

# FORUM OF REGULATORS (FOR)



## MODEL DEMAND SIDE MANAGEMENT REGULATIONS

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**TABLE OF CONTENTS**

**1. PREAMBLE.....3**

**2. MODEL DEMAND SIDE REGULATIONS.....6**



## **1. PREAMBLE**

Demand Side Management (DSM) is described as the planning, implementation and monitoring of utility's activities designed to encourage customers to amend their electricity consumption patterns, both with respect to timing and level of electricity demand so as to help the customers to use electricity more efficiently. Various factors such as increasing economic activity and population growth are resulting in additional pressure on ever increasing power demand when the country is already facing acute power shortage. In such a scenario, DSM can complement supply-side strategies to help meet electric service demands by assisting utilities avoid or delay costly capacity additions by slowing demand growth. To promote DSM, the Government is continuously introducing various policies and programmes targeting different sectors such as appliances, buildings, industries, etc. Despite these policies, the potential remains largely unrealized due to technical, financial, economic and institutional barriers.

One of the reasons for non-deployment of larger scale DSM programmes is the deficiencies in the existing regulatory and policy framework. These deficiencies include lack of clarity around obligation on distribution utilities to take up DSM measures; absence of clear mandate to the State Electricity Regulatory Commissions (SERCs) to ensure development and implementation of DSM programmes; absence of Regulations/guidelines for design, development and implementation of DSM activities. In the absence of an overall target/goal, DSM programmes are undertaken on piecemeal basis. Also, there is a lack of institutional mechanism for coordination between various stakeholders such as State Designated Agencies (SDAs), distribution utilities, Bureau of Energy Efficiency (BEE) and SERCs to undertake EE&DSM.

As part of the ongoing assignment on "Consultancy Services being provided by ABPS Infra to Bureau of Energy Efficiency and Forum of Regulators on various issues related to EE&DSM", ABPS Infra undertook study on 'Institutionalising Energy Efficiency and Demand Side Management in Utility sector in India'. On the basis of detailed literature review and stakeholder consultation, a model DSM framework was developed and activities/functions that need to be undertaken in a model DSM framework were identified. The DSM processes currently being undertaken in India were then mapped onto the model framework to identify the functional gaps. While doing so, the institutions currently responsible for the functionalities were mapped on the model DSM framework.

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Consequently, the activities that are not being undertaken by any of the existing institutions were identified.

As part of the study, to address various institutional barriers in large scale deployment of DSM programmes a DSM framework has been proposed with institutions responsible to undertake each activity in the framework. The same is presented below. The activities suggested here may not always flow in the same sequential order. It is an iterative process and the activities are revisited as and when required.



**Proposed institutional framework**

It may be noted that to put the proposed institutional framework and to provide the much needed impetus to the Demand Side Management initiatives in the State an enabling regulatory framework is required.

In this Report, we have developed Draft Demand Side Management Regulations to elaborate upon the administration and delivery mechanism for DSM. Some of the salient features of the Regulations are:



- The Regulations provide for DSM Objectives and targets to be set by the SERC for the Distribution Licensee, to mandate it to undertake DSM activities.
- To guide the Distribution Licensee to achieve the set targets, provision for guidelines on various aspects of DSM process is provided. Initially the Commission shall issue guidelines on Load and market research, Implementation of DSM programmes, Cost Effectiveness Assessment of DSM programmes, Monitoring and Reporting of DSM Plan and programmes, and Evaluation, Measurement and Verification of savings through DSM programmes. These guidelines may be modified by the SERC from time to time without modifying the Regulations.
- The Distribution Licensee is required to constitute a dedicated team of officials with significant authority to undertake the responsibilities envisaged under the Regulations. Hence, constitution of DSM Cell within Distribution Licensee is deemed necessary.
- The Draft Regulations provide for various activities including load research and development of baseline data, formulation of DSM Plan, Commission review and approval of DSM plan, preparation of DSM Programme Document, approval of DSM Programme Document and implementation of DSM programmes

These regulations aim to provide a guiding document to the States while preparing DSM Regulations. Modifications/additions may be required to incorporate State specific conditions/attributes. Legal opinion may be sought to ensure consistency with prevailing Acts and legal framework in the electricity sector.

## 2. MODEL DEMAND SIDE REGULATIONS

### State Electricity Regulatory Commission (Demand Side Management) Regulations, 2010

#### INDEX

S.N	Particulars	Page No.
Introduction		
Chapter I - General		
1	Short Title, extent and Commencement	8
2	Definitions	8
Chapter II: DSM Objectives targets and guidelines		
3	DSM Objectives	9
4	Assessment of technical potential for DSM	10
5	DSM Targets	10
6	Guidelines on DSM process	10
Chapter III: DSM Cell		
7	Constitution of DSM Cell, its roles & responsibilities	11
Chapter IV: DSM Process		
8	Load and market research and development of baseline data	11
9	Formulation of DSM Plan	12
10	Commission review and approval of DSM Plan	13
11	Preparation of DSM Programme Document	13
12	Approval of DSM Programme Document	13
13	Implementation of DSM programmes	14
14	Mechanism for Cost Recovery	14
15	Monitoring and reporting of DSM Programmes	15
16	Evaluation Measurement and Verification of DSM Programme	15
Chapter V: DSM Plan and Programme Completion Report		
Chapter VI: Incentives		
Chapter VII: Miscellaneous		



WHEREAS section 23 of the Electricity Act 2003 provides that *“If the Appropriate Commission is of the opinion that it is necessary or expedient so to do for maintaining the efficient supply, securing the equitable distribution of electricity and promoting competition, it may, by order, provide for regulating supply, distribution, consumption or use thereof”*;

AND WHEREAS Section 42 (1) of the Electricity Act 2003 provides that *“it shall be the duty of a distribution licensee to develop and maintain an efficient, co-ordinated and economical distribution system in his area of supply and to supply electricity in accordance with the provisions contained in this Act”*

AND WHEREAS Section 61 of the Electricity Act 2003 provides that *“The Appropriate Commission shall, subject to the provisions of this Act, specify the terms and conditions for the determination of tariff, and in doing so, shall be guided by the following, namely:-“Clause (c) “the factors which would encourage competition, efficiency, economical use of resources, good performance and optimum investment”*

AND WHEREAS Section 86(2) of the Electricity Act 2003 provides that *“State Commission shall advise the State Government on all or any of the following matters, namely:-“ Clause (i) “promotion of competition, efficiency and economy in activities of the electricity industry;”*

AND WHEREAS Clause 5.9.2 of the National Electricity Policy provides that *“The potential number of installations where demand side management and energy conservation measures are to be carried out is very large. Bureau of Energy Efficiency (BEE) shall initiate action in this regard. BEE would also make available the estimated conservation and DSM potential, its staged implementation along with cost estimates for consideration in the planning process for National Electricity Plan”*;

AND WHEREAS Clause 5.9.4 of the National Electricity Policy provides that *“In the field of energy conservation initial approach would be voluntary and self-regulating with emphasis on labelling of appliances. Gradually as awareness increases, a more regulatory approach of setting standards would be followed”*;

AND WHEREAS Clause 5.9.6 of the National Electricity Policy provides that *“In order to reduce the requirements for capacity additions, the difference between electrical power demand during peak periods and off-peak periods would have to be reduced. Suitable load management techniques should be adopted for this purpose. Differential tariff structure for peak and*

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*off peak supply and metering arrangements (Time of Day metering) should be conducive to load management objectives. Regulatory Commissions should ensure adherence to energy efficiency standards by utilities;*

NOW, THEREFORE, in exercise of the powers conferred by clause (zp) of sub-section (2) of section 181 of the Electricity Act, 2003 (36 of 2003), the State Electricity Regulatory Commission hereby makes the following regulations namely State Electricity Regulatory Commission (Demand Side Management) Regulations, 2010

### **Chapter I: General**

#### **1. Short Title, extent and Commencement**

- 1.1. These Regulations may be called the “State Electricity Regulatory Commission (Demand Side Management) Regulations, 2010”.
- 1.2. These Regulations shall be applicable to the Distribution Licensees in the State in their respective areas of supply.
- 1.3. These Regulations shall come into force from the date of its notification in the Official Gazette.

#### **2. Definitions**

- 2.1. In these Regulations, unless the context otherwise requires –
  - i. “Act” means the Electricity Act, 2003 (36 of 2003);
  - ii. “Baseline data” means the initial base level consumption and/or demand for electricity before a DSM programme begins to provide a starting point for comparison for assessing programme impact”;
  - iii. “Bureau” means the Bureau of Energy Efficiency established under sub-section (1) of Section 2 of The Energy Conservation Act, 2001
  - iv. "Commission" means the State Electricity Regulatory Commission constituted under sub-section (1) of Section 82 of the Act;

- v. “Cost Effectiveness Index” means an indicator of the attractiveness of any investment in DSM programme or when compared to the costs of energy produced and delivered in the absence of such an investment
- vi. “Demand Side Management” means the actions of a Distribution Licensee, beyond the customer's meter, with the objective of altering the end-use of electricity - whether it is to increase demand, decrease it, shift it between high and low peak periods, or manage it when there are intermittent load demands - in the overall interests of reducing Distribution Licensee costs.
- vii. “DSM Resource Acquisition” means a mechanism to implement DSM projects through customers, Energy Service Companies, Non-Government Organisations, manufacturers/ suppliers, or other private sector organizations, with payment made to them by the Distribution Licensee for the resultant energy and load reductions
- viii. “Energy Services Company” means a company which is in the business of providing energy efficient and load management equipment and/or services to end-use customers and is approved by Bureau
- ix. “Evaluation, Measurement and Verification” means activities which evaluate, measure and verify performance or other aspects of DSM/energy efficiency programs or their market environment
- x. “Monitoring and Reporting” means activities which monitor and evaluate the progress of DSM/energy efficiency programs of the Distribution Licensee

## **Chapter II: DSM Objectives, targets and guidelines**

### **3. DSM Objectives**

3.1. The Commission shall formulate DSM objectives that shall be considered in the advancement and implementation of cost effective DSM initiatives in the State.

The objectives may include power shortage mitigation, seasonal peak reduction, cost effective energy savings, lowering the cost of electricity, reduction in emissions of greenhouse gases etc.



3.2. While formulating the DSM Objectives, the Commission may take into consideration the National DSM Objectives/ Plans formulated by BEE, if any.

3.3. The DSM objectives may be consistent with the DSM objectives set out by Bureau as a part of Energy Conservation Plan for the country.

**4. Assessment of technical potential for DSM**

4.1. The Distribution Licensee in the State shall carry out assessment of potential for DSM in the State one year before the start of every MYT Control Period.

Notwithstanding above provision, the first assessment of technical potential for DSM shall be carried out within six months of the notification of these Regulations.

4.2. Distribution Licensee shall be guided by methodology developed by Bureau while assessing of technical potential for DSM.

**5. DSM Targets**

5.1. The Commission shall establish DSM targets for each Distribution Licensee in the State.

5.2. While setting DSM target for the Distribution Licensee, the Commission will give due consideration to factors such as consumer mix, load profile, etc.

5.3. Examples of DSM targets may include the following:

- Percentage reductions in load growth;
- Savings in kW, kWh;
- Savings as a percent of total resources to meet load;

5.4. While establishing the targets, the Commission shall consider the technical potential in the State as assessed by the Distribution Licensee.

**6. Guidelines on DSM process**

6.1. The Commission shall issue guidelines to guide the Distribution Licensee in execution of the following activities

- i. Load and market research
- ii. Implementation of DSM programmes



- iii. Cost Effectiveness Assessment of DSM programmes
  - iv. Monitoring and Reporting of DSM Plans and programmes
  - v. Eligibility criteria for DSM programmes
  - vi. Methodology for setting DSM targets and funding levels
  - vii. Database development framework
- 6.2. The Commission shall issue guidelines on these matters from time to time
- 6.3. Issuance of such guidelines shall not be a pre-requisite for preparation and submission of the first DSM plan by the Distribution Licensee

### **Chapter III: DSM Cell**

#### **7. Constitution of DSM Cell, its roles & responsibilities**

- 7.1. Every Distribution Licensee shall, constitute DSM Cell within one month of adoption of these regulations
- 7.2. The DSM Cell so constituted shall be provided with necessary authority and resources so as to execute the functions assigned to it under these Regulations
- 7.3. The DSM Cell shall be responsible for:
- i. Load research and development of baseline data
  - ii. Formulation of DSM Plan
  - iii. Design and development of DSM projects including cost benefit analysis, plans for implementation, monitoring & reporting and for measurement & verification
  - iv. Seeking necessary approvals to DSM Plan and individual programmes
  - v. Implementation of DSM programmes
  - vi. Any other additional function that may be assigned by the Commission from time to time
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**Chapter IV: DSM Process**

**8. Load and market research and development of baseline data**

- 8.1. Distribution Licensee shall undertake load research to identify the target consumer segment/s and end uses for DSM programmes to build the necessary database
- 8.2. Distribution Licensee shall undertake market research to estimate market potential for specific energy efficiency technologies and applications, establish key performance indicators, and determine existing baseline market conditions
- 8.3. On the basis of the results of load and market research, the Distribution Licensee shall develop baseline data for its area of supply
- 8.4. Distribution Licensee shall design, develop and implement the initial few DSM programmes on the basis of available data and studies completed by BEE till the complete baseline data is available for its area of supply and establishment of baseline data shall not be a pre-requisite for design of such initial DSM programmes by the Distribution Licensees.

**9. Formulation of DSM Plan**

- 9.1. Distribution Licensee shall formulate and submit to the Commission a perspective DSM Plan covering period of the control period, within one year of notification of these regulations. The Plan shall include
  - i. An overall goal for DSM Plan
  - ii. Description of DSM programmes to form a part of DSM Plan
  - iii. Implementation process and schedule of each programme in the plan as a whole
  - iv. Plan for Monitoring and Reporting
  - v. Indicative cost effectiveness assessment of programmes

Notwithstanding above, the first DSM Plan shall be prepared within one year of the date of these Regulations and shall be for the period till the end of ongoing MYT Control Period.

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- 9.2. The Distribution Licensee shall include all relevant DSM programmes (including multi-state programmes) developed by Bureau in its perspective plan as and when such programmes are announced by Bureau.
- 9.3. The Distribution Licensee shall submit on rolling basis, an annual plan, not inconsistent with the perspective plan, for upcoming year, along with the Annual Performance Review.
- 9.4. Selection and prioritisation of various DSM programmes in the DSM Plan shall be guided by the following factors:
  - i. The Cost effectiveness guidelines issued by the Commission
  - ii. DSM Objectives identified in Regulation 3
  - iii. Whether the proposed programmes supplement National level efforts adopted by the Bureau
  - iv. Programmes with high visibility and therefore potential for creation of awareness within consumers

#### **10. Commission review and approval of DSM plan**

- 10.1. Distribution Licensee shall submit the DSM Plan to the Commission for approval at least six months before the start date of the next MYT period.
- 10.2. The Commission may adopt procedures as specified in the Conduct of Business Regulations for according approval to the DSM Plan

#### **11. Preparation of DSM Programme Document**

- 11.1. For each DSM programme included in the DSM Plan, a detailed description shall be provided in a separate Programme Document. The description shall include general information, technology, schedule for deployment, budget, cost effectiveness assessment, detailed implementation plan, estimation of savings, etc.
- 11.2. For each DSM programme cost benefit analysis shall be carried out as per guidelines issued by the Commission on Cost effectiveness from time to time.

## **12. Approval of DSM Programme Document**

12.1. Prior to implementing any DSM programme, Distribution Licensee must obtain approval of the Commission.

12.2. Each Programme Document shall include the following:

- i. Description of the programme;
- ii. Objectives and rationale for the programme;
- iii. Consumer segments and estimated level of participation;
- iv. Estimate of baseline;
- v. Assessment of programme in line with Cost Effectiveness Guidelines issued by the Commission
- vi. Mechanism for recovery of cost and performance incentives;
- vii. Marketing, delivery strategy and Implementation schedule;
- viii. Implementation mechanism e.g. Energy Service Companies, DSM Bidding, DSM Resource Acquisition, etc
- ix. Monitoring and evaluation plan;
- x. Plan for Training/Seminars/Workshops to increase consumer awareness

12.3. The Commission shall approve a DSM program if it is in line with the Objectives set out in Section 3 of the Regulations. The Commission may direct modifications to proposed or on-going programmes to ensure consistency with the DSM Objectives. However, the Commission shall allow Distribution Licensee adequate time to notify consumers of program modification.

**13. Implementation of DSM programmes**

- 13.1. Distribution Licensee shall undertake implementation of DSM programmes in line with the guidelines issued by the Commission from time to time
- 13.2. The implementation of the programme shall be undertaken in the manner as approved by the Commission
- 13.3. Distribution Licensee shall undertake implementation of quick gain DSM programmes
- 13.4. Distribution Licensee shall carry out implementation of activities assigned to it either by itself or through engagement of appropriate independent entity

While doing so, the Distribution Licensee shall ensure that continuity and consistency is maintained and interest of the consumers is not compromised

**14. Mechanism for Cost Recovery**

- 14.1. Distribution Licensee shall identify the net incremental costs, if any, associated with planning, design and implementation of programmes
  - 14.2. Distribution Licensee may propose methodology for recovery of net incremental costs through tariff or any other mechanism
  - 14.3. In order to qualify for cost recovery, each program must be
    - i. Approved prior to implementation
    - ii. Implemented in accordance with the approved program plan and
    - iii. Implemented cost effectively
  - 14.4. Distribution Licensee shall provide all necessary assistance to the Commission, or third party assigned by the Commission in undertaking Evaluation Measurement and Verification of DSM programmes implemented by it.
  - 14.5. The Commission may direct the Distribution Licensee to undertake DSM programmes that may not be cost effective but is highly beneficial to the society. The Commission will make available resources for such project.
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**15. Monitoring and reporting of DSM Programmes**

15.1. Distribution Licensee shall prepare plan and undertake monitoring and reporting of DSM programmes as per Guidelines on Monitoring and Reporting issued by Commission from time to time or as approved by the Commission while approving the DSM programme.

**16. Evaluation Measurement and Verification of DSM Programme**

16.1. Distribution Licensee shall prepare plan for evaluation, measurement and verification of savings from DSM programmes as per Guidelines on Evaluation, Measurement and Verification issued by the Commission from time to time.

16.2. Third party Evaluation Measurement and Verification of DSM programmes may be undertaken by the Commission or third party assigned by Commission.

While engaging the agency, the Commission shall ensure that the Agency is not undertaking any other engagement which could conflict with the interests of the consumers in the State.

16.3. Distribution Licensee shall make available necessary information/data to the Commission or third party assigned by the Commission to measure and verify the savings from DSM programmes.

**Chapter V: DSM Plan and Programme Completion Report**

17. Reports on progress of DSM Plan and expenses incurred on implementation of DSM Plan shall be submitted by the Distribution Licensee every six months.

18. The Distribution Licensee will prepare and submit a detailed Program Completion Report and submit the same to the Commission within one month of completion of such programme.

19. The Report shall cover the programme expenses, achievements, outcomes and outputs, constraints and difficulties faced, conclusions, recommendations, lessons learned and way forward.



**Chapter VI: Incentives**

20. The Commission may provide incentives to Distribution Utilities for achieving or exceeding DSM Objectives as identified in Section 3 of the Regulations.

**Chapter VII: Miscellaneous**

21. The Commission may, at any time add, vary, alter, modify or amend any provisions of these regulations.
22. If any difficulty arises in giving effect to the provisions of these Regulations, the Commission may, by general or specific order, make such provisions not inconsistent with the provisions of the Act, as may appear to be necessary for removing the difficulty
23. The Commission may, from time to time, issue orders and practice directions in regard to the implementation of the regulations and procedures to be followed.
24. All disputes arising under these regulations shall be decided by the Commission based on an application made by the person aggrieved.