generation and distribution sector for private investment and bringing competition in this sector through multiple players.

The research work focuses on finding the role of Policy and Regulatory framework so as to suggest enabling interventions for smooth private investment in the Indian Thermal Power Sector.

2.0 Literature Review: Review of existing literature on the research topic has been done as follows:

2.1 (Schmalensee, 1986)

The basic principle that currently guides state rate regulation is that prices should reflect the cost of service. For the utility as a whole, prices are in theory set so that total revenues equal total costs or, alternatively, that the average revenue per unit of electricity sold equals the average cost of supplying it. For specific services, such as residential, commercial, and industrial service in different seasons and at different times of day, prices in theory reflect the costs of providing the individual services based on a variety of different cost allocation schemes. Commissions theoretically set rates so that both operating costs and capital costs are covered. Fuel, labor, materials, and the costs of power purchased in wholesale from third parties can be obtained directly from the utility's accounting system if rates are set on the basis of actual costs in the past test year, or they can be estimated fairly easily if a future test year is employed. Capital cost is equal to depreciation plus a fair return on the utility's capital investment stock or rate base.
2.2 (GOI, 1991)

The reform process in India was initiated with the aim of accelerating the pace of economic growth and eradication of poverty. The process of economic liberalization in India can be traced back to the late 1970s. However, the reform process began in earnest only in July 1991. It was only in 1991 that the Government signaled a systemic shift to a more open economy with greater reliance upon market forces, a larger role for the private sector including foreign investment, and a restructuring of the role of Government. The reforms of the last decade and a half have gone a long way in freeing the domestic economy from the control regime. An important feature of India's reform programme is that it has emphasized gradualism and evolutionary transition rather than rapid restructuring or "shock therapy". This approach was adopted since the reforms were introduced in June 1991 in the wake to balance of payments crisis that was certainly severe. However, it was not a prolonged crisis with a long period of non-performance.

The list of industries reserved for the public sector has been drastically pruned and many critical areas have been opened up to private sector participation. Electric power generation has been opened up for private investment, including foreign investment, several State Governments are also actively negotiating with various foreign investors for establishing private sector power plants.

2.3 (Ahulwalia, 1994)

A commonly heard complaint from domestic as well as foreign investors is that labour markets are unduly rigid. Indian labour laws provide a high degree of protection to labour with retrenchment of labour and closure of an unviable unit requiring prior permission of the State Government for units employing more than 100 workers. Such permission is not always granted and this leads to the complaint that Indian firms lack the flexibility they need to adapt to changed economic circumstances. Spokesmen of domestic industry and also foreign investors make the point that firms must have the ability to retrench labour and to close down unviable units if necessary or else they will not be able to compete effectively with the rest of the world in a more open economy. This flexibility is also relevant if old firms with a hangover of excess labour have to compete with new firms without this burden.
2.4  (Shantanu Dixit, 2001)
Since 1991, the power sector in India has been undergoing a series of changes which typically consist of three components: (1) unbundling and privatisation of state-owned integrated utilities, (2) creation of independent regulatory commissions with wide ranging powers and (3) move towards bulk competition. A heated debate is going on about the pros and cons of reforms as well as the extent of feasible or desirable privatisation and competition. Our analysis suggests that the root cause of the power sector crisis is the lack of public control over the three critical governing processes in the sector, viz., policy and decision making, execution of the decisions made and regulation of this execution. This lack of public control arises from inadequacy and breakdown of mechanisms for ensuring transparency, accountability and public participation.

2.5  (KALE, 2004)
The Electricity (Supply) Act 1948 placed primary responsibility for electricity system development with new state level agencies implemented under the Act – the state electricity boards (SEBs). The phrase ‘semi-autonomous’ in the extract from the Act preamble is telling. Kale notes that the level of autonomy from state control of the new SEBs was contested within the states, with some states (e.g. Mysore and Madras – now Karnataka and Tamil Nadu) resisting the call for independent SEBs. These states already owned and managed their states’ electricity systems and benefited from the control over resources.

2.6  (Bhattacharyya T. E., 2005)
The Electricity Act 2003, which has come into force in India since mid-June 2003, consolidates and replaces a number of older legislations on electricity that prevailed in the country. The new act has introduced significant changes to the industry structure and provides for a more flexible regulatory regime and stricter penal provisions for dishonest use of electricity. The act puts in place sometime bound targets for licensees and for the restructuring of the electricity industry. This paper reviews the changes brought about by the new act and analyses whether the new act would be sufficient to transform the Indian power sector.

Open access in transmission has been introduced to promote competition amongst the generating companies who can now sell to different distribution licensees across the country. This should lead to availability of cheaper power. The Act mandates non-discriminatory open access in transmission from the very beginning.
2.7 (Eapen, 2005)
The experience of Electricity Regulatory Commission (ERCs) in India is not very appealing. Regulatory independence is essential to safeguard the efficiency and the interest of all the players in the field which in turn depends on the financial independence. The regulators must have powers to enforce its decisions. Information that it has used in decision making must be available to anybody who is interested thereby enhancing accountability and transparency into the system. Otherwise cure will become worse than the disease itself.

2.8 (Shahi, 2005)
There is a growing recognition that the right end of privatisation in the electricity sector is the distribution side of the industry. It is now well established that arrangements such as Letter of Credit, State Government guarantee, counter guarantee by the union govt. and even escrow account involving the Electricity Utility, IPP and the bank are in fact short lived solutions covering at the most a very small proportion of the total power required to be added. It is also fully recognized that unless the distribution and sale of electricity is properly managed so as to ensure the distribution realization of sufficient amount of revenue, any other framework, will not and cannot provide comforts for servicing the huge capital investments.

2.9 (Nagamaya, 2007)
Nagamaya (2007) analyses the effects of reforms on industrial and household electricity prices using panel data for 83 developing countries in three world region excluding Asian developing countries for the period 1985-2002. He investigated the impact of reforms on a set of performance measures, where each measure is a function of (i) country specific effects (ii) a set of controls and (iii) a set of regulatory reform indicators. Nagamaya hypothesizes that privatization and competition will only work with independent regulation.

2.10 (Anoop, 2007)
The economic crisis facing the country in the early 1990s opened up opportunities for private, including foreign investment, in the Indian power sector. The Private Power Policy 1991 opened up the path to private and foreign investment in the generation and distribution of electricity. Private investors were offered a 16% return on equity, which was further incentivized in the case of higher efficiency levels in terms of Plant Load Factor (PLF). The policy framework for private investment was further strengthened through the introduction of the Mega Power Policy in 1995.
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for thermal projects over 1000 MW and hydro projects over 500 MW. This was revised in 1998 and a number of fiscal incentives were added for large power projects.

2.11 (Bhattacharyya S. C., 2007)

Subhes C. Bhattacharyya (2007) has also identified four factors, namely instability of rule-makers, poor overall acceptance, slow adaptation and poor transition management as the causes of ills of power sector in the South Asia. The political instability has affected the power sector reform of the region, making hard decisions difficult to take. Slow progress of reform has also affected the sector viability, as signs of adverse effects on the power sector investment and performance are already visible.

2.12 (Gratwick, 2008)

The electricity reform process in India is therefore characterized as a hybrid reform process rather than the ‘standard’ prescription of unbundling, privatisation and competition. The reform process began from a position of state level monopoly with state electricity boards in each state, directly accountable to and usually controlled by the state government. There was no independent regulation and competition was explicitly disallowed. The commencement of liberalization was signaled in 1991 with the amendment of the Electricity (Supply) Act that allowed independent power producers to operate in the country.

Transparent policy environment and independent regulatory framework are required in attracting private investment in the power sector in developing countries. Although a number of developing countries, including India, have undertaken regulatory reforms, the outcome in terms of attracting private investors varies. This seems to be a necessary rather than sufficient condition. The transition path and sustainability of reforms provide long-term policy stability, thereby reducing investors’ risk perception. There is a clear trend towards more effective regulatory governance in the electricity sector in India. The timing and sequencing of the reform program seem to have cast a large influence on the investors’ interest.

Initially, these initiatives generated overwhelming initial interest from local as well as international private investors. However, the insolvency of the sole buyer, the SEBs, and delay in project development frustrated the efforts of private investors. Clearly the investors were not finding the assured 16% return on equity to be commensurate with the risk of investing in the
sector at that time. They sought the comfort of sovereign guarantees, which were limited to eight fast track projects, a misnomer.

2.13 (Haldea, 2008)

It is necessary to recognize that the definition of the reforms in India’s power sector substantially deviates from that in the rest of the world. In the developed world, the core of reform has been to introduce choice and competition. It began with bulk consumers having the right to buy electricity from competing producers and suppliers. In England, for instance, every single household consumer can choose the supplier from whom he wishes to purchase electricity. In India starting from the Orissa legislation of 1995, we borrowed all the structural aspects of reorganization of the electricity industry such as unbundling, creating a regulator and so on, but did not put the soul into reforms.

The open access has not still materialized effectively. In fact regulators are not making regulations that would actually work and benefit people. Such regulations remain on paper and are meaningless.

2.14 (Summit Malik, 2008)

Private participation in Infrastructure is typically constrained by the existence of non-level playing field between incumbent and private operators, pricing distortions and inconsistent policy and regulatory framework. Independent regulatory oversight for infrastructure service does enhance the confidence of private participants, it necessarily does not ensure actual private investment and competition which requires the macroeconomic set up comprising sound competition principles and enforcement; credible and stable regulatory regime; unambiguous policy and institutional framework; interface mechanism between competition authority and sector regulators; low market concentration; regulated prices; non discriminatory access to bottleneck facilities; and so on.

The literature reviewed in the previous section and the above analysis point out the importance of a transparent policy environment and independent regulatory framework in attracting private investment in the power sector in developing countries. Although a number of developing countries, including India, have undertaken regulatory reforms, the outcome in terms of attracting private investors varies. This seems to be a necessary rather than sufficient condition.
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The transition path and sustainability of reforms provide long-term policy stability, thereby reducing investors’ risk perception. There is a clear trend towards more effective regulatory governance in the electricity sector in India.

3.0 Description of the Topic:
Identifying the policy and regulatory framework for private investment in the Indian Thermal Sector is aimed at finding out the interventions required so as to create an enabling environment for attracting private investment. India is facing currently peak power shortage in the range of 11% inspite having world’s 2nd largest coal reserves and thus scope is there for setting up new thermal power plants based upon coal. But it is evident that due to policy paralysis and inefficiencies, the availability of coal for thermal power plants is not adequate resulting in constrains. There are other factors like non-availability of land, environmental and forest clearances, High Aggregate Technical & Commercial (AT & C) losses of Discoms, etc. affecting the smooth growth of thermal power generation capacity. Electricity is the driving force behind the economy of any country and thus there is need to invest in setting up new generating capacity for overcoming the shortages affecting industry, commercial, domestic as well as agricultural consumers.

4.0 Objective of the Research:
Research shall be focusing on existing policy and regulatory framework and its impact on the private investment in the Indian Thermal power sector. The studies carried over so far emphasize the need for policy and independent regulatory commissions to facilitate smooth private investment in the power sector. But it is being seen that inspite of the existence of these frameworks, there is inadequate private investment in this sector. As such the objective of the research is to find out critical factors adversely affecting private investment and thereby suggest suitable interventions through the following:

1. To analyse the Policy and Regulatory issues affecting Private Investment in the Indian Thermal Power Sector.

2. To compare the Policy and Regulatory framework affecting Private Investment in the Thermal Power Sector existing in BRICS countries.
3. To analyse the Problems and Challenges being faced by Private Investors regarding Policy and Regulations in India.

4. To recommend Policy and Regulatory interventions for attracting the Private Investment and accelerate the growth of Thermal Power Sector.

5.0 Research Methodology:

This constitutes the blueprint for the collection, measurement and analysis of data, design decisions for - what is the study about, study being made of, where the study is to be done, what type of data is required, sample design, technique of data collection, analysis and preparation of report, etc. Primary and secondary data shall be collected from various Private Companies; Government Institutions such as Central Electricity Authority, Power Finance Corporation, Planning Commission; Financing Institutions, Consultants involved in making Detailed Project Reports for setting up Thermal Power Plants, etc. The scope of research is to cover private investment in Indian Power Sector Generation based upon Coal. The study shall cover the critical role of existing policy and regulatory mechanism set up by the Govt. to facilitate the growth of this sector especially in view of liberalization of investment in this sector as per Electricity Act 2003

5.1 Hypotheses of research study:

Null Hypothesis H₀: Electricity Regulatory Commissions are investor friendly.

Alternative Hypothesis Hₐ: Electricity Regulatory Commissions are not investor friendly.

Null Hypothesis H₀: Political interference in Electricity Regulatory Commissions does not affect investors’ confidence

Alternative Hypothesis Hₐ: Political interference in Electricity Regulatory Commissions adversely affects investors’ confidence

Null Hypothesis H₀: Distribution companies are commercially viable.

Alternative Hypothesis Hₐ: Distribution companies are not commercially viable.

Null Hypothesis H₀: Developed Power Market in India shall have no impact on the Investors confidence.
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**Alternative Hypothesis** $H_A$: Developed Power Market in India shall have positive impact on the Investors' confidence.

**Null Hypothesis** $H_0$: Thermal Power Sector offer great investment opportunity for private investors.

**Alternative Hypothesis** $H_A$: Thermal Power Sector does not offer great investment opportunity for private investors.

**Null Hypothesis** $H_0$: Non availability of adequately trained manpower is not affecting the private investment in Thermal Power Sector.

**Alternative Hypothesis** $H_A$: Non availability of adequately trained manpower is affecting the private investment in Thermal Power Sector.

**Null Hypothesis** $H_0$: The existing policies and regulatory framework need no major reforms in order to attract the private investment.

**Alternative Hypothesis** $H_A$: The existing policies and regulatory framework need major reforms in order to attract the private investment.

The research methodology at a glance is as follows:

**Research Design:** Exploratory

**Sample Size:** 250

**Sampling Method:** Stratified Random Sampling

**Sources of Data Collection:** Through primary and secondary data

**Data collection Tool:** Questionnaire Survey

**Statistical Tool for Data Analysis:** Reliability & Validity test, T test - paired sample, ANOVA, Correlation & chi square analysis using SPSS-WIN ver. 16.0.

**Primary data:** The survey is proposed to be carried out through questionnaire methods, collection of primary data from selected employees using structured close end questionnaire, which is personally administered using personal interview, Telephonic interviews/interaction and mail survey techniques.
Secondary data: Survey is to be done through Internet, Annual Reports of Private & Public Sector Undertakings, Technical Journals, Regulatory Commissions, Govt. of India gazette, Management Journals. This will also include important official publication, Financial Institutional Investors and statistical abstracts/reports and Indian foreign magazines of such organization.

Sampling:
Stratified Samples (around 250) will be considered from key personnel (Total population of 1000) working in different organizations such as Power Sector Companies, Fund Managers of various Mutual Funds, Insurance Companies & other Institutional Investors, Regulators, Govt. Institutions and Consulting Organizations.

6.0 Proposed/Expected outcome of the research:
The outcome of the research shall be reforms required to be made in the existing policies and regulations governing the power sector so as to attract private investment in the coal based thermal power generation. India is enriched with the coal reserves and optimal production and use of the same in thermal power generation shall reduce import of the coal which is being done due to production constraints thus saving foreign exchange. The challenges being faced in the distribution sector because of very high Aggregate Technical and Commercial (AT & C) losses needs to be controlled through stringent policy interventions as generating companies suffer because of payment crisis. Implementation of effective regulations and competition in the power sector shall also benefit the consumers on account of low tariff and quality power.

6.1 Limitation of Study:
The study as this is bound to come up with some limitations & constraints which make the efficiency of the same. Though no stone has been left unturned & no effort spared to make the study accurate & relevant to the objectives, yet there are some limitations & general problems like:

1. Though every caution in forming questionnaire and conducting the study was taken but due to human nature, the possibility of biases in the questionnaire can’t be ruled out.
2. Few Investors may hesitate to share their view about specific investments in Power Sector and may manipulate their responses.

3. Though extensive care will be undertaken by the researcher in collecting the relevant data but some of the respondents from govt./Investment firms may hesitate to reveal some specific confidential strategic issues regarding investment.
References:


