



**MADHYA PRADESH PASCHIM KSHETRA VIDYUT VITARAN COMPANY LIMITED INDORE
AFTER OPERATIONAL AUTONOMY: A LITERATURE REVIEW**

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Abstract:

Power or electricity is one of the most critical components of infrastructure affecting economic growth and well-being of nations. The existence and development of adequate infrastructure is essential for sustained growth of the Indian economy. The Indian power sector is one of the most diversified in the world. Sources for power generation range from conventional ones such as coal, lignite, natural gas, oil, hydro and nuclear power to other viable non-conventional sources such as wind, solar, and agriculture and domestic waste. The demand for electricity in the country has been growing at a rapid rate and is expected to grow further in the years to come. This study attempts to endow with an exhaustive review of prior theoretical literature of electricity provider company, Indore, M.P. The findings of this paper define a scope of further research in this field.

Keywords: Power generation, Power/electricity, demand for electricity.

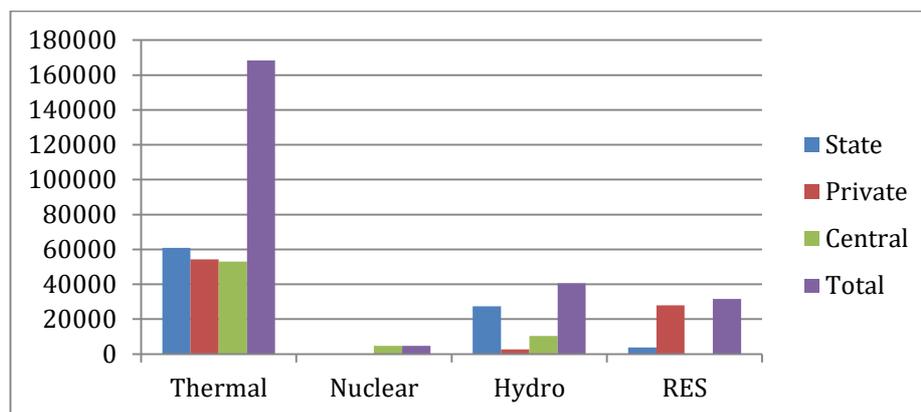
Overview of Indian Power Industry:

The Indian power sector has made remarkable progress since Independence. The total installed capacity has gone up from 1,362 MW in 1947 to more than 2, 00,000 MW in 2012 and the transmission network has increased from the isolated system concentrated around urban and industrial areas to country wide National Grid. However, the demand of electricity has always been overstepping the supply. The importance of electricity as a prime mover of growth is very well acknowledged and in order to boost the development of power system the Indian government has participated in a big way through creation of various corporations viz State Electricity Boards (SEB), National Thermal Power Corporation (NTPC), National Hydro-Electric Power Corporation (NHPC) and Power Grid Corporation Limited (PGCL) etc. However, even after this the country is facing power shortage in terms of energy as well as peak demand to the tune of 10.9% and 13.8% respectively. Here are some facts about the scenario of power sector in India:

- 17 percent of world's population.
- Population growth rate of 1.58 percent annually.

- GDP growth rate of 6 – 9 percent.
- 6th (IEA Report) largest energy producer of the world.
- Ranks 5th in energy consumption.
- Energy consumption per capita among the lowest in the world (900 kWh/year approx). (Kaur, 2010)

In order to meet the increasing requirement of electricity, massive addition to the installed generating capacity in the country is required. (Indian Brand Equity Foundation, 2015).



The Indian power sector is undergoing a significant change that is redefining the industry outlook. Sustained economic growth continues to drive power demand in India. The Government of India's focus to attain 'Power for all' has accelerated capacity addition in the country. At the same time, the competitive intensity is increasing on both market side as well as supply side (fuel, logistics, finances and manpower). The Planning Commission's 12th Plan expects total domestic energy production to reach 669.6 million tonnes of oil equivalent (MTOE) by 2016–17 and 844 MTOE by 2021–22. (Indian Brand Equity Foundation, 2015)

Power Sector Reforms - A Brief Legislative History with Specific Reference to Madhya Pradesh

Operating under the Electricity Act of 1910, private companies or local authorities supplied more than 80 percent of the total generation capacity in the country prior to independence in 1947. (World Bank, 1993). Thus the business of Generation, Transmission and Distribution of electricity was very fragmented at the time of independence of our country. The Government of Madhya Pradesh also chose to follow the same untested route of Orissa restructuring with a clear objective of increasing private sector participation in the sector and in 1996, appointed Tata Rao Committee to suggest a framework for the post reform power sector. In June 1997 the committee came out with its report recommending fundamental changes in the prevailing institutional structure and major policies and procedures.

Few of the major recommendations are given below:

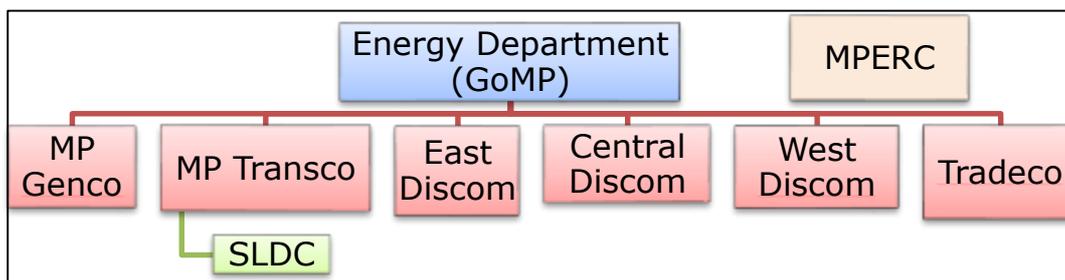
1. Functional division of MPEB
2. Private sector investments in all functional areas
3. Formation of electricity regulatory commission
4. Fundamental changes in free power policy
5. Transparency in granting subsidies
6. No separation of urban distribution system from rural.
7. Uniform tariff across Discoms

In accordance with the MP Reform Act and pre-conditions for obtaining ADB loan, vertically integrated MPSEB was unbundled into 5 independent corporations with MPSEB as the holding company in July 2002 exhibited as under:-

The Power Companies formed in Madhya Pradesh in the year 2002

Company	Jurisdiction and Purpose
1 Madhya Pradesh Poorv Kshetra Vidyut Vitaran Co Ltd, Jabalpur	For Power Distribution functions in the commissionerary areas of Jabalpur, Sagar and Rewa.
2 Madhya Pradesh Madhya Kshetra Vidyut Vitaran Co Ltd, Jabalpur	For Power Distribution functions in the commissionerary areas of Bhopal, Hoshangabad and Gwalior.
3 Madhya Pradesh Paschim Kshetra Vidyut Vitaran Co Ltd, Jabalpur	For Power Distribution functions in the commissionerary areas of Indore and Ujjain.
4 Madhya Pradesh Power Generating Co Ltd Jabalpur	For generation of electricity
5 Madhya Pradesh Power Transmission Co Ltd Jabalpur	For transmission of electricity in the state.

The Current Power Sector Structure in State Of Madhya Pradesh



Operational History and Profile of Madhya Pradesh Paschim Kshetra Vidyut Vitaran Company Limited

Madhya Pradesh Paschim Kshetra Vidyut Vitaran Company Ltd. (“MPPKVCL” or “West Discom”) was formed 31st May 2002 as a result of unbundling of the Madhya Pradesh State Electricity Board. West Discom is a Company wholly owned by the Government of Madhya Pradesh and registered under the Companies Act, 1956 to undertake activities of distribution and retail supply for and on behalf of Madhya Pradesh State Electricity Board in the areas covered by the Commissionaires of Indore and Ujjain. (Government of Madhya Pradesh, 2002).

Thus West Discom owns and manages retail supply of electricity business within its territory and is responsible for all activities associated with distribution and retail supply of electricity business, including management of assets, operation and maintenance of network and supply, technical and financial planning, business development, management of human resources and legal and regulatory affairs. The following table illustrates size of West Discom operations:-



Particulars	Indore Region	Ujjain Region	Total
Region (No.)	1	1	2
Circle (No.)	8	6	14
Division (No.)	25	26	51

(West Discom, 2015)

Objective of the Study:

- To understand the basic process of Madhya Pradesh Paschim Kshetra Vidyut Vitaran Company Limited Indore and its operational autonomy
- To identify the basic concept Madhya Pradesh Paschim Kshetra Vidyut Vitaran Company Limited Indore and its operational autonomy

Research Methodology: This research paper is based upon review of literature and secondary data collected through various websites, national/ international journals, articles, e-journals, magazines, power corporation magazines, literatures, newspapers and reference books. Here, in this paper literature review has shown previous research work done in this field.

Literature Review

Review of literature relevant with the power industry scenario and earlier research work done in the related research area. Further the concepts of performance measurement, key performance indicators and customer satisfaction were covered as well. The available literature related to the present research work is divided into the following subcategories:-

- Prior studies on power sector
- Power sector scenario in India
- Recent issues & challenges of Indian power sector
- Overview of Indian power sector performance
- Power sector reforms in Madhya Pradesh
- The concept of performance & its measurement
- Approaches of performance measurement

The electricity systems developed over the last century mainly rely on large-scale power plants and extensive networks of transmission and distribution that deliver electricity at affordable prices (at least, in most industrial countries). However, these systems have also created a host of environmental, social, and economic problems (**Dubash, 2002**).

Suzuki (2002) attempted to throw light on indigenous structure as well as foreign aid policy towards India's electricity power development. He concluded that Japan's official development assistance should be carefully monitored taking into consideration the input output relationships in the unique rent seeking process in India which is characterized by the political power among the dominant proprietary classes that prevents politically weak tax payers, who ought to criticize and oppose this inefficient structure, from organizing the political powers against the classes.

UNEP (2005) explained the dual challenge of ensuring electricity for national economic development and at the same time providing increased electricity access to the poor parts of the

population. Special focus was put on the role of energy in achieving the Millennium Development Goals (MDGs).

Government of India in its Tenth Five year Plan **(2002-07)** wrote that the power sector has been suffering from serious problems, which were identified as early as ten-year ago. However, no corrective action was taken and the result is that the power sector faces an imminent crisis in almost all states. No state electricity board (SEB) was recovering the full cost of power supplied, with the result that they made continuous losses on their total operations.

Malaluna (2000) wrote that the power industry is the most scrutinized industry in the world today. Sweeping reforms are being pushed in many countries Reforms of the power industry have increasingly been used as the basis for the release of funds by multilateral development banks and international financial institutions.

Chandra (2000) emphasized the importance of public involvement in reforms. He opined that any reform would be welcomed only if it is preceded by open discussion and debate among the public. According to him anything imposed from above will be opposed even if some of its implications might be beneficial to the public. Geographical, social, economic and cultural factors of region have a bearing on its power consumption pattern.

Labour Department, Mantralaya, Mumbai (2002) stated that the process of reforms cannot achieve the desired results overnight, nor can change be brought about overnight. The success of the reform process depends on its acceptance by all stakeholders including consumers, employees and investors.

Abey George (2000) expressed the views that several factors namely high levels of transmission and distribution losses, increasing domestic consumption by a few, subsidized supply electricity to the industrial and the tourism sector, decreasing capacity of reservoirs, the unreliability of Monsoons etc., have led to a very vulnerable electricity generation system in Kerala. The KSEB's answers to this very complex issue were rather simple viz., in the form of fossil fuel based electricity generation system.

Sankar & Ramachandra (2000) explained the principles of retail tariff fixation and critically examined the performance of the Orissa Electricity Regulatory Commission and found that the development of power sector is beyond the boundaries of a regulator.

Prayas Energy Group (2000) found that, one of the major fallouts of the Enron Controversy has been lack of concerted efforts to improve the performances of MSEB. The measures have started yielding some results in term of reduction in errors and better estimation of theft and identification of high theft areas. The success of these efforts depended on co-operation of MSEB workers and engineers and strong public pressure to ensure the top management of MSEB is given free hand to deal sternly with erring staff and consumers alike and is made accountable for performance of MSEB.

Kannan & Pillai (2001) studied the plight of power sector in India and explained the significant aspects of inefficiency costs involved in SEBs functioning through examining physical performances and financial performances.

Sharma et al. (2003) found that most of the State Electricity Boards (SEBs) in India have been working under resource crunch and operating at massive commercial losses. The inefficiencies were mainly due to the following:

- 1) The technical performance of the SEBs was not satisfactory. Transmission & Distribution losses are very high, of the order of 22.9%).
- 2) Thermal power stations were operating at very low efficiency and with average plant load factor of only 53.9%.

3) Poor billing and collection, because of incorrect reporting and billing and inadequate collection efforts, tampering with meters, and misreporting in collusion with consumers.

4) Unmanageable size and monolithic structure, making unwieldy, inefficient and unresponsive to change as well manpower related problems, poor productivity, low skills and lack of training for up gradation and low motivation levels, etc.

Zhang et, al (2005) studied the effects of privatization, competition and regulation on the performance of electricity generation industry and found that establishing an independent regulatory authority and introducing competition before privatization is correlated with higher electricity generation, higher generation capacity and in the case of the sequence of the competition before privatization, improved capital utilization. The main conclusions are that own their own privatization and regulation do not lead to obvious gains in the economic performance, though there are some positive interaction effects. By contrast introducing competition does seem to be effective in stimulating performance improvements.

The Government of India’s focus to attain ‘Power for All’ has accelerated capacity addition in the country. At the same time, the competitive intensity is increasing on both market side as well as supply side (fuel, logistics, finances and manpower). The Planning Commission’s 12th Plan expects total domestic energy production to reach 669.6 million tonnes of oil equivalent (MTOE) by 2016–17 and 844 MTOE by 2021–22. **(Indian Brand Equity Foundation, 2015).**

Madhya Pradesh Electricity Board (MPEB) was established under the Indian Electricity (Supply) Act, 1948. Like other State Electricity Boards (SEB) in the country, MPEB was a vertically integrated monopoly and functioned under the guidance of the state government, interacting with the central power utilities for planning and co-ordination.

Review of Progress of Madhya Pradesh Power Sector Organizations

Performance criteria	Status	Comments
Formation of new organizations as per plan: Personnel and assets transferred to successor companies	The goal was expected to be fully achieved by end of 2013. In 2010, all assets and 98% of personnel have been transferred and financial reporting has been started. In 2012, revenue collection accruing directly to fully autonomous utilities has taken place.	The new organization structure has been estimated to reduce wages by 12.6% (\$38 million per year). Opening balance sheets of new organizations have been issued and approved by the Government of Madhya Pradesh. Performance Based Promotion scheme have been introduced and Employee Service Rules for new recruits have been made operational in 2012.
Management structure: Boards with independent directors established and CMDs appointed on open selection basis	Completely achieved. Training on new and advanced management approaches have been completed in 2012.	According to DFID Annual Review: “Independent directors with substantial experience and expertise in the sector have been posted to boards of various companies.”
Independent cash management, revenue target, and financial viability	Independent cash management scheme is already operational since 2011. Revenue collection has already improved by	The independent cash management system of utilities accompanied with reasonable tariff hike is expected to increase revenue collection by on an average 15%- 17% despite just 4%

	2012 and future target to increase it further over the next 5 years have been set. Financial viability: Transmission company: 2013 Generation company: 2014 Distribution companies: 2016 (DFID Annual Review)	annual average tariff increase over last 5 years. As per the financial restructuring plan (approved by the GOMP) transmission company and the west distribution company is expected to be profitable by FY2013. With all DFID recommendations approved and implemented, the generation company is expected to be profitable by FY2014. The other 2 DISCOMs are expected to earn profit by FY2015
Implementation of cost-reflective tariff	Significant improvement in cost recovery: 95% in 2010 and 96% in 2012, despite an increase in cost of supply (MP Electricity Regulatory Commission, 2013)	Cost recovery in the sector has improved from less than 80% in FY2005 to over 94% in FY2010 and achieved the target of 96% for 2012 (ADB Independent Review report). Industrial consumers were paying 40% for the domestic consumers in FY2005, which has now (FY2010) reduced to little over 20% and likely to meet the FY2012 target of 16%. Thus, the cross subsidies are declining.
Computerised systems: billing, online payment, customer feedback	Computerised billing system is already in place. Online payment system rolled out fully as of December 2012. Customer online grievance system in place in 9 out of 42 Circles.	Online bill payment system has been put in place by all the 3 DISCOMs although the coverage of customers has been only 17% of the total customers of 8.2 million and less than 1% of those covered actually use the facility. Bill collection has improved from 85% in FY2005 to 96% in FY2012 (Collated from Annual Reports of Discoms, 2012). 15 out of the 42 circles have already implemented online payment mechanism in the three DISCOMs in FY2010. The roll out has been completed in December 2012. Although there was a target set to roll out online customer feedback system in all Circles by December 2012, it has not been achieved yet (Central Discom Annual Report 2012-13).
Aggregate technical and commercial (ATC) losses	Significant reduction in ATC has been achieved exceeding the FY2012 target and future targets	ATC was 44% in FY2006 and a 35% target for FY2010 was set. In FY2010, the realized losses were 33%, i.e., exceeded the loss reduction target. FY2012 target of 28% has also been

	up to FY2015 have been revised in light of this.	exceeded and the FY2015 target has now been revised to 18% (DISCOM-E), 16% (DISCOM-W) and 19% (DISCOM-C) (MP Electricity Regulatory Commission)
Private sector investment in generation	In May 2012, Madhya Pradesh Investment in Power Generation Projects Policy for IPPs have been enacted. The long term target is for 50 GW including 10 GW by 2012. There has been significant activity already including 24 MOUs signed in 2012 for a total capacity of 31,480 MW.	A total of 49 MOUs have been signed under the old and new policy taken together with a total capacity of 67,546 MW. A total capacity of over 10,000 MW is in various stages of implementation. (MPSEB Annual Report 2012-13) A benefit- cost analysis done by the DFID consultants noted that: "an additional 3,148 MW of concessional power will be available to the state (compared to the Old Policy) with a an additional benefit of Rs 431.87 billion (£6 billion) to the state. In addition this will enable the state to raise revenue to the tune of Rs252.83 billion (£3.5 billion) from electricity duty and cess."
Renewable energy investment	A target of INR 12.5 billion was set for 2012 that has been exceeded. There are very significant investments in solar and wind that are forthcoming.	MP currently has 386 MW of wind and an estimated 270 MW of solar capacity. (Ministry of New and Renewable Energy Annual Report 2012-13) There is an estimated 870 MW of additional solar investment worth INR 10 billion that is likely to be achieved by June 2014. (Government of MP, 2013) There are proposals for 2,100 MW of wind in the state that are worth INR 12.7 billion

The cross-subsidies from industrial/commercial consumers to agricultural and residential consumers were no longer sustainable as industrial consumers were increasingly resorting to captive power generation.

Contribution of acquaintance: This paper identify the existence and development of adequate infrastructure is essential for sustained growth of the Indian economy especially with the case of Madhya Pradesh Paschim Kshetra Vidyut Vitaran Company Limited Indore and therefore power sector industry should facilitate its customers towards their services and try to provide convenience in this competitive periphery.

Conclusion:

The Indian power sector is undergoing a significant change that is redefining the industry outlook. Sustained economic growth continues to drive power demand in India. After doing an in depth study of performance of M.P. West Discom, the researcher came to the conclusion on the one hand

the performance of the company has improved on many KPIs whereas on the other hand there are several KPIs where the performance has deteriorated and is a cause of concern and further scope of research required, as this particular paper is restricted with review of literature.

By 2030 – 35, energy demand in India is projected to be the highest among all countries according to the 2014 energy outlook report by British oil giant BP. As of April 2014, total thermal installed capacity stood at 168.4 gigawatt (GW), while hydro and renewable energy installed capacity totaled 40.5 GW and 31.7 GW, respectively. At 4.8 GW, nuclear energy capacity remained broadly constant from that in the previous year. Indian solar installations are forecasted to be approximately 1,000 megawatt (MW) in 2014, according to Mercom Capital Group, a global clean energy communications and consulting firm. Wind energy market of India is expected to attract about Rs 20,000 crore (US\$ 3.16 billion) of investments next year, as companies across sectors plan to add 3,000 MW of capacity powered by wind energy. Around 293 global and domestic companies have committed to generate 266 gigawatts (GW) of solar, wind, mini-hydel and bio-mass based power in India over the next 5-10 years. The initiative would entail an investment of about US\$ 310-350 billion. This literature review provided an insight to measure the impact in the mind of customers or researcher with all the services and the state government put its best efforts to run its operational activity effectively.

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