

**Before the  
MAHARASHTRA ELECTRICITY REGULATORY COMMISSION  
World Trade Centre, Centre No. 1, 13th Floor, Cuffe Parade, Mumbai - 400 005  
Tel. No.: 022-2216-3964/65/69 – Fax: 022-2216-3976  
E-mail: [mercindia@mercindia.org.in](mailto:mercindia@mercindia.org.in)  
Website: [www.mercindia.org.in](http://www.mercindia.org.in)**

**Case No. 76 of 2009**

**In the matter of  
Petition of Maharashtra State Electricity Distribution Company Ltd. seeking approval  
for installing Prepaid Energy Meters and other reliefs**

**Shri. V. P. Raja, Chairman  
Shri. S. B. Kulkarni, Member  
Shri. V. L. Sonavane, Member**

Maharashtra State Electricity Distribution Co. Ltd.  
Prakashgad, Bandra (East)  
Mumbai 400051

.....Petitioner

**ORDER**

**Dated: April 26, 2010**

The Maharashtra State Electricity Distribution Co. Ltd. (“MSEDCL” herein after referred to as “Petitioner”) filed a Petition under affidavit before the Commission on December 3, 2009 under Sections 61, 62, 94(2), 55(1) and 56 of the Electricity Act, 2003 (“EA 2003”), Regulations 23 and 24 of the MERC (Electricity Supply Code and Other Conditions of Supply) Regulations, 2005, Regulation 85.1 of the MERC (Terms and Conditions of Tariff) Regulations, 2005, and Regulations 14 and 15 of the MERC (Standards of Performance of Distribution Licensees, Period for Giving Supply and Determination of Compensation) Regulations, 2005, for seeking approval for the installation of Prepaid Energy Meters.

2. Petitioner, in its Petition, has prayed as under:

“

- a) *Examine the proposals of the Petitioner for a favourable dispensation;*
- b) *The Hon’ble Commission may be pleased to approve the pilot proposal of installing prepaid meters to the MSEDCL employees / consumers who voluntarily opt for the same;*
- c) *Allow MSEDCL to offer 5 percent discount on every purchase of electricity credit to the consumers opting for prepaid metering;*
- d) *Approve tariff with FIXED FAC for R and C consumers opting prepaid metering;*
- e) *Permit continuation of existing tariff till the next recharge by the consumers;*
- f) *Grant permission to incur the above said expenditure to implement this pilot project;*
- g) *Any other relief just and equitable as the Hon’ble Commission deems fit;*
- h) *Condone errors / omission, if any, and may please give an opportunity to rectify the same and to file additional data, information as may be required.”*

3. The Petitioner in its Petition, submitted as under:

- a. The Petition is to be considered under Sections 61 (c), (d) and (e), Sections 62 (3) and (4), and Section 94(2) of the EA 2003. Further, Sections 55(1) and 56 of the EA 2003 are also related provisions in this regard.
- b. Maharashtra Electricity Regulatory Commission (Standards of Performance of Distribution Licensees, Period for giving Supply and Determination of Compensation) Regulations, 2005 provides the definition of “Meter”, which includes “pre-payment meters”, as follows:
  - i. *“Meter means a set of integrating instruments used to measure and/or record and store the amount of electrical energy supplied or the quantity of electrical energy contained in the supply, in a given time, which include whole current meter and metering equipment, such as current transformer, capacitor voltage transformer or potential or voltage transformer with necessary wiring and accessories and also includes pre-payment meters.”*
- c. Regulation 14 ( “Meters”), Regulation 15 ( “Billing”), Regulation 15.6 ( “Advance Payment”) and Regulation 16.2 ( “Restoration of power supply) of the Maharashtra Electricity Regulatory Commission (Electricity Supply Code and other Conditions of Supply) Regulations, 2005 are also related provisions in this regard.

- d. National Electricity Policy under Clause 5.4 emphasizes upon the use of modern technologies for reducing distribution losses and improvement in quality of service to consumers and energy conservation. In this regard, the Petitioner has relied on Clauses 5.4.10, 5.6.1 and 5.9.1 of the National Electricity Policy. Also, in case of prepaid payments where the information of credit balance for utilization is available to the consumer, there is a normal tendency to conserve the balance, which results in conservation of energy.
- e. MERC Supply Code Regulations and the MERC Standards of Performance Regulations mention the term, “**pre-payment meters**”, but the methodology to adopt this advanced technology in the existing billing system is not elaborated in these Regulations. Further, this would give a better service to the consumers, improve the cash flow of the Petitioner and also lead to reduction in consumer grievance and dissatisfaction to the consumers.
- f. At present, the Indian meter manufacturers do not readily have simple card insertion type meters, and a simple card insertion type prepaid meter without multiple accessories will be a better option from the point of view of costs, ease of operation and interoperability among different manufacturers. Efforts will be made jointly with meter manufacturers to develop such meters.
- g. As the concept is new and the manufacturers of the pre-paid meters are limited, the Petitioner has proposed installation of only 600 meters initially in the premises of employees of the Petitioner free of cost, who voluntarily accept this scheme. The performance of the pre-paid meters will be monitored and the feedback of the consumers/employees will be studied for about 4 to 6 months.
- h. The Petitioner has also proposed to pass on the benefits and savings accrued on account of doing away with meter reading, data punching, data processing, bill printing, bill distribution and bill collection, to the consumers as incentive for using the prepaid facility. Also, as a promotional policy, Petitioner intends to offer a discount of 5 per cent on every purchase of electricity credit, which will be beneficial to the consumer, so that he shifts from normal metering to pre-paid metering.

- i. The Regulations regarding billing as envisaged under Regulation 15 of MERC (Electricity Supply Code and other Conditions of Supply) Regulations, 2005 will not be applicable for prepaid meters.
  - j. MSEDCL has proposed tariff taking into consideration the present MSEDCL Tariff Order dated August 17, 2009. The slab wise Electricity Charge, Fixed Charge and Electricity Duty will be applicable as per the Tariff Order.
  - k. The approximate cost of the project comes to around Rs. 35 lakh.
4. The Commission, vide its Notice dated December 15, 2009, scheduled a hearing in the matter on January 7, 2010, in the presence of authorized Consumer Representatives. The Commission also directed the Petitioner to serve a copy of its Petition to all the Consumer Representatives.
  5. Prayas (Energy Group), vide its letter dated January 6, 2010, submitted its comments in the matter. They have submitted that care should be taken on various accounts to ensure that this initiative of introducing new technology is well accepted by the masses and also remains a profitable solution for the licensee and public in general. They have stated that it is important to formulate a process that would enable accounting of all such factors of tariff in the pre-paid metering process. Also it is stated that care should also be taken to address the issues of meter by-passing and/or theft and unlawful usage of power, since the pre-paid meters will not be routinely visited by the consumer representatives.
  6. During the hearing held on January 7, 2010, Shri A.J. Deshpande appeared on behalf of the Petitioner, MSEDCL. The Petitioner made submissions regarding the various modern technologies involved in the prepaid metering project. The Petitioner shared experiences about various States in India where prepaid meters have been working, and where energy conservation has taken place. Also, the various advantages of prepaid metering were discussed like, reading directly being linked with kWh, flexible amount of time for recharging, emergency credit availability, alarm indication in case of low credit, disconnection in case of over load, Electronic Clearing System (ECS), etc.

7. The Petitioner also made submissions about existing manufacturers for Prepaid meters, viz., Secure Meters Ltd., L&T and Genus. Amongst the three, it was submitted that Secure Meters Ltd. has fully developed technology, whereas the other two are at developmental stage. MSEDCL wants to work in tandem with Secure Meters Ltd. as their products are fully developed and they already have 600 prepaid meters ready with them. Emphasis was made on competition, as the cost of prepaid meter is more than six times the traditional meters. MSEDCL also mentioned about various advantages of prepayment systems like:
- a. Decrease in metering, billing and disconnection and reconnection costs;
  - b. The fact that payment is made prior to consumption implies both a significant improvement in the collection of revenues and a reduction in working capital requirement.
- From the consumer's perspective, the advantages are as follows:
- c. Prepayment systems may result in a better understanding of how much energy is being consumed;
  - d. Inducing more control of energy use and budget management.
8. The Petitioner also made submissions about implementation of current technologies like common vending machine from all type of manufacturers on a common platform, Electronic Clearing System (ECS), etc. Shri Deshpande also mentioned that the current billing practice as per Commission's Tariff Order may not be possible in case of prepaid meters.
9. The Petitioner also pointed out the difficulty of incorporating the FAC component in tariff, as in the case of Prepaid metering, once the card is logged in and vending is done, no adjustment can be done for that particular amount till the amount on that card gets over. During the hearing, MSEDCL proposed a Normative FIXED FAC charge of Rs. 0.20 per kWh for this pilot project of Prepaid Metering.
10. The Petitioner submitted that in case of pre-payment where the information on credit balance for utilization is available to the consumer, there is a normal tendency to conserve the balance, which results in conservation of energy.

The salient features of prepaid metering include the following:

- a) The consumer pays the amount in advance, and the balance account is debited for the amount of energy used in the previous month.
- b) When the entire units purchased have been consumed, the supply will get disconnected automatically.

11. Shri A.G. Patil, DGM of Brihanmumbai Electric Supply and Transport Undertaking (BEST), Mumbai explained BEST's experience of pre-paid metering project. BEST has provision of supply through prepaid meters to only temporary consumers. They have about 1,100 consumers covering 600 domestic and 500 commercial consumers. No tariff discount has been considered for this prepayment technology. Recharge coupon of 999 units for single phase consumers and recharge coupon of 9,999 units for three phase consumers is available.

12. The Petitioner also made submissions about practices from different States and support from the Regulators for successful working of the technologies. The West Bengal Electricity Regulatory Commission (WBERC) is the first in India to have successfully implemented this type of project. They have provided a rebate of 4% on tariff as incentive, have reduced meter rent from Rs. 25/- to Rs. 15/- for single phase consumers and from Rs. 50/- to Rs. 30/- for three phase consumers, and have made the same mandatory for temporary connection consumers.

13. The Commission observed that no constraint should be there on the number of meters, which are going to be installed. The Commission also suggested that the scheme should be available to general consumers also, rather than being restricted to Petitioner's employees, in order to ensure wider participation and more representative sampling. The Commission enquired regarding how to adjust the variable FAC under the pre-paid metering system, either by reducing the frequency of change in FAC or by some other method. The Commission also enquired whether all the meters are compliant with BIS specifications, and suggested to incorporate International Standards. The Commission enquired regarding the reasons why the prepaid metering schemes had not been scaled up in other places, wherever the scheme had been introduced on a pilot basis. The Commission directed the Petitioner to revisit the proposal submitted, considering the

National/International experiences and to understand the reasons for not scaling up the technology, pilot/sample size, and current / latest available technology. MSEDCL was also directed to submit the Five year master plan for implementation of prepaid metering.

The Commission also directed the Petitioner to submit a point-wise compliance incorporating the above.

14. With reference to the Commission's abovementioned directions, the Petitioner submitted its point-wise compliance and reply vide its letter dated February 9, 2010 as under:

- a) With reference to the preparation of road map for the pilot project, the pilot project is intended to be undertaken for 25,000 consumers, instead of the originally planned 600 consumers. Consequently, the estimated cost of the pilot project is expected to be Rs 16.50 Cr. MSEDCL will also be inviting competitive rates for the procurement of the meters, since there is a facility of inter-operability of the meters of different makes. MSEDCL further submitted that the Commission vide Order dated May 17, 2007 in Case No. 82 of 2006 and Order dated August 21, 2007 in Case No. 82 of 2006 has directed MSEDCL not to recover the meter cost from the consumers. In this regard, MSEDCL submitted that these directions may be reviewed and modified by the Commission for the consumers opting for the prepaid meters.
- b) The issues to be monitored under the pilot project in terms of technical and financial terms, are performance of the meter, acceptance of the concept by consumers in general, category-wise response of the consumers, decrease in arrears and improvement in cash flow, energy conservation achieved, customer satisfaction / reduction in consumer grievances, new requests received once the pilot project is started, etc.
- c) With respect to feedback / suggestions from experts and manufacturers in the metering field, MSEDCL submitted that M/s. NDPL has stated that after the completion of the pilot project, they are planning for expansion of the scheme with annual target of around one lakh consumers.
- d) The Petitioner has submitted that they are expecting increase in the categories to be covered under prepaid metering. They have proposed to cover all Residential and Commercial and all Temporary Connections, whosoever opts for the same.
- e) Petitioner has expressed that certain amendments may be required, to be brought about in certain provisions of the EA 2003 and certain Regulations of the Commission, such as Section 56 of the EA 2003, provisions related to the date of

issue of the bill and similar issues in the MERC Standard of Performance Regulations and MERC Supply Code Regulations.

15. The Commission, vide Notice dated March 3, 2010, fixed a further hearing in the matter on March 17, 2010.
16. During the hearing held on March 17, 2010, the Petitioner proposed that it is going to have a pre-bid meeting for selection of manufacturer of prepaid meters considering the inter-operability issue. It also proposed that this pilot project will be currently limited to only single phase Domestic and LT Commercial consumers.
17. The Petitioner submitted that the electricity supply will be disconnected after expiry of electricity credit as per Section 56 of the EA 2003. No reconnection charges will be recovered on recharging. All the meters are provided with an Alarm to indicate low credit. Prepaid meter reading will be taken into consideration while energy auditing Distribution Transformers.
18. The Petitioner also informed that all Meters will be provided with anti tampering technologies, and that recharge will be done at a common vending station. Petitioner has aimed for 20 vending stations at 20 circles for the proposed 25,000 numbers of consumers. Further, Petitioner mentioned that meters will be available within three months of order given to the manufacturer.
19. During the hearing, the South African prepaid metering practices were also discussed. Lessons learnt from the South African prepayment experiences, as listed below, were proposed to be considered by Petitioner for successful implementation of their pilot project:
  - a) Advertisement and initial subsidy has played an important role in popularizing prepaid electricity meters;
  - b) The consumer can buy tokens at the time and place that suits him or her;
  - c) There is no cost for disconnection/reconnection and no waiting for reconnection;
  - d) It also enables and empowers the consumer to make payments towards arrears. In Eastern Cape, every time when a customer buys a prepaid card, he pays 15% towards redemption of arrears.



Although this experiment has benefitted large masses of small and dispersed consumers, it has also generated a set of new problems that could not be visualized at the time of inception of the experiment. The success of this programme can be largely attributed to a number of factors, including a good marketing campaign, innovative tariff schedules, better planning and management, and so on.

20. Having heard the Parties and after considering the materials placed on record, the Commission rules as under:

- a) The Petitioner's proposal to introduce prepaid metering is in line with the directives given by the Commission through its Tariff Orders in the past. The coverage of the prepaid metering scheme needs to be broad-based and ensure adequate representation of different regions and consumer categories, while at the same time keeping in mind the operational difficulties. The proposed sample size of 25000 prepaid meters proposed by the Petitioner is approved and should cover LT single phase residential consumers, LT Commercial category consumers and LT temporary category consumers.
- b) The Commission feels the need to point out that Section 47(5) of the EA 2003 provides that “A distribution licensee shall not be entitled to require security in pursuance of clause (a) of sub-section (1) if the person requiring the supply is prepared to take the supply through a pre-payment meter.” Accordingly, the Petitioner shall not recover from consumers any security deposit when it is supplying electricity through a pre-payment meter.
- c) Before extending the scheme to all, the Commission is of the view that a study and experience of one year’s data after procurement of the prepaid meters be done to assess the benefits of introduction of prepaid metering on a larger scale. The Petitioner should submit a Report on the findings of the pilot prepaid metering scheme, within two months after the completion of one year of the pilot scheme.
- d) The report should indicate inter-alia performance of the meter, acceptance of the concept by consumers in general, category-wise response of the consumers, decrease in arrears and improvement in cash flow, energy conservation achieved, customer satisfaction / reduction in consumer grievances, new requests received after the pilot project is started, etc.
- e) While fine-tuning the pilot scheme in discussion with the meter manufacturers, lessons learnt from national and international experiences of prepaid metering should also be kept in mind. Further lessons learnt from the introduction of prepaid metering on a pilot basis in the Petitioner’s licence area can be utilised to fine-tune

the scheme before introducing the scheme for more categories across the State. The selected manufacturer (after competitive bidding) should also be asked to monitor the scheme, to get corroborate the study by the licence.

- f) At the same time, it is necessary to ensure that necessary safeguards are built into the scheme, and the necessary monitoring and verification framework is set up by the distribution licensee to ensure that the feedback is captured properly and necessary analysis can be done at a later stage. In this regard, the Commission is of the view that under the pilot project the existing meters should be not be removed, and should be used as check metering for some time, to assess the efficacy of the prepaid meters and also to increase the confidence of the consumers in the prepaid metering scheme. Also, the scheme may be offered initially to only those consumers for whom electronic meters have already been installed, else, the prepaid meter and the check meter may record different consumption due to calibration issues, which may lead to consumer grievances.
- g) The meter reading panel should be visible (mirror reading) inside the premises also, so that the consumer does not have to visit the meter room/cabin to view the available credit, and the level of awareness regarding consumption increases.
- h) During the implementation of the Pilot Project, the Tariff Order in force at the relevant time will be made applicable and will continue till the consumers approach for next recharge. If there are any changes, after the purchase of electricity units in advance by prepaid consumers, due to tariff revision, Fuel Adjustment Cost (FAC) Charges, etc., the same should be adjusted at the time of the next recharge.
- i) The Petitioner has submitted that, given the very nature of prepaid metering, the statutorily required minimum fifteen (15) clear days' notice in writing for cutting off the supply is not possible to be given to the erring consumer once the amount of credit paid by the consumer has expired. With regard to this submission, the Commission is of the view that under the prepaid meter system, the meter is recharged according to the credit bought by the consumer. Consumers can buy the credit according to their requirement. Thus, they can keep a control over the consumption. This requires him/her to make an advance payment before using the electricity. If the available credit is exhausted then the supply is automatically cut off by a relay circuit. Taking into account the doubt expressed by the Petitioner over the requirement to serve notice under Section 56 of the Act, the Commission advises the Petitioner to approach the competent authority, i.e., Ministry of Power for suitable clarifications or removal of difficulty orders. In view thereof, the Commission does not wish to express any opinion as regards the need to carry out any amendments to the EA 2003 at this stage.

- j) Furthermore, the Petitioner has proposed that no reconnection charges will be levied, in order to reconnect the consumers, once the electricity credit is charged again. Furthermore, according to the Petitioner certain amendments would need to be carried out to select provisions of MERC Supply Code Regulations and MERC Standards of Performance Regulations, in the context of roles and responsibilities of the distribution licensee related to metering, in order for the prepaid metering scheme to work. The Commission is of the view that since this is only a Pilot Project , at this stage it is advisable that the Petitioner monitors the working of the prepaid meters and based on the experience gained approach the Commission separately with specific instances where specific regulations may require to be modified if at all. Based on such feedback from the Petitioner, the Commission will decide whether the appropriate recourse should be to amend the regulations or to issue general or specific order for removing any difficulty that arises in giving effect to the provisions of these Regulations.
- k) The Commission notes that all the meters will be provided with an Alarm to indicate low credit, and that prepaid meter reading will be taken into consideration while energy auditing Distribution Transformers.
- l) It is necessary to give some kind of incentive to consumers in order to incentivise them to shift to prepaid metering, and the amount of incentive would have to be quantified based on the savings accruing to the distribution licensee. To start with, the Petitioner has proposed to offer 5 per cent discount on every purchase of electricity credit to the consumers who opt for prepaid metering. It needs to be clarified whether the 5% discount is on the entire monthly bill or only energy charges, since the implications will be different.
- m) As regards, the rate of Electricity Duty (ED) as well as Tax on Sale of Electricity (TOSE) the same is determined by the State Government and is not within the purview of the Commission. The licensee may not, therefore offer any discount on the ED and TOSE amount without express approval of the State Government.
- n) While assessing the savings to the Petitioner on account of introduction of prepaid meters, the Petitioner has submitted that it will be able to do away with meter reading, data punching, data processing, bill printing, bill distribution and bill collection. The Commission is of the view that the Petitioner will have to continue to undertake the activities of meter reading, data punching, data processing during the pilot scheme, for the purposes of energy accounting as well as to assess the efficacy of the prepaid meters, while the other activities mentioned by the Petitioner will no longer be required.

- o) As regards recovery of capital expenditure towards the pilot scheme for prepaid metering, the Petitioner will have to separately seek the Commission's in-principle approval for the capital expenditure, since the Commission has only approved the concept through this Order. Specific in-principle approval for the capital expenditure should be sought from the Commission in accordance with the guidelines laid down by the Commission, after giving all the necessary data and information including Cost Benefit Analysis, etc. In view of the proposal to include the expenditure on installation of pre-paid meters in the capital expenditure the submission made by the Petitioner that the directions of the Commission vide Orders dated May 17, 2007 and August 21, 2007 that the Petitioner shall not recover the meter cost from the consumers may be reviewed and modified by the Commission for the consumers opting for the prepaid meters, does not apply. There is no requirement to review or modify the said directions not to recover the meter cost from the consumers. In any case, prior to the said orders the Commission had passed an Order on September 8, 2006 approving MSEDCL's Schedule of Charges wherein the following directions were given:-

**“5.4 Commission’s Ruling**

The Commission directs MSEDCL not to recover any cost towards meter and meter box except where the consumer opts to purchase the meter from MSEDCL and in case of lost and burnt meter (Regulation 14.1 & 14.2 of Supply Code)....”

**" III**

**5) Cost of meter & meter box**

As per Section 55 of the Act, it is the responsibility of licensee to supply electricity through installation of correct meter in accordance with the regulations made in this regard by the Authority i.e. CEA.

The Government of India has notified CEA (Installation & Operation of Meters) Regulation, 2006 on 17th March 2006. As per Regulation 6(2)(a) of CEA (Installation & Operation of Meters) Regulation, 2006, ‘consumer meters shall generally be owned by the licensee.

The above provision implies that meter for new connection should be provided by the licensee and the cost of meter & meter box shall be borne by the licensee, except where a consumer elects to purchase the meter from licensee. The Commission approves the rates proposed by MSEDCL as indicated in Annexure-3, which would be applicable only in case of a burnt or a lost meter or where a consumer opts to purchase the meter from MSEDCL.”

The above provisions would apply and accordingly the Petitioner shall not charge the consumer any cost towards meter and meter box.

- p) Simple card insertion type prepaid meters as proposed by the Petitioner are appropriate

- q) The Petitioner should ensure that adequate competition in terms of meter manufacturers exists, and also ensure inter-operability of vending machines to cater to meters made by different manufacturers.

With the above, the present Petition filed by the Petitioner in Case No. 76 of 2009 stands disposed of.

(V. L. Sonavane)  
Member

(S. B. Kulkarni)  
Member

(V. P. Raja)  
Chairman



(K. N. Khawarey)  
Secretary, MERC