

FORUM OF REGULATORS



REPORT OF THE WORKING GROUP ON DEMAND SIDE MANAGEMENT

October 2017

Contents

1. Introduction.....	2
2. Forum of Regulators (FOR) Working Group.....	2
3. Deliberations of the Working Group	3
4. Observations of the Working Group.....	4
5. Status of implementation of DSM in States.....	4
5.1. West Bengal	4
5.2. Jammu & Kashmir	5
5.3. Madhya Pradesh.....	6
5.4. Jharkhand	6
5.5. Assam.....	7
5.6. Manipur and Mizoram	8
5.7. Tamilnadu	9
5.8. Delhi.....	9
5.9. Haryana	13
5.10. Maharashtra.....	13
5.11. Gujarat.....	14
6. Findings.....	15
7. Recommendations.....	16

Annexures :

Annexure I : Links to state Demand Side Management regulations.....	16
Annexure II : DSM data submitted by Maharashtra.....	18
Annexure III :DSM Data submitted by Gujarat.....	20

1. Introduction

1.1. The Forum of Regulators (FOR) was constituted as per notification dated 16th February, 2005 in pursuance of the provision under section 166(2) of the Electricity Act, 2003 with the primary objective of harmonization of regulations in the power sector framed by the Central Electricity Regulatory Commission (CERC), State Electricity Regulatory Commissions (SERCs) and Joint Electricity Regulatory Commission (JERCs). The Forum consists of Chairperson of CERC and Chairpersons of SERCs and JERCs. The Chairperson of CERC is the Chairperson of the Forum.

1.2. Over the years, the FOR has undertaken various studies in the field of energy efficiency, Demand Side Management (DSM), tariff, renewable energy among other issues. In May, 2010, FOR had also issued Model Demand Side management Regulations.

2. Forum of Regulators (FOR) Working Group

2.1. In order to review the initiatives taken by member States in the area of Demand Side Management and to facilitate sharing of best practices in the context, the FOR Working Group on Demand Side Management was constituted.

2.2. The Composition of the Working Group is as under :-

- a) Chairperson, Central Electricity Regulatory Commission –Chairman of the Working Group
- b) Chairperson, Delhi Electricity Regulatory Commission- Member
- c) Chairperson, Gujarat Electricity Regulatory Commission- Member
- d) Chairperson, Haryana Electricity Regulatory Commission- Member
- e) Chairperson, Karnataka Electricity Regulatory Commission- Member
- f) Chairperson, Maharashtra Electricity Regulatory Commission- Member
- g) Chairperson, Meghalaya Electricity Regulatory Commission- Member

- h) Chairperson, Punjab Electricity Regulatory Commission- Member
- i) Chairperson, Telangana Electricity Regulatory Commission- Member

3. Deliberations of the Working Group

3.1. The Working group first met on 24th April 2015. During the meeting, a presentation was made by FOR Secretariat, providing a recap of the measures taken by FOR on DSM and Energy efficiency. It was informed that FOR had carried out a detailed study and brought out a report on DSM & EE in 2008, a report on institutionalizing EE & DSM in 2010, an update on DSM in 2010 and Model Demand Side Management Regulation in 2010. The key recommendations of these reports and salient features of the model regulations were discussed.

3.2. Considering his vast experience in the field of DSM, Dr Jayant Sathaye, Founder, International Energy Studies Group, USA, was invited to share his insights over the subject. In a presentation titled “DSM Programmes in India-Activities to implement current and future plans” Dr. Sathaye covered current DSM activities in India with special focus in Delhi, Haryana, Karnataka, Maharashtra, Punjab, Meghalaya and Telangana. The Working group was also informed about various programmes being undertaken in different States in coordination with BEE, Energy Efficiency Services Limited (EESL) besides the programmes taken up independently by a few distribution utilities with a focus on impact owing to installation of star rated appliances, adoption of cool-roof initiative (painting of roof of dwelling units with white paint) installation of star rated agriculture pump sets etc.

3.3. It was observed that many States have notified their State specific DSM regulations. The regulations are available on the website of the respective SERCs. However, it was felt that not all States have adopted all the key features of the model regulations by FOR.

3.4. Some SERCs have issued directions to the distribution utilities in their States for establishment of DSM cells.

4. Observations of the Working Group

4.1. It was felt that SERC-wise updated information on DSM Regulations, measures taken by them, best practices adopted etc needs to be studied by the Working Group.

4.2. It was agreed that FOR Secretariat shall seek updated status of notification of DSM regulations, status of implementation of the DSM Regulations, best practices adopted by States, other regulatory updates relating to DSM etc. by SERCs/JERCs and compile the information received.

5. Status of implementation of DSM in States

As per the deliberations of the working group, FOR Secretariat sought the data regarding steps taken by the SERC/JERCs regarding DSM implementation. Various States have issued Demand Side Management regulations. Links to these regulations are placed at **Annexure-I**.

Apart from regulations, States have also shared various initiatives taken by them. The same is summarized in subsequent sections:-

5.1. West Bengal

Initiative on DSM is still in nascent stage. Two major Discoms of the State i.e WBSEDCL (West Bengal State Electricity Distribution Company Limited) and CESC Power Utility Company have started working on DSM as follows:-

(a) WBSEDCL: LED street Light retrofit programme

- (i) LED village campaign
- (ii) Investment Grade Energy Audit Implementation programme
- (iii) Agricultural Feeder segregation programme
- (iv) Peak Load Management (PLM) and Advanced Metering Infrastructure through Smart Grid Pilot Project
- (v) Mandatory TOD tariff for new industries having contract demand of 50KVA and above.

- (vi) Additional rebate on load factor and rebate on demand charge for shifting of load from peak period to off-period by industrial consumers
Avoided capacity generation: 0.33 MW
Energy saving per annum: 0.48 MU

b) CESC Ltd: Small scale pilot project on DSM/Demand Response Programme has been initiated in collaboration with M/S Innovari

- (i) Segment : HVAC and Lighting Load
- (ii) Plan : Scheduling of curtailable loads of target sector as and when system demands
- (iii) Target Capacity : 1.5 MW
- (iv) Project Cost : Rs.4.5 Crore

5.2. Jammu & Kashmir

- (a) Enactment of J&K Energy Conservation Act;
- (b) Govt. of Jammu and Kashmir has imposed a ban on use of incandescent lamps in all new buildings constructed in Govt. sector/Govt. Institutions/Public sector units/Autonomous bodies/Commercial establishments for efficient use of energy and its conservation and made use of CFLs as mandatory.
- (c) Government of J & K signed a Memorandum of Understanding (MOU) with Bureau of Energy Efficiency (BEE) , Government of India to assist the Department in carrying out DSM & Energy Conservation activities which include :-
 - (i) Allocation of funds for Energy Efficiency Services Limited (EESL) for providing manpower & consultancy support to the Utility for Load Survey, Load Research, Load Strategies and Development of DSM action plan;
 - (ii) Coordinate for timely implementation of activities;
 - (iii) Engage training agency for development of training module for JKPDD, preparation of leaflets/brochures on DSM programmes & providing training to the master trainers;
 - (iv) Provide financial support to JKPDD in organizing workshops for capacity buildings for its officials;
 - (v) Organise National Level Workshop for dissemination of DSM measures;

(d) Awareness campaign organized in various establishments like Educational Institutions to educate consumers on energy conservation. As a result, a number of establishments have replaced the incandescent bulbs by CFLs.

(e) Replacing all non-functional Sodium Vapour Street Lighting Lamps by LEDs.

5.3. Madhya Pradesh

(a) DSM Cell has been created

(b) A study was conducted for implementation of Agricultural DSM project in 5 No 11 KV feeders supplying predominantly to Agricultural consumers of 2 districts viz Narsingpur and Rewa.

(c) Awareness Programmes are being continuously arranged in the area for maximum use of energy efficient gadgets,

(d) Replacement of conventional bulbs with LED is under consideration for households and street lighting

5.4. Jharkhand

(a) Distribution licensees of the State are undertaking the steps as per regulations in order to improve and enhance DSM. SERC keeps close check on the activities performed by the Licensees by requiring them to submit reports on DSM initiatives giving details of initiatives undertaken and costs incurred.

(b) The Distribution Licensees, Jamshedpur Utilities and Service Company Ltd(JUSCO) and Tata Steel Limited submitted in their previous ARR and Tariff Petitions as well as in Tariff Petition for FY 2015-16 that they have been submitting the DSM reports as and when the activities of DSM take place.

5.5. Assam

DSM cell has been constituted by the distribution licensee. Other DSM activities initiated in the State are as under :-

- (a) Over 19 lakh CFL lamps were distributed to rural consumers with connected load upto 1KW.
- (b) 3 star rated (energy efficient) transformers are being installed.
- (c) In order to monitor the consumption of high value consumers, CMRI download of all H.T consumers have been initiated. A central HVCMS project (High Value Consumer Management System) has been taken up for implementation.
- (d) A smart grid pilot project is proposed under R-APDRP, which includes DSM initiative by segregating consumer load under essential/non-essential etc.
- (e) 2 kW LT rooftop solar PV was installed at Rajiv Bhawan, Guwahati under a net metering arrangement with the Distribution Company, which was commissioned on 2 October 2012. The plant is running successfully and contributing approximately 180 units per month to the grid and the consumer in return is getting a benefit of approximately Rs 900 per month.
- (f) Pre-paid meters are being installed, phase-wise
- (g) Three-tier Time of day (ToD) tariff is prevalent for four categories of High value consumers namely HT-I Industries, HT-II Industries, Tea, Coffee and Rubber and Coal and Coal categories for peak clipping.
- (h) Power Factor (PF) incentives and penalties for the HT industries are being notified in Tariff orders of the Commission so as to reduce the reactive power requirement of the grid and thereby increasing the efficiency of generation plants.
- (i) Assam Power distribution Company Limited (APDCL) has been enrolled under Bureau of Energy Efficiency (BEE) funded DISCOM led DSM programme.
- (j) APDCL has signed MOU with BEE and appointed Energy Efficiency Services Ltd (EESL) to provide consultancy service to APDCL.
- (k) 2 consultants have been appointed by EESL to assist APDCL to prepare DSM master plan. Ms/Enfragy Solutions India Pvt Ltd to carry out survey on behalf of APDCL. The

sample size is 1496 consumers (Domestic :1000 No., Commercial : 280 No., Industrial: 140 No., Agricultural :20 Nos and Municipality: 56 No.) covering 19 electrical subdivisions of 17 electrical circles. Based on survey report, EESL will prepare DSM plan for APDCL management. The DSM plan may have the following agendas :-

(i) Domestic Sector

- DELP (Domestic Efficient Lighting Programme) :
- Energy Efficient Fans

(ii) Municipalities and Commercial Sector

- Energy Efficient Street Lightening Programme
- Energy efficient pumps Programme

(iii) Government Buildings

- ECBC Plan

(l) In addition, number of energy conservation workshop is proposed. Further, 20 officials of APDCL would be trained on DSM and energy efficiency. Master trainers for other officials of APDCL have already been selected. Master trainers would further impart training to 150-200 officials through capacity building workshops.

5.6. Manipur and Mizoram

- (a) Partially adopted the FOR Regulations.
- (b) Surcharge for failing to maintain Power factor within the limits is being specified in the Tariff Order.
- (c) Use of incandescent lamps and conventional chokes in Govt. buildings of Mizoram are banned
- (d) Use of solar energy for heating water in the Hospitals, schools, guest houses etc in the State of Mizoram is mandatory.

5.7. Tamilnadu

- (a) The Discom, Tamilnadu Generation and Distribution Corporation Limited (TANGEDCO) formed the Demand Side Management cell in 2003. However, on notification of the Demand Side Management Regulations 2013 by the Commission, the licensee has formed sub-cells at Regional and Circle levels to coordinate with the cell at their Headquarter office.
- (b) Load Research study has been conducted by M/s TERI for the distribution licensees and the licensee has undertaken energy conservation measures of distributing CFLs to all hut services, replacement of florescent tube lights with LEDs, creating awareness among the general public by celebrating energy conservation day/weeks every year etc. The licensee is also participating in programme capacity building of DISCOMS launched by BEE.
- (c) The DSM Consultation committee has been constituted by Commission on 20.6.2014.

5.8. Delhi

- (a) To focus on Energy Management, Discoms have created a dedicated Demand Side Management and Energy Efficiency (DSM & EE) Group with a mandate to bring about reduction in energy consumption across residential, commercial and industrial establishments and facilitate energy efficiency improvement projects.
- (b) Broad objectives of the group is to take up DSM related policy/activity/programs to lower the overall cost of electricity to the consumers, 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 patter 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
 - Costly capacity (generation, transmission & distribution network) additions
 - 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 Bureau;
 - (vi) Make strategic efforts to induce lasting structural or behavioral changes in the market that shall result in increased adoption of energy efficient technologies, services and practices;
- (c) Discoms have conducted the Load Research and potential DSM studies to understand the consumer Load Pattern and the peak occurring intervals. As per the finding of Load Research and potential studies, various schemes have been identified which will coincide with peak and will help to curtail the peak load.
- (d) Summary of major DSM projects implemented:-
- (i) Bachat Lamp Yojana (BLY)- Discom had signed a tripartite agreement with BEE & C Quest Capital to implement Bachat Lamp Yojana(a CDM based scheme launched by BEE). The scheme is aimed at large scale replacement of incandescent bulbs in households by CFLs. Under BLY, CFLs were offered at Rs 15 in exchange of working incandescent bulbs for residential consumers. Project completed in 6 districts and over 8 lakhs CFLs had been distributed under the scheme.
 - (ii) DFID funded Appliance Replacement Program : Discom in association with Bureau of Energy Efficiency (BEE) and ICF International (consultant) developed an Appliance Replacement program for old Refrigerators and Air conditioners. DFID (A UK grant agency) agreed to fund the project. Under the scheme star rated refrigerators and ACs were offered at the discounted rates (against the prevailing Market operating Prices) and existing appliances were bought back for safe disposal
 - (iii) Appliance Replacement Program- Appliance Replacement Program was launched in association with LG, Voltas and Godrej) to promote Star Rated Appliances – ACs and Refrigerators. Under the program, consumers were offered exchange scheme, under which existing old refrigerators and Air Conditioners can be replaced with new Energy Efficient BEE star rated Refrigerators and ACs.

Consumers benefitted by reduction in energy bills, special discounts on market prices, good salvage value for old appliance. Scheme was available from 1st Aug 2011 to 31st Oct 2011. Over 4000 star rated appliances were sold under the scheme

- (iv) Discount based scheme for Sun reflect paints : Pilot conducted on one of the TPDDL building. Decrease of 5 °C in room temperature and 8 % energy savings was observed.
- (v) LED bulb : Discom in association with 2 LED manufacturers launched a discount based scheme for its employees and consumers where 7 W LED bulbs were offered at Rs 250 (MRP : Rs 450) with 3 years warranty, over 7200 bulbs were under the scheme.
- (vi) Delhi Jal Board peak shifting : Discom after detailed analysis of the load profiles of Delhi Jal Board (DJB- water utility in Delhi) plants, suggested DJB to shift its morning operation hours for water pumping station by 2 hours. This has helped in minimizing the coincidence with peak hours which resulted in a saving of 2 MW of energy from peak demand.
- (vii) Policy advocacy for Bank ATMs – Discoms identified energy saving potential at Banks ATMS where ACs were running 24 hours at 16-17°C through summer. Dialogues were held with Ministry of Environment and Forest (MoEF) which resulted in MoEF issuing guidelines to all the major banks in Delhi to ensure optimal temperature setting of the ACs in their ATMs.

(e)Public information campaign and customer outreach programs

- (i) Discoms had prepared energy conservation booklets and leaflets for kids, offices colleges, home and distributed amongst internal and external stakeholders.
- (ii) Consumer outreach programmes are being organized at various forums-RWAs, Consumer meets. The presentations were given by well-established energy sector professionals from EE and REM,BEE, TERI, OEMs etc. All consumer meets have climate change/energy conservation as part of agenda. Energy Conservation tips are circulated and shared with consumers in the RWA meets every month.

- (iii) To raise the awareness on renewable energy and its efficient use among the residential consumers, Renewable Energy Fair was organized in association with State Designated Agency (SDA)

(f) Projects under DSM schemes are:

- (i) Energy Efficient Lighting Program for LED Bulbs- A energy efficient lighting scheme wherein EESL will offer maximum four (4) 7W LED bulbs per CA No for Rs 93 each to eligible TPDDLs domestic consumers (with no arrears on electricity bills)

Consumers will have two options –

- a. Upfront full payment
- b. EMI through existing TPDDL's billing system

- (ii) Appliance Replacement Programmes for Air Conditioners (AC)

The main objective of the programme is to accelerate the adoption of BEE 5 Star /inverter Rated ACs through consumer rebate scheme.

- DERC has issued approval order for the scheme in May'15
- Target No. of replacements: 20,000 ACs (Capacity : 1 TR & 1.5 TR)
- Applicable rebate

AC type	BEE 5 star 1.5 TR	BEE 5 star 1 TR	Inverter 1.5 TR	Inverter 1 TR
Rebate (Rs/AC)	6400	4800	7400	5500

- Demand Response will be implemented with annual targets soon.
- In solar power generation Discom has empanelled different solar vendors and in coordination with them are trying to install Rooftop Solar Plants in PPA model specially for Government buildings
- Super Energy Efficient Fan is the most efficient fan which consumes 35W of power compared to 75W of Conventional Fans.

5.9. Haryana

Both Discoms of Haryana i.e Uttar Haryana Bijli Vitran Nigam Ltd (UHBVNL) and Dakshin Haryana Bijli Vitran Ltd (DHBVNL) have initiated activities specified under the DSM Regulations. Discoms have already constituted the DSM cell in their respective utilities. Consultants have also been appointed by Discoms for conducting Load and Market Research studies. Discoms are also planning to implement best practices like DSM based efficient lighting programme (DELP) Mu-DSM for street lighting etc.

5.10. Maharashtra

- (a) Along with DSM regulations, Cost Effective Assessment Regulations 2010 have been issued. Basic aim of regulations is to assess the cost effectiveness and prudence of the expenditure. These Regulations specified the selection criteria for the various schemes and DSM programmes.
- (b) Five tests reviewing Cost benefits analysis are specified in the Regulations. These tests are Total Resources Cost (TRC) Test, Ratepayer Impact Measure (RIM) Test, Life Cycle Revenue Impact (LRIRIM) Test, Participants Cost(PCT) Test and Societal Cost(SCT) Test
- (c) These Regulations also specify various escalations rates and discount rate to measure the Cost effectiveness of the schemes which can be revised on year by year basis by Commission.
- (d) List of DSM schemes approved under DSM regulations are as follows:-
 - (i) Energy Efficient Lightening Programme
 - (ii) Thermal Energy Storage Programme
 - (iii) Five Star rated Ceiling fan Programme
 - (iv) Five Star Split AC programme
 - (v) Five star rated Refrigerator Programme
 - (vi) Demand Response Programme
 - (vii) Energy Audit Programme
 - (viii) Standard Offer Programme

- (ix) Agricultural DSM Programme
- (x) Domestic Efficient Lighting Programme (DELP)

Details of implementation is placed at ***Annexure-II***

5.11. Gujarat

(a) In compliance to the DSM regulation, four State owned Discoms and Torrent Power Ltd (TPL) have already established DSM cells. Further, all the DISCOMS have appointed TERI as a consultant for preparation of DSM plan which includes load research findings, load curve analysis and suitable demand side management programme and submitted for approval of the Commission. The plan includes following DSM programmes based on consumer mix energy use dominance :-

- (i) LED Lamps
- (ii) EE Plan
- (iii) Solar Plans
- (iv) Automated Switches for Capacitors
- (v) Energy Audits
- (vi) Energy Efficient Pump set

(b) The Commission further directed each of the four State owned DISCOMS to contribute Rs 50 Crores within next 2 years towards implementation of DSM, which will be included in the ARR of respective Discoms. Similarly, TPL was directed to contribute Rs 20 Crores for each of its license areas, viz Ahmedabad, Gandhinagar and Surat within next 2 years.

(c) The Commission approved DSM programme expenditure in ARR for FY 2015-16 as specified below :-

DISCOM	Proposed DSM Program Expenditure in ARR for FY 2015-16 (Rs Cr)	Approved DSM Program Expenditure in ARR for FY 2015-16 (Rs Cr)
Dakshin Gujarat Vij Company Ltd (DGVCL)	21.37	21.37

Madhya Gujarat Vij Company Ltd (MGVCL)	25.00	25.00
Pashchim Gujarat Vij Company Ltd (PGVCL)	40.00	40.00
Uttar Gujarat Vij Company Ltd (UGVCL)	40.00	40.00
Torrent Power Limited (for Ahemdabad and Surat)	10.15	10.15

(d) The Commission has also initiated the process of preparing Evaluation, Measurement & Verification (EM&V) guidelines and has appointed EESL to prepare draft on guidelines for EM & V for EM & V of DSM programmes. The Commission reviewed the progress of DSM Schemes being implemented by all DISCOMS. The data is enclosed at **Annexure- III**

6. Findings

6.1. Various States have issued Demand Management regulations as per FOR Model Regulation. However, a few States such as Uttarakhand, West Bengal, Rajasthan, Arunachal Pradesh, Andhra Pradesh, Sikkim, Kerala, Nagaland and Telangana still have to come up with DSM regulations.

6.2. Apart from issuance of Demand Side Management Regulations, several States have taken steps for DSM and Energy Conservation. Some of the best practices of States include:-

- i. Collaboration with BEE and EESL for load research and load surveys,
- ii. Implementation of Time of Day Tariff,
- iii. Replacement of incandescent lamps with LED bulbs,
- iv. Replacement of existing appliances with BEE rated appliances,
- v. Use of solar pumps for agricultural use,
- vi. Conducting Public information campaigns and Programs.

7. Recommendations

7.1. Best practices of one State may be emulated in other States as well after conducting a feasibility study.

7.2. The States may undertake impact assessment of the programs implemented so far to estimate the effectiveness of the program in terms of energy saved and funds invested.

7.3. Energy efficiency programs for equipment other than LEDs must get equal importance as that of LED schemes.

7.4. Peak Load Management through Smart Grid Projects may be implemented.

7.5. Apart from domestic load, industrial loads may also be brought in the purview of energy efficiency program.

ANNEXURES

Annexure-I**Link to State Demand Side Management Regulations**

Sno	States	Link
1	Assam	http://aerc.nic.in/AERC_DSM_Regulations-2012.pdf
2	Bihar	http://berc.co.in/rules-regulations/regulations/individual-regulation/213-demand-side-managment-regulations-2014
3	Chhatisgarh	http://cserc.gov.in/admin/upload_regulation/060817_105754_.pdf
4	Delhi	http://www.derc.gov.in/Regulations/DERCRegulations/Regulations%202014/DSM%20Regulations%20%202014.pdf
5	Gujarat	http://www.gercin.org/uploaded/document/en_1338898507.pdf
6	Haryana	https://herc.gov.in/writereaddata/pdf/r20141119.pdf
		https://herc.gov.in/writereaddata/pdf/r20160728a.pdf
		https://herc.gov.in/writereaddata/pdf/r20160728.pdf
7	Himachal Pradesh	http://new1.hperc.org/File1/fdsm11.pdf
8	Jammu & Kashmir	http://www.jkserc.nic.in/DSM%25JKSERC.pdf
9	Jharkhand	http://jserc.org/pdf/regulations/gazetteno523.pdf
10	Joint ERC (Goa & UTs)	http://jercuts.gov.in/writereaddata/UploadFile/DSMREGULATIONab_1546.pdf
11	Karnataka	http://www.karnataka.gov.in/kercc/Regulations/Regulations/KERC(Demand_Side_Management)Regulations-2015.pdf
12	Madhya Pradesh	http://www.mperc.nic.in/220217-DSM-Regulations-2016.pdf
13	Maharashtra	http://www.mercindia.org.in/pdf/Order%2058%2042/DSM%20Regulation%20Notified%20_DSM%20Implementation%20Framework_April2010.pdf
		http://www.mercindia.org.in/pdf/Order%2058%2042/DSM%20Regulations%20Notified_Cost-effectiveness_April2010.pdf
14	Manipur	http://jerc.mizoram.gov.in/page/various-regulations-under-jerc-for-manipur-mizoram.html
15	Mizoram	
16	Meghalaya	http://www.mserc.gov.in/regulations/MSERC_DemandSideManagement_%20Regulations2016.pdf
17	Punjab	www.pserc.nic.in/pages/Demand-Side-Management-Regulations-2012.doc
18	Tripura	http://terc.nic.in/pdf/DSM_Regulations_2010.pdf
19	TamilNadu	http://www.tnerc.gov.in/regulation/DSM/DSM-20-1-26-02-2013-English.pdf

20	Uttar Pradesh	http://www.uperc.org/App_File/NotifiedDSMRegulations,2014-pdf3152016104352AM.pdf
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Annexure- II Status of the State of Maharashtra for DSM implementation

Summary of Energy saving achieved through various DSM schemes									
Sn o	DSM Program	Status as on 31.08.2 014	Estimate d Saving/E quipmen ts	Upto FY13		FY 14		Total	
				Installed Qty	Ener gy saved (kWh)	Inst alled Qty	Energy saved (kWh)	Instal led Qty	Energy saved (kWh)
DSM Schemes implemented by TPC-D									
1	Five Star ceiling Fan	Closed	0.24kWh	8969	655520	4310	793710	13279	1449230
2	T5 Tube light	Closed	0.14kWh	4353	306310	0	133200	4353	439510
3	5 Star Split AC	Open	3 kWh- 1Ton 3.5 kWh-1.5 Ton	84	110850	19	101030	103	211880
4	Energy Efficient Refrigerators	Open		0	0	294	15000	294	14700
5	Demad Response Program	Open	NA	16 Events	253855	2 event s	27957	18 Events	281810
6	Thermal Energy storage	Open	NA	20,000 TRH	2865130	20000 TRH	730240	40,000 TRH	3595370
Total Energy saved by TPC-D=5.99 MU									
DSM Schemes implemented by Rinfra-D									
7	Five Star ceiling fan Program	Open	0.24kWh	10400	769209	1727	243088	12127	1012297

8	Five Star rated refrigerator programme	Open		3073	301940	636	269451	3709	571391
Total Energy saved by Rinfra-D=1583688 kWh (1.58MU)									
DSM Schemes implemented by MSEDCL									
9	Ceiling fan Programme	closed	0.272kWh	NA	NA	NA	NA	4988	408000
10	Agricultural DSM	closed	3.695kWh	NA	NA	NA	NA	2209	1224338
Total Energy saved by MSEDCL= 1632338 kWh(1.63 Mus)									

Annexure- III Status of the State of Gujarat for DSM implementation

SNo	Programme Name	DISCOM Name	Programme Size (Nos.)	Estimated Energy Saving (Mus/Annnum)	Estimated Demand Saving (MW/Annnum)	Target Consumer Category
1.	LED Lights	MGVCL	45745 (10W) & 22266 (20W)	6.9	8.625	Anaganwadi, Govt School, Community Health Centres, Primary Health Centres, Gram panchayat offices
		DGVCL	14525	1.87	0.56	Primary health centres and community health centres
		UGVCL	279822	2.224	2.781	Residential Consumers (2LED per household)
2.	Replacement of Fans by EE Fans	MGVCL	67754			Government schools, Anganwadi, Community health centres, Primary health centres, Gram Panchayat offices
		DGVCL	86100 (energy efficient/super efficient fans)	6.14	2.58	Govt. Primary School/ Govt Ashram Shala, Anganwadi, Primary health centres, Community health centres
		PGVCL	75030	4.538	2.026	As above
		UGVCL	139911 (household) 7500 (Govt.	28.33	Not Specified	Govt. Primary School/ Govt Ashram Shala, Households Domestic Consumers (Contribution of Rs 660/- by

			Primary School/ Ashram Shala)			consumer through 24 EMI in elect. Bill)
		TPL (A)	12000	0.72	0.288	AMC Schools/Anganwadi/TPL Premises
		TPL (S)	11500	0.618	0.248	SMC School, Anganwadi, SMC Hospital, Health Centre
3.	Solar Pump Installations (For UGVCL it is Energy Efficient Pump Stes)	MGVCL	59	0.498 Mus/an num (green energy addition)	Not Specified	59 no. of agriculture consumers
		DGVCL	300	1.35	1.12	300 nos of agriculture consumers
		UGVCL	1000	2.99	Not Specified	New agriculture consumers
4.	Industrial Energy Audit	MGVCL	89 (all LT consumers)	NA	NA	27 no of consumers having contract demand upto 50kW and 62 no. of consumers having contract demand between 51kW to 100kW.
		DGVCL	30	NA	NA	30 LT consumers
5.	Replacement of Tubelight with T5	TPL (A)	12000	0.79	0.312	AMC Schools/Anganwadi/TPL Premises
		TPL(S)	11500	1.017	0.23	SMC School, Anganwadi, SMC Hospital, Health Centre

6.	Power Factor Manage- ment- Installati on of Current Sensing Automat ed Switch off capacito r	TPL (S)	21000k VAr Capacit ors			TPL (S) consumers
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