Power Sector Reforms in Madhya Pradesh and its Impact on Consumers

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Abstract: In last decade, Madhya Pradesh has undergone major reforms in the sector of electricity. There were several reasons due to which the need of change was realised. Large power cuts, Transmission and Distribution (T&D) losses above 40%, power theft, increasing bad debts and dependence on power purchase, increments in tariff for consumers and rising burden on government subsidy were some of the reasons for the same. Several regulations were made by the government in order to curb these problems related to electricity board. With such regulations, both employees as well as the consumers were affected. In this paper, it is a study about the impact of reform was observed in consumers and the services offered to them.

I. INTRODUCTION

Electricity is demanded out of its requirement for usage of domestic appliances and other commercial and industrial appliances and machinery. For economic development of any country, energy is the major source. And for the developing country like India, it is even more essential to fulfil the demand of power for introducing new technology and overall growth. Over the last decade India has experienced a remarkable growth. Currently, India holds 10th position in economic development in the world. India's GDP grew by 9.3% in 2010–11; thus, the growth rate has nearly halved in just three years. GDP growth rose marginally to 4.8% during the quarter through March 2013, from about 4.7% in the previous quarter. There prevail several reasons for liberalization in electricity sector reforms. Some of them can be noted as additional demand of energy for overall economic and social development, inadequate funds with public sector for improvement, inefficient and insufficient activities related to power generation, transmission and distribution and above all inefficient working of public sector power utilities. With Power Liberalization, there seems an improvement over electricity sector like enhanced efficiency, independence from political pressure, better environmental protection and increase in investments in economy. In the year 1947 when India achieved freedom, the power generating capacity was around 1362MW. The availability of power was not in every area of the country. Only few urban centres had power. Villages and rural areas did not have electricity. After independence, the new power houses set up and the activities of generation, transmission and distribution of electricity in both urban and rural sectors came under the control of Central and State Government. Despite the growth in generation activities of power in India, the challenges still prevail. There has been a constant shortage of power and its supply. At present, the electricity sector in India has an installed capacity of 245.394 GW as on April 2014. Among population, around 6% of the urban areas lacked power and one third rural population had no electricity. The areas where the availability of power was present, there was lack of continuous and reliable supply. The situation of electricity sector in India is featured by excess demand as compared to supply; high Transmission and Distribution (T&D) losses, low Plant Load Factor (PLF), shortages in energy during peak demand; poor financial health of the State Electricity Boards (SEBs) and lack of resources. As per Census Report 2011, the major population i.e. 75% resides in the rural areas with their main occupation is agriculture. After 2005, the growth in Madhya Pradesh took pace and indicated remarkable increase in Gross domestic Product (GDP).

Power Sector Reforms and Consumers

Within the objectives of the study about power sector of Madhya Pradesh, it is mentioned about assessing the service delivery process. The main question here is has the reforms in Madhya Pradesh Power Sector safeguarded the interest of consumers by providing better quality of service with affordable tariff. This criteria is an important tool to know about the effectiveness of the reform. Consumers are the end users of all the services so produced. Thus their satisfaction level through service delivery gives an estimation of sustainability of the reform and its success. This paper deals with analysis of customer satisfaction level with the quality of service delivery with or without reforms. Madhya Pradesh State Electricity Board (MPSEB) was in lead role of handling transmission, generation and distribution of electricity. After the board got unbundled, the companies took over the above mentioned activities related to power sector. Institutions like Madhya Pradesh Electricity Regulatory Commission was formed with regards to the State Advisory Committee which controls the functioning of Power sector of Madhya Pradesh by formulating policies and acts in favour of developing electricity supply and service quality for consumers.

This study about policy reforms in Madhya Pradesh Power Sector is a sincere effort to know about the impact of such institutions so formed on the quality of service delivery, its contribution towards improvement of service delivery and how effectively such institutions work. To know the status of post reform era of power sector in Madhya Pradesh, the working and effectiveness of these institutions, consumer's views are of great help. As electricity is considered to be essential in today's era, the consumers have no choice but to avail the services provided by the provider. If the quality of service is not appropriate and does not match the expectation, the consumers must raise voice against it. Reform process in itself create group of people where one group gain through the reforms while other loses. This is the reason that reforms are usually supported by some and opposed by others. When the reform does not bring the expected results for the consumers, it is likely that there will be opposition and revolt against such reforms. For success of reforms in power sector, it is essential to provide better service delivery at reasonable price. Opposite to this, frequent price hike, power cuts, poor quality of service etc leads to unsustainable reforms. Studies show that few reforms had adverse effect on the power sector where both employees and workers suffered because of flaws in its proper implementation. Employees lost their jobs, consumers got poor quality of service with tariff hike and frequent power cuts. Power sector reforms can be successful with the efforts from all sides including politicians, banks, generators, traders etc. Delivery of service depends on many factors like nature of service, responsiveness of staff, consumers involvment etc. Fluctuations in volatge, frequent power cuts, wrong or improper billing, problems related to meters, lack of responsive staff and absence of accountability can lead to failure of reforms. Thus, when reform is introduced in power sector, these factors should be taken into consideration. In this study, we are aiming to find the answer of such questions which gives us clear implications of power sector reforms in Madhya Pradesh.

Electricity Sector in Madhya Pradesh

Electricity sector of Madhya Pradesh experienced restructuring in early 1990s. Even after a decade of restructuring process certain drawbacks were still visible like large power cuts, Transmission and Distribution (T&D) losses above 40%, power theft, increasing bad debts and dependence on power purchase, increments in tariff for consumers and rising burden on government subsidy. Madhya Pradesh Electricity Board (MPEB) got established under the Indian Electricity (Supply) Act, 1948. Very much like other State Electricity Boards (SEB) in the country, MPEB functioned within the guidance of State Government as a vertically integrated monopoly and communicating with the central power utilities for planning and co-ordination. In early 1990s, MPEB started facing problems of increase in deficit in the balance sheet, increasing Transmission & Distribution (T&D) losses, power shortages and poor quality of power supply. The purchase power dependence from the Central Sector started to rise as peak power deficit reached as high as 25% and as a result the total expenses enhanced. It was revealed that since 1992, MPEB could not even achieve the minimum return of 3% over Net Fixed Assets as stipulated by the Electricity Supply Act, 1948 through its revenues. This caused revenue subsidy from the state government to grow from Rs. 380 Crores in 1993 (19% of revenue) to Rs 1697 Cr in 1999 (40% of revenue). [Planning Commission, 2002] finally the MPEB became handicapped in raising funds for investment in generation, transmission and distribution which was the major impacts of such worsening financial situation. This results to further aggravated sector's poor condition.

These were the major reasons which led to the reformation of prevailing Madhya Pradesh Electricity Board to different companies with their own powers vested with them.

Table 1 : Revenue-Expenditure Statement of Madhya Pradesh State Electricity Board

Details	FY 2001 (in crore)	FY 2002 (in crore)
Total Revenue	3707	4029
Total Expenditure	6027	6024
Profit/(Loss)	(2321)	(1995)

Source: Madhya Pradesh State Electricity Board Tariff Petition 2002

The table shows the difference in revenue and expenditure of Madhya Pradesh State Electricity Board for the year 2002. It gives clear indication that Board was experiencing heavy losses because of the inefficiency in working and poor quality service delivery. Government of Madhya Pradesh merged the Madhya Pradesh State Electricity Board (MPSEB) with the newly formed company named as Madhya Pradesh Power Management Company Limited (MPPMCL) in order to enhance the effective working and improving efficiency. With such decision, the Board that was around five decade old came to stop and formed a newly made power company. Madhya Pradesh Electricity Board (MPEB) was formed on November 1, 1956.

Madhya Pradesh Electricity Regulatory Commission (MPERC)

The Electricity Regulatory Commission's Act, 1998 (No. 14 of 1998) came into force w.e.f. 25th April, 1998, with

which CERC (Central Electricity Regulatory Commission) and SERCs (State Electricity Regulatory Commissions) came into being. This was established with the major goal of increasing efficiency of electricity industry. The other objectives of its formation were rationalization of tariff of electricity, setting standards, regulating the work of licensing, promotion of competition etc. In other words all this aimed at improving the financial health of State Electricity Boards or Electricity Utilities at the same time keeping the interest of consumers in consideration. The Madhya Pradesh Vidyut Sudhar Adhiniyam, 2000 (No. 4 of 2001) has been enacted on 20.2.2001. The Adhiniyam came into force on 03.07.2001 as notified by the State Government. Consequently, the State Electricity Regulatory Commission was constituted under Section 17 of the Central Act. It is deemed to have been constituted under State Act and the commission includes all the provisions of State Act. Parliament enacted the Electricity Act 2003 (No. 36 of 2003) which came into force w.e.f. 10th June 2003. Thus, MPERC is constituted and is functioning under the provisions of Electricity Act 2003.

Salient provisions of the Electricity Act are:

(a) Exemption from license in case of electricity generation
(b) Open access in electricity transmission
(c) License for electricity trade,
(d) Arrangement of license for laying lines for private transmission
(e) Promotion of competition by allowing presence of more than one distribution companies in one area of supply and to
(f) Ensure electricity supply to the consumers on minimum standards,
(g) Provision for establishment of Tribunals in place of High Court for appeal against the orders of the Commission etc.

Madhya Pradesh Electricity Regulatory Commission (MPERC) and Service Delivery

Madhya Pradesh Electricity Regulatory Commission (MPERC) has constituted Consumer Redressal Grievances Forum where consumers can file their complaints and commission look forward to solve those with appropriate procedure. It was formed on 15.05.2008. For the financial year 2012-13, following cases related to complaints were resolved by the commission:

Table 2 : Status of Complaints Resolved 2012-13

Complaints till 31.12.2012	135
Complaints received in FY 2012-13	414
Total complaints till the end of FY 2012-13	549
Complaints solved during the year	509
Complaints till 31.12.2013	40

Source: Annual Report 2012-13

Madhya Pradesh Electricity Regulatory Commission (MPERC) duly publishes annual reports, newsletters, and magazines and also keeps the website updated regarding the tariff orders. MPERC website keep updates related to regulations, acts, rules, orders etc. Other information is available on website helpful to consumers. It includes tariff calculations, feedback forms, procedure for complaints, tricks to save electricity, grievance redressal, punishments prescribed by the Electricity Act.

Madhya Pradesh Electricity Regulatory Commission (MPERC) and Institutional

Arrangement:

Madhya Pradesh electricity sector became financially non viable with the continuous increase in demand of electricity, shortages of supply, distribution loss and deficit finance. With all these factors the Madhya Pradesh Electricity Board was dissolved and formed in private distribution utilities. Following are the brief description of the companies so formed within Madhya Pradesh Electricity sector:

- Madhya Pradesh Power Management Company Limited (previously named Madhya Pradesh Power Trading Company Limited)
- Madhya Pradesh Power Generating Company Limited (MPPGCL)
- Madhya Pradesh Power Transmission Company Limited (MPPTCL)
- Madhya Pradesh Paschim Kshetra Vidyut Vitran Company Limited (MPPKVVCL)
- Madhya Pradesh Poorv Kshetra Vidyut Vitran Company Limited (MPPKVVCL)
- Madhya Pradesh Madhya Kshetra Vidyut Vitaran Company Limited (MPMKVVCL)

Distribution Losses: Distribution losses contribute a lot to the prevailing inefficiency of the electricity sector of Madhya Pradesh. It is actually the loss done between the supply source and actual delivery to the consumers. Also theft can be included within it. Efforts are continuously made to reduce the losses and improve the situation. According to the Annual Report of Madhya Pradesh Electricity Regulatory Commission (MPERC), the distribution losses reduction trend for the period 2013-14 to 2014-15 submitted by all DISCOMs are as follows:

Table 3 : Distribution Losses Reduction Trend by DISCOMs 2013-14

Particulars	FY 2013-14	FY 2014-15	FY 2015-16
East Discom	23%	20%	18%
West Discom	20%	18%	16%
Central Discom	23%	21%	19%

Source: Aggregate Revenue Requirement and Retail Supply Tariff Order 2013-14

Commission's Analysis of Consumer Security Deposit:

According to the Audited Statement of Accounts of the DISCOMs, it has been noticed by the commission that the total outgo of annual interest on the Consumer Security Deposit is not same as it was in the past. The amount agreed to pay by DISCOMs are less than what is actually paid may be due to the reason that the defaulters are not punished by permanent disconnection neither any interest is charged in such cases against held amount of security deposit. Therefore, the Commission has decided to admit the interest on Consumer Security Deposit based on the DISCOM's proposal for FY 2014-15. The Commission admitted interest on consumer security deposit as shown in the table below :

Table 4 : Interest on Consumer Security Deposit (CSD) admitted for FY 2014-15 (Rs. Crore)

Particular	East	West	Central
Interest on Consumer Security Deposit	38.34	79.6	65.86

Source: Mperc retail Tariff order 2014-15Table 5.1 : Tariff Fixed for Metered Connections for the Year 2009 to 2012.

S. No	Monthly consumption	2009-10		2010-11		2011-12	
		ECC	MC	ECC	MC	ECC	MC (u/r)
1	Till 30 units	265	30	285	35	290	Nil
2	31-50	290	30	315	50	330	30/20
3	51-100	330	30	360	50	375	55/30
4	101-200	390	30	435	50	460	60/40
5	Above 200	400	30	450	50	480	70/60
6	T. C.	500	350	600	500	650	200/150
7	DTR meters	245	Nil	270	Nil	300	Nil

Table 5.2 : Tariff fixed for metered connections for the year 2012 to 2014.

S. No.	Monthly Consumption	2012-13		2013-14	
		ECC	MC	ECC	MC
1.	Till 30 units	290	Nil	290	Nil
2.	31-50	340	40/25	340	40/50
3.	51-100	385	65/40	385	65/40
4.	101-300	480	75/50	480	75/50
5.	301-500	520	80/70	520	80/70
6.	Above 500	550	85/70	555	85/70
7.	T. C.	675	300/200	675	300/200
8.	DTR meters	300	Nil	300	Nil

ECC: Energy Cost Charges for Urban and Rural Areas

MC (u/r): Monthly Charges for Urban and Rural Areas

T.C: Temporary Connection

DTR: Digital Transformer Ratio meter for clusters of jhuggi jhopdi till permanent meters are provided.

Source: MPERC tariff orders 2009 – 2014.

From the table shown above it is clearly visible that there is continuous hike in tariff prices even after a decade of the reform process except for the year 2012 to 2014. The main objective of reform is to improve the financial health of Power Sector and to minimize the losses without affecting consumers and providing them with quality and efficient service delivery. In this chapter, through the questionnaire the effort is made to find out the answers of some basic questions:

- Quality of service and its reliability.
- How effective is the grievance redressing procedure?
- Whether any extra money is demanded by the service provider for speed action of any application of consumers?
- How much the service providers are responsive to the consumers?

- How much time is taken to solve the complaints of the consumers?
- Is the service provider accountable?

Table 6 : Comparison of Tariff v/s Average Cost of Supply

Category/ sub-category	FY 2012-13 (as per Tariff Order dated 31st March, 2012)	FY 2013-14 (achieved as per Tariff Order)
Domestic	96.69%	97.85%
Non-domestic	136.05%	140.01%
Public water works	82.92%	85.44%
Street Light	85.20%	88.21%
Industrial	122.82%	122.29%
Agriculture	76.78%	75.00%
Railways	124.21%	124.84%
Coal Mines	130.92%	137.33%
Industrial	120.57%	119.90%
Non-industrial	118.82%	136.64%
Irrigation, PWW and Other than agriculture	84.75%	91.03%
Bulk residential users	98.56%	98.87%

Source: http://en.wikipedia.org/wiki/Electricity_pricing

Category of Low Tension Consumers:

- Domestic
- Non-Domestic
- Public Water works and Street Lights
- Industrial – Non-Seasonal and Seasonal
- Agricultural and Other than Agricultural

Category of High Tension Consumers:

- Railway Traction
- Coal Mines
- Industrial and Non Industrial
- Irrigation and Public Water works
- Public Water Works
- Group Irrigation and other agricultural users
- Bulk Residential Users
- Bulk Supply to Exemptees

Consumers Right to Information: The consumers should be informed of their rights by the licensees and also about the standard of performance as prescribed by the regulations. They should also be made aware of the Code of Practices, Billing System, Complaints Handling, Grievances Redressal Forum, Tariff Schedule, Consumer Advocacy Relationship and Consumer Empowerment.

Consumer Advocacy Cell: Madhya Pradesh Electricity Regulatory Commission (MPERC) has formed a Consumer Advocacy Cell in its office which is headed by Deputy Director of the commission.

i. The main functions of Consumer Advocacy Cell are
ii. To empower consumers to participate effectively in the regulatory process.
iii. To represent consumers on all matters relating to power sector.
iv. To act as a source of information to the consumers on the issues of electricity.
v. To arrange Workshops and Training Programmes for Consumer Advocacy Groups/ NGOs/SHGs.
vi. To publish News-letters, fact-sheets and other informative materials.
vii. To handle grievances and complaints of electricity consumers received in the Commission and to arrange to conduct survey and publish reports on the issues related to consumer services.
viii. To disseminate information through use of TV Media, Radio and Print Media.
ix. To work as an interface between the Commission and the consumers and bring out relevant issues to the knowledge of the Commission for protection of consumers' interests.

Establishment of Forum and Ombudsman for Grievance Redressal:

The Madhya Pradesh Electricity Regulatory Commission (MPERC) has observed the urgent need of improving the service quality to the consumers in the State. In regards to the objective of safeguarding consumer's interests, the commission has established the Electricity Consumers' Grievance Redressal Forum and Electricity Ombudsman for redressal of grievances. There are three Grievance Redressal Forums in the State of Madhya Pradesh, each in Bhopal, Jabalpur and Indore. These are situated at the Head Quarters of Distribution Licensees. The office of Electricity Ombudsman for Redressal of Grievances has its office at the Madhya Pradesh Electricity Regulatory Commission (MPERC), situated at Bhopal. Both the Forums as well as Ombudsman visit other places than headquarters so that they can reach to the consumers for solving their problem. The consumers enjoy all rights to complaint about the quality of service provided by the licensee. If the

complaint is not handled in proper manner or the consumer is dissatisfied with the complaint solving procedure, the matter can be taken further to the forum. Still, in case the consumer is not satisfied with the solution, the Ombudsman can be approached for the same.

Grievance Redressal Forums handle complaints including

- Quality of supply
- Billing and accounting queries
- Quality of service.

Initiatives to Protect Consumers' Interests

Several initiatives have been taken in order to effectively resolve grievances of consumers if any through proper monitoring of redressal forums, determining appropriate tariff etc. Periodic workshops are organized to bring in light the various issues related to the consumers. Commission believes that there is a strong connection between consumer's satisfaction and interests of utilities. The commission is putting pressure on licensees to provide facilities to the consumers like "Anytime Payment", where electricity bill can be paid any time of the day; "Anywhere Payment", where the consumers can pay their bills through internet and not only in electricity offices; 24 hours customer care; implementation of performance standards etc.

The Commission has taken initiative for conducting consumer satisfaction surveys. On the Commission's initiative, the DISCOMs have commenced facility for online registration of complaints at their Call Centers at Bhopal, Jabalpur and Indore. The facility for online review of status of complaints lodged with the Forums etc has been made available on the Commission's website www.mperc.org. The Commission's aim is to empower the consumers so that they can realize their rights to get power in a more convenient and hassle-free manner. The Commission is also untiring in its efforts to make consumers responsible and responsive to the ever-changing power scenario of the State.

II. RESULTS AND ANALYSIS OF CONSUMER DELIVERY SERVICE

- The study has been conducted on a two different samples. Two different scales were prepared to collect the data. First, the data was collected from consumers on Likert's Scale to analyse their satisfaction level. This study chose the respondents from three different groups of the consumers of electricity sector of Madhya Pradesh, urban, rural and industry. On the second part of the research data was gathered from employees on Dichotomous Scale.
- As there were many variables which were identified during the literature review so in order to find the major factors or components, Factor Analysis was used to analyze the data. It is the statistical approach involving finding a way of condensing the information contained in a number of original variables into a smaller set of dimensions (factors) with a minimum loss of information.

Hypothesis and tests result defined for Consumers

In order to test the hypothesis we have used ANOVA test. The results are as follows of each factor:

- H_{01}: There is a no significant relationship between services offered and customer satisfaction from power companies.

				Sum of Squares	df	Mean Square	F	Sig.
F1	Between Groups	(Combined)		1.707	2	.853	.152	.859
		Linear Term	Contrast	1.280	1	1.280	.228	.633
			Deviation	.427	1	.427	.076	.783
	Within Groups			1667.960	297	5.616		
	Total			1669.667	299			

- In the above box we will look at the Sig. value which will help us in determining if our condition means were relatively the same or if they were significantly different from one another. For third factor the sig. value is .859 which is more than our mean value of .05. Because of this, we can conclude that there is a no statistically significant difference between the mean of our third factor for all of our stakeholders (Rural, Urban and Industry).

- H02: There is a no significant relationship between problems customer face and customer satisfaction from power companies.

	Sum of	df	Mean	F	Sig.

				Squares		Square		
F2	Between Groups	(Combined)		23.227	2	11.613	3.817	.023
		Linear Term	Contrast	18.000	1	18.000	5.916	.016
			Deviation	5.227	1	5.227	1.718	.191
	Within Groups			903.690	297	3.043		
	Total			926.917	299			

- In the above box we will look at the Sig. value which will help us in determining if our condition means were relatively the same or if they were significantly different from one another. For seventh factor the sig. value is .023 which is less than our mean value of .05. Because of this, we can conclude that there is a statistically significant difference between the mean of our seventh factor for all of our stakeholders (Rural, Urban and Industry).

III. CONCLUSION

It is examined the various aspects related to the service delivery to the consumers by Electricity Sector of Madhya Pradesh. Such aspects include customer satisfaction, tariff rates, grievances and disputes resolution etc. A survey is done covering all major aspects related to the consumers of rural as well as urban area. Industries are also included in procedure of survey as they make an important part of consumer's population. It is observed that in rural areas, the access of electricity still lacks and quality of service is also not up-to the mark. Problems related to billing, meters, voltage fluctuations and faults need to be taken care in both rural as well as urban areas. In order to help the officials for collection of revenue, checking theft and solving meter and billing problems etc village committees are formed in few states. There was a provision for such committees to form in Madhya Pradesh too but it was not implemented. If such village committees were formed it could have proved much beneficial to both the consumers as well as electricity sector of Madhya Pradesh. Though efforts are being made to solve the grievances of consumers by MPERC, there is still room for improvement. In addition to this electrification is needed in major of the rural areas. With all the improvements in electricity sector over last few years there is still left to be take care of. Consumer awareness about electricity supply, reasonable electricity rate for people below poverty line, "ek batti connection" for villagers, continuous and uninterrupted supply of electricity for agriculture purpose, reduction in electricity theft and misuse of power, foreign investments and immediate action regarding electricity faults in monsoon in both urban and rural areas are the few concerns which has to be considered for further betterment of electricity sector in Madhya Pradesh.

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