

# PRAYAS

Initiatives in Health, Energy,  
Learning and Parenthood



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February 12, 2014

To,  
The Secretary,  
Bihar Electricity Regulatory Commission,  
Ground Floor, Vidyut Bhawan – II,  
Bailey road, Patna – 800021

**Subject:** Comments/ Suggestions with respect to Petition for APR for FY 2013-14 and revised ARR for FY 2014-15 and Determination of Tariff for FY 2014-15 for Generation and Distribution Utilities in Bihar before the Bihar Electricity Regulatory Commission (BERC).

**Ref:** Public notice issued by utilities dated 12/12/2013 and 13/12/2013

Dear Sir,

This submission is with respect to the matter mentioned above. At the outset, we wish to clarify that we are not an active stake holder in Bihar power sector and this submission is based on study of relevant documents, few visits to Bihar and our experience of working with the regulatory processes in other states.

Bihar has long been the state with the lowest rates of electrification, lowest per capita consumption of electricity and has been known for poor quality of power supply. The utilities in Bihar are facing a great many challenges from lack of generation capacity, high cost of supply, need for network augmentation and low paying capacity of consumers. However, at the same time, many changes are also taking place and with the support from the Central and State Government, the power sector in Bihar is poised for a major transformation. Our endeavour via this submission is to aid this process and share relevant lessons from other states.

We request the commission to take our submission on record and thank the commission for giving us this opportunity. We will be glad to clarify any particular issue or assist in any manner as the commission may so desire in this regard. We would also request the commission to allow us to making additional submissions if any, during any processes in this regard.

Thanking you  
Sincerely,

Ann Josey

Prayas (Energy Group)  
Athawale Corner,  
Karve Road, Deccan Gymkhana  
Pune, 411004 India

BEFORE BIHAR ELECTRICITY REGULATORY COMMISSION,  
PATNA

Objections/Comments/Suggestions

on

Petition for Annual Performance Review for FY 2013-14 and revised Annual  
Revenue Requirement for FY 2014-15 and Determination of Tariff for FY 2014-15  
for Generation and Distribution Utilities in Bihar

by

Prayas Energy Group  
12th February 2014

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## 1. Introduction: Unique Characteristics, challenges and opportunities in Bihar

Due to its unique characteristics the stakeholders in Bihar's power sector face issues unlike any other state in India today. However, they also have opportunities to do things differently from other states in India. Listed below are a few of our observations in support of the above statements.

- 1. Majority of the household do not have access to electricity supply**-Almost 83% of the state's households do not have access to electricity. Central Governments' RGGVY has contributed significantly to the progress by providing access to around 24 lakh households in about 28,000 villages spending more than 4800 crores. Moreover, the State Government's scheme to augment the network by adding new 200 & 33 kV substations and 220, 132, 33 & 11 kV lines will help to ensure the system can deliver power to households and enterprises. Even with these efforts it must be acknowledged that such a large number of non-electrified households pose an intractable problem for the newly formed distribution companies. Most of the newly electrified or to be electrified households will be BPL and therefore revenue recovery from this category will be low. This is illustrated in Table 1 below:

Average Cost incurred per unit (Rs/Unit)	2012-13	2013-14
Cost of power Purchase	3.44	4.12
Power Purchase Cost after accounting for transmission and distribution loss*	6.31	7.49
Distribution margin	1.82	1.35
Total cost of supply	8.13	8.84
Revenue from sale to newly electrified households #	1.58	2.8
Loss/unit	6.55	6.04
*According to petition from NBPDC and SBPDCL-T&D loss at 45%		
#Average Billing rate as estimated by NBPDC and SBPDCL for 2012-13 and 2013-14		

Table 1: Utilities' disincentive to supply

Source: Tariff Petitions and audited accounts of NBPDC and SBPDCL

For every unit of electricity supplied to a newly electrified/BPL household, the utility loses more than Rs. 6 per unit. If this is extended to all non-electrified households entitled to lifeline consumption; the utilities will be making an annual loss of about Rs.3500 crores. Such an amount cannot be recovered via tariff increase for other categories as it would imply a tariff increase of about 150%. The high distribution losses in the state indicate that collection efficiency is low and higher tariffs may not result in matching revenue increase, but deteriorate bill payment. The high number of non-electrified households also implies that there is significant latent demand which necessitates future increase in demand. However, this increase in demand will depend on rate and progress of electrification, uptake of appliances, agriculture consumption, and quality of power supply. Therefore, assumed growth rates of the distribution companies should be evaluated based on these considerations.

- 2. Supply quality is poor** –According to the RGGVY evaluation studies commissioned by REC, 60% of the surveyed villages in 11 districts have electricity supply for less than 6 hours every day<sup>12</sup>. Anecdotal reports suggest hours of supply as low as 1.5 hours per day. Therefore, estimation of demand in Bihar becomes problematic as demand is constrained by limited supply of electricity. If electricity has to enable development within the state, then the distribution companies should take adequate steps to ensure reliable power supply. Even with the limited number of households with access to electricity, it is clear that demand is more than supply and it is bound to rise. Table 2 shows the extent of the gap between supply and today’s constrained demand.

Bihar	Requirement (MU)	Availability (MU)	% Shortage
2009-10	11,587	9,914	14%
2010-11	12,384	10,772	13%
2011-12	14,311	11,260	21%
2012-13	15,409	12,835	17%
2013-14	15,268	12,361	19%

Table 2: Extent of energy shortage in Bihar

Source: CEA Load Generation Balance Report (Various Years)

- 3. Large number of diesel and renewable systems supplied via private players-** Access to reliable supply from the grid is so low that people are paying very high costs for power from renewable sources or from diesel generator sets for supply during evening peak hours. Even though minimal needs can be met with such sources of power, massive spread of productive use (like agriculture, workshops, shops etc.) becomes difficult and demand for electricity is constrained by price after a certain level of consumption. Goods and services produced in Bihar cannot compete if reliable and affordable power is not provided. Power supplied by the distribution companies can help provide access to reliable affordable power which can catalyse development. Therefore, tariffs for these distribution companies should not become comparable to alternate sources of power. In other words, they should not be as high as being proposed.
- 4. Large number of unmetered consumers-**Almost half of Bihar’s consumers are unmetered and therefore estimating demand and energy consumption become extremely difficult. With such a large number of unmetered consumers, energy accounting and loss estimation becomes next to impossible. Therefore, mitigation of losses can also become challenging. It is clear from the table below that unlike most other states where only agriculture consumers are unmetered, almost all of Bihar’s rural domestic and commercial consumers are unmetered. Surprisingly even streetlights which are paid for by the State are unmetered, as shown in Table 3. Ensuring measures for metering and energy accounting are essential for the distribution companies to be effective.

<sup>1</sup> [http://www.recindia.nic.in/download/TERI\\_Bihar.pdf](http://www.recindia.nic.in/download/TERI_Bihar.pdf)

<sup>2</sup> [http://www.recindia.nic.in/download/Sambodhi\\_Bihar.pdf](http://www.recindia.nic.in/download/Sambodhi_Bihar.pdf)

<b>Category</b>	<b>Consumers</b>	<b>Sales</b>	<b>Revenue</b>
<i>BPL</i>	70%	52%	72%
<i>Rural Domestic</i>	90%	90%	92%
<i>Rural Non domestic</i>	90%	87%	93%
<i>Agriculture</i>	49%	50%	42%
<i>Streetlights</i>	70%	85%	81%
<i>Total</i>	47%	16%	10%

Table 3: Category-wise % of unmetered consumers, their contribution to sales, revenue  
Source: Tariff Petition of SBPDCL and NBPDCCL

- 5. High Distribution loss levels**-With transmission and distribution losses at 45% (2012-13) almost half of the expensive power that the distribution company purchases does not translate into sales. Moreover, because of poor metering even the reported level of loss estimation is debatable. No allocation of power, subsidy provision or state support will be effective unless serious time bound measures are taken to reduce losses. The importance of loss reduction is illustrated in the example below:

Particulars	Units	Current level	% Loss Reduction			
			0%	2%	5%	8%
Energy Sales to Nepal	MU	550	550	550	550	550
Energy Sales to Bihar	MU	7519	6776	6776	6776	6776
Inter State Transmission Loss	%	4%	4%	4%	4%	4%
Energy Sales within Bihar	MU	575	2117	2117	2117	2117
Intra State Transmission Loss	%	4%	4%	4%	4%	4%
Total power at distribution periphery	MU	8431	9264	9264	9264	9264
Distribution Losses	%	43%	43%	41%	38%	35%
Net energy required	MU	14792	16252	15701	14941	14252
Cost of net energy required	Rs.Cr	6094	6745	6516	6201	5914
Average billing rate <sup>#</sup> (ABR)	Rs/kWh	4.79	4.49	4.79	4.79	4.79
Additional sales	MU			551	1311	2000
Revenue due to additional sales	Rs.Cr			264	628	958
% of households which can be electrified with avoided power purchase*	MU			10%	23%	35%
* assuming newly electrified households will be provided with lifeline consumption on 1 unit/day as per National Electricity Policy						
# Assuming new approved tariffs guarantee an ABR at least as high as prevailing ABR.						

Table 4: Impact of T&D loss reduction on power purchase and electrification  
Source: Tariff Petition of SBPDCL and NBPDCCL

It is obvious from this table that even a marginal reduction in losses can result in additional revenue of more than Rs.950 crores. Alternatively, it can provide lifeline consumption for about 35% of the non-electrified households in the state. In fact, the revenue from additional sales due

to marginal reduction in losses is much higher than the cost of AMR metering for all existing feeders in Bihar<sup>3</sup>.

- 6. Limited Generation Capacity and dependence on central sector allocation-**The state generating company has limited generation capacity with only Unit 6&7 (220 MW) of BTPS currently under R&M to be available for generation from September this year. Given this unique circumstance of the State Generating Company being unable to supply any power, Bihar relies largely on central sector allocation to meet its needs. More than 80% of the power procured is from Central Sector sources at almost Rs.3/kWh. Given the need to lower its cost of supply, procurement of low cost power to meet the needs of its predominantly small consumers is important. To meet its future demand Bihar has significant capacity addition plans as shown in Table 5.

Source	Allocated Capacity	Remarks
State Generation Company	500 MW	To be operational by 2015
NTPC Barh	1174 MW	Unit 1 of Stage 2 is operations and Bihar to be allocated 300 MW. All units to be operational by end of year
NTPC Joint Venture	1718 MW	Nabhinagar and Muzzafarpur.331 MW to come to state from Muzzafarpur by the end of the year. Nabhinagar to be operational by 2015-16.
Case 1 Medium Term	200 MW	Power purchase since 2012 till 2015 at Rs.4.06/unit. Power from Adani plant at Tiroda
Case 1 Long term	1010 MW	PPA signed at rates between 3.05 and 3.69 Rs/kWh
Case 2 -Open for bidding	1320 MW	Plant at Bhagalpur. Plants to contract 3366 MW via this route soon.
IPP	2450 MW	To supply power by 2016-17

Table 5: Capacity Addition Plans

Source: Tariff submissions and BSPHCL website<sup>4</sup>

The costs imposed by potential delays for the projects in the pipeline, the impact on consumers due to high cost power the capacity needed to meet Bihar's demand given loss reduction strategies must be all accounted for during capacity addition planning.

- 7. Agricultural consumption is low but significant number of BPL consumers-** Bihar is the only state where about more than 40% of the consumers are BPL and where agricultural consumption is less than 10%. High water table and constrained power supply have ensured

<sup>3</sup> Installation of AMR meters for all feeders cost about Rs.50, 000 per feeder (Rs. 48 Cr for about 9000 feeders), according to cost estimates of MSEDCL in 2007. This excludes cost of data collection, transfer and analysis. The cost per feeder might be low due to scale economies, considering the number of feeders in Maharashtra. Alternatively, due to technology advancements, the cost per feeder might be lower. This number should be treated only as an indicative estimate.

<sup>4</sup> <http://bspchl.bih.nic.in/>

that electricity consumption by farmers is much less as compared to other states. However, if adequate quality power is available, farmers may switch to more efficient electric pumps from their present alternatives. In most other states, number of BPL consumers is less than 10% but in Bihar 2/5th of the consumers are BPL. Therefore, subsidy and tariff design should cater to addressing needs of these two important tariff categories, perhaps with more focus on BPL in the short run.

Given these unique problems in Bihar, our comments in the tariff petitions of the Generation, and Distribution utilities will be mostly on tariff design, measures needed for service quality and access commitments, need for effective planning and monitoring for loss reduction and with respect to mandate needed for integrated planning. The issues faced by Bihar's power sector are unique but at the same time there are many lessons that the utilities can learn from the experience of other states.

Our attempt through these recommendations is to bring to light some of the practices successful in other states. Moreover, the power sector in Bihar is set to grow and it is best that good practices are introduced in the early years of power sector growth. Our suggestions are organised based on priority of implementation in to immediate, medium and long term categories. We feel that BEREC can play a significant role in reviewing and taking up the immediate and medium term suggestions, the State government and other agencies also have to play a significant role in addressing the long term suggestions.

## **2. Recommendations for immediate implementation**

Based on the experiences of the other states, the mandate of the Electricity Act and needs of the sector; we offer some action ideas which could be implemented immediately to improve sector governance. These would have to be fine-tuned based on specific challenges in the state as well as inputs from other stakeholders.

- 1. Tariff Design-**Tariff design should be aimed at increasing revenue collection by being easy to implement and by encouraging compliance. However, it should also protect the interests of small consumers. An effective tariff design must also be progressive by imposing higher tariffs for higher consumption and neutral by not discriminating between similar uses of electricity. Our submissions with respect to tariff design are aimed at maximising revenue collection by the distribution company while protecting consumer welfare.
  - a. High tariffs need not result in higher revenue recovery:** In the first tariff petitions of the newly formed distribution companies there is a request for a significant increase in tariff to meet the high cost of supply. Table 6 shows the proposed increase by the two distribution companies as per sub-category.



Category	Proposed Increase in tariffs
LT	90%
Kutir Jyoti	209%
Domestic	99%
Commercial	54%
Agriculture	127%
LT Industrial	68%
Public Water works	52%
Street light	53%
HT	86%
H.T. Supply	83%
H.T. Specified Service	98%
Railway Traction	80%

Table 6: % increase in tariffs as proposed by the two distribution companies  
Source: Tariff Petition of SBPDCL and NBPDC

Given the financial compulsions of the distribution companies, we understand the need to increase their revenue collection from tariffs. However, we feel that the companies need to be sympathetic about the consumers' circumstances and show more commitment for improving quality of supply and service while reducing inefficiency. In any case such a high increase will not translate to benefits for the distribution companies for the following reasons:

- i. **High T&D loss:** As mentioned earlier, in a state where T&D losses are estimated to be as high as 45%, aggregate technical and commercial losses are likely to be even higher. Therefore, the willingness to pay for electricity from the distribution companies is likely to be low. Increasing tariffs, especially for small consumers whose ability to pay is limited and who have been starved off reliable supply of power in the past, will most likely result in lower revenue recovery and hence may not help in improving the distribution company's financial situation.
  - ii. **Higher tariffs make diesel and renewables viable alternatives to the grid:** The proposed Average Billing Rate for the unmetered BPL category is about Rs.14/kWh<sup>5</sup>. At this rate, households with low levels of consumption can easily switch to diesel or renewables. Grid based power should aim to provide affordable, reliable power to small consumers to enable productive activities. Unfortunately raising the tariffs to such levels in order to compensate for Discom's inefficiency further forces such small consumers into utilising sub-optimal levels of electricity. Due to previous history of low hours of supply from the grid, it is possible that most small consumers have a lower dependency on grid power. If the discoms sell power at par with the rates of operation for diesel generator sets, even more people may migrate away from the grid.
- b. **Suggestions for tariff design:** In our opinion tariff design should be such that it encourages compliance, boosts collection efficiency and improves revenue recovery. If collection efficiency improvement results in an 8% decrease in losses, it will translate to 10% reduction in cost of supply. At the same time, tariff design should protect the interest of small consumers and discourage inefficient use of electricity. Given these principles, our suggestions are as follows:

<sup>5</sup> Calculated based on category wise sales and revenue recovery proposed in tariff petitions of NBPDC and SBPDCL.

- i. **Annual limit instead of monthly limit for BPL consumption** –A household with 2 bulbs and a fan would typically consume 30 units a month and it is laudable that the commission changed the consumption norms for rural BPL from 18 units per month to 30 units per month. However, the category fixing for metered BPL consumers is based on monthly consumption and if a household exceeds the limit due to a function/ceremony at home or errors in billing, the category of the connection itself is changed and it's difficult to get back to having a BPL tariff. Maharashtra and Chhattisgarh have an annual consumption limit of 360 units instead of a monthly limit. We suggest the commission do the same.
- ii. **Removal of minimum charges**- Minimum charges do not encourage efficient energy use because it forces the consumer to use more electricity as he will be billed for it irrespective of his use. Moreover, it does not recognise fall in consumption due to supply constraints as consumption could be less than minimum consumption due to lack of reliable supply of electricity and such a charge is unnecessarily penalising consumers who have to deal with power shortage. Instead of levying minimum charges on almost all categories of consumers, redesigning fixed charges for all consumers and linking it to contracted demand for some consumers and abolishing minimum consumption charges would be more efficient. This would make the tariff structure and bill evaluation a less complex process.
- iii. **Same tariffs for urban and rural areas**- As mentioned earlier having separate tariffs for rural and urban centres makes the tariff process complex without ensuring equity in the billing process. The difference in tariffs could be used to perpetuate low quality service and load shedding in rural areas and such signals to the distribution company should not be inherent in the tariff design. We suggest that rural and urban areas be charged the same tariffs.
- iv. **Benchmarking norms for consumption based on scientific studies for unmetered categories**-Metering all consumers is imperative but may not be possible in the immediate future. In the interim, it is suggested that benchmarking norms be established for unmetered domestic, commercial consumers just like they are present for agriculture. These benchmarks should be based on a scientific analysis which taken into account usage patterns and appliance ownership. It is suggested that the commission undertake a study to determine suitable benchmark norms which can be revised periodically. However, such benchmarks should be an interim method for demand estimation and must be strictly time bound. Within 1-2 years, meterisation drives should ensure such processes are not needed.
- v. **Need for benchmarking unmetered agricultural consumption based on regional parameters**- Agriculture benchmark consumption norms do not account for regional and seasonal variations in consumption. Clearly, regions with lower water tables or with less rainfall will have higher consumption than regions with higher water tables or rain fed regions. It would be useful if the commission looks at having different benchmark consumption norms for different regions based on ground water level, presence of irrigation facilities and cropping patterns in the region.
- vi. **Creation of a LT General Category, only metered consumers to avail provision**-Those LT consumers (domestic, commercial, industrial) whose consumption is low are likely to be poor and are subject to harassment, corruption and high tariffs as they are categorised based of the type of use. We suggest creation of a General consumer category including LT domestic, LT commercial and LT industrial consumers with monthly consumption less than

300 units .Tariffs for the first slab in the category (say up to 50 units) can be low but can increase with increase in consumption. Recently, in order to promote productive activities MERC in Case 118 of 2012 directed the distribution company to ensure residential tariffs are applicable to commercial consumers who use less than 300 units per month. Such a scheme could provide a relief to small enterprises within the state as it would reduce the harassment and transaction costs consumers have to bear to take a separate connection.

- vii. **Removal of demand based tariffs for LT categories**-Almost all LT categories have the option to switch to demand based tariffs. With such a high number of unmetered connections, providing arrangements to enable demand based tariffs does not seem like a priority for the distribution companies right now. However, the option for demand based tariffs can be made available for consumers with a connected load more than 25 HP.
- 2. Reduction of Losses and Energy Accounting** - Even with an effective tariff design, revenue recovery and implementation of programs will be next to impossible without operational mechanisms for metering and billing. The state government seems to have ambitious plans with respect to feeder separation and strengthening the distribution network. These measures are needed and will yield results in the long term. However, in the short term a few measures to account for energy and reduce losses are also possible.
- a. **Metering drive**-With such a large number of unmetered consumers, converting unmetered consumers to metered, will take time. In the interim we suggest the following:
    - i. **Metering of all Distribution transformers and 11 kV feeders**-Even if all unmetered consumers cannot be metered immediately, it is suggested that there be a strong push for metering of all DTs, 11 kV feeders as well as all the distribution substations. In fact, all new feeders and DTs must be metered and the status of metering must be reported periodically to the commission and must be made available in the public domain.
    - ii. **All new connections to be provided with meters**- and the status of connections provided with meters be reported to the commission and to be uploaded on the utility's website. With such a large number of potential consumers, if all new consumers are provided with meters it would significantly reduce potential future losses. Moreover consumers with high consumption/connected load to be provided with meters on a priority.
  - b. **Metering and Billing processes**-Revenue recovery might be low also because of billing practices which deter payment. The practice of prolonged average billing, zero billing for some consumers and delay in receipt of bill after electrification (sometimes for up to 2 years) has been observed in other states. Moreover, billing systems in many states are not transparent and leads to problems when it comes to payment. We suggest that :
    - i. *First bills to newly electrified households be given at least 2 months after electrification* as in many cases the first bill arrives long after electrification and consumers are unable to pay.

- ii. *All outstanding bills to be send to consumers and easy financing options (like EMI) are to be provided to ensure payments.*
- iii. *Meter readers to take photographs and these are reported along with the bill, as done in Maharashtra. This is not expensive as most mobile devices allow for taking photographs and the same can be easily integrated in the bill format. In Maharashtra this practice has significantly reduced complaints regarding incorrect meter reading. A bill sample is shown in Figure 1.1 as an example.*
- iv. *Distribution companies to report the number of instances of average billing, zero billing and the number of faulty meters on a quarterly basis. Such information when made available to the commission should be put on the BERC website.*

**महाराष्ट्र स्टेट इलेक्ट्रिसिटी डिस्ट्रीब्यूशन कंपनी लि.**  
**बीज आकार देयक**  
 जॉन सर्व्हिस बिल फॉर सुविधा केंद्राच्या शक्ति स्थळावर उपलब्ध आहे.  
 अधिक माहितीसाठी [www.mahadiscom.in](http://www.mahadiscom.in) या संकेत स्थळावर संपर्क साधावा.  
 For any additional information please contact e-mail: [soo4613@ho.mahadiscom.in](mailto:soo4613@ho.mahadiscom.in) / Contact No. 0

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**महावितरण**

बीज आकार देयकाचा महिना जानेवारी-२०१४ देयक दिनांक 24/01/14 देयक क्र. 1380  
 विभाग युनिट : 4613 / KOTHRUD SUB DW / Ph.No. 25447799 देयक कालावधी 18/12/13पासून 18/01/14 पर्यंत  
 ग्राहक क्रमांक : 160260865355 जुना ग्राहक क्र. GGN:201401661330284 अंतिम तारीख 07/02/14 450.00  
 नाव प्रयास युनिट 3-ए या तारखेपर्यंत भरल्यास 03/02/14 440.00  
 पत्ता देवघिरी प्लॉट नं 14 स. नं 17/बी ईन्स्ट्रिडजल एरीअर / फोथरुड पुणे - या तारखेनंतर भरल्यास 07/02/14 450.00  
 PRAYAS UNIT III-A  
 DEVGIRI PLNO 14 SNO 17/B INDUSTRIAL AREA / KOTHRUD PUNE - 411038

मीटर क्रम + मास-क्रम 8/28/3602/8999 दर संकेत O/M/LT II Comm 3 Phase 20KW  
 मी. क्र. 4613802 सलग्न भार 5.20 KW बीज शुल्क संकेत : 6  
 पोल नं. 8ADARJULI C मंडळ भार 5.20 KW पुरवठा तारीख : 13/03/07

मीटर क्रमांक	चालू रिडिंग	मागील रिडिंग	गुणक अंतरावर	युनिट	समा. युनिट	एकूण बीज वापर
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मागील बीज वापर

माहिना	युनिट
DEC-13	18
NOV-13	24
OCT-13	72
SEP-13	32
AUG-13	33
JUL-13	41
JUN-13	57
MAY-13	61
APR-13	0
MAR-13	0
FEB-13	0

विवरण	रु.	फीस
निसर आकार	190.00	
बीज आकार	152.10	
बीज शुल्क	64.43	
ईंधन समायोजन अल्प	3.56	
	0.00	
	0.00	
बीज विक्री कर	2.08	
चला सरासरी देयकाची रक्कम	0.00	
व्याज	0.00	
इतर आकार	0.00	
अतिरिक्त आकार	33.36	
<b>एकूण</b>	<b>445.53</b>	
निव्वळ शक्याची / जमा	3.16	
समायोजित रक्कम	-3.18	
व्याजाची शक्याची	0.00	
एकूण शक्याची / जमा	0.02	
देयकाची निव्वळ रक्कम	<b>445.51</b>	
<b>मासिक देयक</b>	<b>450.00</b>	
मासिक पावतोचा दिनांक	06/01/14	330.00
सुरक्षा घेव जमा	**10000	दिलेला आकार रु. 8.00

CALL CENTER TOLL FREE NO. 1600205435/1600233435/आयतन नव्याची विद्युत पुरवठा शक्ति केंद्राच्या शक्ति स्थळावर उपलब्ध आहे. या युनिट देयक अल्प भरल्यास शक्यता आहे. या युनिट देयक अल्प भरल्यास शक्यता आहे. या युनिट देयक अल्प भरल्यास शक्यता आहे. या युनिट देयक अल्प भरल्यास शक्यता आहे.

Figure 1.1: Sample MSDCL bill with photograph of meter.

c. **Energy Audits** – As illustrated earlier, distribution losses significantly impact power purchase planning, demand estimation as well as the finances of the utilities. We suggest energy auditing to be a routine procedure before commission where circle-wise, category wise and voltage level wise AT&C, T&D losses, collection efficiency, billed revenue, sales and revenue recovered is reported and made available on the commission’s website. Such information

should also be available in the ARR formats of the distribution companies and must be discussed during the tariff revision process.

- d. Loss reduction plan-** Commission to specify a realistic but stringent plan with trajectories and action steps to ensure loss reduction. The commission should also ensure strong monitoring and adequate incentives for meeting targets set by commission.
- e. Load shedding protocol-**Load shedding seems likely to continue for some years to come in Bihar. While there are many efforts being taken to reduce the demand-supply gap, it is also essential that there is fairness, transparency and predictability in load shedding. To ensure this :
  - i. The commission should prepare a discussion paper on possible load shedding protocol based on which state-wide consultations should be undertaken.
  - ii. The load shedding protocol can divide the state into regions based on levels of AT&C losses and more power can be supplied to regions with lower losses.
  - iii. Based on the inputs, and after public hearings are conducted, BERC should issue an order ratifying a load shedding protocol.

A similar scheme was operational in Maharashtra and it significantly increased transparency and accountability in load shedding decisions.

- 3. Supply Quality related measures** – Tariff revisions are more acceptable and justified if Distribution Companies are able to demonstrate efficiency improvements and also ensure quality supply to consumers. Moreover, transparency in the capabilities and efforts of the utilities to ensure supply quality also helps consumers have realistic expectations. Below mentioned measures help hold the distribution companies to their supply quality commitment.
  - a. SoP reports as per Section 59 (2)(b) of the Electricity Act,2003** - Distribution Companies are to submit reports to the commission reports based on formats prescribed by the commission in SoP regulations on a quarterly basis and the commission must publish the formats and the compliance reports on its website.
  - b. Need for more Ombudsmen and CGRFs**– With the fact that there are two distribution companies and given the geographic extent of the state, it is suggested that the commission appoint at least 2 Ombudsmen and ensure that distribution companies appoint circle wise CGRFs in each licensee’s area.
  - c. Awareness programs with respect grievance redressal-** Given that fact that many consumers may not be aware of grievance redressal mechanisms it might be harder to hold distribution companies accountable. The commission should undertake awareness programs; develop resource material in regional language about grievance redressal mechanisms and about guaranteed standards of performance.

d. **Standards of performance** –Given the current predicament of distribution companies, it is unreasonable to enforce Standards of Performance regulations with norms comparable to other states. It is suggested that the SoP regulations can be revised to:

- i. make standards as per current ability of distribution companies, ensure compliance to reduced standards
- ii. revise SoP regulations on an annual basis with improved performance
- iii. ensure penalties for non –compliance are enforced.
- iv. improve reporting formats under Section 59 (1) of the E Act to focus on metering and billing, hours of supply and quality of infrastructure.

4. **Access related measures** –Access to electricity is a key priority and in this context a detailed review of progress of RGGVY is needed. This can include:

- a. **Review of RGGVY status-** BERC to organise annual review of progress of rural electrification through RGGVY and other programs with participation of the distribution companies, Transmission Company, BREDA, REC and the energy department. Such a review could include status of electrification, major challenges faced during implementation and plans for the future. Minutes of such review meetings should be available in the public domain.
- b. **Public Hearings for Electrification Progress** – As electrification of the State will translate to benefits to its people, it is essential that an exclusive public hearing be held to review progress of RGGVY.

5. **Public Participation and Tariff Processes** – It is encouraging to note that the commission has been taking many efforts to encourage public participation in the tariff process. Unlike many other states, the commission has been holding tariff hearings for more than a month in 10 locations in the state. We hope that our submission will contribute to these efforts. Our suggestions include:

- a. Ensuring that the tariff petitions and ARR formats are easily available on the websites of BERC and the utilities for the present year and past years.
- b. Appointing consumer representatives under Section 94(3) and inviting them to participate in technical validation sessions during the tariff process and other important consumer-related proceedings before the commission.

### 3. Medium Term Suggestions

Medium term suggestions are those which take longer time to implement would entail some capital expenditure and needs deliberation with all stakeholders. Our suggestions are based on the experiences of other states with the view of ensuring investments made in the power sector yield results.

1. **Need to strengthen metering and billing:** Having adequate systems for energy accounting and to ensure regular and correct bills are provided will reduce the losses accruing to the distribution companies. It would also ensure the other investments made by the state are effective. With this in mind we suggest:
  - a. To ensure accounting of energy use, **AMR metering for all 11 kV feeders** would be useful while not being too expensive<sup>6</sup>. An estimated cost for ensuring AMR metering for the whole state about 10 crores. This investment would help mitigate other costs and make other investments more effective. The Commission should take up a study to estimate the cost, possible timelines and effectiveness of AMR metering for all feeders in the state and based on the study, ensure its implementation.
  - b. Ensure **automated billing with IT based systems** even in rural areas.
  - c. Ensuring availability of **spot billing machines** in different locations all over the state.
  - d. Ensuring systems are in place for **reporting of circle-wise, category-wise billing and sales data** in an integrated manner

#### 4. Long term Suggestions

Given our observations of the sector, we would like to suggest some long term steps as well. We are well aware that most of the steps need participation and the enthusiastic support from all stakeholders (including the State government, distribution companies, transmission companies, generating companies, State renewable development agency and the Regulatory Commission). Given our limited knowledge of the sector, the problems, opportunities and constraints, we just want to put forth some ideas for discussion.

1. **Need for integrated planning approach:** The need for reliable access to electricity in Bihar has generated interest from many players in the power sector. This has ensured that many schemes and projects are underway in Bihar. This support is important for Bihar but to ensure such investments translate to benefits, an integrated plan for the power sector in Bihar is needed. We may not be aware of all the considerations in the current planning process but we would still like to take this opportunity to highlight some of the possible pitfalls. Below are some suggestions in this regard:
  - a. **Need to prioritise investments to reach positive results faster:** Given the current status of the power sector, there are many steps or investments which could help the sector. However, it is important to prioritise such investments to maximise benefits. A few possible instances are listed below :

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<sup>6</sup> Installation of AMR meters for all feeders cost about Rs.50, 000 per feeder (Rs. 48 Cr for about 9000 feeders), according to cost estimates of MSEDCL in 2007. This excludes cost of data collection, transfer and analysis. The cost per feeder might be low due to scale economies, considering the number of feeders in Maharashtra. Alternatively, due to technology advancements, the cost per feeder might be lower. This number should be treated only as an indicative estimate.

- i. **Last mile connections to reach before backbone infrastructure** : With the centrally sponsored RGGVY making progress, it is possible that connections at the village and household level happen at a faster rate than the State sponsored planned network expansion covering sub-transmission and transmission. If that is the case, the state may not be able to supply power to households despite them receiving connections. Without energisation, such infrastructure may deteriorate defeating its intended purpose.
  - ii. **Need for metering and billing investments before feeder separation:** Unlike other states, current agricultural consumption of electricity in Bihar is low but T&D losses are high. Therefore, before mitigating agricultural consumption and investing in separation of feeders to ensure adequate household supply, it is important to ensure proper metering and billing systems are in place. With metering and billing, loss reduction would help utilise already contracted capacity to ensure reliable supply to rural households and small businesses.
- b. **Need for caution in managing capacity addition in pipeline** – The proposed capacity addition in the pipeline is at least 37% higher than the peak demand in 2016-17 projected for Bihar in the 18<sup>th</sup> Electric Power Survey<sup>7</sup>. Therefore if most of the capacity comes online, there is a possibility that consumption maybe lesser than supply. Given that most of the contracted capacity seems to be high, there is a possibility that such power may not find buyers in the market. However, in case there are significant delays in capacity addition, consumers have to bear the cost of delays while facing load shedding. Capacity addition plans should have adequate measures to deal with both eventualities.
- Capacity addition planning for the sector should not be based on large projects alone. Given the significance of small renewable systems, there is a need for projecting and planning for off-grid small renewable energy systems so they can be integrated with the grid. Moreover, as the State is adding large number of new consumers, appliance penetration is on the upswing. Therefore, demand side management and energy efficiency programs can contribute significantly in better utilisation of the scarce availability. Hence potential savings from energy efficiency programs should be factored into the capacity addition planning.
- In case of capacity to be contracted via bidding, the utility must ensure compliance with transparency norms such as: anonymous comparison of selected bid with L2, L3 and L4, report of the bid evaluation committee and tariff adoption order should all be available on the website at all points of time. In case of Case 2 bidding, a close scrutiny of feasibility and desirability of the proposed capacity to be added must be undertaken. Furthermore, post bidding, compliance with the transparency provisions mentioned above and regulatory oversight to ensure conditions of the PPA are adhered to would ensure that legal, governance issues akin to those faced by other states are mitigated in Bihar.
- c. **Need for Power Sector Planning Body:** With projects in generation, transmission, distribution and electrification being funded by different agencies and given the limited

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<sup>7</sup> 18<sup>th</sup> Electric Power Survey of India, CEA (2013), New Delhi



sources of funds available to the sector, there is a dire need to prioritise investments, evaluate pros and cons of schemes, assess impact on the sector at large and articulate possible short term and long term impacts while devising ways to bypass/mitigate such impacts. Most other states today are bearing the brunt of lack of integrated long term planning in the past and would have benefited from such an exercise. Planning itself seems like a macro process managed by the State Planning Commission with inputs from various agencies. There are many plans for energy use in Bihar such as elucidated by the chapter on energy in the Agriculture Road Map drafted by the Department of Agriculture, the rural electrification plan drafted by the Energy Department etc. With the power sector development needed in Bihar, it is suggested that a State Level Power Planning body be constituted which is able to prepare an integrated plan addressing the different needs for power in the State. The planning process itself should have a short term, medium term and long term objectives and outputs, especially with respect to prioritising and rationalising capital expenditure. This body should include representatives from the power utilities, the holding company, energy department, BREDA, and the regulatory commission. This committee should prepare a plan which is to be reviewed on an annual basis, where the responsible implementing agencies are to provide a status of progress according to plan, reasons for delay, challenges faced. Each stakeholder should have well-defined roles (especially the regulatory commission) and time bound objectives in order to ensure effective monitoring. The plan document and the review process should be available for public scrutiny to ensure accountability.

- 2. Need for redesigning subsidies** – Given the challenge ahead of the two distribution companies, state support is essential to ensure :
- a. capital expenditure for reliable supply
  - b. revenue gap due to low tariffs for small consumers (in order to encourage productive use and development) is financed.

We feel that state support for network augmentation is extremely important and is a positive step taken by the State Government. However, investments to ensure proper metering at all levels and streamlined billing processes are equally important and should be a priority. In this context, here are a few of our ideas with respect to redesigning subsidies:

- a. **Revenue subsidies need to be targeted** – Poor targeting and lack of conditionalities may result in inefficient consumption of energy. Therefore, we suggest that the government *gradually* provide electricity subsidy *only for metered consumers*. This will incentivise the distribution companies to provide meters to all consumers. With the low number of connections at present, such a process may not be impossible. Large amounts of subsidy especially in the agriculture sector, is being provided without proper targeting and without metering in most states. This is one of the major reasons of the distress of most large utilities. Given the current low agriculture consumption, a gradual move towards targeting

subsidies based on metered consumers will ensure that the same problems do not occur in Bihar.

- b. **Conditionalities needed for financing revenue gap** –The Government of Bihar has financed power purchase over and above approved amount incurred due to high T&D loss in the past. Supporting revenue gap is essential for ensuring financial health of the distribution companies but not having adequate conditionalities attached to such support provides no incentive for the distribution companies to be more efficient. In case revenue gap needs to be financed in the future, we suggest that such subsidies be provided by Government of Bihar only if:
- i. the distribution companies is able to reduce T&D losses by an amount specified by the Government of Bihar ;
  - ii. the distribution companies are able to meet target specified by the state government for metering 11 kV feeders, Distribution transformers, and consumers.
- c. **Need for prioritising capital expenditure support** – Capital expenditure financed by grants must be monitored by the State Government and BERC and should be subject to prudence checks. Moreover, the efficacy and benefits of such investments in loss reduction, quality of supply must be evaluated before and after the investments are made. It is also suggested that such investment be prioritised based on needs and potential benefits .All such evaluation of investment must be made available in the public domain.
- d. **Role of renewables in subsidy design** –The dependence on electricity for agriculture use is low in the state but it is bound to increase with increase in supply of electricity. As agricultural consumers are to be subsidised, the feasibility of a one-time capital subsidy to provide power to agriculture as opposed to a recurring revenue subsidy needs to be evaluated. It may be possible in certain areas to have solar plants connected to feeders supplying to predominantly agricultural areas which might help reduce the annual revenue subsidy burden and provide farmers with the limited supply of power they need. Feasibility of such systems can be looked into. This could include individual solar powered pump sets or dedicated solar plant to power agriculture feeders. However, if renewable energy is being used to meet agricultural electricity demand it is necessary to ensure all pump sets are efficient and the possibility of such investments can be debated.

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