

ARUNACHAL PRADESH STATE ELECTRICITY REGULATORY COMMISSION

ITANAGAR

NOTIFICATION

The

Demand Side Management-2024

No APSERC/NOTIFICATION/--/2024 - In exercise of powers conferred under clause (zp) of subsection (2) of section 181 of the Electricity Act, 2003 (36 of 2003) and all powers enabling it in this behalf, and after previous publication, the **Arunachal Pradesh State Electricity Regulatory Commission**, hereby makes the following regulation, namely:

1. Chapter 1- General

1.1 Short Title, extent and Commencement

- a) These regulations may be called the Arunachal Pradesh State Electricity Regulatory Commission (Demand Side Management) Regulations, 2024.
- b) This Regulation shall extend to the whole of the State of Arunachal Pradesh.
- c) These Regulations shall come into force from the date of their publication in the Official Gazette of Arunachal Pradesh.

1.2 Definitions

In these Regulations, unless the context otherwise requires:

- a) “**Act**” means the Electricity Act, 2003 (36 of 2003);
- b) “**Baseline data**” means the initial base level consumption and/or demand for electricity before a Demand Side Management (DSM) programme begins to provide a starting point for comparison for assessing programme impact;
- c) “**Bureau**” means the Bureau of Energy Efficiency established under sub-section (1) of Section 2 of The Energy Conservation Act, 2001.
- d) “**Commission**” means the Arunachal Pradesh State Electricity Regulatory Commission constituted under sub-section (1) of Section 82 of the Act;
- e) “**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.

- f) “**Cost Effectiveness Index**” means an indicator of the attractiveness of any investment in DSM programme or when compared to the costs of energy produced and delivered in the absence of such an investment.
- g) “**Demand Side Management**” means the actions of a Distribution Licensee, beyond the point of supply, 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) “**DSM Resource Acquisition**” means a mechanism to implement DSM projects through customers, Energy Service Companies, Non-Government Organisations, manufacturers / suppliers, or other private sector organizations, with payment or any other support made to them by the Distribution Licensee for the resultant energy and load reductions.
- i) “**Energy Efficiency Measures**” or” **Energy Efficiency Programmes**” means activities or programmes to stimulate consumers to use energy in a more efficient manner while maintaining a comparable level of services to the consumers.
- j) “**Energy Services Company**” means a company, which is in the business of providing energy efficient, and load management equipment and/or services to end-user customers and is approved by Bureau.
- k) “**Evaluation, Measurement and Verification**” means activities, which evaluate measure and verify performance or other aspects of DSM/energy efficiency programs or their market environment.
- l) “**Load Management**” means any action/programme, including Demand Response Programme, that will reduce or shift demand away from periods of peak/higher cost electricity to periods of non-peak/lower cost electricity periods.
- m) “**Load Research**” means an activity embracing the measurement and study of the characteristics of electric loads to acquire a thorough and reliable knowledge of trends, and general behaviour of the load characteristics of the consumers serviced by electrical industry
- n) “**Monitoring and Reporting**” means activities which monitor and evaluate the progress of DSM/energy efficiency programs of the Distribution Licensee.
- o) “**Point of Supply**” shall be the incoming terminal of the cut-out installed by the consumer, unless and otherwise agreed to i.e. Meters/switches installed at the Consumer’s Premises

in case of LT Consumers; Control switchgears that may be installed in the Consumer’s Premises as provided subject to provision of this code in case of HT and EHT Consumers.

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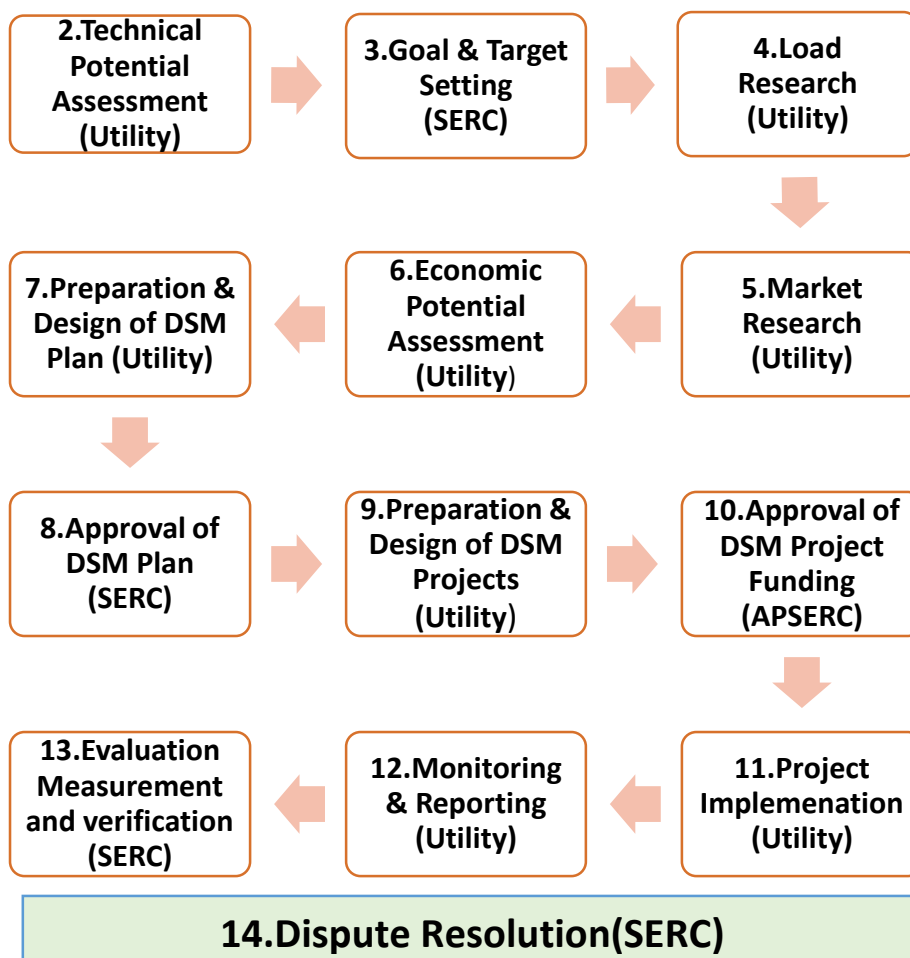
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2. Chapter 2-Introduction

2.1 Demand Side Management

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

1. Guidelines & Regulations (SERC)



DSM Institutional Framework

3. Chapter 3-DSM Objectives, Targets and Guidelines

3.1 DSM Objectives

- a) The Distribution Licensee shall undertake/implement DSM related policy /activity/programmes with an objective to lower the overall cost of electricity to the consumers as well as the Distribution Licensee, by economical and efficient use of resources, which shall include the measures/principles to:

- (i) Control, reduce and influence electricity demand;
 - (ii) Encourage consumers to amend their electricity consumption pattern both with respect to timing and level of electricity demand for efficient use of energy;
 - (iii) Complement supply side strategies to help the utilities to avoid or reduce or postpone
 - a. Costly capacity (generation, transmission & distribution network) additions.
 - b. Costly power purchases.
 - (iv) Reduce the environmental damage by reducing the emission of greenhouse gases;
 - (v) Supplement national level efforts for implementation of various DSM programmes set out by the Bureau;
 - (vi) Make strategic efforts to induce lasting structural or behavioural changes in the market that shall result in increased adoption of energy-efficient technologies, services, and practices;
 - (vii) Protect the interest of the consumers and shall result in overall reduction in tariff for all the consumers.
- b) While formulating the DSM objective, the commission shall take into consideration the national DSM objective/ plans formulated.
- (i) 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;
 - (ii) To make DSM measures in the State of Nagaland consistent with the National DSM Objectives/Plans formulated by the Bureau.

3.2 DSM Guiding Principles

The Distribution Licensee shall:

- a) Design, develop and implement DSM programmes that supplement national level efforts, specifically those promoted by the Bureau;
- b) Propose and implement such DSM programmes which shall:
 - (i) Be quick acting that provides long-term savings.
 - (ii) Be cost effective;
 - (iii) Help to reduce peak demand, and associated costly power purchase, specifically in the urban areas;
 - (iv) Include Demand Response initiatives persuading consumers to modulate their load shapes so as to flatten their load curve;
 - (v) Bring in energy-efficiency in the consumer's premises;

- (vi) Directly or indirectly benefit the consumers in all segments from the programmes;
- (vii) Not put undue burden on consumers, both non-participants (those who do not participate in the DSM programmes) and participants (those who participate in the DSM programmes);
- c) Formulate DSM programmes that shall provide sustainable benefits (market transformation), and shall enhance:
 - (i) Consumer's interest and inclination in adopting load management measures and energy efficient technology;
 - (ii) Interest and the willingness of the intermediaries such as the banks to lend for energy efficiency measures, and;
 - (iii) Emergence or development of sustainable energy delivery entities;

3.3 Assessment of Technical Potential for DSM

- a) The Distribution Licensees in the State shall carry out assessment of potential for DSM in their license area one year before the start of every MYT Control Period. Notwithstanding the above provision, the first assessment of technical potential for DSM shall be carried out within six months of the notification of these Regulations.
- b) The Distribution Licensee shall be guided by methodology developed by Bureau while assessing of technical potential for DSM.
- c) A few broad set of energy efficiency practices, technologies, appliances and equipment for different end use applications, categorised under various sectors of Indian economy is mentioned in Annexure -1.

3.4 DSM Targets

- a) The Commission shall establish DSM targets for each Distribution Licensee in the State.
- b) While setting DSM target for the Distribution Licensee, the Commission will give due consideration to factors such as consumer mix, load profile, etc.
- c) Examples of DSM 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;
- d) While establishing the targets, the Commission shall consider the technical potential in the State as assessed by the Distribution Licensee.

3.5 Guidelines on DSM process

- a) The Commission shall issue guidelines to guide the Distribution Licensee in execution of the following activities
 - (i) Load and Market Research
 - (ii) Implementation of DSM programmes
 - (iii) Cost Effectiveness Assessment of DSM programmes
 - (iv) Monitoring and Reporting of DSM Plans and programmes
 - (v) Eligibility criteria for DSM programmes
 - (vi) Methodology for setting DSM targets and funding levels
 - (vii) Database development framework
- b) The Commission shall issue guidelines on these matters from time to time.
- c) Issuance of such guidelines shall not be a pre-requisite for preparation and submission of the first DSM plan by the Distribution Licensee.

4. Chapter 4: DSM CELL

4.1 Constitution of DSM Cell, its roles & responsibilities

- a) Every Distribution Licensee shall, constitute DSM Cell within one month 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 to DSM Plan and individual programmes.
 - (v) Implementation of DSM programmes.
 - (vi) Any other additional function that may be assigned by the Commission from time to time.

5. Chapter 5: DSM PROCESS

5.1 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 research, the Distribution Licensee shall develop baseline data for its area of supply.
- d) Distribution Licensee shall design, develop and implement the initial DSM programmes on the basis of available data and studies completed by Bureau till the complete baseline data is available for its area of supply and establishment of base line data shall not be a pre-requisite for design of such initial DSM programmes by the Distribution Licensees.

5.2 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 the following:
 - (i) An overall goal for DSM Plan
 - (ii) Description of DSM programmes to form a part of DSM Plan
 - (iii) Implementation process and schedule of each programme in the plan as a whole
 - (iv) Plan for Monitoring and Reporting
 - (v) Indicative cost effectiveness assessment of programmes.

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

- b) The Distribution Licensee shall include all relevant DSM programmes (including multi-state programmes) developed by Bureau in its perspective plan as and when such programmes are announced by Bureau.
- c) The Distribution Licensee shall submit on rolling basis, an annual plan, not inconsistent with the perspective plan, for upcoming year, along with the Annual Tariff Petitions/APR
- d) Selection and prioritisation of various DSM programmes in the DSM Plan shall be guided by the following factors:
 - (i) The Cost effectiveness guidelines issued by the Commission.
 - (ii) DSM Objectives identified in Regulation 3.
 - (iii) Whether the proposed programmes supplement National level efforts adopted by the Bureau.

- (iv) Programmes with high visibility and therefore potential for creation of awareness within consumers.

5.3 Commission Review and Approval of DSM Plan

- a) Distribution Licensee shall submit the DSM Plan to the Commission for approval within 6 months of technical potential available for the first time, and afterwards before 6 months of the filing of MYT Petition
- b) The Commission may adopt procedures as specified in the Conduct of Business Regulations for according approval to the DSM Plan.

5.4 Preparation of DSM Programme Document

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

5.5 Approval of DSM Programme Document

- a) Prior to implementing any DSM programme, the Distribution Licensee must obtain approval of the Commission.
- b) Each Programme Document shall include the following:
 - (i) Description of the programme;
 - (ii) Objectives and rationale for the programme;
 - (iii) Consumer segments and estimated level of participation;
 - (iv) Estimate of baseline;
 - (v) Assessment of programme in line with Cost Effectiveness Guidelines issued by the Commission
 - (vi) Mechanism for recovery of cost and performance incentives;
 - (vii) Marketing, delivery strategy and Implementation schedule;
 - (viii) Implementation mechanism e.g. Energy Service Companies, Bidding for DSM Projects, DSM Resource Acquisition, etc
 - (ix) Monitoring and evaluation plan;
 - (x) Plan for Training/Seminars/Workshops to increase consumer awareness

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

5.6 Implementation of DSM programmes

- a) Distribution Licensee shall undertake implementation of DSM programmes in line with the guidelines issued by the Commission from time to time.
- b) The implementation of the programme shall be undertaken in the manner as approved by the Commission.
- c) Distribution Licensee shall undertake implementation of quick gain DSM programmes.
- d) Distribution Licensee shall carry out implementation of activities assigned to it either by itself or through appropriate independent entity. While doing so, the Distribution Licensee shall ensure that continuity and consistency are maintained and interest of the consumers is not compromised.

5.7 Mechanism for Cost Recovery

- a) Distribution Licensee shall identify the net incremental costs, if any, associated with planning, design and implementation of programmes.
- b) Cost of all DSM programmes and plans to be implemented by the Distribution Licensee shall be included in the Annual Revenue Requirement (ARR) and the licensee will clearly indicate the mechanism for financing of each DSM Programme.
- c) In order to qualify for cost recovery, each program must be
- (i) Approved prior to implementation
 - (ii) Implemented in accordance with the approved program plan and
 - (iii) Implemented cost effectively
- d) Distribution Licensee shall provide all necessary assistance to the Commission, or third party assigned by the Commission in undertaking Evaluation Measurement and Verification of DSM programmes implemented by it.
- e) The Commission may direct the Distribution Licensee to undertake DSM programmes that may not be cost effective but is highly beneficial to the society. The Commission will make available resources for such project.

5.8 Monitoring and reporting of DSM Programmes

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

5.9 Evaluation, Measurement and Verification (EMV) of DSM Programme

- a) Distribution Licensee shall prepare plan for evaluation, measurement and verification of savings from DSM programmes as per Guidelines on Evaluation, Measurement and Verification issued by the Commission from time to time.
- b) Third party Evaluation, Measurement and Verification of DSM programmes may be undertaken by the Commission or a third party assigned by the Commission. While engaging the agency, the Commission shall ensure that the Agency is not undertaking any other engagement that could conflict with the interests of the consumers in the State.
- c) Distribution Licensee shall make available necessary information/data to the Commission or a third party assigned by the Commission to measure and verify the savings from DSM programmes.

6. Chapter 6: DSM PLAN AND PROGRAMME COMPLETION REPORT

- a) Reports on progress of DSM Plan and expenses incurred on implementation of DSM Plan shall be submitted by the Distribution Licensee every **six months**.
- b) The Distribution Licensee will prepare and submit a detailed Program Completion Report and submit the same to the Commission within **three month** of completion of such programme.
- c) The Report shall cover the programme expenses, achievements, outcomes and outputs, constraints and difficulties faced conclusions, recommendations, lessons learned and way forward.

7. Chapter 7: Setting of Budget & its Funding

- a) 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.
- b) The budget shall be spent only after approval of aggregated DSM Plans and/or individual DSM Programmes by the Commission.
- c) DSM implementation plan and associated budgets shall be substantiated with the prioritization of the possible programmes within the license area.

- d) 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.
- e) 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.
- f) The aggregated year-wise funds requirement and achievements shall be the annual DSM budgets and annual DSM targets, respectively.
- g) These annual DSM budgets and targets, determined and approved at the beginning of the planning cycle shall be revisited during the Annual Performance Review.
- h) 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.
- i) Distribution licensee 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.

8. Chapter 8: INCENTIVES

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

9. Chapter 9: MISCELLANEOUS

9.1 Power to Amend

The Commission may from time to time add, vary, alter, suspend, modify, amend or repeal any provision of these regulations.

9.2 Removal of Difficulties

In case of any difficulty in giving effect to any of the provisions of these Regulations, the Commission may by General or special order, direct the Licensee to take suitable action not inconsistent with the provisions of Electricity Act 2003 which appears to be necessary or expedient for the purpose of removing the difficulty.

9.3 Power to give directions

Subject to the provisions of the Act and these regulations, the Commission may, from time to time, issue orders and practice directions with regard to the implementation of these regulations and procedure to be followed.

9.4 Power to relax

The Commission may from time to time add, vary, alter, suspend, modify, amend or repeal any provision of these regulations.

9.5 Dispute Resolution

All disputes arising under these regulations shall be decided by the Commission based on an application made by the person aggrieved.

By Order of the Commission

Secretary, APSERC

10. Annexure

10.1 Annexure-1-Description of DSM Programmes

<i>Residential Programmes</i>	
Refrigeration	Provide incentives (rebates) for the purchase of BEE star rated (>3) refrigerator.
Air conditioning	Provide incentives (rebates) for purchasing BEE star rated (>3) air conditioners, installing direct load control devices on air conditioners, or home insulation systems
Lighting and ceiling fans	Provide incentives (rebates) to purchase BEE star rated (>3) CFL, T8, T5 lamps with electronic ballasts Incentives for purchase of LED based lighting systems Incentive for purchase of BEE star rated (>3) ceiling fans
Water heating programmes	Designed to offer: ➤ Rebates/incentives to install solar water heaters ➤ Rebates to install jackets and low-flow, shower heads or high efficiency water heaters ➤ Direct load control of water heaters ➤ Water heating storage for load shifting
Comprehensive building	Provide incentives (rebates) to builders and architects to incorporate energy efficient technologies into new building construction, energy audits to customers and incentives to incorporate energy saving technologies recommended.
Time of day rates	Offer time of day pricing to encourage residential customers to shift usage to off-peak periods.

Off grid renewable energy applications	Designed to offer: Rebates/incentives to install captive solar PV systems and other renewable energy applications
<i>Commercial programmes</i>	
Refrigeration	Provide an incentive to replace existing compressors and motors with high efficiency models.
Commercial heat/vent/ AC	Offer incentives: ➤ To replace existing fan and pump motors with high efficiency units ➤ For installing commercial office building and retail building cool storage systems ➤ To install office building economizer controls ➤ To install thermal energy storage systems
Lighting	Offer incentives (rebates) to upgrade existing fluorescent bulbs and fixtures with high efficiency lights and electronic ballast
Comprehensive building	Offer: ➤ Time of day rates ➤ Energy audits to customers and incentives to incorporate energy saving technologies recommended
Water heater	➤ Rebates/incentives to install solar water heaters ➤ Provide a water heater wrap and installation through an independent contractor.
Time of day rates	Offer time of day pricing to encourage commercial customers to shift usage to off-peak periods.
Off grid renewable energy applications	Designed to offer: Rebates/incentives to install captive solar PV and thermal systems
<i>Industrial programmes</i>	
Motor programme	Provide an incentive to replace standard efficiency motors at time of failure with high efficiency motors.
Lighting	Offer incentives (rebates) to upgrade existing fluorescent bulbs and fixtures with high efficiency lights and electronic ballast.
Comprehensive building	Includes energy audits and various energy efficiency improvements, motor programs and industrial water heater programmes.
Time of day rates	Offer time of day pricing to encourage industrial customers to shift usage to off-peak periods.
Miscellaneous	Provide incentives for installing high efficiency fans, blowers, compressed air systems, variable speed drives.
Off grid renewable energy applications	Designed to offer: Rebates/incentives to install captive solar PV and thermal systems
<i>Agricultural programmes</i>	
Pumping system	Provide incentives for installing high efficiency pumping systems that include motors, pumps, high efficiency foot valves, replacing GI pipes to PV pipes, impeller retrofits, variable speed drives etc. Provide incentives for installing solar powered pumping systems
<i>Municipal water pumping programmes</i>	

Pumping system	Provide incentives for installing high efficiency pumping systems that include motors, pumps, impeller retrofits, variable speed drives, changing pumping schedules to off peak periods etc.
<i>Municipal street lighting programmes</i>	
Street lighting	Provide incentives for installing high efficiency street lighting systems, smart controls, etc.