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JOINT ELECTRICITY REGULATORY COMMISSION
FOR MANIPUR & MIZORAM
AIZAWL, MIZORAM

NOTIFICATION

Aizawl, the 3rd August, 2012

No. H. 13011/27/10-JERC dated the 27th June, 2012: In exercise of the powers conferred by sub-section (1) of Section 181 and clause (zp) of sub-section (2) of Section 181 & Section 23 of the Electricity Act, 2003, and all other powers enabling it in this behalf, the Joint Electricity Regulatory Commission for Manipur and Mizoram hereby makes the following Demand Side Management Regulations, 2012.

1. Short Title, Applicability, Commencement and Interpretation

1.1 These Regulation may be called the **"Joint Electricity Regulatory Commission for Manipur and Mizoram (Demand Side Management) Regulations, 2012".**

1.2 These Regulations extend to the whole of the States of Manipur and Mizoram and shall apply in relation to all matters falling within the jurisdiction of the Commission.

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

1.4. These Regulations shall be construed harmoniouly with the Joint Electricity Regulatory Commission for Manipur and Mizoram (Terms and Conditions for Determination of Tariff) Regulations, 2010 as amended from time to time.

2. Definitions

2.1 In these Regulations, unles the context otherwise requires:

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

(b) **"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;

(c) **"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;

(d) **"Bureau"** means the Bureau of Energy Efficiency (BEE) established under sub-section (1) of Section 2 of the Energy Conservation Act, 2001;

(e) **"Commission"** means the Joint Electricity Regulatory Commission for Manipur and Mizoram constituted under sub-section (1) of Section 82 of the Act;

(f) **"Cost Effectiveness"** means an indicator of the relative performance or economic attractiveness of any investment in DSM programme when compared to the costs of energy produced and delivered in the absence of such an investment;

(g) **"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;

(h) **"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 it is available (at which time of day, on what days, in what season); and the Cost–as at what cost it is available;

(i) **"Distribution Licensee"** shall have the meaning ascribed thereto in the Act;

(j) **"DSM"** means Demand Side Management;

(k) **"DSM Cell"** means a Committee constituted by the Distribution Licensee to facilitate DSM programme approval process and execute the DSM related functions as detailed under Regulation 10 of these Regulations;

(l) **"Energy Efficiency"** means activities or programmes that stimulate customers to reduce customer energy use by making investments in more efficient equipment or control that reduce energy use while maintaining a comparable level of service as perceived by the customer;

(m) **"Evaluation, Measurement and Verification (EM&V)"** means activities which evaluate, monitor, measure and verify performance or other aspects of DSM/ energy programmes or their market environment;

(n) **"Life"** means an estimate of the median number of years that the DSM measures, installed under the programme, are still in place and operable;

(o) **"Load Management"** Programmes that reduce or shift peak demand away from periods of high cost electricity to non-peak or lower cost time periods, with a neutral effect on or negligible increase in electric use. Such programs shall also cover Demand Response programs;

(p) **"Load Research"** means an activity embracing the measurement and study of the characteristics of electric loads to provide a thorough and reliable knowledge of frends, 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 there under.

3. Objective

The objectives of these Regulations are:-

(a) to make DSM an integral part of the day-to-day operation, of the licensee and undertake planning, designing and implementation of appropriate DSM programmes on a suitable manner;

(b) to make strategic energy conservation, load shifting and pricing initiatives including power factor correction, time of use tariff as the main objective of the licensee;

(c) to ensure implementation of DSM measures formulated by the Government of Manipur and Government of Mizoram;

(d) to make DSM measures in the States of Manipur and Mizoram consistent with the National DSM Objectives/Plans formulated by the Bureau.

4. Target

(a) The Commission shall set up annual DSM targets in mutual consultation with the licensee taking relevant factors into consideration.

(b) Targets may include the following:-

(i) Percentage reductions in load growth;

(ii) Savings in KW, KWh;

(iii) Savings as a percent of total resources to meet load;

(c) While setting up the annual DSM targets under sub-regulation (1) the Commission shall consider the technical potential in the States of Manipur and Mizoram as assessed by the licensee with the methodology developed by the Bureau of Energy Efficiency (BEE).

5. Basic Principles

(a) 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.

(b) 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 programmes 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) shall result in overall tariff reductions for all the consumers of the licensees.

(c) 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 demand, together with the cost-benefit analysis.

6. 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 and industrial 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 programme 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.

(e) Distribution Licensees shall implement programmes:

(i) that are cost effective for total resources;

(ii) that 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 programme);

(iii) that 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 of Distribution Licensees will be designed on the basis of “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 of programmes and also to ensure consumer awareness and education.

(i) DSM Cell set up under the Regulations shall be the nodal agency to drive the programme implementation under these Regulations, and shall recommend DSM Plan and Programmes to the Commission for approval.

7. DSM Cell

(a) Every Distribution Licensee shall, constitute DSM Cell within three months of adoption of these Regulations.

(b) 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.

(c) 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 of the Commission to the Draft DSM Plan and individual programmes.

(v) Implementation of DSM programmes.

(vi) Liaison with the State Designated Agency at Planning and implementation stage to avoid duplication of DSM and/or Energy Efficiency activity in the States of Manipur and Mizoram.

(vii) Validation and Updation of Master Plan and submission of the same for approval of the Commission, alongwith the DSM programmes on annual basis.

(viii) Evaluation, Measurement and Verification of DSM programme.

(ix) Any other additional function that may be assigned by the Commission from time to time.

8. Load and Market Research and Development of Baseline Data

(a) Distribution Licensee shall undertake load research to identify the target consumer segment(s) and end uses for DSM programmes to build the necessary database.

(b) 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.

(c) On the basis of the results of load and market, the Distribution Licensee shall develop baseline data for its area of supply.

(d) 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 is available for its area of supply and establishment of baseline data shall not be a pre-requisite for design of such initial DSM programme by the Distribution Licensees.

9. Formulation of DSM Plan

(a) 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 of 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.

(b) The Distribution Licensee shall include a relevant DSM Programmes (including multi-State programmes) developed by Bureau in its perspective plan as and when such programmes are announced by Bureau.

(i) 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.

(c) Selection and prioritization of various DSM programmes in the DSM Plan shall be guided by the following factors:

(i) The cost effectiveness guidelines in Regulation 18.

(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. DSM Funding

(a) Without prejudice to the generality of Regulation 5, the following provisions shall apply:-

(i) Funding of all the DSM programmes and plans to be implemented by the Distribution Licensees shall be included in the Annual Revenue Requirement (ARR).

(ii) 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.

(iii) 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 Distribution Licensees.

(iv) 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.

(v) Distribution Licensees shall obtain the prior approval of the Commission for implementing DSM Programmes at the consumer premises through equity placements. Provided that such programmes shall be eligible for Return on Investment and would be evaluated during the ARR approval process.

(vi) The Commission may provide incentives to Distribution Utilities for achieving or exceeding DSM Objectives as identified in Regulation 3 of the Regulation.

11. DSM Budget

(a) Without prejudice to the generality of Regulation 8, the following provisions shall apply:-

(i) Distribution Licensees shall set up a Multi-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 after approval of aggregated DSM Plans and/or individual DSM Programmes by the Commission.

(iii) DSM implementation plan and associated budgets shall be substantiated with the prioritization of the possible programmes within the license area.

(iv) 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.

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

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

12. Funding for DSM Activities other than DSM Plan Implementation

Distribution licenses shall seek separate budget approval from Commission 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 Cell, conduct of potential studies, training & development etc.

13. Allocation of Funds for Consumer Awareness, Audits and Equity Considerations

Distribution Licensees shall be allowed to spend a reasonable amount, pre-approved by the Commission on recommendation by the DSM Cell to 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) Energy Efficiency and Load Management Demonstration projects.

(iv) Training programmes, seminars, workshops, round tables, conferences, business exchange meets (buyer-seller meets)

(v) Establishment of permanent display/demonstration centres cum model "green"/ultra energy efficient buildings (buildings that go beyond ECBC–Energy Conservation Building Codes)

14. DSM Plan Approval Process

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

(a) The term of the plan shall coincide with the corresponding five year Multi-year Tariff term.

(b) The DSM Plan shall be submitted to the Commission coincident with the submission of Capital Expenditure Plans submitted by the distribution licensee.

(c) The distribution licensee shall submit the Plan in both, hard copy version (Three copies) and soft copy version.

(d) DSM Cell shall hold meetings for programme review and seek any inputs required from the distribution licensee.

(e) 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 DSM Cell shall resubmit the revised DSM Plan to the DSM Cell within time stipulated in the DSM Cell communication.

(f) DSM Cell 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.

15. Approval of DSM Plan

(a) Distribution Licensee shall submit the DSM Plan approved by the DSM Cell to the Commission for approval at least six months before the tentative start date.

(b) The commission may adopt procedures as specified in the Conduct of Business Regulations for according approval to the DSM Plan.

16. Elements of DSM Programme Document

(a) The Distribution Licensee shall design and develop the DSM Plan by taking reference from the previous DSM Plan, if any, and validating or reprioritizing the same based on the feedback from the programme already implemented or being implemented including evaluation of benefits achieved.

(b) The DSM programme shall be prepared by the licensee on annual basis and the first annnual DSM programme shall be prepared, within six months from the date of approval of the DSM master plan by the Commission.

(c) the licensee shall submit the annual DSM programme formulated under sub-regulation (1) to the commission for its approval alongwith the Yearly Aggregate Revenue Requirement (ARR).

(d) The annual DSM programme shall be implemented only after its approval by the Commission.

(e) DSM Programme Document shall include the following elements, namely:-

16.1 Programme Description

(i) Description of DSM measures and technologies, that are intended to be implemented through the proposed DSM programme including eligibility criteria listing of brands and manufacturers/vendors that will be eligible for participation in the DSM programme, relevant pricing, quality assurance and replacement/ guarantee policy;

(ii) Whether any measures similar to those proposed in the DSM and/or EE programme are underway or planned by the State Designated Agency. If yes, then the description of the same shall be provided alongwith necessity and detailed justification, if any, for including the same in the proposed DSM programme;

(iii) The consumer segments and the end users which are targeted including eligibility criteria to be used for identification of potential consumers within the identified target segment;

(iv) Other stakeholders (financiers, energy services companies, equipment vendors, consultants, energy auditors, trade associations, groups of persons, NGOs, academic institutions, Government organizations) involved in the implementation process, description of their roles and responsibilities and manner of participation;

(v) Identification of barriers of DSM Programme including institutional and implementation barrier etc. and the measures proposed for overcoming the same;

(vi) Strategy the programme proposes to use, including proposed incentives, if any, strategies to motivate consumers and other stakeholder to participate in the programme, description of payment and collection mechanism and equipment/ service delivery mechanism;

(vii) Description of programme management and implementation arrangements, including description of institutional relationships and internal programme tracking systems to be followed by the licensees.

16.2 Evaluation Monitoring & Verification

This part will describe EM & V and monitoring plans such as–

(i) Description of base line calculation and description of monitoring and verification methodology;

(ii) Description of DSM programme monitoring, review and impact (in terms of programme 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.

16.3 Detailed Implementation Plan

(i) This part will describe if the programme will have any phases (e.g. demonstration/pilot etc.).

(ii) This part will also have description of main activities and indication about their sequencing and interdependence. For each main activity, this part will also provide description of who will be responsible of who will be responsible for the activity and when will the activity be performed.

(iii) Implementation mechanism i.e. Energy Service Company, DSM bidding, DSM resource acquisition etc.

16.4 Estimate of Annual and Cumulative Savings

This part will describe the estimate of annual and cumulative savings to the licensees and other beneficiaries due to the programme with all the assumptions used in savings estimation process, including base line considered.

16.5 Annual Programme Funding Requirements

This part will have description of financing arrangement, including share of distribution licensee, vendors, consumers, retailers, State Government, Central Government etc.

16.6 Cost Effectiveness Calculation Details

This part will describe the cost effectiveness aspects of each of the measures proposed in the DSM programme including the calculation details of the programme costs and benefits, impact on consumer tariffs, with explicit description of all the input values considered and all the assumption used in cost effectiveness calculations and for input values and will be calculated as per the guidelines in Regulation 18.

16.7 Mechanism for Cost Recovery

(a) The licensee shall identify the net incremental costs, if any, associated with the planning, design and implementation of each of the measures included in the DSM programme.

(b) The licensee shall propose to the Commission, the methodology for recovery of net incremental costs through tariff or any other mechanism, while preparing the DSM programme document.

16.8 Dispute Resolution Mechanism

This part will describe on appropriate mechanism to be followed for resolution of disputes arising during programme implementations stage.

16.9 Monitoring and Reporting

This part will describe the manner of submission of the monthly and quarterly monitoring reports to the Commission for DSM programme based on the proposed monitoring plans embedded in the programme designs. Also describe the proposed "programme completion reporting mechanism" at the end of the year and also at the end of the DSM plan.

16.10 Plan for Training/Seminars/Workshops

To create consumer awareness.

16.11 Any other aspects as may be required by the Commission from time to time.

17. Coverage and Scope of the Cost-Effectiveness Assessment Methods

These Regulations will be used to assess the economic-effectiveness of a programme or plan and under simple assumptions regarding some of the decision variables such as inter alia, DSM measures/programme costs and impacts (both, energy–KWh and demand–KVA or KW), discount rate, life, escalation rate and avoided cost.

18. Cost-effectiveness Criteria

(i) Distribution Licensees shall send to the Commission the DSM Programmes and Plans that pass the Cost-effectiveness Criteria set-forth through these Regulations.

(ii) Distribution Licensees shall evaluate Total Resource Cost (TRC) test as the main hurdle test; followed by the Ratepayer-Impact Measure (RIM) test that confirms the fact that programme implementation and costs incurred would not impact the tariffs adversely.

(iii) The Life-cycle Revenue Impact (LRIRIM) should not be more than Rs 0.01/kwh or over 0.1% of existing tariff as tariff increase, whichever is higher.

(iv) The programme screening shall be carried out using following decision free:

(a) TRC as the main hurdle test: All DSM programmes that show positive number for the Net Present Value (NPV) of the Benefits over the NPV of Costs should be considered for evaluation of RIM test.

(b) RIM test: DSM Programmes that show positive number when NPV of the Benefits over the Costs for the Ratepayers are considered should be implemented.

(c) LRIRIM test: DSM Programmes that do not show positive number for RIM test should be implemented if the tariff impact due to the implementation of the DSM Programmes is less than Rs. 0.01/kwh or less than 0.1% of the existing tariff, whichever is higher.

18.1 Total Resources Cost Test

(i) The main hurdle test shall be carried out by calculating Net Present Value (NPV) of Benefits (B) and Costs (C). NPV for DSM measure/programme shall be determined as the difference between B and C.

Where,

B = NPV of measure/programme benefits discounted over a specified time period.

C = NPV of measure/programme Costs discounted over a specified time period.

If, the measure/programme benefit in year "t" is say "Bt", and discounting rate is say "r", the time period for discounting is say "n" years, then B can be expressed as:

$$B = \sum_{t=1}^{n} [(B_t)/(1+r)^{t-1}] \quad \text{(equation 1)}$$

Similarly, if, the measure/programme cost in year "t" is say "Ct", and discounting rate is say "r", the time period for discounting is say "n" years, then C can be expressed as:

$$C = \sum_{t=1}^{n} [(C_t)/(1+r)^{t-1}] \quad \text{(equation 2)}$$

(ii) Cost elements for the TRC test shall be determined considering the following:

(a) The cost of efficient device/equipment/appliance/technology or practice, including the applicable taxes, duties and levies;

(b) Installation, trial and commissioning costs associated with efficient device/equipment/practice/technology;

(c) Yearly operation and maintenance costs over the life of the measure/programme;

(d) Old inefficient equipment removal and safe disposal costs (if the DSM measure/programme involves replacement or retrofitting);

(e) Programme administration, monitoring and evaluation costs;

(f) Programme marketing costs.

Note:- If there are any tax credits, the same shall be considered as reduction to the cost. Similarly, if there is old equipment/device/appliance/technology etc. that is being replaced; the salvage value of this old equipment or device shall be considered as a reduction in the cost.

Benefits of a DSM programme or a DSM measure are the savings in the energy (kWh) consumed and/or savings in the demand (kwh). The kwh savings shall be calculated based on the number of hours of energy efficient appliance/equipment is used and number of days in a year the appliance/equipment is used. These savings usually occur at the point of used and are experienced by the consumer installing a DSM measure or consumer participating in a DSM programme. To arrive at the avoided purchase of power by the licensee, the participant savings at the point of used have to be suitably adjusted to account for system transmission and distribution losses. The benefits have to be valued over the period over which the assessment is to be carried out.

Thus, if savings at point of use in year "t" are ΔSt expressed in kWh, and if transmission and distribution losses expressed as percentage in the same year are TLt and DLt respectively, the Avoided Purchase of Power in year "t" (APPt) by the licensee would be:

$= \Delta St/[(1\text{-}TLt) \times (1\text{-}DLt)]$

If, rate of power purchase in year "t", is Rt, then Avoided Power Purchase Cost (APPCt) in year "t" would be =APPt x Rt.

Any reduction in "intra-state transmission charges", as a result of reduction in the average co-incident peak demand of the licensee shall be considered as a "benefit" under this test. While calculating energy and demand savings as benefits, year-on-year escalation rate of 5% should be considered. Tests should consider a discount rate of 10.5%.

Both benefits and cost; shall be clculation over the "Life" of the technology being deployed. Distribution Licensee shall use the "warranted" life of the retrofit by the technology provider as it is important to ensure that the savings considered are realized over the life-span of the equipment/appliances. Alternately, "life" as may be defined by the DSM Cell shall be used.

18.2 Ratepayer Impact Measure Test

(i) Cost elements mentioned below shall be used in "equation 1"

(a) The cost of efficient device/equipment/technology or practice, including the applicable taxes, duties, levies etc. paid by the licensee or to the extent paid for by the licensees;

(b) Installation, trial and commissioning costs associated with efficient device/equipment/appliance/pratice/technology paid by the licensee or to the extend paid for by the licensee;

(c) Yearly operation and maintenance costs over the life of the measure/programme paid for by the licensee or to the extent paid for by the licensee;

(d) Old inefficient equipment removal and safe disposal costs (if the DSM measure/programme involves replacement or retrofitting) paid for by the licensee or to the extent paid for by the licensee;

(e) Programme administration, monitoring and evaluation costs paid for by the licensee or to the extent paid for by the licensee;

(f) Programme marketing costs, including incentives, if any, paid by the licensee or to the extent paid for by the licensee;

(g) Decrease in licensee revenues due to the DSM programme.

(ii) Benefits of the DSM programme shall be calculated as "Avoided Cost of Power Purchase". If savings due to a DSM programme/measure at point of use in year "t" are ΔSt, and if transmission and distribution losses in the same year are TLt and DLt, expreseed as a percentage respectively, the Avoided Purchase of Power in year "t" (APPt) by the licensee would be:
= ΔSt/[(1-TLt)] x (1-DLt)]

If, rate of power purchase in year "t", is Rt, then Avoided Purchase Cost (APPCt) in year "t" would be = APPt x Rt

(iii) Any reduction in "intra-state transmission charges", as a result of reduction in the average co-incident peak demand of the licensee shall be considered as a "benefit" under this test.

(iv) While calculation energy and demand savings as benefits, year-on-year escalation rate of 5% should be considered.

Note:- Tests should consider a discount rate of 10.5%.

(v) Both, benefits and costs; shall be calculated over the "Life" of the technology being deployed.

(vi) Distribution Licensee shal use the "Warrantied" life of the retrofit by the technology provider as it is important to ensure that the savings considered are realized over the life-span of the equipment/appliances. Alternately, "Life" as may be defined by the DSM Cell shall be use.

18.3 Life-cycle Revenue Impact – RIM Test

(i) LRIRIM test shall be conducted using same data used for calculation the RIM test described in Section 5.2 of these Regulations.

(ii) Difference between NPV of Cost and NPV of Benefits shall be divided with total utility kWh sales to determine the rate impact on the non-participants.

(iii) Distribution Licensees shall also submit results of two more test– Participants Cost Test (PCT) and Societal Cost Test (SCT); though these are not considered in the decision-making. Methods for carrying out the PCT and SCT are provided in Annexur-1 to these Regulations.

18.4 Correction Factors for Power Shortage Situations

(i) The Cost Effectiveness tests when applied in the power shortage situations will have to be substantiated by sound information on the hours of usage of pre and post-DSM programme implementation for the end-user that are retrofitted or changed or installed newly.

(ii) Measurement and verification process to be followed for the power shortage situations shall be designed in order to review the actual number of hours post-implementation.

18.5 Values of Key Inputs Used in the Tests

(i) The default input values to be considered by all Distribution Licensees, shall be as follows:-

(a) Avoided Cost of Power Purchase for TRC, RIM and PCT–Weighted Average of Highest Marginal Cost of Power Puchase related to top 10% of energy use stack for the past one year as computed by the State Load Despatch Centre.

(b) Avoided Cost of Power Purchase for SCT – Rs. 10.6/kWh (prevalent for diesel generator sets).

(c) Escalation rates of power sales, avoided cost of purchase – 5% year-on-year.

(d) Discount rate TRC and RIM tests – 10.5%

(e) Discount rate for PCT – 13%

(f) Discount rate for SCT– 10%

(ii) The Commission may, by order, revise the above values annually, if necessary.

19. Commission review and Approval of DSM Programme

(1) The Commission shall approve the annual DSM Programme alongwith ARR every year.

(2) With a view to ensuring consistency with the DSM Objectives set out under Regulation 3, the Commission may direct modifications to the proposed or on-going programmes:

Provided that the Commission shall allow reasonable time to the licensee to enable it to notify consumers and others of the programme modification.

20. DSM Programme Completion Report

(1) The licensee shall prepare and submit phase-wise Programme Completion Reports and submit the same to the Commission as per the schedule approved by the Commission.

(2) The completion report under sub-regulation (1) shall cover the programme expenses, achievements, outcome, outputs, experienced constraints and difficulties, conclusions, recommendations, lessons learned and way forward.

21. Issue of Orders and Practice Directions

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

22. Power to Remove Difficulties

If any difficulty arises is 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.

13. Power to Amend

The Commission may, at any time add, vary alter, modify or amend any provisions, of these Regulations.

Annexure–1: Methods to carry out the PCT and SCT

A. 1 Participants Cost Test (PCT)

This test provides a measure of the quantifiable benefits and costs to an "average' consumer for participating in a DSM programme. Since many consumers do not base their decision to participate in a DSM programme entirely on quantifiable variables (many times consumers decision to buy an appliance/device//equipment are based on factors such as discount offered, features, brand value, initial cost etc.), this test may not fully represent the benefits and costs of a programme to a consumer.

A. 1.1 Costs

In its simplest form, the costs in this test are the **Programme Costs Paid by the Participant.** In addition, any increase in electricity bill of the participant as a resulf of the DSM programme is also to be considered as costs under this test. Thus the "Cost" elements usuallly associated with the test are:

* The cost of efficient device/equipment/appliance/technology or practice, including the applicable taxes, duties, levies etc. paid for or to the extent paid for by the participant;

* Installation, trial and commissioning costs associated with efficient device/equipment/appliance/ technology paid or to the extent paid for by the participant;

* Annual operation and maintenance costs over the life of the measure/programme paid for or to the extent paid for by the participant;

* Old inefficient equipment removal costs (if the DSM measure/programme involves replacement or retrofitting) paid for or to the extent paid for by the participant;

* Programme administration, monitoring an evaluation costs paid for or to the extent paid for by the participant;

* Programme marketing costs, including incentives, if any, paid or to the extent paid for by the participant;

* Increase in participant electricity bill due to the DSM programme.

If there is old equipment/device/appliance/technology etc. that is being replaced; the salvage value of this old equipment or device is considered as a reduction in the cost.

Similarly, if there is tax credit or incentive offered to the consumer the same can be treated as reduction in cost. Conventionally, the same will be treated as benefits accruing to the participants as a resulf of DSM programme under PCT.

A. 1.2 Benefits

Benefits under this test are the reduction in consumers' electricity bills, tax credit received by the consumer and incentives received by the consumer.

A. 1.3 Escalation Rates

The ad-hoc recommended escalation rate for power tariff is 5% or as may be revised under Sr. No. 7 of these Regulations.

A . 1.4 Discount Rate

The discount rate for this test should ideally be the rate at which banks and financial institutions would lend to consumers. Thus, depending upon the credit standing of the consumer the rate is likely to vary. For households, it s likely to be higher than for commercial sector or industrial sector consumers. However, a discount rate of 13% may be taken for all categories of consumers or as may be revised under Sr. No. 7 of these Regulations.

A. 1.5 Test Results

The NPV will be used as the primary evaluation criterion. A NPV value of zero or above will indicate that PCT test has been passed. It would also mean that the DSM programme is beneficial for an "average" participating consumer. On the other hand, a NPV value of less than zero will indicate that the DSM measure/programme being evaluated for PCT has failed the PCT, i.e. participation in a DSM programme is not beneficial for the consumer.

Tax credits and incentives appear on the benefit side of the NPV equation under this test. Thus, the benefit side of the DSM Programme can be boosted by offering incentives or tax credit or by offering larger tax credits or incentives. For DSM Programmes that show negative NPV values, the PCT test can help identify the threshold level of tax credit/incentive that would need to be offered to make the DSM programme beneficial from participant perspective. Such threshold value will be the tax credit/incentive values for which NPV is zero.

Ideally, sensitivity analysis with respect to various assumptions should also be conducted in order to understand the level of influence of each assumption on the NPV value.

A. 2 Societal Cost Test (SCT)

The Societal Cost Test is structurally similar to the Total Resource Cost Test. However, since SCT goes beyond the TRC test in that it attempts to quantify the change in the total resource costs to society as a whole rather than to only the service territory (the licensee and its consumers), it would be necessary to consider different values for some of the input variables such as power purchase rate, discount rate etc. More specifically, the Societal Cost Test differs from the TRC Test in the following ways:

* The Value of power purchase rate will need to be the "social cost of power" which could be considered as the consumers' willingness to pay for power or the price the consumers are willing to pay for power. In the Indian context, cost of diesel generation can be used as proxy for consumers' willingness to pay for power, and thus the social cost of power can be taken as cost of diesel generation. For the purposes of calculating this test, diesel generation cost of ` 10.6/kWh or as may be revised under Sr. No. 7 of these Regulations should be used.

* Since taxes, duties, levies, tax credits etc. are treated as a transfer payment in the Societal Test, they should be excluded from the calculations.

* The value of the discounting rate under SCT should be the societal discount rate. In the context of DSM programmes, the licensees could use 10% as the societal discounting rate or as may be revised under Sr. No. 7 of these Regulations.

Certain indirect benefits such as reduction in greenhouse gases that takes place as an effect of implementing a DSM measure should be considered while calculating SCT.

By order of the Commission,

A. CHHAWNMAWIA,
Secretary.

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