

DRAFT FOR PUBLIC COMMENTS

**MAHARASHTRA ELECTRICITY REGULATORY  
COMMISSION**

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**Draft Regulations  
DSM Implementation Framework**



**February 2010**

**MAHARASHTRA ELECTRICITY REGULATORY COMMISSION,**  
**MUMBAI**

**Maharashtra Electricity Regulatory Commission (Demand Side Management Implementation Framework) Regulations, 2010**

1. SHORT TITLE, APPLICABILITY, COMMENCEMENT AND INTERPRETATION.....	3
2. DEFINITIONS.....	3
3. BASIC PRINCIPLES .....	4
4. DSM GUIDING PRINCIPLES .....	6
5. DSM PROGRAMMES ELIGIBILITY CRITERIA.....	8
6. DEVELOPMENT AND SUBMISSION OF DSM PORTFOLIO .....	8
7. ROLE OF DSM CONSULTATION COMMITTEE (DSM-CC).....	9
8. RESPONSIBILITIES OF THE DISTRIBUTION LICENSEES RELATED TO INITIATION OF DSM PROGRAMMES .....	10
9. DSM FUNDING, TARGETS AND BUDGETS.....	12
10. DSM PLAN, DSM PROGRAMME AND DSM ANNUAL WORKPLAN AND APPROVAL PROCESS .....	15
11. EVALUATION, MEASUREMENT & VERIFICATION (EM&V) .....	18
12. MONITORING & REPORTING .....	19
13. END OF DSM PROGRAMME COMPLETION REPORT.....	19
14. SELECTION CRITERIA: METHODOLOGY FOR SELECTION OF DSM PROGRAMMES TO BE INCLUDED IN THE DSM PLAN.....	19
15. SELECTION CRITERIA FOR OTHER PROGRAMMES TO BE INCLUDED IN THE PLAN .....	20
16. POWER TO REMOVE DIFFICULTIES.....	21
17. ISSUE OF ORDER AND PRACTICE DIRECTIONS .....	21
18. POWER TO AMEND.....	21
ANNEXURE 1: LIST OF DSM IMPLEMENTATION ACTIONS .....	22
ANNEXURE 2: ELEMENTS OF DSM PLAN DOCUMENT.....	24
ANNEXURE 3: ELEMENTS OF DSM PROGRAMME DOCUMENT .....	29

**MAHARASHTRA ELECTRICITY REGULATORY COMMISSION,**  
**MUMBAI**

**Maharashtra Electricity Regulatory Commission (Demand Side Management  
Implementation Framework) Regulations, 2010**

ELECTRICITY ACT, 2003

No. MERC / \_\_\_\_\_ - In exercise of the powers conferred by sub-section (1) of Section 181 and clause (zp) of sub-section (2) of Section 181 of the Electricity Act, 2003, and all other powers enabling it in this behalf, the Maharashtra Electricity Regulatory Commission hereby makes the following Regulations, providing for implementation framework to be followed by distribution licensees in connection therewith and for matters incidental and ancillary thereto.

**1. Short Title, Applicability, Commencement and Interpretation**

1.1 These Regulations may be called the “Maharashtra Electricity Regulatory Commission (Demand Side Management Implementation Framework) Regulations, 2010”.

1.2 These Regulations extend to the whole of the State of Maharashtra.

1.3 These Regulations shall come into force from the date of their publication in the Official Gazette.

1.4 These Regulations shall be construed harmoniously with the Maharashtra Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2005 as amended from time to time.

**2. Definitions**

2.1 In these Regulations, unless the context otherwise requires:

(a) “**Act**” means the Electricity Act, 2003 (36 of 2003) as amended from time to time;

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- (b) “**DSM**” means Demand Side Management;
- (c) “**Avoided Costs**” means the incremental costs avoided by the distribution licensee when it purchases power because of implementation of DSM programmes, or otherwise defers or avoids distribution related costs from existing/new distribution system upgrade investments;
- (d) “**Cost Effectiveness**” means an indicator of the relative performance or economic 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 and as defined in “Maharashtra Electricity Regulatory Commission (Demand Side Management Measures and Programmes’ Cost Effectiveness Assessment) Regulations, 2010”;
- (e) “**Demand-Side Resource**” means a saving in consumption (kWh) and/or demand (kW/KVA) available as a result of implementation of DSM programme, to be expressed in three important dimensions: Quantum – as to how much is available (kWh and/or kW); Time – as to when is it available (at what time of day, on what days, in what season); and the Cost – as at what would be the cost;
- (f) “**Evaluation, Measurement and Verification (EM&V)**” means activities which evaluate, monitor, measure and verify performance or other aspects of DSM / energy efficiency programmes or their market environment;
- (g) “**Life**” means an estimate of the median number of years that the DSM measures installed under the programme are still in place and operable;
- (h) “**Load Research**” means an activity embracing the measurement and study of the characteristics of electric loads to provide a thorough and reliable knowledge of trends, and general behaviour of the load characteristics of the customers serviced by the electrical industry;

2.2 Words and expressions used herein and not defined shall have the meanings assigned to them in the Act or the rules or regulations made thereunder.

### 3. Basic Principles

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3.1 Every Distribution Licensee shall make DSM an integral part of their day-to-day operations, and undertake planning, designing and implementation of appropriate DSM programmes on a sustained basis.

3.2 Distribution Licensees may recover all justifiable costs incurred by them in any DSM related activity, including planning, designing, implementing, monitoring and evaluating DSM programmes, by adding these costs to their Annual Revenue Requirement to enable their funding through tariff or by implementing programs at the Consumers' premises that would attract appropriate Return on Investment. All such DSM related activity/ programmes undertaken by the Distribution Licensees —

- (i) will need to be cost effective for the consumers' of the Distribution Licensees as well as to the Distribution Licensees themselves;
- (ii) shall protect the interest of consumers and be implemented in an equitable manner;
- (iii) result in overall tariff reductions for all the consumers of the licensees.

3.3 Distribution Licensees shall be guided by these regulations —

- (i) while planning and submitting long-term power procurement plan to the Commission as part of their application seeking determination of tariff;
- (ii) while submitting to the Commission the measures proposed to be implemented by them as regards load management, energy conservation and energy efficiency;
- (iii) while submitting to the Commission the impact on energy and demand, together with the cost-benefit analysis.

## DRAFT FOR PUBLIC COMMENTS

3.4 Distribution Licensees shall be guided by the MERC (Demand side Management Measures and Programme's Cost Effectiveness Assessment) Regulations, 2010 while carrying out cost-effectiveness.

### **4. DSM Guiding Principles**

The duties of the Distribution Licensees shall be as follows:-

- a) Distribution Licensees shall implement quick acting DSM programmes that provide long-term savings;
- b) Distribution Licensees shall propose and implement programmes bringing in energy-efficiency in the premises used for the following purposes - commercial, public-sector, residential, municipal, industrial and agricultural use;
- c) Distribution Licensees shall implement programmes that help reduce peak demand peak shifting and associated costly power purchase, specifically in the urban centres. Such programmes shall also include Demand Response initiatives involving consumers agreeing to modulate their load shapes through a contract with the licensee.
- d) Distribution Licensees formulate DSM program designs that provide sustainable benefits (market transformation), and which particularly :-
  - (i) enhances consumer interest and inclination in adopting load management and energy efficiency, i.e., not only removes perceived barriers but goes beyond and motivates consumers to adopt energy efficiency;
  - (ii) enhances the interest and the willingness of the intermediaries such as the banks to lend for energy efficiency measures, and
  - (iii) enhances emergence or development of sustainable energy delivery entities.

DRAFT FOR PUBLIC COMMENTS

e) Distribution Licensees shall implement programmes that are:

- (i) cost effective for total resources;
- (ii) do not put undue burden on non-participants (those who do not participate in the DSM programmes) and participants (those who participate in the DSM programmes);
- (iii) directly or indirectly benefit the consumers in all segments from the programmes.

(f) Distribution Licensees shall design, develop and implement DSM programmes that supplement national level efforts, specifically those promoted by the Bureau of Energy Efficiency (BEE).

(g) The DSM programme portfolio (aggregation of all DSM programmes) of Distribution Licensees will be designed based on “market driven” approach to DSM portfolio selection.

(h) DSM programme development, design and implementation shall be carried out in consultation with the stakeholders in the State to ensure pragmatic implementation and also to ensure consumer awareness and education.

(i) DSM Consultation Committee set up under the Regulations shall be the nodal agency to drive the program implementation under these regulations, *provided that* differences, if any, may be referred to the Commission for decision; .

(j) Distribution Licensees shall not implement pure renewable energy-based programmes as DSM programmes.

**5. DSM Programmes Eligibility Criteria**

A DSM programme shall be eligible if in the opinion of the Commission the said programme meets with the DSM guiding principles specified in Regulation 4 of these Regulations.

**6. Development and Submission of DSM Portfolio**

- (i) Distribution Licensees shall initiate Load Research activities and submit the findings [to the Commission] and the resulting propositions to implement DSM Programmes to be aggregated as “DSM Plans”.
- (ii) Distribution Licensees shall specify DSM targets and submit DSM plan based on multi-year planning horizon.
- (iii) The term of the DSM plan shall correspond with the five year multi-year Tariff term.
- (iv) Distribution Licensees shall submit 5-year DSM plans along-with the multi-year tariff filing.

*Provided that* till the time the multi-year tariff filings are made, , Distribution Licensees shall submit DSM plans as one-year targets and reconcile those as 5-year plans when the multi-year tariff filings are made.

- (v) DSM Plan shall contain prioritisation and implementation schedule for each DSM programme in the Plan, which shall form the basis for deriving aggregated year wise schedules for funds requirement, and DSM plan achievements in terms of savings or shifting/reduction of peak load.
- (vi) The aggregated year-wise funds requirement and proposed achievements shall be used as annual DSM budgets and annual targets, respectively.



## DRAFT FOR PUBLIC COMMENTS

- (vii) At the beginning of the multi-year planning cycle, the Commission shall accord approval to the DSM Plan, based on the Cost-effectiveness of the individual programmes and aggregated portfolio.

### **7. Role of DSM Consultation Committee (DSM-CC)**

(1) A DSM Consultation Committee (DSM-CC) shall be appointed by the Commission consisting of the following members:-

- a) Secretary of the Commission to act as the Convenor;
- b) One representatives each of the Distribution Licensees in the State of Maharashtra;
- c) Adequate number of representatives of educational and research institutions;
- d) Consumer representatives authorised on a standing basis under Section 94 of the Act.
- e) Other independent external members from the industry and government departments as nominated by the Secretary of the Commission and who, in the opinion of the Secretary, has special knowledge or experience of power sector.

(2) The objects and functions of the DSM Consultation Committee shall be to :-

- a) Assist the Commission in DSM program and DSM Plan evaluation;
- b) Advise the Distribution Licensees on conducting perpetual Load Research to seek information on end-use technologies, usage patterns, willingness to pay, perception studies and impacts of already implemented DSM programmes;
- c) Promote cross-learning among the Distribution Licensees and other stakeholders to design appropriate DSM programmes and plans;
- d) Undertake or direct research and analysis work related to:
  - (i) Development of data base and centralised information system development;
  - (ii) Development of guidelines/regulations resulting in facilitation of DSM programme implementation;
  - (iii) Conducting of DSM and demand response potential studies;
  - (iv) Development of innovative Tariff offerings to promote DSM.

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- e) Review DSM programme and DSM Plans submitted by the distribution licensee;
- f) Review common programmes across Distribution Licensees (common procurement, common specifications for equipment/technology);
- g) Oversee activities of the Distribution Licensees related to DSM Plan preparation and DSM Programme Design;
- h) Create avenues for training/capacity building within Distribution Licensees;
- i) Assist in maintaining centralized information system and data base;
- j) Drive market research and consumer surveys that would be useful for the Distribution Licensees to design DSM Programmes and Plans;
- k) Provide assistance to the Commission to institute DSM Plan/programme monitoring and EM&V as and when required;
- l) Act as a platform for:
  - (i) Sharing of experience with respect to the entire DSM implementation cycle, comprising creating knowledge-base among the employees of licensee, DSM Plan preparation, Load Research, Integrated Resource Planning (IRP), DSM programme design, implementation, monitoring, review and evaluation;
  - (ii) Interaction and coordination with the Commission and knowledge partners;
  - (iii) Sharing of experience with respect to DSM technology development;
  - (iv) Joint interaction with financiers and bankers;
  - (v) Joint development/running of: Awareness campaigns, awareness activities, establishment and running of EC/EE Centres, Joint Organisation of Consumer interaction sessions, Exhibitions, etc.
  - (vi) Development of Case studies, consultant/vendor directories and technology database.

### **8. Responsibilities of the Distribution Licensees Related to Initiation of DSM Programmes**

- (i) Distribution licensees shall evolve feasible strategies to implement all DSM-related activities.

DRAFT FOR PUBLIC COMMENTS

- (ii) Distribution licensees shall nominate a nodal officer with whom the DSM Consultation Committee can interact with.
- (iii) In addition to the overarching activities promoted by the DSM-CC, Distribution Licensees shall carry out the following specific activities:-
  - a) Load research and consumer surveys;
  - b) Integrated Resource Planning (IRP) exercise that includes DSM as a key resource in power planning;
  - c) Load forecasting and energy consumption baseline development;
  - d) Capacity development of their employees through training;
  - e) DSM Plan preparation;
  - f) DSM Programme design;
  - g) Yearly Budget preparation and filing of the same with the Commission for approval;
  - h) Annual work plan preparation and filing of the same with the Commission for approval;
  - i) Implementation of DSM plans and programmes that are approved by the Commission;
  - j) Fulfilling Annual reporting requirements as may be notified by the Commission by order;
  - k) Setting up DSM programme level dispute resolution mechanism and resolution of disputes, if any;
  - l) Performing DSM plan and programme level EM&V as may be notified by the Commission by order;
  - m) Providing inputs to:
    - (i) Centralised Information system / database development work;
    - (ii) Research and analysis work;
    - (iii) DSM and demand response Potential studies;
    - (iv) Load forecasting model development efforts.
  - n) Any other activities suggested by the DSM-CC or as directed by the Commission.

## **9. DSM Funding, Targets and Budgets**

9.1 Without prejudice to the generality of Regulation 3.2, the following provisions shall apply:-

- a) Funding of all the DSM programmes and plans to be implemented by the Distribution Licensees shall be included in the Annual Revenue Requirements (ARR).
- b) Distribution Licensees shall be allowed to recover all costs incurred by them in any DSM related activity, including planning, conducting load research, designing, implementing, monitoring and evaluating DSM programmes, by adding these costs to their ARR to enable their funding through tariff structure.
- c) Since the DSM costs are being recovered through tariffs, only those DSM activities that adhere to the Regulations related to Cost Effectiveness Assessment shall be implemented by the Distribution Licensees.
- d) The Commission may direct the Distribution Licensees to adopt other complementing DSM funding approaches such as creating a pool of funds through collection of public benefits charge at a later date; if such an approach is found beneficial.
- e) Distribution Licensees shall obtain the prior approval of the Commission for implementing DSM Programmes at the consumer premises through equity placements.

Provided that such programs shall be eligible for Return on Investment and would be evaluated during the ARR approval process.

## DRAFT FOR PUBLIC COMMENTS

### 9.2 DSM budget

(a) Without prejudice to the generality of Regulation 6, the following provisions shall apply:-

- (i) Distribution Licensees shall set up a five-year DSM plan and DSM programme budgets and submit the same during the MYT approval and Annual Revenue Requirements (ARR) approval process.
  - (ii) The budget shall be spent only on approval of aggregated DSM Plans and/or individual DSM Programmes by the DSM Consultation Committee.
  - (iii) The Commission may carry out necessary due diligence process from time-to-time and may review the annual budget spent and new requirement along-with the approval of Annual Revenue Requirements.
  - (iv) DSM implementation plan and associated budgets shall be substantiated with the prioritization of the possible programmes within the license area.
  - (v) The DSM budget to be spent every year shall be substantiated with the kW and kWh savings targets where such targets shall be developed by carrying out detailed load research activity and implementing DSM programmes that may be directed by the DSM Consultation Committee proactively for the benefit of consumers in the State.
- (b) Distribution Licensees shall submit year-wise schedule of DSM plan implementation and corresponding budget allocations relevant to the savings or shifting/reduction of peak load.
- (c) The aggregated year wise funds requirement and achievements shall be the annual DSM budgets and annual DSM targets, respectively.

## DRAFT FOR PUBLIC COMMENTS

(d) These annual DSM budgets and targets, determined and approved at the beginning of the planning cycle shall be revisited during the Annual Performance Review.

e) The Commission may take special account of measures taken by Distribution Licensees to develop carbon finance programs using the Clean Development Mechanism of the United Nations Framework Convention on Climate Change (UNFCCC) or any other voluntary carbon financing protocol.

### 9.3 Funding for DSM activities other than DSM plan implementation

Distribution licenses shall seek separate budget approval for additional expenses (beyond the DSM programme and DSM plan implementation) to be incurred for activities such as carrying out load research, consumer surveys, DSM plan and programme development activities, research and analysis, funding of any activities proposed by the DSM-CC, conduct of potential studies, training & development, etc.

### 9.4 Allocation of funds for consumer awareness, audits and equity considerations

Distribution Licensees shall be allowed to spend a reasonable amount, pre-approved by the DSM-CC and the Commission to promote programmes of the nature described below.

(i) DSM Programmes that:

(a) Promote consumer awareness and education about why, how, when and where of load management/energy efficiency and include activities such as:

- i. Energy audits,
- ii. Awareness campaigns,
- iii. EE and LM demonstration projects,
- iv. Training programmes, seminars, workshops, round tables, conferences, business exchange meets (buyer-seller meets)

DRAFT FOR PUBLIC COMMENTS

- v. Establishment of permanent display/demonstration centres cum model “green”/ ultra energy efficient buildings (buildings that go beyond ECBC – Energy conservation Building Codes)
- b) DSM Programmes for consumers below poverty line/consumers consuming less than 100 units per month (generally considered as low income consumers)

**10. DSM Plan, DSM Programme and DSM Annual Workplan and Approval Process**

- (i) Distribution Licensees shall follow the aforementioned contents for key documents in Annexure 1 submitted for approval of the DSM-CC and/or Commission.
- (ii) Approval process shall come in to effect coinciding with the multi-year tariff setting process.
- (iii) During the interim period, DSM-CC/Commission shall accord approvals for all pilot and regular programmes through the process mentioned in these regulations.
- (iv) DSM plan document

Distribution licensees in the State shall prepare a five year DSM plan and submit it for the approval of the Commission and in this regard shall be guided by the general elements that the DSM Plan document shall be required to contain and as provided in **Annexure 2** to these Regulations

10.1 DSM plan approval process

The following elements shall guide in the approval process by the Commission for the DSM Plan:

## DRAFT FOR PUBLIC COMMENTS

- (i) The term of the plan shall coincide with the corresponding five year multi-year Tariff term
- (ii) The DSM Plan shall be submitted to the Commission at least nine months or co-incident with the submission of Business Plans submitted by the distribution licensee.
- (iii) The distribution licensee shall submit the Plan in both, hard copy version (Six copies) and soft copy version.
- (iv) DSM-CC shall hold meetings for program review and seek any inputs required from the distribution licensee.
- (v) Any specific observations and required revisions shall be conveyed to the distribution licensee. Thereafter the licensee, after addressing all the comments contained in the communication of the Commission/DSM-CC shall resubmit the revised DSM Plan to the Commission within time stipulated in the Commission/DSM-CC communication.
- (vi) Commission may review the DSM Plan submissions along with other components of the Business Plans.
- (vii) After considering suggestions and objections received from the public and the recommendations of the DSM-CC, the Commission may either approve or reject the DSM plan by reasons to be recorded in writing provided that the Distribution Licensee shall be heard before the Commission rejects the DSM Plan.

### 10.2 DSM programme document

- (i) After approval of the DSM plan, the distribution licensee shall prepare, for all DSM programmes included in the approved DSM plan, “DSM Programme Document” (PD).
- (ii) The PD will be required to include the general elements as per the details provided in Annexure 3. This PD will guide implementation, monitoring, review etc. of all the approved individual DSM programmes contained in the Plan.



## DRAFT FOR PUBLIC COMMENTS

### 10.3 DSM annual workplan

- (i) Once the DSM plan is approved, the Distribution licensee shall work out the first year work plan and include it in the APR petition of the licensee.
- (ii) The first year budget should be reflected in the Annual Work Plan.
- (iii) The budget reflected in the Annual Work Plan shall be carried over to the ARR for the next year, which as per practice, is submitted along with the APR petition.
- (iv) The DSM Annual Workplan shall include the following information:
  - (a) The achievements to be accomplished in the year (in terms of savings, participation rates of consumers, trade ally participation, etc), both individual programme wise and programme portfolio wise (i.e., at Plan level)
  - (b) Activities and outputs to be accomplished (individual programme as well as portfolio wise/Plan level), including timeline for the same
  - (c) Schedule of resources required (budget, manpower, infrastructure, organisation)
  - (d) Elaboration of responsibilities of various stakeholders in the DSM programme implementation and the distribution licensee DSM effort
  - (e) Adjustments and refinements if any in approved programmes and budgets, if any, with proper description of the nature of refinements and adjustments sought, along with justification for the same.
- (v) For subsequent years too, the Distribution Licensees in the State will prepare yearly Annual DSM Work Plan Document and include it in the APR petition for the corresponding year.
- (vi) Till such time that the multi-year tariff setting process is not adopted and implemented in the state, individual DSM programmes (pilot and large programmes) submitted by the Distribution Licensees shall be reviewed by the DSM-CC.

## DRAFT FOR PUBLIC COMMENTS

(vii) DSM-CC shall drive the process related to approval of pilot programmes and all approvals sought by the distribution licensee till such time that a multi-year tariff setting process does not come in to force.

### 10.4 Posting of DSM plan, programme, annual workplan documents on websites

Once the DSM Plan Document, the individual DSM Programme Documents as well as the Annual work Plan Documents are approved, the Distribution Licensees shall post these documents on their respective websites for wider dissemination of the DSM work being planned, the expected contribution from demand side resources as well as achievements in comparison to the planned/expected results.

## **11. Evaluation, Measurement & Verification (EM&V)**

- (i) Distribution Licensees shall be guided by the MERC (Evaluation, Measurement & Verification) Regulations, XXXX.
- (ii) Notwithstanding the above, till such time that such regulations are issued, the DSM programmes implemented by the Distribution Licensees shall be evaluated based on measurement & verification protocols submitted in the individual programmes or aggregated plans and validated through the DSM-CC process and public consultation process.
- (iii) The Commission may empanel Independent Verification Contractors (IVC) to carry out the Evaluation, Measurement & Verification plans.
- (iv) The Distribution Licensees shall appoint the empanelled IVCs to carry out the EM&V plans.
- (v) The Commission may decide to carry out EM&V activity for individual programme(s) or entire plans by directly appointing empanelled IVCs.

**12. Monitoring & Reporting**

- (i) Distribution Licensees shall submit monthly, quarterly and annual DSM monitoring plans to the Commission.
- (ii) The evaluation methodology shall be governed by the proposed MERC (Evaluation, Measurement & Verification) Regulations.
- (iii) Notwithstanding the above, till such time that such regulations are notified, the distribution licensee shall submit monthly and quarterly monitoring reports to the Commission for all pilot-phase and large-scale DSM programmes based on the proposed monitoring plans embedded in the program/plan designs.

**13. End of DSM Programme Completion Report**

- (i) At the completion of the programme, the Distribution Licensees shall prepare a detailed programme completion report and submit it to the Commission within one month of the completion of the programme.
- (ii) The completion report, apart from providing information on the actual amount expended on the programme, shall also cover, programme accomplishments in terms of achievement of results, outcomes and outputs; constraints/difficulties faced, if any; conclusions, recommendations, lessons learned; regulatory support needed, if any; and future steps envisaged.
- (iii) A similar completion report shall also be prepared by the Distribution Licensees at the completion of the DSM Plan period.

**14. Selection Criteria: Methodology for Selection of DSM Programmes to be Included in the DSM Plan**

- (i) In addition to the Cost Effectiveness Tests mentioned in the MERC Demand Side Management Measures and Programmes' Cost Effectiveness Assessment Regulations,

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2010, additional parameters mentioned below shall also have to be used in the selection process to arrive at the preferred portfolio.

- (a) Peak load reduction (peak clipping) and/or peak load shifting potential –the Commission shall prefer DSM programmes providing savings during peak period over DSM programmes providing savings during non-peak hours. Also, of the DSM programmes providing savings during peak periods, the Commission shall prefer DSM programmes providing highest peak load reduction or peak load shifting, everything else remaining same.
- (b) Energy efficient new stock - the Commission shall prefer DSM programmes promoting energy efficient new stock, especially programmes that promote energy efficient new stock with longer life.
- (c) Length of time period over which electricity savings are available –the Commission shall prefer DSM programmes giving savings over a longer period of time.
- (d) Greenhouse gas (carbon dioxide) reduction potential –the Commission shall prefer DSM programmes giving higher savings of electricity over life of the programme.

### **15. Selection Criteria for other Programmes to be included in the Plan**

The selection of programmes covered under this category shall be governed by the following factors.

- (i) Programme's contribution to the Commission's policy objectives
- (ii) Programme's congruence with the Commission's guiding principles
- (iii) Programme's ability to overcome barriers and bring about sustainable positive changes in consumer's value orientation or attitude or knowledge towards energy efficiency and towards adoption of energy efficient practices/ devices/ equipment,
- (iv) Quality and viability of programme design, including clarity of objectives, appropriateness of the overall strategy to meet the objectives; soundness of the logical linkage between the outcomes, objectives, strategy, outputs, activities and inputs and reasonableness of the budgets and inputs.

**16. Power to Remove Difficulties**

If any difficulty arises in giving effect to any of the provisions of these Regulations, the Commission may by general or special order, take suitable action, not being inconsistent with the Act, which appears to the Commission to be necessary or expedient for the purpose of removing difficulties.

**17. Issue of Order and Practice Directions**

Subject to the provisions of the Act, the Commission may from time to time issue orders, circulars and practice directions in regard to the implementation of these Regulations.

**18. Power to Amend**

The Commission may, at any time vary, alter, modify or amend by notification any provision of these Regulations.

(\_\_\_\_\_)

Secretary

Maharashtra Electricity Regulatory Commission

Place: Mumbai

Dated: \_\_\_\_\_

## **Annexure 1: List of DSM Implementation Actions**

### Activities to be carried out by the Commission

- Development and issuance of guidelines and regulations for DSM administration
  - Regulatory framework for DSM
  - DSM Plan preparation guidelines
  - DSM plan requirements' regulations
  - DSM programme design guidelines
  - DSM programme requirements' regulations
  - DSM plan and programme cost effectiveness assessment regulations
  - DSM Plan and individual programme level reporting requirements' regulations/guidelines
  - DSM Plan level & individual programme level monitoring requirements' regulations/guidelines
  - DSM plan level and individual programme level evaluation, measurement and verification (EM&V) requirements' regulations/guidelines

### Activities to be carried out by the Distribution Licensees

- Load research & consumer survey
- Load forecasting and forecasting of load profiles
  - Aggregate system level
  - Segment Level
  - End-Use Level
  - Technology level
  - Equipment level
- Conduct of DSM and Demand Response Potential Studies
- Integrated resource planning (IRP) exercises
- Setting short- and long-term DSM targets (e.g., kWh, MW)
- DSM Plans:
  - Preparation
  - Appraisal
  - Approval
  - Plan level Monitoring
  - DSM Plan level reporting
  - Plan level Evaluation, measurement and verification
- DSM Programmes:

## DRAFT FOR PUBLIC COMMENTS

- Design of Programmes
- Preparation of DSM Programme Document
- Appraisal
- Approval
- Individual programme level Monitoring
- DSM individual programme level reporting
- Individual programme level Evaluation, measurement and verification
- Annual work plan
  - Preparation of DSM Plan level annual work plan & its approval
  - Preparation of DSM programme level annual work plan & its approval
- DSM Budgets:
  - Preparation of yearly budgets
  - Scrutiny and examination of yearly budgets
  - Approval of yearly budgets
- DSM programme level dispute resolution
- Development of DSM related centralised information system and data base to aid DSM planning, programme design, cost effectiveness assessment, EM&V
  - Inventory of DSM programmes, costs, achievements, lessons learned
  - DSM measure wise estimation of deemed savings, costs and timing
  - Avoided costs – generation, transmission and distribution
- Maintenance of DSM related centralised information system and data base
- Research and analysis in support of :
  - Development of data base and information system;
  - Development of guidelines/regulations
  - Conduct of potential studies
  - Development of innovate Tariff offerings to foster energy efficiency
  - Refinement, adjustment and development of DSM policy goals, priorities, targets, funding levels, etc.
- Development of DSM programmes that are socially highly desirable but otherwise do not meet the conventional cost effectiveness criteria, and approval of funding arrangement and funding for such programmes
- Any other items that may be deemed important by the Commission to support DSM activities in the State

## **Annexure 2: Elements of DSM Plan Document**

DSM Plan Document to be submitted by the Distribution Licensees for the approval of the DSM-CC and/or Commission shall be required to include the following general elements:

1. **Executive summary:** Provide here an overview of the Plan, including the DSM target for the Plan period as set by the Commission; the total funding envisaged for the Plan period with a break up of funds for programmes and funds for administration and management of DSM effort by the licensee, listing and brief description of the DSM programmes proposed to be implemented for meeting the DSM targets set by the Commission; Plan level and individual DSM programme level cost effectiveness, including impact on consumer tariffs; qualitative and/or quantitative contribution of the Plan towards Commission's key policy objectives; year wise break up of achievement of targets and funds requirement; major assumptions and risks
2. **Introduction:** Discuss here the achievements during the past five year plan, including what targets were set, to what extent were they/are they achieved/ likely to be achieved and the reasons and explanations if the targets set have not been achieved; to what extent and how effectively the funds earmarked have been used; what were the major constraints faced in the implementation of various programmes; what lessons have been learned
3. **Characteristics of Distribution Licensee System:** Present here time series (past 2 to 5 years) information about:
  - a. Power situation in general, including demand met, load shedding, if any
  - b. the consumer base of the licensee – total number of consumers, consumers by rate category
  - c. Total consumption and break-up of the same by consumer and rate category
  - d. Source wise energy purchase and the average rate of purchase of power
  - e. Load duration curve, peak load by season, typical average daily, seasonal and weekly load curves
  - f. Forecast of demand, energy requirement, sales and revenue requirement over the next five years (Plan period), including elaboration of methodology used, data used, statement of underlying assumptions used and basis for the assumptions, sensitivity analysis carried out and changes in assumptions and other conditions assumed for carrying out sensitivity analysis



4. **DSM Plan targets and the resource availability estimates:** Discuss here the DSM targets set by the Commission and the resources likely to be available for meeting the targets through the ARR over the five year Plan term (3.f. as the basis)
5. **Identification of sectors, segments and end-uses for the achievement of set targets:** Discuss here what sectors (domestic, commercial, industrial, agriculture, municipal), segments (consumer category, such as – offices, hospitals, hotels, malls, banks, consumers consuming >500 units per month, industrial cluster -MIDC industrial estate, geographical area, street lighting, grampanchayat water supply systems, specific feeders, etc.) and end-uses (lighting, pumping, heating, space cooling, air-conditioning, etc.) you intend to target for the achievement of the targets set and justification for choosing these sectors, segments and end-uses (*why the identified sector/segment/end-use and why not some other sector/ segment/end-use. Here, it is better to start by discussing the “felt need” status of the consumers in various segments vis-à-vis energy efficiency, load management & fuel substitution, i.e., does any consumer segment has or do any consumer segments have expressed or latent “felt need” about reducing their bills through DSM. If yes, these segments become readily identified target segments. Having a “Felt need” for DSM is a powerful justifier*)
6. **Identification of DSM measures/technology options to achieve DSM targets:** Discuss here the process (including justification) that has been used for identification of DSM measures and technologies (within the identified sectors, segments and end-uses) that you intend to target for achievement of the set targets. Also discuss here the DSM measures and technologies that were considered but were finally rejected and reasons for their rejection, including screening criteria used, if any, assumptions used, if any, basis for the assumptions, etc.
7. **Identification of DSM Programme options to achieve DSM targets:** Discuss here the process used for bundling the identified DSM measures and technologies into DSM programme concepts and then translating programme concepts into DSM programmes. Also discuss here the DSM programme concepts and programme options that were considered but were finally rejected and reasons for their rejection, including screening criteria and assumptions used as well as the basis for the screening criteria and assumptions used.
8. **Identification of DSM Programme options for possible inclusion in the DSM Plan:** Starting with a set of DSM programme options identified under the previous step, discuss here the process and the detailed methodology used (along with justification for using that methodology) for identification of DSM programme options for possible inclusion in the DSM Plan, including selection criteria used, assumptions

## DRAFT FOR PUBLIC COMMENTS

used for savings estimates and their justification, cost effectiveness analysis (to be performed as per the cost effectiveness assessment guidelines of the Commission) results, including impacts on consumer tariffs, and impacts in terms of savings. Also describe here the sensitivity analysis carried out and changes in assumptions and other conditions assumed for carrying out sensitivity analysis

9. **Identification of DSM Programmes to be included in the DSM Plan:** Discuss here in details the process and the methodology used (along with justification), for identification of a final set of DSM programme (portfolio of DSM programmes) to be included in the DSM Plan. The starting point for this exercise would be the set of DSM programme options identified during the previous step, i.e. DSM programme options for possible inclusion in the DSM Plan. The outcome here would be identification of a portfolio of DSM programmes, which when implemented will be expected to lead to the achievement of the set DSM target within the available budgetary resources. Also present here an overview of how the chosen programmes contribute to the (and how congruent they are with) Commission's policy objectives and guiding principles.
10. **Individual Programme Description:** For each of the DSM programme included in the final identified portfolio of DSM programmes, provide following minimum information:
  - a. Programme description:
    - i. Description of DSM measure/technology the programme is intending to promote
      1. Background information on the consumer segment, end-use and the status of various technologies being used in the sector/segment; status of efficient technologies/devices that can be used the particular sector/end-use/segment, including their relative market shares, key market barriers faced in their marketing/commercialization, estimate of their saving potential (technical/economic/commercial); analysis of main opportunities/threats, strengths/weaknesses and issues facing efficient technologies and Description of the technology/DSM measure that will be promoted through DSM programme
    - ii. Consumer segments the programme is targeting and the justification for the same
    - iii. Barriers the programme is addressing
    - iv. Strategy the programme proposes to use, including "the offer" programme intends to make/the marketing mix the programmes intends to use, including justification for the same

## DRAFT FOR PUBLIC COMMENTS

- v. Programme implementation arrangements, including major stakeholders and their roles, including justification for the same
  - vi. Describe how the programme is congruent with the Commission's policy objectives and guiding principles and how it contributes to these
  - b. Estimate of yearly and cumulative savings due to the programme with all the assumptions used in measure level and programme level savings estimate, penetration rate assumptions and the basis and justification for the assumptions used
  - c. Yearly Programme funding requirements. Reflect here total programme cost, and then provide year-wise source wise (how much from distribution licensee, how much from participant, how much from other stakeholders, etc.)
  - d. Cost effectiveness calculation details, including programme costs and benefits, impact on consumer tariffs with explicit showing of all the input values, assumptions used regarding input values and basis and justification for the same. Also present results of sensitivity analysis carried out
11. **Yearly and cumulative achievements:** Present here yearly contribution that will come forth from various DSM programmes in the final identified portfolio (to ensure that the Plan cumulative targets are met).
12. **Details about programmes other than the DSM Plan implementation:** Describe here the programmes the distribution licensee intends to implement that are not included in the DSM Plans. Provide justification for including these programmes and not any other programme, including any selection criteria used, if any and basis for the "selection criteria" used. Also discuss all the assumptions made together with the basis for assumptions. Also describe in what way will they contribute to the Commission's policy objectives and guiding principles:
13. **Administration and management of DSM by the distribution licensee:** Discuss here the organisational requirements of the distribution licensee for the administration and management of the DSM effort over the five year Plan period, in terms of:
- a. Strengthening of the knowledge-base within the Licensee employees to be undertaken during the five year Plan period the justification for the same
  - b. DSM plan and programme preparation/development activities proposed to be undertaken during the Plan period and the justification for the same
  - c. Research and analysis proposed to be undertaken during the five year Plan period and the justification for the same
  - d. Conduct of potential studies proposed to be undertaken during the five year Plan period and the justification for the same

DRAFT FOR PUBLIC COMMENTS

- e. Undertaking of any other specific activities for effective and efficient administration and management of DSM effort during the five year Plan period and the justification for the same
  - f. Funding requirement (total as well as year wise for every year of the five year Plan period) for performing activities and tasks proposed to be carried out with respect to administration and management of DSM effort (as described in a to f above) along with justification and basis for the same
14. **Funds Requirement and Financing:** Present here the total as also year wise (for each of the five years of the Plan period) funds requirement for the total Plan. Here, also show the break-up of the total funds requirement (year wise) in to funds required for programme implementation and funds required for administration and management of DSM effort. Also present here how the financing for the funds requirement will come, including the amount that will be expected to be reflected in the ARR of each year of the Plan period.
15. **DSM Plan EM&V:** Describe here the EM&V Plan for the DSM Plan. The EM&V Plan to be included here will be guided by the EM&V regulations of the Commission
16. **DSM Plan monitoring and reporting:** Describe here the monitoring and reporting Plan (frequency, minimum content, format, producers, receivers, indicators and means of verification chosen). The monitoring and reporting Plan to be included here will be guided by the Monitoring and Reporting Guidelines of the Commission
17. **Implementation Plan:** Present here the schedule of implementation of different elements of the plan, i.e the DSM programmes to be implemented as well as schedule of implementation of activities concerning the administration and management of DSM effort. As far as individual DSM programmes are concerned, there will be no need to provide detailed activity by activity schedule of implementation, but such schedule may be provided for major “works” or “tasks” contained in each DSM programme.

### **Annexure 3: Elements of DSM Programme Document**

The PD will guide the implementation of the DSM programme and will be the reference document for the licensee as well as the DSM-CC/Commission and other stakeholders. It will have information on the consumer segments (Shopping malls, Clubs, 5-star hotels, etc.) where identified DSM measures are to be promoted. It will also have 'offers' to motivate target segment consumers to adopt identified DSM measures; 'offers' to motivate other entities in the supply chain, i.e., financiers, energy delivery companies, equipment vendors, contractors, etc. to participate in the programme. Besides, it will have definition of delivery approach and identification of partnerships needed. It will also have promotion, administration, data collection and post-implementation evaluation plans. It will also have definition of programme management/implementation organization, institutional relationships, detailed programme implementation plan with time lines and implementation responsibilities, etc. In particular, DSM Programme Document (PD) will be required to include the following general elements:

#### **1. Programme description:**

- a. Description of DSM measure & technology the programme is intending to promote, including:
  - i. Listing of brands and manufacturers/vendors that will be eligible for inclusion in the DSM program (e.g. CFL bulbs having power factor of more than 0.85, which can handle voltage levels within 160-300V range, which of make X, Y, Z etc.)
  - ii. Description of prices at which participating brands will be available, along with description of quality assurance and replacement/guarantee policy
- b. Consumer segments the programme is targeting, e.g. domestic consumers in socio-economic categorization B and C in western Maharashtra towns having population between 1 and 3 lakh OR consumers having centralized air conditioning systems of size 50 tons or above, etc.
  - i. Description of eligibility criteria to be used for identification of potential consumers within the identified target segment (e.g. consumers who have good track record of payment or consumers who are staying in own residences – not in rented premises)

## DRAFT FOR PUBLIC COMMENTS

- c. Other stakeholders in the supply chain (financiers, ESCOs, equipment vendors, consultants, energy auditors, trade associations, groups of persons, NGOs, academic institutions, government organisations) involved in the implementation process, including description of their roles and responsibilities and manner of participation
- d. Barriers the programme is addressing
- e. Strategy the programme proposes to use, including “the offer” programme intends to make/the marketing mix the programmes intends to use for motivating consumers and other stakeholders in the supply chain; delivery approach and process, including description of partnerships envisaged, also:
  - i. Description of payment and collection system – who will make payment and how much (consumer? Licensee? ESCO?); How the payment will be made, when the payment will be made? Who will collect the payment? How the payment will be collected (up-front, instalment, from savings, shared savings, ESCROW account, through bills, etc)? When the payment will be collected?
  - ii. Description of incentive, if any, to be offered – what incentive, how much incentive, to whom incentive (consumer, intermediary or vendor), description of mechanism to pass on the incentive, when to pass on the incentive, etc.
  - iii. Description of how the target segments/consumers will be informed of the DSM program, e.g. description of how will the target consumers be informed of the launch of the DSM program. Description of how the target consumers will be informed about the program elements and how to participate in the program
  - iv. Description of how the target consumers will be motivated to participate in the DSM program, i.e. description of program promotion strategy – e.g., awareness campaign? Door-to-door canvassing?
  - v. Description of delivery mechanism, i.e. description of how the efficient device/technology/brand will be made available to the target segment – through vendors and retail? Through direct marketing (e.g. Amway model)? Through door-to-door selling?
- f. Description of Programme management and implementation arrangements, including description of institutional relationships
  - i. The section will also have description of how the program will be organized and managed, i.e. programme implementation organization,

## DRAFT FOR PUBLIC COMMENTS

including description of who all will be involved in program implementation, along with their roles and responsibilities: e.g. if the program will be implemented internally by distribution licensee or will be out sourced. If outsourced, the section will contain draft documents for EOI, TOR, tender evaluation methodology, etc. ; who will be the main “driver” or “owner” of the program and who will be the supporters of the program, what will be the roles and responsibilities of the “owner” and other supporting individuals/ organizations /institutions.

- ii. The section will also have description of the institutional mechanism, if any, for (Committee/Advisory Group, etc) program guidance, review and supervision.
- iii. Description of what will be expected of the distribution licensee in terms of:
  1. Coordination between field and HQ; between field and accounts/billing, if any
  2. Performance of activities of routine nature (as a result of launching of DSM programmes) as well as program specific which may be of “one-off” nature
  3. Establishment of new systems and/or structure (e.g. new billing system for collection of cost of efficient device through bills, OR system to track/research load on various feeders)
  4. Employment of new practices/processes
  5. Description on internal processes/steps to be followed within distribution licensee for arriving at various decisions, along with description of who is responsible for piloting the internal process for getting decisions and that persons/sections role and responsibility: Discussion notes required, detailing out decision points for the consideration of the licensee management (The note will describe alternative options for each of the decision points and present pros & cons matrix that will help the Management of the licensee in arriving at a considered decision)

### **2. EM&V, monitoring & reporting: The section will describe EM&V and monitoring and reporting plans**

- a. Description of base line calculation and description of monitoring and verification methodology

- b. Description of DSM program monitoring, review and impact (in terms of program participation, in terms of increases in penetration level of efficient devices and technologies, and in terms of load reduction/energy savings) analysis system/mechanism – who will monitor, what will be monitored, how will be monitored, who will verify, how frequently will be monitored, who will prepare monitoring/progress reports, etc.
- 3. Detailed Implementation Plan**
  - a. This section will describe if the program will have any phases (e.g. demonstration/pilot etc.).
  - b. The section will also have description of main activities, and indication about their sequencing and interdependence. For each main activity, the section will also provide description of who will, in the main, be responsible for the activity and when will the activity be performed.
4. Estimate of yearly and cumulative savings due to the programme with all the assumptions used in savings estimation process, including base line considered
5. Yearly programme funding requirements. This section will have description of financing arrangement, including share of distribution licensee, vendors, consumers, retailers, State government, Central government, etc
6. Cost effectiveness calculation details, including programme costs and benefits, impact on consumer tariffs, with explicit description of all the input values considered and all the assumptions used in cost effectiveness calculations and for input values
7. Discussion about the extent of congruence of the DSM programme with the MERC key policy objectives and guiding principles, especially with “additional” parameters listed in Section 13
8. **Dispute Resolution Mechanism:** Appropriate mechanism to be suggested for resolution of disputes arising during programme implementation stage. Statement of how the programme implementer will resolve concerns and issues (participation, equity and other issues that may crop up) that the distribution licensee may have as regards the manner in which the programme is being implemented
- 9. Training/Seminars/Workshops proposals will be on following lines:**
  - Theme of training/seminar/workshop with justification for the same
  - Structure (in class + field trip; in class + group exercises; theory, case studies, group exercises; et al)) + Coverage with justification
  - Number of courses/events/seminars/workshops
  - No of days per event
  - Possible dates/location



## DRAFT FOR PUBLIC COMMENTS

- Audience/participants
- Marketing/publicity for the event
- Possible resource persons and partners
- Preparatory work
- Possible funding sources (Contribution from Participants?)
- Future spin-off possibilities

### **10. Consumer awareness / information programme proposal will have, at the minimum, following information:**

At the very broad level, the proposal should be able to provide understanding about:

- Purpose of awareness: What is it that we want to achieve along with description of where we are at the moment and where do we want to reach
- Why do we want to achieve what we want to achieve or how will awareness help in reaching where we want to reach – i.e., justification
- How do we want to achieve what we want to achieve – strategy, plan, outputs, activities, inputs, assumptions, risks

The proposal:

- Narrative: Background and where does “awareness” figure in the overall effort to promote energy efficiency/load management or fuel substitution. What is need for an awareness campaign? Why we need to create awareness? How is awareness creation justified?
- Broad level Objectives of the awareness campaign/awareness creation effort
- Who are the target audience & why (justification)
- Specific Objectives of the awareness creation effort along with justification:
  - Cognitive change (awareness, knowledge, attention, exposure)
  - Affect (change in attitude – interest, desire, prefer, conviction, interest, evaluation, attitude, intent)
  - Behaviour change (To get to act-adopt EE – action, adoption, purchase, trial-adoption)
- Message design: (attention, interest, desire, action: appeal -persuasiveness, comprehensibility, generation, desirability, exclusiveness, believability) & justification
  - Content – what to say?
  - Structure – How to say it logically?

## DRAFT FOR PUBLIC COMMENTS

- Format – How to say it symbolically?
- Source – Who should say?
- Audience situation/stage
- What to appeal, rational positioning, emotional positioning
- Communication Channels (Reach, frequency, impact) & justification
  - Personal
  - Non-personal – media, events
- Communication Budget & justification
- Communication mix & Justification