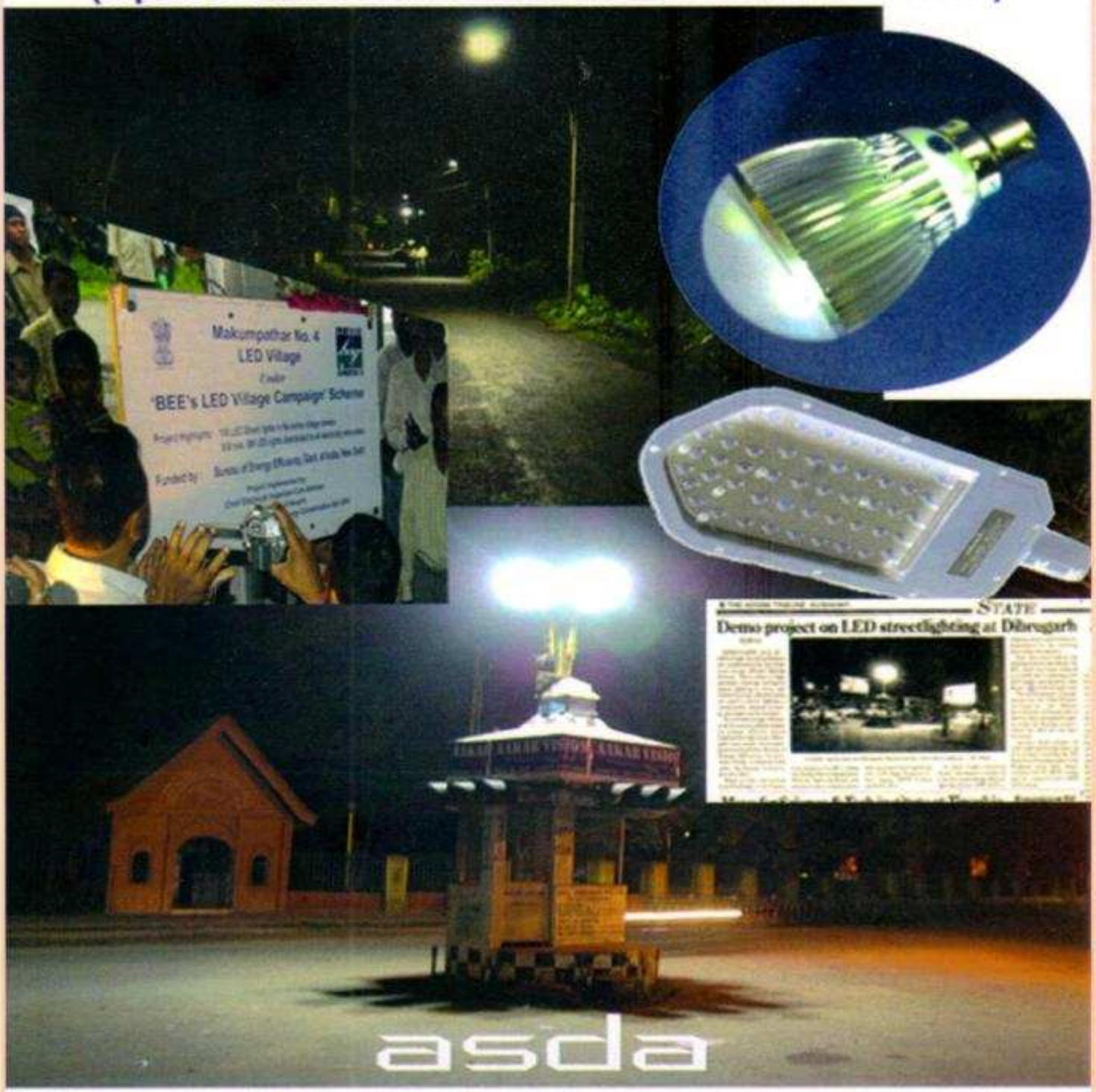
Annual Book of Energy Conservation Measures in Assam 2010

(A part of the 19 deliverables of the Annual Action Plan)



Assam State Designated Agency

(Under Energy Conservation Act, 2001)

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ANNUAL BOOK OF ENERGY CONSERVATION MEASURES IN ASSAM 2010

(A part of the 19 deliverables of the Annual Action Plan)

Published by:

Chief Electrical Inspector-Cum-Adviser, Government of Assam

(State Designated Agency under Energy Conservation Act, 2001 for the State of Assam)

Assam State Designated Agency

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MESSAGE

I am happy to learn that the State Designated Agency (SDA) for Energy Conservation in Assam is going to publish an Annual Book on the various energy efficiency measures already carried out in the State.

Electricity as a prime source of energy for the common men needs to be conserved through judicious use. I appreciate that the SDA, Assam has initiated a number of moves to achieve energy efficiency in the State. It is time we launch a systematic campaign to make people aware about the energy saving practices.

I hope the Annual Book would correctly reflect the initiatives of the SDA in Assam and would be able to generate much interest towards energy conservation among the consumers.

(Pradyut Bordoloi)

Sumeet Jerath, I.A.S.

सत्यमेव जयते

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MESSAGE

I am pleased to note that the Office of the Chief Electricity Inspector & Adviser (CEI&A) which has been notified as the State Designated Agency (SDA) for Energy Conservation in our state is bringing out an Annual Book on numerous initiatives to usher in 'energy conservation' and 'energy efficiency' launched by them.

Electricity is a basic need of the masses and every citizen of the state needs to be empowered by 'lighting up' his or her life. This is possible only through a rational use of electricity. It is hoped that these measures would get properly collated and then disseminated to our target market audiences through the publication of this book.

Sumeet Jerath

(SUMEET JERATH)

CONTENTS

1. PREFACE:

"Energy" means any form of energy derived from fossil fuels, nuclear substances or materials, Hydro-electricity and includes electrical energy or electricity generated from renewable sources of energy or biomass connected to the grid.

-Section 2(h) of the Energy Conservation Act, 2001

• Introduction on Energy Conservation Act, 2001:

In today's economy, supply of quality energy is very much crucial for the economic prosperity of a nation, especially more so in case of a developing economy like India. Demand for electricity and fossil fuels have substantially increased over the time due to growing preference for commercial energy. While efforts are being made to improve availability of various energy sources, there is still a continuing gap between demand and supply of energy. For the purpose of fulfilling the energy requirement, increased generation of energy is a huge capital intensive option. By adopting energy efficiency measures, consumption can be reduced to a great extent that will reduce the need to create new capacity requiring mobilization of huge resources as well as result in substantial environment benefits in terms of reduced Green House Gas (GHG) emissions. To promote conservation of energy and to facilitate its efficient use in various sectors, there is need for certain statutory measures. Accordingly, appreciating the potential and importance of energy efficiency, for bridging the gap between demand and supply, reducing environmental emissions through energy saving, the Government of India enacted the EC Act to provide a legal framework that came into force with effect from 1st March 2002. A waiting period of five years from the date of enactment is provided in the Act, during which, all the institutional infrastructure including formalities of issuing notification of Rules, Regulations and other norms at the Central and State level to be completed besides continued endeavor for creation of awareness for efficient use of energy and its conservation among public.

• Bureau of Energy Efficiency (BEE):

The Govt. of India under Section 3(1) of the EC Act established the statutory body, The Bureau of Energy Efficiency (BEE) under the Ministry of Power, Govt. of India for implementation of policy programs and co-ordination of implementation of energy conservation activities. The BEE is headed by the Director General, BEE with its head quarter situated at New Delhi.

The mission of the BEE is to assist in developing policies and strategies with a thrust on self-regulation and market principles within the overall framework of the EC Act with the primary objective of reducing energy intensity aspect of the Indian economy. This will be achieved with active participation of all stakeholders in accelerated and sustained adoption of energy efficiency in all sectors.

• Role of BEE

As envisaged in the EC Act, BEE co-ordinates with all stake holders and recognize, identify and utilize the existing resources and infrastructure. The EC Act provides for both regulatory and promotional functions of the BEE -

Regulatory functions:

The Major Regulatory Functions of BEE include:

- Develop minimum energy performance standards and labeling design for equipment and appliances.
- Develop specific Energy Conservation Building Codes.
- Activities focusing on designated consumers.
- Develop specific energy consumption norms.
- Certify Energy Managers and Energy Auditors.
- Accredit Energy Auditors.
- Define the manner and periodicity of mandatory energy audits.
- Develop reporting formats on energy consumption and action taken on the recommendations of the energy auditors

Promotional functions:

The Major Promotional Functions of BEE include:

- Create awareness and disseminate information on energy efficiency and conservation.
- Arrange and organize training of personnel and specialists in the techniques for efficient use of energy and its conservation.
- Strengthen consultancy services in the field of energy conservation.
- Promote research and development.
- Develop testing and certification procedures and promote testing facilities.
- Formulate and facilitate implementation of pilot projects and demonstration projects.
- Promote use of energy efficient processes, equipment, devices and systems.
- Take steps to encourage preferential treatment for use of energy efficient equipment or appliances'
- Promote innovative financing of energy efficiency projects.
- Give financial assistance to institutions for promoting efficient use of energy and its conservation.
- Prepare educational curriculum on efficient use of energy and its conservation.
- Implement international co-operation programs relating to efficient use of energy and its conservation.

2. STATE DESIGNATED AGENCY: INTRODUCTION:

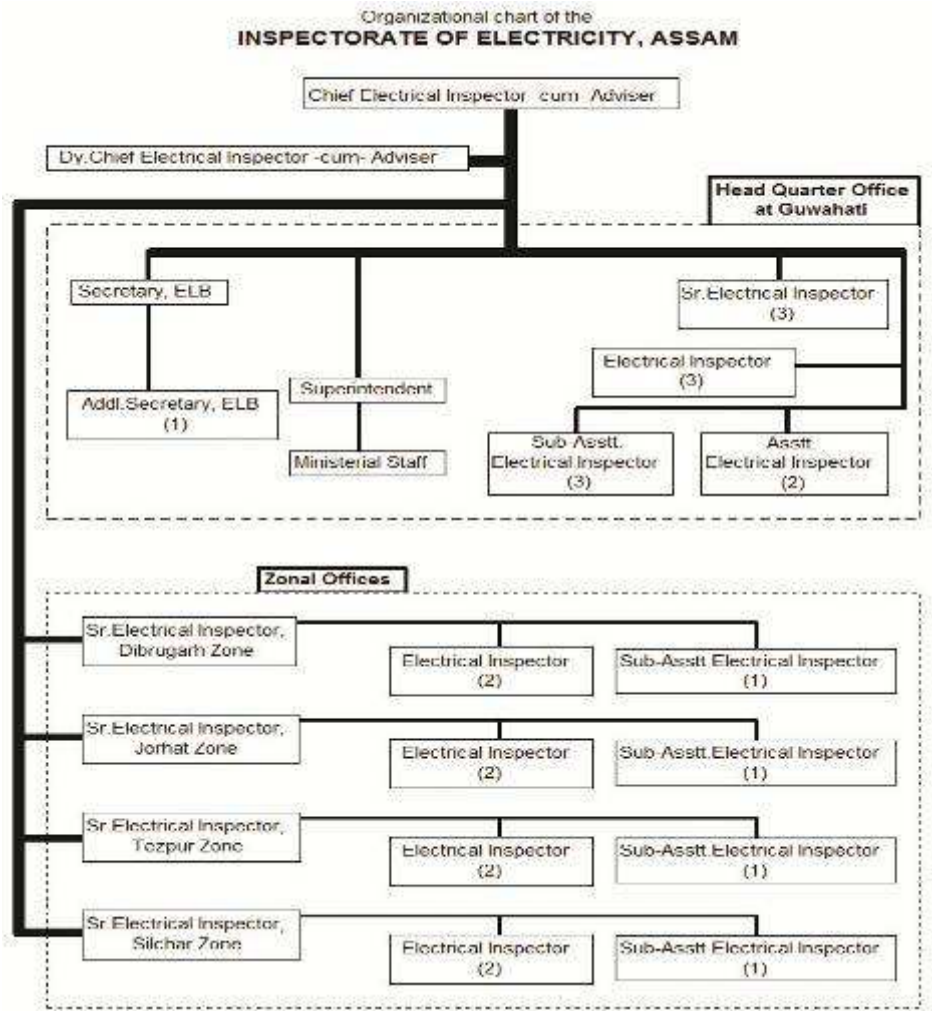
State Designated Agencies (SDA) are the entities selected and notified from among the State Machinery as State Level nodal agencies under the BEE to coordinate, regulate and enforce the provisions of the EC Act in the respective State.

- **Establishment of SDA:**

Amongst the North Eastern States of India, energy requirement of Assam is highest and more to it, the State is a power deficit state with lots of energy conservation opportunities. This necessitates a greater role on part of SDA for the State of Assam.

As required under Section 15(d) of the EC Act, the Government of Assam vide Notification No.PEL.81/2002/45, Dtd.06.09.2002 issued by the Commissioner and Secretary to the Government of Assam, Power (Electricity) etc. Department designated the Chief Electrical Inspector -cum- Adviser, Assam as the SDA for Assam to coordinate, regulate and enforce the provisions of the EC Act in the State of Assam.

• Organization Structure:



• Role and Responsibilities of SDA:

The SDA for Assam, i.e. the Chief Electrical Inspector -cum- Adviser is the Head of the Inspectorate of Electricity, Assam, which is a Directorate Level organization under the Power (Electricity) etc. Department, Govt. of Assam. The Head Quarter Office of the Inspectorate is situated at Guwahati and it has four Zonal Offices situated at Silchar, Tezpur, Jorhat and Dibrugarh. Each zonal office is headed by a Senior Electrical Inspector. By virtue of nature of works and field activities, the Inspectorate has the advantage of direct and first hand reach to all stake holders in power scenario of the State.

The normal works and objectives of the Inspectorate are to implement and administer the following Acts, Rules and Regulations to ensure safety:

- Certain provisions of the Electricity Act, 2003 and the Rules made there under in force from time to time.
- Certain provisions of the Assam Cinema (Regulation) Rules, 1960.
- The Assam Electrical Licensing Board Regulations, 1992.
- The Assam Lifts and Escalators Act, 2002.
- The Energy Conservation Act, 2001

3. Profile and Energy Scenario of Assam:

Assam is situated in the northeast region of India with a geographical area of 78,438 Sq.Kms covered by 27 civil districts. Assam shares its boundary with other states of the country i.e. West Bengal, Arunachal, Nagaland, Manipur, Tripura, Mizoram and Meghalaya. It also shares international boundary with Bhutan and Bangladesh. Assam is having a total population 2.66 million (2001 Census) with density of population of 340 per Sq. km.

Total energy demand of Assam is about 1000 MW in peak hours and about 650 MW during off peak hours. The demand is met through own generation the Assam State Electricity Board (ASEB) and from other sources like NEEPCO, NHPC, DLF etc. Total installed capacity in the State is 655 MW, out of which, 555 MW is Thermal Power Stations (Gas based) and 100 MW is Hydro Power Stations.

Total number of electricity consumers in Assam in different categories is 25,80,253 as per 2009-10 records. Brahmaputra Valley Fertilisers Corporation, Nagaon Paper Mills (HPC), Cachar Paper Mills (HPC), Oil India Limited, Oil & Natural Gas Corporation, Bokajan Cement Factory (CCI), NF Railways besides three oil refineries, namely Numaligarh Refinery, Bongaigaon Refinery and Petrochemicals, Digboi Refinery and Guwahati Refinery etc. are among large consumers.

Tea Industry is considered to be a major consumer of electricity in Assam. Presently about 926 factories of Tea, Rubber and Coffee existed in the State, which consumes a considerable quantity of energy in their factories.

Among other categories are domestic, commercial, general purpose/ lighting, agriculture and industrial consumers, that include SME clusters consisting Steel Rolling Mills / Furnaces and few Plywood industries.

4. Energy Efficiency measures initiated by different Governments/Agencies:

1. Numaligarh Refinery Limited, Golaghat District, Assam:

By adopting various Energy Efficiency measures, Numaligarh Refinery achieved a substantial saving of energy in the tune of 3072.2 MWh per month resulting in annual monetary saving of Rs. 22.08 crore.

Numaligarh Refinery won Second prize in the 'National Award on Energy Conservation for Industries' under Refinery sector in 2008.

2. Nagaon Paper Mills, HPC, Jagiroad, Dist: Morigaon:

The Nagaon Paper Mills is situated in Jagiroad in Morigaon District of Assam. By adopting various Energy Efficiency measures for last few years, more than 18.144MU of annual electrical savings reported to have achieved.

3. Cachar paper Mills, HPC, Panchgram, Dist: Hailakandi:

The Cachar Paper Mills is situated in Panchgram in Hailakandi District of Assam. By adopting various Energy Efficiency measures, about 453,974 KWh of annual electrical savings reported to have achieved.

4. Indian Oil Corporation, AOD division, Digboi:

As informed by the IOC, AOD, Digboi, Energy savings amounting to 103691 KWh per month was achieved due to various energy efficiency measures at the refinery resulting in monetary savings of more than Rs. 11.57 lakh per year.

5. The PWD (Electrical), Assam:

The PWD (Electrical), Assam informed that T-5 street light luminaries have been fitted in Guwahati at the main road from Bharalumukh to Bimal Petrol pump which is expected to save energy 19,096 KWh per year saving more than Rs. 3.96 lakh per year. Arrangements have been made by PWD to replace other non-efficient street lights with energy efficient street lights in phased manner.

6. NF Railways:

Achievement during the year 2009-10 through energy conservation measures adopted by N.F. Railway:-

1. Duliajan Station in Tinsukia Division and Kasba Station in Katihar Division have been made Green Stations by providing entire electric loads of the station areas on solar system. The Kendukona Railway station building has been converted into green building by provision of solar supply system.

2. Complete colony at Araria & Khurial in Katihar Division & Officer Colony RNY & Azra Colony in Rangiya Division has been provided with solar street lighting.

3. Solar water heaters provided in 06 locations at Guwahati Sub-division.

4. LED based street lighting has been provided at Officer's colony, Rangiya (partially).

5. 1.35 Lakhs CFL (20 W & 14 W) have been distributed as replacement of incandescent lamps of 40/60 watt under CDM(Clean Development Mechanism). 0.96 Lakhs CFL have been distributed as replacement departmentally.

6. DRM Office at Tinsukia and Rangiya has been awarded a 4-Star rating and office building HQ, Maligaon (Guwahati) and DRM Office at Katiha has been awarded 5-Star rating by Bureau of Energy Efficiency.

7. First time in N.F. Railway, 2 nos. pumps have been automated by using GSM module at Tezpur in Rangiya Division and at Barsoi in Katihar Division. It has extended the facility to operate the pump remotely through internet and online monitoring of operation and other parameters. It will also save manpower.

8. Timer switches on high mast towers - yard lighting/street lighting has been provided in 87 nos. of High Mast tower.

9. 8 nos. solar based LED station name board have been commissioned at Jogbani & Purnea stations in Katihar Division, Kendukona and Gograpar in Rangiya Division, Dimapur and Silchar in Lumding Division and Duliajan and Jorhat town in Tinsukia Division.

10. 5165 nos. T-5 fittings (energy efficient) of various ratings have been provided in place of T-12 fittings in service buildings.

11. 188 nos. Pre-paid Electronic Energy Meters have been installed by replacing Conventional / Electronic Energy Meters.

12. 1612 nos. ceiling fans of 60W have been provided as replacement of 90W ceiling fans

13. Segregation of 30% and 70% done in 16 nos. of Railway Station to save electrical energy.

14. Provision of occupancy sensors in officer's chamber at DRM and GM building has been done in 34 chambers.

15. 10 nos. of LC Gates have been electrified by solar panel.

16. 2124 nos. wire wound regulators have been replaced by electronic regulators.

17. 2556 nos. conventional meters have been replaced by electronic meters.

18. Automatic PF correction panel provided in 06 locations.

19. Automation of pumps done in 09 locations.

7. **CFL street lamps fitted in Tezpur**:

118 nos of 20W CFL lamps fitted in the road section between Mission Chariali to Murhateli and 40 nos of 20W CFL fitted in Murhateli to Tribeni point by Municipal authority, Tezpur.

5. ENERGY CONSERVATION PLAN IN THE STATE:

• Activities as per Energy Conservation Action Plan:

ACTIVITIES UNDER 19 DELIVERABLE ACTION PLAN:

PART-A

1.0	Establishment of internet Platform for communication with SDA
1.1	Design of Database/website linkage with other SDA/BEE
1.2	Status of compliance/non compliance of DCs & Notified Buildings
1.3	Status of availability of notified equipments in the state
2.0	Preparation of list of certified energy managers and accredited energy auditors which work or reside in the State
2.1	Prepare Energy Managers' & Auditors' list
2.2	Prepare Energy audit firms list with industry specialization
2.3	Prepare ESCO list
3.0	Preparation of list of designated consumers and their energy consumption
3.1	Prepare designated consumers list
3.2	Collect energy consumption data from designated consumers
4.0	Preparation of set of forms concerning communication of data and other information with BEE
5.0	Half yearly State level meeting with certified energy managers and accredited energy auditors to discuss duties and responsibilities
6.0	Annual State level conference of energy intensive industry, as well as certified energy managers and accredited energy auditors with award for all categories
6.1	Annual state level conference
6.2	Constitution of State Level EC Awards
6.3	State Level EC Day Celebration
7.0	Half yearly regional meeting for exchange of information about lessons learned on state level implementation EC Act

8.0 Annual meeting of all SDA's to discuss progress and next year's action plan with BEE
9.0 Design and printing of promotional material to be distributed to all four stakeholders: certified energy managers, accredited energy auditors, designated consumers and general public
9.1 Preparation of promotional materials like pamphlets, brochures, posters etc.
9.2 Organizing Awareness campaigns on EE products and services
9.3 Propagation of EE through school education
9.4 Provide DCs with the relevant standards developed by BEE from time to time (Maintaining a Library of Information)
9.5 Promotion of new technologies for EE improvement
9.6 List of EE technologies/Standards
10.0 Conduct mandatory refresher course for certified energy auditors and energy managers
10.1 Conduct Mandatory Refresher Course for certified EM/EA
10.2 Training of prospective EM/EA
11.0 Implementation and conduct of Life Long Learning (3L) Programme of BEE for certified energy auditors, accredited energy auditors and other interested parties
12.0 Training of designated consumers for annual reporting energy data
12.1 Trainers database list (industry-wise, subject-wise)
12.2 Training of SDA personnel as trainers (through TOT)
12.3 Training of Designated consumers in the State
12.4 Training of Designated consumers on e-data filling/analysis of energy data
13.0 Collection of data concerning manufacturing as well as sales of house hold appliances and other equipment at state level falling under the Energy Conservation Act
14.0 Annual Report about state wise sales of labeled household appliances and other energy intensive equipments
15.0 Annual survey and analysis of impact of EC Act, based on reports of accredited energy auditors as well as energy managers as well as other source of information in the state
15.1 Impact of EC Act
15.2 Conduct demo projects (Govt. buildings, water pumping station, sewage pumping station, municipality, Street lighting system, traffic lighting system, etc.)
15.3 DSM demo projects (CFL, peak load management programs, etc.)
15.4 CDM projects
15.5 Dissemination of the demo project results
15.6 Development of SMEs clusters
15.7 EE in Agriculture pumping system
16.0 Preparation and publishing of annual year book of energy conservation measures at state level
17.0 Survey of buildings at state level which fall under the EC Act
17.1 Amend ECBC
17.2 Prepare commercial building list as designated consumers

18.0 Preparation of report and analysis of State level incentive as well as disincentive policies concerning energy conservation measures in energy intensive industries including power sector
18.1 Publication of State Level Annual Book of Energy Conservation Measures.
19.0 Preparation of recommendation for streamlining state level policies concerning energy conservation
19.1 Formulation of State policy and action plan/operational plan

PART-B

20.0 Suggest State Government to establish State Energy Conservation Fund
21.0 Ensure implementation of EC Act in the State
21.1 Prepare list of DC industry-wise for notification (Repetitive)
21.2 Prepare list of commercial building for notification (Repetitive)
21.3 Ensure appointment of certified energy managers by DCs (Repetitive) -
21.4 Ensure mandatory energy audit by DCs (Repetitive)
21.5 Establish systems and procedures for mandatory energy audit reports/action taken reports
21.6 Implement ECBC in State under the overall guidance of BEE/GOI on voluntary basis
21.7 Implement S&L Program under the overall guidance of BEE/GOI on voluntary basis
21.8 Prepare draft rules and regulations under EC Act (Section 57) (consistent with the rules and regulations framed by Central Government)
22.0 Co-ordination with State Government and other stakeholders
22.1 Provide list of DCs and Commercial buildings for notification
22.2 Notify by State Govt. for State Level EC day
22.3 Notify by State Govt. for S & L
22.4 Notify by State Govt. for ECBC
22.5 Report on impact of EC Act in State
22.6 Report on action taken on non-compliance in the state
22.7 Status of EC Fund utilization and the corresponding results achieved

• Formation of ECAT:

As required under EU-EISEEI project for the purpose of enforcing the provisions of the EC Act in a meaningful and effective manner, the Assam SDA had formed the Energy Conservation Action Team (ECAT) to plan; design and draft the Energy Conservation Action Plan (ECAP) for this State vide Notification No. CEIA/EC-10/101, Dtd.12.06.2008. The list of ECAT members is as below:

Sl. No.	Name	Designation	Organization
1	Sri M.K. Choudhury	Addl. Director	Assam Energy Development Agency
2	Sri Hangsa Dhar Sarma	Manager Technical	Assam Industrial Development Corporation
3	Sri M. Gopal	Dy.Chief Engineer (PS)	NF Railways

4		The SE	Directorate of Municipal Administration
5	Smti Utpala Sarma	Dy. General Manager	Assam State Electricity Board
6	Sri S.K.Mitra	Chief Engg.Service Manager	Indian Oil Corporation Limited
7	Sri Mukut Das	Sr. Manager (Elect.)	Assam State Electricity Board
8	Sri B.K.Dash	Sr. Plant manager	Hindusthan Paper Corporation, Jagiroad
9	Smti N.H.Borbora	Asstt. Executive. Engineer, IRCA-I	Lower Assam Electricity Distribution Company Ltd
10	Sri A. Goswami,	Executive Engineer	Indian Institute of Technology, Guwahati
11	Sri R.S. Singh	Asstt. Manager (E)	Cement Corporation of India, Bokajan
12	Sri Dhiraj Kakati	Secretary	Assam Branch of Indian Tea Association
13	Sri Dipanjol Deka	Secretary	Tea Association of India
14	Sri P.C. Sarma	CEIA (Retd)	Individual
15	Sri Tapan Mahanta	Manager (Elect.)	Assam Power Generation Company Limited

6. Activities carried out during 2007-2008:

Financial assistance was provided by the BEE for strengthening and capacity building of the State Designated Agencies of India for achieving the purpose and objectives of the EC Act. In case of SDA of Assam, a total amount of Rs.26.40 lakhs was received in November 2007 for the year 2007-08 for carrying out certain activities on priority basis from the list of 19 deliverables set by the BEE. A current bank account in the name of 'State Energy Works Fund' was opened at Allahabad bank as per approval of the Government vide letter No.PEL.81/02/Pt/168, Dtd.24.12.2007 to deposit the fund received from BEE for carrying out of works. Accordingly, the following activities were carried out as per the said action plan covered by 19 deliverables set by the BEE:

A. IT equipments and software procured for establishment of Internet platform. A new website in the name of SDA Assam **www.asda.gov.in** launched in March 2008.

B. Necessary Hardware & Software were procured and established Internet Platform having five (5) user points covering HQ office and one Zonal office of the Inspectorate. Besides, necessary Multimedia projection devices to cover seminar, workshop and training programs under action plan have been procured.

C. NPC, Guwahati was entrusted with the works of carrying out survey for preparation of list of certified energy managers and accredited energy auditors residing in the State, preparation of list of designated consumers in the State, collection of data concerning manufacturing as well as sales of household appliances and other equipment

at the State level falling under the EC Act, annual survey and analysis of impact of EC Act, survey of buildings at State level which fall under the EC Act.

D. Under Workshops/ Training Programmes, four programmes were conducted viz. Workshop on EC awareness, Conference of EM & EA residing in the State, Regional Meeting with SDAs and BEE, conference of BEE on action plan.

E. Under Publicity/ Awareness programme, promotional materials like folders, banners, leaflets, flex banner displaying EC messages made for display and distribution among public/ energy users. News paper advertisements and promotional audio messages through FM radio channel published/ broadcasted.

F. Under Technical Assistance for preparation of consultants report on Demo projects (Govt. buildings, water pumping stations, sewage pumping stations, Municipality street lighting system etc, DSM demo projects such CFL, peak load management programme carried out through National Productivity Council, Guwahati.

Total fund received from BEE:	Rs. 26.40 lakh
Total expenditure incurred:	Rs. 22.63 lakhs.
Percentage utilization:	85.72%.

7. <u>Activities carried out during 2008-2009:</u>

An amount of Rs.28.00 lakhs was received by the Assam SDA from the BEE out of the total sanctioned amount of Rs.40.00 lakhs for the year 2008-09 for carrying out of certain priority activities from the list of activities under the 19 deliverables. The works were carried out:

A. Under IT Support design of database/ website linkage with other SDAs/ BEE carried out and database management software for maintaining database of EA & EMs, ESCOs, Buildings, and Designated Consumers procured. The activity on status of availability of notified equipments in the State was not carried out as the equipments have not been notified yet by the competent authority.

B. No activities carried out under Technical Assistance/ Consultancy/ survey during the year, as the same was carried out in 2007-08.

C. Under Workshop/ Training Programmes seven seminars/ workshop/ training programmes organized viz. an All India Seminar with Institution of Engineer (India), Assam State Centre, Workshop at Guwahati under EU programme, Workshop for Tea sectors at Jorhat, awareness workshops at Bongaigaon and Tezpur, training programme for designated consumers at Guwahati and a review meeting by BEE with SDAs.

D. Under Publicity/ Awareness large hoardings placed at Guwahati and other five places in the State, preparation of promotional materials like brochures, posters, banners, flex banners, leaflets, campaign through FM radio channel were taken up. National EC day celebrated on 14th December 2008 at Shilpgram with organizing an essay writing competition among 6th to 8th standard school children.

E. Activity on dissemination of demo project result was not undertaken as no demo project on Energy Efficiency taken up during the year.

An amount of Rs. 5.25 lakh out of total sanctioned amount of Rs. 7.50 lakhs was received by SDA Assam from BEE for carrying out of Investment Grade Energy Audits (IGEA) in Government buildings. Accordingly, IGEA in 15 Government buildings were carried out. PCRA, Kolkata carried out IGEA of five buildings and M/S Blue Star, Kolkata carried out IGEA of ten buildings.

An amount of Rs. 1.00 lakh was received from BEE for organizing an essay writing competition among 6th to 8th standard school students in the State. The State level essay writing competition was held on 14th December 2008 at Shilpagram, Guwahati and prizes to the winning students distributed in the evening at a function held on the occasion of the National Energy Conservation Day.

- **Funding Status for 2008-2009:**

Total fund received from BEE:	Rs. 34.25 lakh.
Total expenditure:	Rs. 25.01 lakh.
Percentage utilization:	73.02%.

8. Activities carried out during 2009-2010:

An amount of Rs.25.00 lakh was received by the Assam SDA from the BEE for the year 2009-10 for carrying out of certain priority activities from the list of activities under the 19 deliverables. The following works were carried out:

A) Workshop/ Training Programs: A one day training program for the Designated Consumers in Assam was organized on 19th August 2009 at Guwahati. An interactive session on "Women in Energy Conservation" was organized with Indian Chamber of Commerce, NE Initiatives, Guwahati on 25th August 2009. A meeting with the

building owners and ESCOs regarding implementation of the IGEA DPRs organized on 29th August 2009. A two days workshop on 'Energy Efficiency, Codes and Ratings in Buildings' was organized at Guwahati with SEEM, Thiruvananthapuram on 29th and 30th April 2010. Besides a workshop on MuDSM was organized by BEE and TUV SUD South Asia at Guwahati on 16th February 2010.

B) Publicity/ Awareness programs: Several activities were taken up during the year for carrying out activities under publicity and awareness program. Jingles on Energy Efficiency messages were broadcasted through FM radio channels. As mobile theaters are very popular in Assam and have a good penetration in both urban and rural areas, some publicity activities were carried through mobile theater to spread the messages of Energy Efficiency and Conservation among general public.

• Funding Status for 2009-2010 (under Annual Action Plan):

Total fund received from BEE:	Rs. 25.00 lakh.
Total expenditure:	Rs. 24.25 lakh.
Percentage utilization:	97.00%.

BEE's Nationwide 'LED Village Scheme':

LED Village scheme launched by BEE throughout the country was taken up in Assam. Makumpathar No. 4 village at Tinsukia district of Assam was selected for the project. 100 LED street lights of 20 W were fitted in the village street and as per the scheme about 950 LED lamps of 6W will be distributed among the electricity consumers in the village.

Total fund received from BEE:	Rs. 15.00 lakh.
Total expenditure:	Rs. 15.00 lakh.

Demo Projects:

1. Demo project on LED street lighting at Dibrugarh town from Phulbagan to the Deputy Commissioners Office, replacing 70 nos. of existing street lights with 50W LED street lights.

2. A Demo project on LED street lighting is undertaken at Guwahati from Bharalumukh to Panbazar, replacing about 100 nos. of existing 250 HPSV lamps with 100W LED street lights.

3. Another demo project on Energy Audit at Lakwa Thermal Power Station is also taken up and is expected to be completed by October 2010.

9. DETAIL ACTIVITIES BY THE STATE DESIGNATED AGENCY:

RESULTS ACHIEVED THROUGH ACTIVITITIES WITHIN 19 DELIVERABLES DURING 2007 – 2008, 2008-09 & 2009 - 2010

SDA Assam's web page

• Investment Grade Energy Audit of Government buildings in Assam:

Investment Grade Energy Audit (IGEA) of the following fifteen Government buildings in Assam was carried out during 2008-09.

1. The Raj Bhawan, Guwahati.
2. The Assam Secretariat Complex, Dispur.
3. The Assam Administrative Staff College, Khanapara.
4. Guwahati Railway Station.
5. LGB International Airport, Guwahati.
6. Bijuli Bhawan, Paltanbazar, Guwahati.
7. NF Railway Head Quarter, Maligaon.

8. Deputy Commissioner's office, Kamrup Metro District.
9. Deputy Commissioner's office, Nagaon.
10. Deputy Commissioner's office, Dibrugarh
11. Deputy Commissioner's office, Jorhat
12. Deputy Commissioner's office, Sivsagar
13. Deputy Commissioner's office, Goalpara
14. Deputy Commissioner's office, Sonitpur
15. Deputy Commissioner's office, Silchar

A brief summary of IGEA carried out in 15 Government buildings in Assam

Sl. No.	Building / Complex	Scope of Energy savings per year (KWh)	Investment required (Rs. Lakh)	Payback period (Years)	IGEA done by
1	Raj Bhawan, Assam	30,596	4.30	1.58	PCRA
2	Assam Secretariat Complex, Dispur, Guwahati	1,43,534	7.35	1.08	PCRA
3	Guwahati Railway Station	2,14,000	4.15	0.83	PCRA
4	LGB International Airport, Guwahati	2,15,612	7.17	0.33	PCRA
5	Administrative Staff Training College, Khanapara, Guwahati	94,315	12.38	1.03	PCRA
6	Bijuli Bhawan, Paltanbazar, Guwahati	85,536	17.85	2.46	Blue Star
7	NF Railway Head Quarter, Maligaon, Guwahati	99,467	16.34	3.25	Blue Star
8	Office of the Deputy Commissioner, Kamrup District	34,806	5.01	3.39	Blue Star
9	Office of the Deputy Commissioner, Nagaon District	10,560	15.0	3.55	Blue Star
10	Office of the Deputy Commissioner, Sonitpur District	15,036	21.25	3.45	Blue Star
11	Office of the Deputy Commissioner, Cachar District	7,156	1.2975	4.42	Blue Star
12	Office of the Deputy Commissioner, Dibrugarh District	8,560	1.2825	3.65	Blue Star
13	Office of the Deputy Commissioner, Jorhat District	18,135	1.7955	2.42	Blue Star
14	Office of the Deputy Commissioner, Sivasagar District	6,313	0.88	3.4	Blue Star
15	Office of the Deputy Commissioner, Goalpara District	3,407	0.5625	4.03	Blue Star

Energy Audit carried out in Assam Bhawan, New Delhi:

The Assam Bhawan, New Delhi is a prominent building at New Delhi run under administrative control of the Government of Assam. Energy Audit was carried out in the Assam Bhawan, New Delhi by JasRaj Encon, consultant appointed by the Bureau of Energy Efficiency to be attached with SDA Assam. JasRaj Encon accordingly carried out Energy Audit with detail study from 20th September to 24th September 2009 and submitted their report. As per the report, a very good scope of achieving energy efficiency exists in the installation. As per the report:

Total annual consumption:	5,27,231 KWh
Total energy saving scope:	4,44,598 KWh
Percentage of savings:	
Total investment required:	Rs. 16,37,254/
Annual monetary savings:	Rs. 19,40,525/
Payback period:	About one year.

List of certified Energy Managers and Energy Auditors residing in the State:

(As per survey conducted by NPC in 2007-08)

Energy Auditors:

Name	Father's Name	Year of Certification	Certificate No.	Regd. No.	Present Address for communication	Present Status of Engagement	Job, Job description/ organization Name & address	Contact No./e-mail
Aryind Kumar	Kishore Prasanna	2005	0510	EA-2509	EMA- 22 Erector Hostel CPM Unit H.P,C Limited Pentagram 788802 Assam	CPM Unit	H.P,C Limited Pentagram 788802 Assam	arvind251972@yahoo.com
Gapal Karmakar	Naravan Ch. Karmakar	2005	0518	EA-2567	Assam Gas Based Plant Bokuloni Chariali Dibrugarh 786191	Deputy Manager North Eastern Electric Power Corp	North Eastern Electric Power Corp, Assam Gas Based Plant Bokuloni Chariali Dibrugarh 786191Assam	gopal_kama@rediffmail.com
Jasbir Singh Dadihala	Kamail singh	2005	0591	EA-3342	Upper Assam Tea Industries P.O. Lahoal Dist.Dibrugarh 786010-		Upper Assam Tea Industries P.O. Lahoal Dist.Dibrugarh 786010-	Jasbir_50@rediffmail.com
Deva Kanta Rabha	Rajen Rabha	2005		EA-1344	Mechanical Engineering Department Jorhat Engineering College , Jorhat Pin 785007	Lecture, Mechanical Engineering Department,	Lecturer, Mechanical Engineering Department Jorhat Engineering College , Jorhat Pin 785007	09854530883(M) debakt@yahoo.com
Kishore Deka	Narendra Nath Deka	2005	0838	EA-2800	Care: Manju Stores AIDC RG, Baruah Road Guwahati Pin 781024 Assam	Field Engineering Department, OIL Duliajan	Oil India Limited, Duliajan, Pin 786602 Assam	0374-2808344 (O) 919864108062 (M) dekakishore@rediffmail.com
Ravind Graoyal	Brahmanand Goyal	2006	1076	EA-4183	404Daula Atpartment Nabian Nagar Near Modern School, Zoo Road, Guwahati-781024			
Suman Ghorai	Satyendra N Ghorai	2006	1255	EA-5264	A302, Swapnalaly Ats. Narikol Bari Zoo Nareng Road ,			

					Guwahati-781 024			
Situsina Haionag	Harendra Nath Haionag	2006	1355	EA-2817	Bunglow No.470C old No.1361 Office'sColonv Nambari Maligaon, Guwahati-781 011			shajong@yahoo.com
Durgeswar Roy	Kabir Royprodhani	2006	1394	EA-3516	P&U Department Digboi Refinery IOC(AOD) Digboi Pin 786171 Assam	Electrical Maintenance, IOCL (AOD)	Indian Oil Corporation limited Digboi Pin 786171 Assam	919435137827 (M) royd@iocl.co.in
Om Prasad Chetry	Lal Bahadur Chetry	2006	1395	EA-3517	P&U Department Digboi, Refinery IOC(AOD) Digboi 786171Assam	P&U Department Digboi Refinery	Digboi, Refinery IOC(AOD) Digboi 786171Assam	chetry_op@iocl.co.in
Phanindra Ch. Sharma	Sobhan Sharma	2007	1874	EA-3337	49 Pub Sarania, Rajgarh Road, By Lane No.11 Guwahati-781 003			
Tapan Mahanta	Lakhmi Naraya Mahata	2007	1910	EA-4154	Gobinda kutir,chandmari, krishna nagar Guwahati-781 003	Planning, Monitoring, Evacuation of Power	ASEB, Bijulee Bhawan, Guwahati Pin 781001 Assam	0361-2556260 919864047060 (M) 919864070597 (M) tapan_maha@yahoo.co.in
Khanindra Talukdar	D.D.Talukdar	2007	2057	EA-5846	House-8, 5 th Bye Lane- , Gandhibasti, Guwahati-781 003	Executive Engineer	Nodal Office, APDRP ASEB, Paltan bazaar, Guwahati	
Jagadish Chandra Das	Lakshmi Ram Das	2007	2071	EA-6020	Power And Utilities Department Indian Oil Corporation (Assam oil division) Digboi-786 171	Power And Utilities Department	Indian Oil Corporation (Assam oil division) Digboi-786 171	
Rajdeep Baruah	Umesh Baruah	2006	2264	EA-2654	House No.40 Krishna Nagar, Satribari, Guwahati-781 001			919435145815 rajdeepbaruah@rediffmail.com
Sabyasachi Dhar	Soraj Kanti Dhar	2006	1244	EA-0869	Deputy Director Bureau of Indian Standards,5th Bye Land, Apurba Sinha Path R.G. Baruah road, Guwahati-781003	Deputy Director BIS, Guwahati	Bureau of Indian Standards,5th Bye Land, Apurba Sinha Path R.G. Baruah road, Guwahati-781003	0361-2456508 919435114523 (M) dharsabyasachi1@rediffmail.com
R Vidya Sagar	P S K Rajaratnam	2006	1789	EA-4745	Chief Engineer All India Radio & Doordarshan North East Zone, Dr. P. Kakati;s, Near Ganeshguri Flyover, G.S. Road, Guwahati 781 006	Chief Engieer	All India Radio & Doordarshan North East Zone, Dr. P. Kakati;s, Near Ganeshguri Flyover, G.S. Road, Guwahati 781 006	0361-2230326 (O) 919435197060 (M) rdidyasagar@yahoo.com
Amarendra Goswami-	Balabhadra Goswami	2006	1199	EA-0460	39, Hemgiri Road, South Sarania.Guwahati-781 007	Executive Engineer In charge of internal & external AC work of IIT, Guwahati	IIT Guwahati North Guwahati Guwahati 781039,	0361-2582063 09954497741 agoswami@iitg.ernet.in
Mrinmoy Baruah	Kamakhya Baruah	2006	1554	EA-3511	221B GNB Nagar Gauhati University, Jalukbari, Guwahati-781 014			anadditya@rediffmail.com
Deba Prasad Hazarika	Hari Prasad Hazarika	2006	1582	EA-3674	Arya Nagar College Road Guwahati-781 016	Maintenance of the ancillary support for Diesel Electric locomotive, NF	NF Railways Diesel Loco Shed New Guwahati Bamunimaidan, Guwahati Pin 781021 Assam	919864092040 (M) debaprasad_Hazarika@yahoo.com

						Railways Diesel Loco Shed New Guwahati Bamunimaidan, Guwahati Pin 781021		
Hari Krishna Bhimavarapu	Bhanuprasad Rao	2006	1663	EA-4104	Q.No2375, Secto-r2 Noonmati, Guwahati-781 020			
Shankhaneel Borah	Nani Gopal Borah	2006	1782	EA-4696	Guwahati Refinery Indian Oil Noonmati, Guwahati-781 020	Technical Service	Guwahati Refinery Indian Oil Noonmati, Guwahati-781 020	
Jerold R	Raju S.	2006	1847	EA-5158	Guwahati Refinery Indian Oil,RNo.315,Administrative, Noonmati Building, Guwahati-781 020	Process Engineer	Guwahati Refinery Indian Oil,RNo.315,Administrative, Noonmati Building, Guwahati-781 020	
Baljeet Singh	Ajmer Singh	2006	2012	EA-6172	Qtr.No,2373 Sector-2, G.R Township Noonmati, Guwahati-781 020	Guwahati Refinery	Guwahati Refinery, Noonmati Guwahati 781020	
Manas Kumar Banerjee	Subhas Chandra Banerjee	2007	2825	EA-6611	2404, Sector-2, Refinery Township Noonmati, Guwahati- 781 020	Guwahati Refinery	Guwahati Refinery, Noonmati Guwahati 781020	
Sandeep Mehta	Vinod Kumar Mehta	2006	1985	5947	CPWD, Bamuni Maidan, Guwahti-871 021	Superintending Engineer.	CPWD, Bamuni Maidan, Guwahti-871 021	
Jyoti Prakash Jena	Iswar Chandra Jeana	2007	2826	EA-6631	Guwahati Central Electrical Circle, Nirman Bhawan, Bamunimaidan, Guwahati-781 021	Assistant Executive Engineer (Planning)	Central Electrical Circle, Nirman Bhawan, Bamunimaidan, Guwahati-781 021	
Devajit Bhuyan	Surendra Nath Bhuyan	2004	0454	EA-2143	Flat No.201/a Tenement Apts. , Udaypath Zoo Road , Guwahati-781 024			pcra_guwahati@sify.com
Bijay Kumar Dash	Jagannath Dash	2005	1086	EA-3488	HPC Township Otr.No.C-6/3 Jagi Road Kagajnagar-782413	HPC, Jagi Road	HPC, Jagi Road, Kagajnagar-782413	buijayshalini@sify.com
Khanindra Talukdaar	Late D.D. Talukdar	2007	2057	EA-5846	House no. 8 Bylene 5 Gandhi Basti Guwahati Pin 781003	Executive Engineer	Office of Nodal Officer APDRP Cell Bijulee Bhawan ASEB, PaltantBazar Guwahati Assam	0361-2662649 (O) 919435124503 (M) ktbasti@yahoo.co.in
Krishanu Dutta	Lalig Chandra Dutta	2006	1968	EA-5826	Qr.No.B-73/3 HPC Colony Jagi Road P.O.Kagajnagar-782413	Hindustan Paper Corporation , Jagi Road.	HPC, Jagi Road P.O.Kagajnagar-782413	
Samirbaran Das	Anilbaran Das	2005	762	EA-2131	Dy. Manager TPM 465D, BRPL Township, Dhaligaron Bongaigaon	Dy. Manager, TPM,BRPL	Dy. Manager TPM 465D, BRPL	
Pramod A Sathvaseelan	Sathyaseelan A N	2006	1918	EA-5506	G-8, Gail Township P.O. Lakshmi Nagar			
Ranieet Prasad	Ashok Prasad	2006	1995	EA-6018	Process Engineer Technical Service Department IOC(AOD)	Process Engineer, IOCL	IOC(AOD) DIGBOI-786 171	

					DIGBOI-786 171			
Kamaljit Medhi	Surendra Nath Medhi	2006	2562	EA-6019	Indian Oil Corpn L.td. IOC(AOD) DIGBOI-786 171	DRMP Controller Room	Indian Oil Corpn L.td. IOC(AOD) DIGBOI-786 171	
Saurav Gupta	Debabrata Gupta	2007	2972	EA-8290	SPNE-HDTU HDT CONTROL ROOM – Digboi Refinery IOC(AOD) DIGBOI-786 171	Digboi Refinery	Digboi Refinery IOC(AOD) DIGBOI-786 171	
Arindam Bhattacharyva	Girindra Nath Bhattacharyya	2004	0089	EA-0355	Electrical Dptt. Oil India Limited Dist. Dibrugarh Duliajan-786602	Electrical Dptt. OIL	Electrical Dptt. Oil India Limited Dist. Dibrugarh Duliajan-786602	arindam@oil.asm.nic.in
Ashim Kumar Brharali	Badan Ch. Bharali	2006	2073	EA-0356	Electrical Deptt Oil India Limited Dist. Dibrugarh Duliajan-786602	In Charge O&M of Gas Turbine base power station, OIL	Oil India Limited Dist. Dibrugarh Duliajan-786602	919435038413 (M) ashimbharali@oilindia.in ashim_bharali@yahoo.colin
Dilip Kumar Baral	Madhusudan Baral	2006	1474	EA-2931	C/o.Sh Pintu Paul, Prabasini Complex, 2nd, Floor G.C. College Road Silchar-788004			Dkbaral_29@yahoo.com
Om Prakash Misra	Bhagwan Shanker Misra-	2005	542	EA-0536	Hindustan Paper Corporation Limited Cachar Paper Mill, Panchgram Hailakandi-788 802	Sr.Manager (CD), HPCL, Panchgram	Hindustan Paper Corporation Limited Cachar Paper Mill, Panchgram Hailakandi-788 802	
Ashok Kumar Roy	Hriday Narayan Ro y	2005	1087	EA-3489	Cachar Paper Mill, Panchgram Hailakandi-788 802	Manager, Cachar Paper Mill	(Utility) Cachar Paper Mill, Panchgram Hailakandi-788 802	akmpm@yahoo.com
Rajeevan K.	Kannan Nambiar V	2006	1434	EA- 2727	S.P.E. Electronics Electrical P MC, HPC,CPM, Panchgram Hailakandi-788 802	Cachar Paper Mill	S.P.E. Electronics Electrical P MC, HPC,CPM, Panchgram Hailakandi-788 802	
Ram Surat Singh	Ram Surat singh	2007	EA 8416	EA-8416	DEE/DBWS NFRailway Mechanical Workshop, K.C Gogoi Path Dibrugarh Pin 786001 Assam	District Electircal Engineer	DEE/DBWS NFRailway Mechanical Workshop, K.C Gogoi Path Dibrugarh Pin 786001 Assam	9194035130803 (M) sirghrsea@rediffmail.com
Debajit Das	Late Gobin Chandra Das	2007		EA-5855	National Productivity Council Rajgarh road Minakshi Bhawan,2 nd floor Guwahati-781 007	Dy. Director, NPC Guwahati	Sr. Consultant National Productivity Council Rajgarh road Minakshi Bhawan,2 nd floor Guwahati-781 007	
Satyendra Narah Sing		2007		EA-1515	Electrical Deptt., Oil India Ltd., Duliajan, Dibrugarh-786602	Oil India Ltd., Duliajan,	Electrical Deptt., Oil India Ltd., Duliajan, Dibrugarh-786602	satyendra@oilindia.in

Energy Managers:

Name	Father's Name	Year of Certification	Certificate No.	Present Address for Commu-nication	Present Status of Engagement	Job, Job Description/ Organization Name & address	Contact No./e-mail
Prabir Kumar Dey	Jogesh Chandra Dey	2004	0020	Bongaigaon Thermal Power Station Salakati-783369 Assam	Junior Engineer	Bongaigaon Thermal Power Station Salakati-783369 Assam	pxdey@sanchamet.in
Raiendra Kumar Jha	Nilamber Jha	2004	0030	Bongaigaon Refinery & Petrochemical Limited P.O. Dhaligaon Dist. Bongaigaon Pin 783385	Tech. Services Deptt	BRPL P.O. Dhaligaon Dist. Bongaigaon Pin 783385 Assam .	03664-253448 (O) 919435482488 (M) rkihaji@hotmail.com
Brij Mohan Sharma	Nav Ratan Sharma	2004	0196	Q.No.C-26/4H.P.C Morigaon Jagiroad 782413 Assam	Hindustan Paper Corporatio n Limited, Jagiroad Assam	N.P.M. Kagajnagar Jagiroad 782413 Assam	9435319088 bmsharma.cpm@ mail.hpc.co.in
Ajit Kumar Maiti	Prahllad Chandra Maiti	2004	0212	TS 2 nd floor ADM Building NRL Golaghat - 785699 Assama	Senior Manager	NRL Golaghat Pin 785699 Assam	ajit.k.maite@nrl.co.in
Indrajit Kumar	Shardanan d Prasad	2004	0028	Otr.No.CT316 BRPL Township P.O. Dhaligaon Bongaigaon - 783385 Assam	BRPL	Bongaigaon Refinery & Petrochemical limited, P.O. Dhaligaon Bongaigaon Pin 783385 Assam	krinrahit@radiffmail.c om
Abhijit Neog	Sachindra Nath Neog	2004	0213	Central Control Room Numaligarh Refinery Ltd Golaghat -785699	NRL Projects	Numaligarh Refinery Ltd Golaghat -785699	abhijit.neog@nrl.con.i n
Nripen Kr. Bhattacharyya	Kandarpa Kr. Bhattachar yya	2004	0214	Numaligarh Refinery Ltd. P.O,NR Complex Golaghat -785699	Numaligar h Refinery Ltd.	Numaligarh Refinery Ltd Golaghat -785699	nripen.k.bhattacharjee @nrl.co.in
Ritooraj Sharma				Bamunimaidan, Ananda Nagar, Guwahati - 781 021			
Kishore Kumar Sarma	A.N. Sarma	2004	0029	Qr.No.175A BRPL Township Dhaligaon -783385 Assam	BRPL	Bongaigaon Refinery & Petrochemical limited, P.O. Dhaligaon Bongaigaon Pin 783385 Assam	kk_sarma2@rediffmai l.com
Swapnabrata Lahkar	T.B.B. Lahkar	2004	0311	Tech. Services Deptt. Indian 0il Corporation Limited Digboi Pin 786171	Tech. Services Deptt.	Indian 0il Corporation Limited Digboi Pin 786171 Assam	lahkarsb@iocl.co.in
Nur Alam	Kutubuddi n Ahmed	2005	0362	VilI.Jogighopa P.O.Jogighopa Dist. Bongaigaon PIN.783382 Assam	Simplex Infrastructu res Limited C/O Adani petonet (Dahej) Port Pvt Ltd. Survey no 604 Near CGPTCL Gate no. 2 Vill. Dahej Dist. Bharuch Gujarat 392130	Sr. Project Manager Simplex Infrastructures Limited	09898582839 09979864785 jan_jury@yahoo.co.in
Banajvoti Sarma Kaushik	Anand Chandra Sharma	2005	0459	CPP Control Room Numaligarh Refinery Limited Golaghat 785699	CPP Control Room	Numaligarh Refinery Limited Golaghat 785699	bs.kaushik@nrl.co.in

Kishore Kumar	Subodh Ranjan Dev	2005	0460	Dey Central Control Room Numaligarh Refinery Limited Golaghat 785699	Dey Central Control Room	Numaligarh Refinery Limited Golaghat 785699	kishorekdey@yahoo.co.in
Biju Sebas tian				Cement Corporation of India P.O. Bokajan Karbi Anglong Diphu-782493	Cement Corporation of India	Cement Corporation of India P.O. Bokajan Karbi Anglong Diphu-782493	
Rajib Kumar Srarma	Ghanakanta Sarma	2006	0897	Numaligah Refinery Limited Golaghat 785699Assam	Electric Maintenance Department	Electric Maintenance Department Numaligah Refinery Limited Golaghat 785699Assam	
Debabrata Nath	Kanai Nath	2006	0995	Arya Nagar Pankagrant Post, Numaligarh Refinery Complex Dist. Golaghat 785699	Numaligarh Refinery	Numaligarh Refinery Complex Dist. Golaghat 785699	debabrata.nath@.yahoo.co.in

List of Energy Audit Firms/ Consultants in the State:

1. National Productivity Council.
   Minakshi Bhawan, Rajgarh Road,
   Guwahati-781 007.
   Phone-0361- 22453396
   2451896
   2450160 (Telefax)

2. Assam Energy Development Agency
   Bigyan Bhawan, Near IDBI building,
   ABC bus Stop, G.S. Road, Guwahati-781 005, Assam.
   Phone-0361- 2464618
   2464619
   2464617 (Telefax)

3. M/S JasRaj Encon Systems
   S. Karnail Singh & Sons,
   A.T. Road, PO: Dibrugarh-786 001, Assam.
   Phone-094351-30659

4. Bonti Consultancy Services.
   2nd floor, Lahkar Complex,
   Opp. Police Reserve,
   A.T. Road, Guwahati-781 001, Assam.
   Phone- 098640-92048

10. Workshops/ seminars organized during the year 2009-10:

1. Training Program for Designated Consumers on Annual Reporting of data :

A one day training programme for the Designated Consumers in Assam was organized on 19.08.2009 at hotel Nakshatra, Guwahati from 10 AM.

Representatives from all six Designated Consumers attended the training program. The training program was organized by the SDA Assam and as per BEE's directive, National Productivity was entrusted to conduct the program and accordingly presentations on annual return of energy data and e-filing of data was made by Sri S.J. Hazarika, Asstt. Director, NPC, Guwahati.

Sri Jiwesh Nandan, IAS, National Coordinator, BEE attended the programme and at the inaugural session he gave a brief speech on role- responsibility of the SDA/ Designated Consumers towards achieving energy efficiency. Sri A.K. Thakur, Regional Director, NPC also attended the program.

Total 28 persons from Designated consumers, SDAs officials, NPC officials and consultant attended the program.

2. Awareness interactive session on Women on Energy Conservation:

An interactive session on "Women in Energy Conservation" was held by India Chamber of Commerce, NE Initiatives, Guwahati on 25th August 2009. About 35

participants participated in the event. Presentations were made by Sri D. Bharali, IOC, Guwahati, Sri P.R. Nath, PCRA and Sri S. Barooa, Chief Electrical Inspector-cum-Adviser, Assam. Main topic of the session was the role of women in Energy Conservation at house hold sector. Various energy conservation measures including BEE labeling was deliberated by the SDA Assam.

3. Meeting with owners/ ESCO on implementation of IGEA DPRs.

A one day meeting with the building owners and ESCOs regarding implementation of the IGEA DPRs have been held on 29th August 2009 at Hotel Nakshatra, Guwahati. About 30 participants including representatives of the buildings which have been energy audited, ESCO attended the meeting. As informed by some building owners, like LGBI Airport, NF Railway, necessary actions as per the IGEA report already have been started from their own resources. For other Government buildings the State PWD was requested to expedite the works early. Carrying out of energy efficiency works through ESCO route was also explained in the meeting.

Mr. Zafar Ansari, VP marketing & sales of Dows Chemicals, Mumbai gave presentations on energy efficient building insulations with reference to ECBC and also displayed some building insulation products manufactured by them.

4. One and half day workshop on ECBC:

A One and half day workshop on ‘Energy Efficiency Codes and Ratings in Buildings’ was held at Hotel Nakshatra, Guwahati on 29th and 30th April 2010. The workshop was organized by SEEM with support from SDA Assam.

The welcome address was delivered by Shri G. Krishnakumar, Chief Operating Officer of SEEM. Shri Sumeet Jerath, IAS, Principal Secretary to the Government of Assam, Power and Transport department was the Chief Guest of the function. Shri S. Barooa, CEIA delivered Presidential address and Shri N. Huda, Dy. CEIA delivered the vote of thanks.

Total 40 participants from various sections attended the workshop both days.

The first technical session started with a presentation on ECBC code and Green Building overview, delivered by Shri G. Krishnakumar from SEEM.

Prof. Sadhan Mahapatra of Department of Energy of Tezpur University gave an impressive presentation on Climate Responsive Buildings in North East. Later some case studies were presented by Shri J. Singh, Consultant. Presentation on 'Energy Efficient Lighting and natural light integration' was delivered by Shri Amitabh Ghosh of Lighting application support group- Philips. Dr. P. Mahanta, Head of Energy Department of IIT Guwahati gave a presentation on 'Energy Efficient Utilities for Green Buildings' highlighting specific requirements for a Green Building and use of energy utilities/ appliances.

A group was formed by the participants for study of different aspects of ECBC considering the local climatic condition of the North East.

Certificates of participation were awarded to each participant after the event.

11. Celebration of National Energy Conservation Day along with essay writing competition for school children of 6th to 8th standard.

The National Energy Conservation Day 2009 was celebrated on 14th December 2009 at a function held at Shilpagram, Guwahati. Sri Sumeet Jerath, IAS, Principal Secretary to the Government of Assam, Power (Electricity) department attended the function as Chief Guest along with Shri S. Abbasi, IAS, member Finance, ASEB. The State level Essay writing competition among standard 6th to 8th was arranged in the morning hour and prizes were awarded at the function held in the evening.

On the day of National Energy Conservation day, advertisements released through local news paper about the event. Energy Conservation messages were broadcasted through FM radio channel and TV. A large hoarding displaying Energy Conservation message was erected near the entrance road to the Assam Secretariat Complex, Dispur.

Promotional materials printed by this office were distributed among the school children and public. T-shirts carrying EC messages were distributed among students on the day.

The State level Essay writing competition among standard 6th to 8th was arranged in the morning on the same day and prizes were distributed at the function held in the evening.

Innauguration of National Energy Conservation Day- Shri Sumeet Jerath, IAS lighting the ceremonial lamp

A view of the gathering

Group photo with participants

Prize distribution

The names of the prize winners:

1. Rhituparna Sinha — First prize
   Class VI
   Maharishi Vidya Mandir Senior Secondary School
   Silpukhuri, Guwahati – 781 003, Assam.

2. Kaunik Nath — Second prize
   Class VII
   Govt.H.S.School,
   Karimgangj, Assam.

3. Sumona Baruah — Third prize

Class VIII
Don Bosco High School,
Baghchung, P.B.79,
Jorhat-785 001, Assam

4. Anupam Sarma — Consolation prize.
Class VII
Christ Jyoti School.
Prennagar, Dhing Road,
Nagaon, Assam

5. Amlan Kalita. -do-
Class VIII
Christ Jyoti School.
Prennagar, Dhing Road,
Nagaon, Assam

.

6. Nasim Ahmed Baig -do-
Class VII
Govt. High School,
Karimganj, Assam.

7. Miss Beuty Bora
Class VII -do-
Gonokpukhuri Sr. Basic school..
Habialgaon, Golaghat, Assam.

8. Anuradha Sarma -do-
Class VIII
Maharshi Vidya Mandir SS School.
Silpukhuri, Guwahati.

9. Arindam Saikia -do-
Class VII
Kendriya Vidyalaya,
NEIST (RRL), Jorhat

10. Ekta Saikia -do-
Class VIII
Maharshi Vidya Mandir.
Six mile, Suraj nagar,
Guwahati.

11. Shivani Mali -do-
Class VI
Maharshi Vidya Mandir SS School.
Silpukhuri, Guwahati.

12. Aniket Kumar -do-
Class VII
Kendriya Vidyalaya,

HPCL, Jagiroad

13. Mohit Singh -do-
Class VI
Kendriya Vidyalaya,
HPCL, Jagiroad

Prize winning Essays:

The 1st , 2nd & 3rd prize winning essays:

1st Prize winner:
Rhituparna Sinha
Class VI
Maharishi Vidya Mandir Senior Secondary School
Silpukhuri, Guwahati – 781 003, Assam.

MY HOME –ENERGY EFFICIENCY HOME

Introduction-

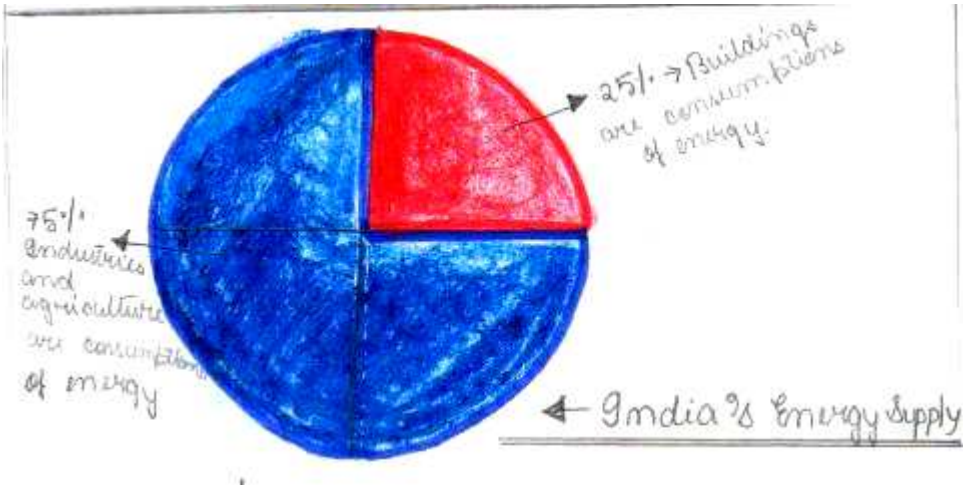
Energy is the basis of civilization. Without energy modern life would cease to exist. To safeguard the future of mankind, there steps are essential which are-

(i) 'Energy efficiency ' first
(ii) 'Renewable resources' second
(iii) 'Foss it fired' last

(i) Energy efficiency and (ii) Renewable resources are the two pillars of sustainable energy policy.

How to make energy efficient home and its purposes-

By increasing home energy efficiency, there is huge potential for energy saving in large magnitude. To conserve natural resources and increase energy efficiency, design and construction of green building design concept is very essential. Buildings are the 3rd largest consumptions of energy after industries and agriculture.



1 Effective energy efficient Building design can include the use of (i) Low Cost Passive Infra Red (PIR) to switch off Lightening automatically and lux-Levels can be monitored using Day light Sensors to Building lightening scheme.

2 Smart Meters adopted by commercial sector.

3 Proper placement of windows and sky lights and use of architectural features which reflect light to reduce the need of artificial lightening.

4 Power, Quality Analyses can be introduced in the building to make the building more energy efficient.

5 Modern energy efficient appliances such as refrigerators, dishwashers, cloth washers etc., significantly use less energy than older appliances.

6 Modern Power Management system could also reduce energy by turning the appliances off or putting them into low energy mode after a certain time.

7 Insulating a home and using CFC, T-5 lights to make energy efficient home.

8 Tight Building Design, Including energy efficient windows, additional Thermal Insulation of Walls, Basement slab and Foundation, white Roof system saves more energy.

9 Rocky Mountain Institute points out that there are abundant opportunities to save energy by using energy efficient pumps, motors etc.

10 REEDS (residential energy efficient Development system) found that leaky ducts should not be allowed.

Government Action-

(a) There must be some energy efficient norms or standards for household electrical appliances such as televisions, refrigerators etc which is an effort to reduce emissions of greenhouse gases.

(b) Government must enconseige the development of green energy resources by mandating power distributing companies to buy their part of requirement from producers of non conventional energy.

(c) Rain water harvesting to be adopted in large scale in colonies, apartments, residential buildings etc. to increase energy efficiency.

Conclusion –

Some organizations which promoted energy efficiency are-

(a) IEA
(b) European council for an energy efficient economy.
(c) International electro-technical conservation.

As the 1st commitment period for reduction of greenhouse gas emissions, Copenhagen world climate summit will continue this commitment of Kyoto Protocol for reduction of green house gases.

BASIC (Brazil, South Africa, India and China) grouped draft proposal 40% to 45% carbon emission reduction.

Some energy efficient (i) buildings (ii) industrial process and (iii) transportation could reduce world's energy needs by ⅓ rd.

Vehicles, Business establishment where energy efficiency is seen as a largely updated solution addressing Global Worming, energy security and Fuel Deptation. Implementation of energy efficiency measures including building code and appliance standards in California reflected in the reduction of energy consumptions.

Use of Solar Chimney, Wind Tower, Earth Tunnel, Biogas Plant, Solar water Heater, Solar Photo Voltaic Cells, Rain water harvesting etc. makes Our Home – Energy Efficient Home.

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2nd Prize winner:
Kaunik Nath
Class VII
Govt.H.S.School,
Karimgangj, Assam.

My Home - Energy Efficient Home

'ঘর' বলতে আমরা বুঝি — আমাদের মাথার উপর ছাদ, আমাদের আশ্রয় স্থল - যা আমাদের নিরাপত্তা এবং শান্তিতে বসবাস করা সুযোগ দেয়। এখানে নির্দ্দিষ্ট আর্থ যের বলতে আমার নিজের ঘরকে বুঝানো হচ্ছে। যেখানে আমি জন্মেছি, বড়ো হচ্ছি। ঘরের কথা বলত শেলে স্বাভাবিক ভাবে পরিবারের কথা চলে আছে। পরিবার বলতে বুঝি - মা, বাবা, ভাই-বোন, দাদু-ঠাকুমা এঁদের নিয়েই। আমাদের পরিবার বলতে আমার মা-বাবা এবং আমি নিজে। আমি মানে করি আমাদের মা-বাবা এবিং আমি নিজে। আমি মানে করি আমাদের পরিবারটি একটি আদর্শ পরিবার।

আমি যে ঘরটিতে বাস করি, সেই ঘরটিতে মোটামোটি ভাবে আধুনিক যুগের প্রায় সব ধরনের সুযোগ সুবিধা আছে। এই সুযোগ সুবিধাগুলে ভোগ করতে হলে সর্ব্বপ্রথম বিদ্যুৎ শক্তির প্রয়োজন হয়। বিদ্যুৎ শক্তি ছাড়া আধুনিক সভ্যতা একেবারে অচল। তাই বিদ্যুৎকে আধুনিক যোগের চালিকাশক্তি বলা হয়। সমগ্র ভারতবর্ষ তথা উত্তর পূর্বাঞ্চল বিশেষ ভাবে আমাদের অসম রাজ্যে চাহিদার তুলনায় বিদ্যুতে যথেষ্ঠ ঘাটতি রয়ছে। এখন পর্যন্ত মাত্র 40 মানুষের কাছে বিদ্যুৎ পরিষেবা পৌছোক, এবং বাকী বিশাল এংশের মানুষ এখনও বিদ্যুৎ পরিসেবার বহিরে বয়েছে। বিশেষ করে গ্রামাঞ্চল। তাই এধরনের পরিস্থিতিতে বিদ্যুৎ ব্যবহারের ক্ষেত্রে আমাদের সংযমীহতে হবে। আর অত্যন্ত দক্ষতা ও সচেতনতার সহিত প্রতিটি পরিবারে বিদ্যুৎ শক্তি ব্যবহার করা প্রয়োজন।
My Home – Energy Efficient Home বলতে সেই ঘরকে বোঝানো হয় যেখানে বিদ্যুৎ শক্তির অপচয় না করে তার সদ্ব্যবহারের মাধ্যমে শক্তি ও অর্থের সঞ্চয় করা হয়।

নিম্ন উল্লিখিত বিষয়গুলো যথাযথ ভাবে প্রয়োগ করলে আসরা আমাদের ঘরকে Energy Efficient Home এ পরিণিত করতে পারব।

১। প্রথমে আমরা ঘরের বৈদ্যুতিকরণের সময় (Energy savings Recommended) জিনিষ লাগিয়ে ঘরটিকে আধুনিক ভাবে গড়ে তুলব।

২। বেশী ওয়াটের সাধারণ বাল্বের পরিবর্ত্তে আমরা কম শক্তির বাল্ব অর্থাৎ (CFL) ব্যবহার করব এতে শক্তি ও অর্থের সাশ্রয় হবে। সাধারণ পাখার পরিবর্ত্তে আমরা (Energy saver)পাখা ব্যবহার করব এতেও বিদ্যুৎ শক্তি ও অর্থের সাশ্রয় হয়। আমরা আমাদের মিটার বাক্স নিজেরাই দেখব। এতে বিদ্যুৎ বিভাগ থেকে সঠিক বিল আসছে কিনা তা বুঝা যায়।

৩। শীত-তাপ নিয়ন্ত্রিত কক্ষ (Air Condition Room) এ তাপমাত্রা যদি ১°C করে ও কম রাখা যায় তবে মাসে বৈদ্যুতিক বিল ১০% করে ও কম আসবে। এতে শক্তি ও অর্থের সঞ্চয় করা যায়।

৪। সাধারণ ওয়াশিং মেসিনের পরিবর্ত্তে আমরা (Energy savings) ওয়াশিং মেসিন ব্যবহার করব ও এতে বার বার কাপড় না ধুয়ে একবারে বেশী কাপড় দিয়ে ধুয়ে নিলে শক্তির সাথে সাথে অর্থের ও সাশ্রয় হয়।

৫। জল গরম করার সময় আমরা সবসময় ঢাকনাযুক্ত পাত্র কিংবা ইলেক্ট্রিক কেটলি ব্যবহার করব। এতে সময়, শক্তি ও অর্থেক ।

৬। রান্নার ক্ষেত্রেও আমরা উপযুক্ত কৌশর প্রয়োগ করতে পারি অর্থাৎ প্রেসার কুকুর ব্যবহার করব। এতে খাদ্যের মান নষ্ট হয় না। যার থেকে আমাদের স্বাস্থ্য ভালো থাকে। এতে সময়, শক্তি ও অর্থের সাশ্রয় হয়। শীতকালে আমরা সৌরশক্তি ব্যবহার করে ও জল গরম করতে পারি।

৭। স্নানাগারে বড়ো ছিদ্রের জলের টেপ ব্যবহার না করে কোট ছিদ্রের কল ব্যবহার করব। এতে জলের যথেচ্ছ অপচয় হবে না। স্নান করা ও বাসন সাজার সময় কল না দেড়ে বালতি ব্যবহার করতে হয়। এতে শক্তি ও অর্থের সাশ্রয় হয়।

৮। ল্যাপটপ, মোবাইল ইত্যাদি বিদ্যুৎ চালিত জিনিয় সময়ের অধিক চার্জ না করে প্রয়োজন মতে। চার্জ করতে হয়। এতে শক্তি ও এর্থের দিক দিয়ে লাভবান হওয়া যায়।

৯। কম্পিউটার, মোবাইল ইত্যাদিত ঘন্টার পর ঘন্টা গেইম খেলা বন্ধ করতে হবে। এতে শক্তি ও অর্থের ও সঞ্চয় হবে।

১০। কোথাও যখন আমরা বেড়াতে যাই তখন খুব সচেতন ভাবে সব কক্ষের বৈদ্যুতিক সুইচ বন্ধ করতে হবে। এতে অযথা বিদ্যুতের অপচয় হয় না এবং বিদ্যুতের সাথে অর্থের ও সাশ্রয় ঘটে।

১১। (Monthly Direct Debit) এই পদ্ধতিতে মাসের বিদ্যুতের বিল দিলে প্রতিমাসে তুলনামূলক ভাবে বিদ্যুতের বিল কম আসে। এতে আর্থিক ভাবে ও লাভবান হওয়া যায়।

উপরোক্ত বিষয় গুলি যথাযথ ভাবে কার্যকরী করায় আমাদের বিদ্যুতের বিল আগের তুলনা প্রতিমাসে দু-তিনশত টাকা কম আসে। আমি আমার এই অভিজ্ঞতার কথা আমার বন্ধু-বান্ধব, আত্মীয় সজন এদের বলেছিলাম। তাক আমার কথায় যথেষ্ঠ প্রভাবিত হয়েছেল। আর বলেছেল যে— My Home – Energy Efficient Home এইতও প্রয়োগে যথেষ্ট যত্নবান হবেন বলে প্রতিজ্ঞা বন্ধ হয়েছেন।

পরিবেশ বিদ্‌দের মতে দেশের কার্বন প্রদূষণের প্রায় (58%) আসে বিদ্যুৎ উৎপাদন ক্ষেত্র থেকে যা বিশ্ব উষ্ণায়নের এক অন্যতম কারণ বলে জানান দিয়েছে (গ্রিনপিচ)। তাই বিশ্বকে প্রদূষণ মুক্ত করতে এবং সবুজ বিশ্ব গড়ে তুলতে বিদ্যুতের যথোপযুক্ত ব্যবহার প্রয়োজন। এমনিতেই আমাদের দেশে চাহিদার তুলনায় বিদ্যুতের যথেষ্ট অভাব। তাই একজন সচেতন নাগরিক হিসাবে সবধরনের শক্তির সদ্‌ব্যবহার করলে ব্যক্তিজীবন এবং সমাজ জীবন উপকৃত হয় ও রাষ্ট্রীয় মঙ্গল সাধন হয়।

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3rd Prize winner:
Sumona Baruah
Class VIII
Don Bosco High School,
Baghchung, P.B.79, Jorhat-785 001, Assam

MY HOME – ENERGY EFFICIENT HOME

There is a saying 'DONOT CUT DOWEN THE TREE THAT GIVES YOU SHADE' This saying is indeed true coal ,oil and Natural gases takes millions of years for formation. They are of limited amount but they are being used up at an alarming rate. The use for saving, an energy sector has come quite some time lock. India has approximately 1% of the world's total energy resources where it has 16% of the world's population. So the right time has come for every Indian to conserve energy which will put our nation to a great height of glory and achievement.

The first and foremost step of conserving energy must be taken 'AT HOME' In this way, at home an optimum amount of energy can be saved and an adequate amount of energy can be generated for 'ENERGY SAVED IS ENERGY GENERATED'. Saving energy at home can have a consequent progress of the nation and subsequently the whole of humanity can leap forward to an era of progress and prosperity.

There are several 'PRACTICAL WAYS' which can be adopted at home for using energy efficiently. At home lights must be turned off when not in use, also they must be cleaned when oust gets accumulated on them. One must make sure to use ISI marked electrical equipments and appliance as it consumes use energy. In place of other fluorescent lights, compact fluorescent bulbs (CFLs) can be used as it helps to reduce the energy consumed. CFLs used two-thirds less energy than normal used incandescent bulbs which no reduction in the quality of light. In house at village chulas and at house at cities, pressure cookers can be used as they helps to a generate to conserve energy. While cooking the food vessels must be closed with lids as they helps to reduce the time taken and energy consumed. In place of conventional regulators, electric iron used at home so an appropriate regular position must be used while ironing, also wet cloths must not be ironed immediately as it consumes more electric energy. While baking any food item in a microwave oven or while preserve it in a freeze, one thing must be ensured that the freeze or oven's door must not be opened too often, as each opening leads to a drop of temperature 25% c . Other home equipments and appliances, such as television, air conditioners, computers, washing machines etc. must be turned off when not in use. These are some practical ways of conserving energy. If these method are adopted at each and every house them our nation can be upheld to sustain and nourish the future upcoming generations.

These are some of the practical ways which are mentioned above. Beside these practical methods some other alternative ways can also be adopted for conserving energy if the government authorities. As the prices of diesel and gasoline are increasing and there is energy crisis. Biomass gasifies and *gobar* gas plant provides a great alternative to it. Biomass gasifies can be used for electrification of rural areas and *gobar* gas plant can be used, as it provides a great alternative to the cooking fuel.

These are some alternative ways which can also be adopted at home. But for the fulfillment of these methods fuel co-operation from both the government and general-masses is required. In addition to it solar cookers and solar water heater can also be use 'MAN IS THE ARCHITECT OF HIS OWN FUTURE' the future of man, today depends entirely on how man at the present uses his energy sources. Today it is of almost importance to conserve energy especially as those of non-renewable sources of energy as they have ample uses on energy aspects of our life. As the saying by the father of the nation Mahatma Gandhi goes: - "THE EARTH PROVIDES ENOUGH TO SATISFY EVERY MAN'S NEED BUT NOT EVERY MAN'S GREEO". So man must put an end to the reckless use of energy or less it will impend on his future. If man wants to use energy efficiently them it is high time for him to chalk out what he is going to do with the minutes, house, days, months and years towards saving energy at his disposal. The awaking of the general masses at home is a welcome sign and would make '**Our World**" a better place to live in.

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State level Painting competition for school children:

State level painting competitions were organized by Powergrid in Assam with active participation of SDA, Assam in organizing the same, as a part of National Painting Competition for school children by BEE for creating awareness on energy efficiency.

It is very encouraging seeing that there was phenomenal rise in the number participants in the competition each year in Assam, e.g. 4000 students participated in the first year (2005) and this number shoot up to 91,588 in 2009.

12. Energy Audits carried out in Industrial sector:

Energy Audits were carried out in some installations in 2009-10 by following Energy Auditors.

1. PCRA

i) 30 Tea Estates in Jorhat-Golaghat region having energy savings potential of 41,15,054 KWh/ year.
ii) Oil India Limited R & D building at Duliajan having energy saving potential of 2,95,521 KWh/ year.

iii) Oil India Limited- ITF Tengakhat having energy savings potential of 34,395.8 KWh/ year.
iv) Oil India Limited-GCS Kathioni having energy savings potential of 4,92,148.48 KWh/Yewar.
v) Jaybee Energy Rig at Tinsukia having energy savings potential of 1778 KWh/ year and 71.90 KL of HSD/ year.

2. Eaga Energy India (P) Limited:

i) General Office building of Assam Oil Division, IOC, Digboi having energy saving potential of 86,515 KWh/ year.
ii) Assam Oil Division, IOC Hospital, Digboi having energy savings potential of 1,04,550 KWh/ year.

3. JasRaj Encon Syatems, Dibrugarh:

i) Hotel Little Palace, Dibrugarh.
ii) Manekshia Industries, EPIP, Amingaon, Guwahati.
iii) Garampani Agro Industries, Golaghat.

13. Standards and Labeling:

As presently there are no manufacturers of refrigerators, air conditioners, fluorescent lamps in the State, only the distribution transformer manufacturers in the State have been informed about the BEE's S & L programme which has became mandatory since 7th January 2010 and have been advised to take steps accordingly.

14. MoP's Notification on Designated Consumers

The Ministry of Power, Govt. of India through its gazette notification dated 12th March, 2007 had identified the following sectors with threshold limit of Energy consumption in Metric Tonne of Oil Equivalent (MTOE) per year mentioned against them to be the designated consumers.

1.	Thermal Power Stations	:	30,000 MTOE
2.	Fertilizer	:	30,000 MTOE
3.	Cement	:	30,000 MTOE
4.	Iron & Steel	:	30,000 MTOE
5.	Chlor-Alkali	:	12,000 MTOE
6.	Aluminium	:	7,500 MTOE
7.	Railways	:	30,000 MTOE
8.	Textile	:	3,000 MTOE
9.	Pulp & Paper	:	30,000 MTOE

15. List of Designated Consumers in Assam:

1. Namrup Thermal Power Station, Namrup
2. Lakwa Thermal Power Station, Lakwa,
3. Kathalguri Thermal Power Station,
4. Brahmaputra Valley Fertilizers Corporation Ltd, Namrup,
5. Hindusthan Paper Corporation Ltd, Jagiroad, Nagaon,
6. Hindusthan Paper Corporation Ltd, Panchgram.

16. Annual Energy Savings in Buildings & Industrial sectors reported:

(Energy savings achieved due to various EE measures adopted by some of Industrial installations and others in Assam during 2009-10 as reported)

1. Hindusthan Paper Corporation, Cachar paper Mills:

a) By replacement of one 55KW Dynodrive by VFD in Clipper House, 151000 KWh of electricity saved per year.
b) By replacement of package AC by Window type AC in finishing house7425 KWh of electricity saved per year.
c) Using ETP water pump in place of fresh water over low solid drain near primary clarifier, 24,750 KWh of electricity saved.

Total annual energy savings achieved: 1,83,175 KWh

2. Hindusthan Paper Corporation, Nagaon paper Mills:

a) Replacing 132 KW effluent transfer pump by 110 KW motor saved 0.02 Million KWh energy per year.
b) By replacing cast iron fan blades with FRB blades in exhaust fans saved 0.42 Million KWh energy per year.
c) Impeller trimming of chip washing pump 59A saved 0.047 Million KWh of energy per year.
d) By installing new PDM pump with energy efficient motor saved 0.02 Million KWh of energy per year.

Total annual energy savings achieved: 5,07,000 KWh

3. Assam Power generation Corporation Ltd, LTPS:

a) By diversion of excess HP natural gas from Ph-II to Ph-I system through interconnection equipped with stop valve and pressure control valve arrangement enables to stop operation of one no gas compressor of 700 HP without effecting power generation saved 3,75,990 KWh of energy per month.

b) By replacing water cooled Air Conditioning plant in Ph-I with Air Cooled Air conditioning plant saved 18,060 KWh energy per month.
c) Battery banks of 290 AH of Gas Turbine unit 2 & 3 replaced with 250 AH saved 576 KWh energy per month.
d) By replacing the old repaired 37 KW Heat Exchanger fan drive of unit 6 with new energy efficient 37 KW motor saved 4230 KWh energy per month.
e) By replacing the old repaired 20 HP Gas compressor Ph-I cooling fan motor with new energy efficient 20 HP motor saved 2520 KWh energy per month.
f) 48 nos of 400W HPSV lamps in Ph-I turbine floor replaced with 24 Nos 250 MH lanps saved 9510 KWh energy per month.
g) Replacing old incandescent/ Fluorescent lamps with energy efficient lamps in different areas saved 1630 KWh energy per month.

4. **Assam Gas Based Power Plant (NEEPCO**):

a) Replaced all AGBP colony general lighting system with CFL.
b) Replaced existing lighting in GTG unit#1-4 exciter enclosure and Steam turbine staircase to CFL.
c) Total energy saving achieved 24,757.82 KWh per year.

Total annual energy savings achieved: 24,757.82 KWh

5. **Indian Oil Corporation, Assam Oil Division, Digboi:**

a) Replaced 86 nos of 250W Sodium Vapor lights with 90 W LED lamps in security lighting system saved 40,179 KWh energy per year.
b) Replaced 368 nos 400W Sodium Vapor lamps with 360 Nos MH lamps saved 9344 KWh energy per year.
c) Replaced 117 nos 250 W Sodium Vapor lamps with T-5, 4x14 W saved 66,278 KWh energy per year.
d) Replacement of various lights in plants and offices with energy efficient lamps saved 1,63,310 KWh energy per year.
e) Replacing existing lamps with energy efficient lamps in residential lighting saved 10,80,984 KWh energy per year.

Total annual energy savings achieved: 13,60,095 KWh

6. **Numaligarh Refinery Limited, Numaligarh:**

a) Step less control system in Makeup gas compressor in Hydrocracker unit saved 639.5 MWh per month.
b) Telescopic insulation in the catalyst tubes at the Reformer top of H2U to cover the bare hot tube length saved 306.7 MWh per month.
c) Reduction of GTG frequency to 49.5 Hz from 50 Hz saved 625 MWh per month.

d) Combination coke cutting tool in delayed coker unit saved 30 MWh per month.
e) Use of slop oil in place of gas oil for quenching purpose in DCU unit saved 282 MWh per month.
f) Routing filter back wash of Hydrocracker unit to VR feed tank instead of slop saved 282 MWh per month.
g) Stopping of steam heating in the crude tank saved 625 MWh per month.

Total annual energy savings achieved: 3,68,66,400 KWh

Total energy savings achieved from above: 4,38,91,619 KWh/ Year

7. **Energy savings by others:**

a) New T-5 CFL street light in Guwahati:

The PWD, Assam fitted new T-5 CFL street lights in section between Bharalumukh to Sanjivni hospital which will save 19,096 KWh energy per year.

b) Demo project on Energy Efficient street lighting in Dibrugarh:

Demo project on energy efficient LED street lighting in place of existing lighting at Dibrugarh town will save about 54,714 KWh energy per year.

c) Demo project on Energy Efficient street lighting at Guwahati:

Demo project on energy efficient LED street lighting at Guwahati in place of existing street lights will save about 44,092 KWh energy per year.

d) State Bank of India, Local Head Office, Guwahati:

The SBI authority replaced 51,264 GLS bulbs with CFL in the administrative building and most of branches in urban and semi urban area, Officer's residential complexes etc. resulting in monetary savings of Rs. 2,28,125.00 per month.

8. **Energy savings in domestic and commercial sectors in Assam:**

In Assam total demand of energy is about 1000MW at peak load hours. As per survey carried out by National Productivity Council in Assam in 2009, about 27% of total energy is consumed in domestic sector and 9% of the total energy is consumed in the commercial sector. As such taking total 36% as consumed by both the domestic and commercial sector in Assam, about 360 MW load is required for the said sectors.

As the use of energy efficient lamps like CFL, T-5, BEE labeled products are noticeably observed in the State and unless a thorough survey is carried out to quantify

energy savings in the said sector, it is not possible to ascertain energy savings in the sectors.

However, as per NPC's study report on assessment of energy conservation potential in Assam, considering even 15% from the estimated range of 20% to 25%, total savings comes out to be about 54 MW. Thus a saving of energy in the domestic and commercial category may be taken as 15,76,80,000 KWh and monetary savings of more than Rs. 100 Crores per year including energy savings in industrial sectors.

Total avoided capacity addition considering the above calculated to be 59MW.

17. OTHER INITIATIVES:

• Notifications issued by State Government for Energy Efficiency:

The Govt. of Assam issued Notification on the 20th July, 2007 for Mandatory use of energy efficient lamps and appliances in all Govt. buildings/ institutions/Boards etc. and promotion of Energy Efficient building designs based on ECBC;

GOVERNMENT OF ASSAM
POWER (ELECT.) MINES & MINERALS DEPARTMENT
@@@@@
ORDERS BY THE GOVERNOR OF ASSAM
N O T I F I C A T I O N

Dated Dispur, the 20th July, 2007.

No.PEL.81/2002/Pt/158 : In exercise of the powers conferred by the Section 18 of the Energy Conservation Act. 2001 (52 of 2001), the Governor of Assam hereby issues the following directions for efficient use of energy and its conservation in the State of Assam, namey :-

1. Mandatory use of Energy Efficient lamps and appliances in Government buildings/Boards/Corporations.

   1. Use of incandescent lamps in all new Government buildings/Boards/Corporations/Autonomous bodies is banned with immediate effect. In existing buildings, defective incandescent lamps should be replaced with energy efficient lamps, such as compact fluorescent, slim tube lamps, LED lamps etc.

   2. All other electrical equipments such as Air Conditioners, Refrigerators, water pumps etc. shall conform to respective BIS standard and also conform to the

Energy Efficiency standards set by the Bureau of Energy Efficiency with respective energy efficiency labels on these.

3. Power utilities will affect necessary modifications in the load demand notices within two months time from the date of issue of this order to promote use of energy efficient lamps instead of conventional light bulbs while releasing/sanctioning new connections/loads.

2. Promotion of Energy Efficient Buildings designs based on the ECBC.

1. All new buildings constructed in the Government sector will incorporate energy efficient building design concepts as per the Energy Conservation Building Codes (ECBC).

2. The PWD and Urban Development department shall ensure incorporation of energy efficient building design concepts in all buildings to be constructed in future in the Government/Government Aided sector and comply with the provisionsof the ECBC.

3. The PWD and Urban Development department will designate a nodal officer for co-ordination and monitoring of these measures who will report the progress to the Chief Electrical Inspector-Cum-Adviser, Government of Assam, the designated agency under the Energy Conservation Act, 2001.

Provided that all new buildings or building complexes having connected load of 500KW or greater or a contract demand of 600KVA or greater having conditioned area of 1000 sq. mt. or more should be constructed following the provisions of the Energy Conservation Building Codes (ECBC) published by the Government of India to ensure energy efficiency.

This order comes into force with immediate effect.

Sd/- J.P.MEENA
Commissioner & Secretary to the Govt.
of Assam, Pwer (Elect.) etc. Deptt.
Dispur, Guwahati-781006

Memo No.PEL.81/2002/Pt/158-A, Dated Dispur, the 20th July, 2007.

Copy to :-

1. The Chief Secretary to the Govt. of Assam.
2. All Commissioner & Secretaries.

3. All Heads of Departments.
4. All Deputy Commissioners.
5. The Publisher, Assam Gazette.
6. The Director General, BEE, New Delhi.

By Order etc.,

Under Secretary to the Govt.of Assam,
Power (Elect.) Department

- **State Energy Conservation Fund:**

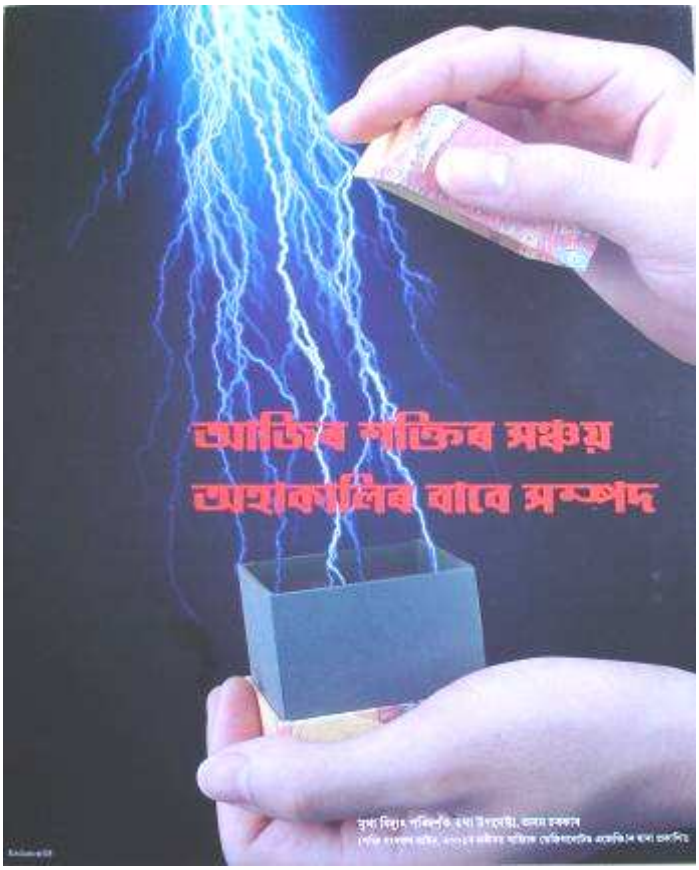
As required under Section 16(1) of the EC Act, actions have already been initiated to constitute the Fund called "State Energy Conservation Fund" and framing of Rules under Section 16(4) of EC Act for administering the said fund for the purposes of promotion of efficient use of energy and its conservation within the State. The matter is under process and will be finalized soon.

All grants and loans made by the State Government or Central Government or any other organization or individual shall be credited to the fund for the purpose of the Act. The fund shall be applied for meeting the expenses incurred for implementing the provisions of the EC Act.

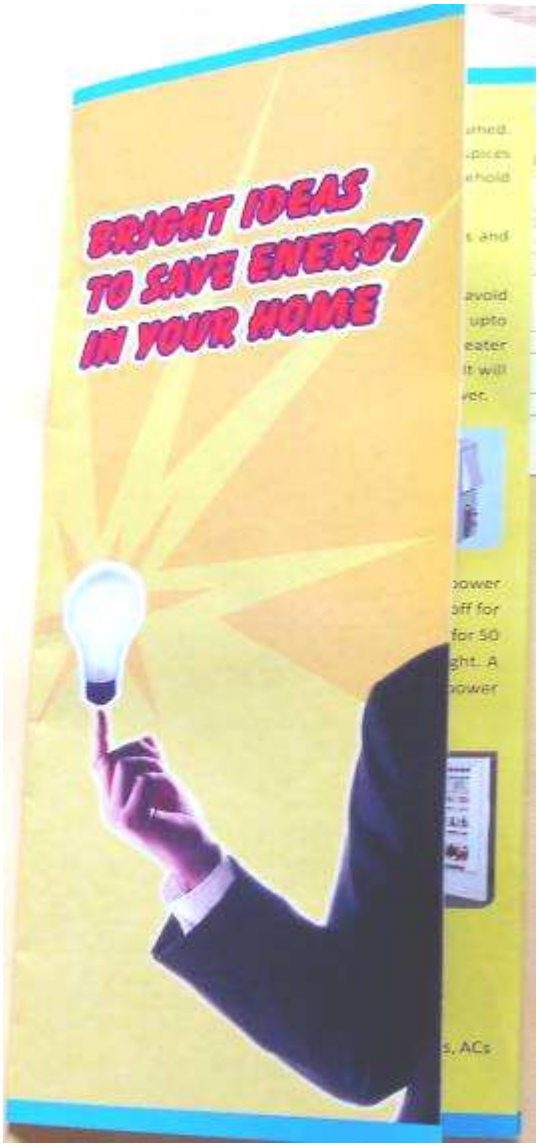
18. PUBLICITY & AWARENESS PROGRAMMES:

Publicity materials like brochures, folders, leaflets, banners, stickers displaying energy conservation messages were distributed by SDA for information of public. Audio jingles on energy conservation messages were broadcasted through FM radio channels.

Some of the Promotional Materials released by SDA, Assam:



Promotional Folder



Promotional Folders

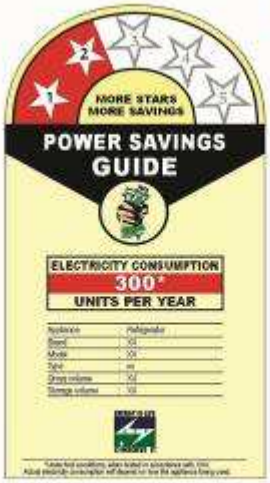
Promotional stickers

অধিক শক্তি সংৰক্ষণৰ বাবে বি ই ই (BEE) তাৰকাযুক্ত লেবেল থকা ৰেফ্ৰিজাৰেটৰ ব্যৱহাৰ কৰক

ৰেফ্ৰিজাৰেটৰৰ বিইই (BEE) লেবেল ঃ

আপোনাৰ ৰেফ্ৰিজাৰেটৰটো আপোনাৰ ঘৰৰ আটাইতকৈ ব্যয়বহুল বৈদ্যুতিক সামগ্ৰী। কিন্তু বিগত কিছু বছৰৰ ভিতৰত ৰেফ্ৰিজাৰেটৰবোৰৰ কাৰ্য্য দক্ষতা যথেষ্ট বৃদ্ধি পাইছে। বৰ্তমান বজাৰত কিনিবলৈ পোৱা অধিক কৰ্ম কুশল বা কাৰ্য্যদক্ষতা সম্পন্ন ৰেফ্ৰিজাৰেটৰবোৰৰ বিদ্যুৎ মিতব্যয়িতা দিনক দিনে বাঢ়ি আছে। সাধাৰণতে এটা ৰেফ্ৰিজাৰেটৰ ১৫ ৰ পৰা ২০ বছৰলৈকে ব্যৱহাৰৰ উপযুক্ত হৈ থাকে। এই সময়চোৱাৰ ভিতৰত ৰেফ্ৰিজাৰেটৰত হোৱা বিদ্যুৎ শক্তিৰ ব্যয়ৰ পৰিমাণ ৰেফ্ৰিজাৰেটৰৰ দামতকৈ বহু গুণে বেছি হয়। সেয়েহে কিছু বেছি দাম দি হ'লেও বিদ্যুৎ মিতব্যয়ী ৰেফ্ৰিজাৰেটৰ ক্ৰয় কৰাই শ্ৰেয়।

- নতুন ৰেফ্ৰিজাৰেটৰ কিনোতে বজাৰত পোৱা আটাইতকৈ বেছি শক্তি মিতব্যয়ী ৰেফ্ৰিজাৰেটৰ কিনা অধিক লাভজনক। উন্নতমানৰ বিদ্যুৎ মিতব্যয়ী সামগ্ৰীবোৰৰ তালিকা বুযো এফ এনাৰ্জী এফিচিয়েন্সি (বিইই BEE) ৰ ৱেবচাইট www.bee-india.nic.in অথবা www.asda.gov.in ত পাব। সৰু আকৃতিৰ ৰেফ্ৰিজাৰেটৰে ডাঙৰ আকৃতিৰ ৰেফ্ৰিজাৰেটৰতকৈ কম বিদ্যুৎ শক্তি ব্যয় কৰে। সাধাৰণতে ৰেফ্ৰিজাৰেটৰটো যিমানেই ডাঙৰ হয় সিমানেই শক্তিৰ ব্যয় বৃদ্ধি পায়। সেয়েহে প্ৰয়োজনতকৈ অধিক ডাঙৰ ৰেফ্ৰিজাৰেটৰ কিনাটো অনুচিত।
- আনহাতে দুটা সৰু আকৃতিৰ ৰেফ্ৰিজাৰেটৰতকৈ এটা ডাঙৰ আকৃতিৰ ৰেফ্ৰিজাৰেটৰে কম শক্তি ব্যয় কৰে। ওপৰত বা তলত বৰফ জমা হোৱা সুবিধা থকা ৰেফ্ৰিজাৰেটৰতকৈ ওচৰা ওচৰিকৈ বৰফ জমা হোৱা ৰেফ্ৰিজাৰেটৰোৰ ১২ শতাংশ বেছি কাৰ্যক্ষম।
- ৰেফ্ৰিজাৰেটৰৰ দুৱাৰৰ বাহিৰৰ পৰা বৰফ বা ঠাণ্ডা পানী পাব পৰা অথবা নিজে নিজে বৰফ হোৱা আদি সুবিধা থকা ৰেফ্ৰিজাৰেটৰবোৰৰ মূল্যও বেছি। আনহাতে এনে ৰেফ্ৰিজাৰেটৰৰ বিদ্যুতৰ ব্যয়ো বেছি আৰু সঘনাই মেৰামতি কৰিব লগাও হ'ব পাৰে। সেয়েহে এনে ৰেফ্ৰিজাৰেটৰ ক্ৰয় নকৰাই ভাল।



- অধিক মূল্য দি হ'লেও কম বিদ্যুৎ ব্যয় হোৱা উচ্চমানৰ ৰেফ্ৰিজাৰেটৰ কিনাটো অধিক লাভজনক। শক্তি সংৰক্ষণ সূচকৰ পাঁচটা তৰাচিহ্নিত ৰেফ্ৰিজাৰেটৰৰ মূল্য দুটা তৰাচিহ্নিত ৰেফ্ৰিজাৰেটৰতকৈ বেছি। কিন্তু এনে ৰেফ্ৰিজাৰেটৰৰ বিদ্যুৎ ব্যয় কম হোৱা বাবে পাঁচটা তৰাচিহ্নৰ ৰেফ্ৰিজাৰেটৰ এটাৰ মূল্য বিদ্যুৎ শক্তিৰ বাহিৰ যাবা চাবিবলৈতে অধিক লাভবান হে হয়।
- পুৰণা ৰেফ্ৰিজাৰেটৰ সলনি কৰক। এনে ৰেফ্ৰিজাৰেটৰবোৰ অধিক ব্যয়বহুল। মনত ৰাখিব, পুৰণা ৰেফ্ৰিজাৰেটৰটো অতিৰিক্ত ৰেফ্ৰিজাৰেটৰ হিচাপেও কেতিয়াও ব্যৱহাৰ নকৰিব।

কাষৰ ছবিত দেখুওৱা দৰে বঙা বঙৰ অংশত থকা তৰাচিহ্ন কেইটাই এটা ৰেফ্ৰিজাৰেটৰৰ কৰ্মদক্ষতাৰ মান বুজায়। বঙা অংশত যিমানেই তৰাচিহ্ন থাকে ৰেফ্ৰিজাৰেটৰটো সিমানেই অধিক কৰ্মনিপুন বা কৰ্মদক্ষ হয় আৰু বিদ্যুৎ ব্যয় বাহি কৰে। চিত্ৰত চাবিটা তৰাচিহ্নিত ৰেফ্ৰিজাৰেটৰৰ লেবেল এটা দেখুওৱা হৈছে। ৰেফ্ৰিজাৰেটৰটোৱে গড় অনুপাতে বছৰত কিমান বিদ্যুৎ ব্যয় কৰে সেয়া তৰাচিহ্নিত লেবেলত এনেদৰে দেখুওৱা থাকে। এইটো পৰীক্ষাগাৰত আদর্শ অৱস্থাত পোৱা হিচাপ। দৈনন্দিন ব্যৱহাৰৰ ক্ষেত্ৰত ইয়াৰ কিছু তাৰতম্য হ'ব পাৰে।

ৰেফ্ৰিজাৰেটৰটোৰ বিষয়ে অন্যান্য তথ্য —ব্ৰেণ্ড, টাইপ, মডেল নম্বৰ, কোন বছৰত বনোৱা হৈছে আৰু আয়তন তলত দিয়া ধৰণে দেখুওৱা থাকে।

মুঠ আয়তন ঃ ৰেফ্ৰিজাৰেটৰৰ ভিতৰৰ মুঠ আয়তন

মজুতকৰণ ঃ মুঠ বস্তু-সামগ্ৰী মজুত কৰিব পৰা আয়তন।

Published by the Chief Electrical Inspector-cum-Adviser, Govt. of Assam
(State Designated Agency under Energy Conservation Act, 2001)
www.bee-india.nic.in www.asda.gov.in

Promotional Leaflet

অধিক শক্তি সংৰক্ষণৰ বাবে তৰাচিহ্নিত বিইই (BEE) ৰ লেবেল থকা চি এফ এল লাইট ব্যৱহাৰ কৰক

তৰাচিহ্নিত বিইই (BEE) ৰ লেবেল থকা আধুনিক চি এফ এল লাইটৰ ব্যৱহাৰে দিয়ে অধিক আৰামদায়ক পোহৰ, অধিক সঞ্চয় ঃ প্ৰকৃত আৰামদায়ক আৰু স্বচ্ছ পোহৰ পাবলৈ হ'লে আপোনাৰ লাইট বা পোহৰৰ উৎস নিৰ্ভুল ভাবে নিৰ্বাচন কৰক। যদি আপুনি অধিক শক্তি ব্যয় কৰা সাধাৰণ বাল্ব কিনে, ইয়াৰ বাবে হোৱা অধিক শক্তি ব্যয়ৰ কাৰণে আপুনি সদায়ে অনুসূচনা কৰি থাকিব লাগিব। আচল চাবিকাঠি হৈছে শক্তিৰ সংৰক্ষণ। আপোনাৰ কষ্টোপার্জিত ধনেৰে উৎকৃষ্ট, উচ্চ দক্ষতা সম্পন্ন চি এফ এলহে কিনক। চি এফ এল কিনাৰ আগেয়ে বিইইৰ তৰাচিহ্নিত লেবেল চাই লওক।

শক্তি সংৰক্ষণ আইন ২০০১ অনুসৰি ভাৰত চৰকাৰৰ শক্তি মন্ত্ৰণালয়ৰ অধীনত ব্যুৰো অফ এনাৰ্জী এফিচিয়েন্সিয়ে 'ৰাষ্ট্ৰীয় শক্তি লেবেল' (National Energy Labelling) আঠনি আৰম্ভ কৰিছে। এনে লেবেলৰ পৰা আপোনাৰ চি এফ এলটো কিমান দক্ষ বা কৰ্মক্ষম আপুনি জানিব পাৰিব। অনাকথাত বিইই লেবেলত বেছি তৰাচিহ্নিত চি এফ এল কিনিলে আপুনি অধিক শক্তি সংৰক্ষণ কৰিব পাৰিব। অৰ্থাৎ অধিক মিতব্যয়ী বা আপোনাৰ সঞ্চয় সুৰক্ষিত। সেয়েহে বিইইৰ তৰাচিহ্নিত লেবেলযুক্ত চি এফ এল ব্যৱহাৰ কৰি অধিক লাভবান হওক।

বিদ্যুৎ ব্যয় কমোৱাৰ সম্পৰ্কে অধিক জানিব খুজিলে ইনটাৰনেটত **www.bee-india.nic.in** অথবা **www.asda.gov.in** চাওক। বিইই লেবেলত থকা শক্তি মিতব্যয়ী সূচক চাওক। চি এফ এলৰ ক্ষেত্ৰত আপুনি তৰাচিহ্নিত বিইইৰ লেবেল চাই সেই চি এফ এলে কিমান বিদ্যুৎ শক্তি ব্যয় কৰিব তাৰ হিচাপ উলিয়াই ল'ব পাৰে।

এনে বিদ্যুৎ ব্যয়ৰ হিচাপ আপুনি ইনটাৰনেটৰ পৰাও পাব পাৰে। ইয়াৰ বাবে ৱেবচাইট **www.bee-india.nic.in** অথবা **www.asda.gov.in** চাওক। এই ৱেবচাইটত থকা হিচাপৰ পৰা এটা চি এফ এল কিমান বিদ্যুৎ শক্তি ব্যয় কৰে, তথা কার্যকালত কিমান শক্তি বাহি কৰিব আদিৰ হিচাপ উলিয়াব পাৰিব। গ্ৰাহকসকলে এই ৱেবচাইটত বিভিন্ন ব্ৰেণ্ড আৰু মডেলৰ চি এফ এল কিনাৰ বিষয়ে অধিক প্ৰয়োজনীয় তথ্য পাব।

শক্তি সঞ্চয়সূচক লেবেল বিশ্লেষণ ঃ

- সেউজীয়া অংশত থকা তৰাচিহ্নই চি এফ এলটোৰ তুলনামূলক শক্তি সঞ্চয়ৰ মান বুজায়।
- সকলো চি এফ এলৰ কমেও এটা তৰাচিহ্নিত শক্তি সঞ্চয়ৰ সূচক থাকিব লাগিব। অধিক তৰাচিহ্নিত চি এফ এলটোৰ কৰ্মক্ষমতা বা দক্ষতা আটাইতকৈ বেছি আৰু ই উপভোক্তাৰ বাবে আটাইতকৈ বেছি বিদ্যুৎ শক্তি সংৰক্ষণ কৰিব।
- ডাঙৰ কোঠাৰ বাবে অধিক পোহৰ কৰিব পৰা চি এফ এলৰ প্ৰয়োজন।
- এই লেবেলত থকা তথ্যসমূহ উৎপাদনত ব্যৱহাৰ হোৱা প্ৰযুক্তিবিদ্যাৰ ওপৰত নিৰ্ভৰশীল।
- সাধাৰণ বাল্বৰ পৰিবৰ্তে চি এফ এলৰ ব্যৱহাৰে আপোনাৰ বিদ্যুৎ ব্যয়ৰ বিলৰ ধনৰ ৰাশি ৭০ % হ্ৰাস কৰিব পাৰে
- অধিক তৰাচিহ্নিত চি এফ এল আপোনাৰ আৰু আপোনাৰ পাৰিপাৰ্শ্বিকতাৰ বাবেও অনুকূল।
- অধিক তৰাচিহ্ন, অধিক শক্তি মিতব্যয়ী।

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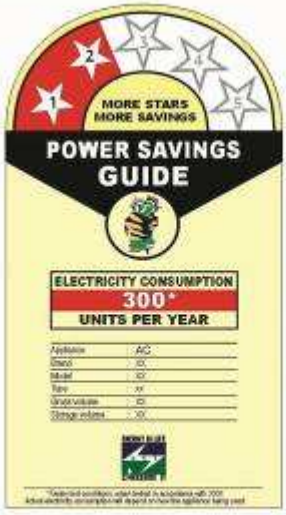
অধিক শক্তি সংৰক্ষণৰ বাবে তৰাচিহ্নিত বিইই (BEE) ৰ লেবেল থকা এ'চি ব্যৱহাৰ কৰক

তৰাচিহ্নিত বিইই (BEE) ৰ লেবেল থকা বাতানুকূল যন্ত্ৰ বা এয়াৰ কণ্ডিচনাৰ (এ'চি)ৰ ব্যৱহাৰে দিয়ে অধিক আৰাম, অধিক সঞ্চয় ঃ প্ৰকৃত আৰাম আৰু আনন্দ পাবলৈ হ'লে আপোনাৰ এ'চিটো নিৰ্ভুল ভাবে নিৰ্বাচন কৰক। যদি আপুনি অতিমাত্ৰা শক্তি খৰচ কৰা এ'চি কিনে, ইয়াৰ বাবে হোৱা অধিক শক্তি ব্যয়ৰ কাৰণে আপুনি সদায়ে অনুসূচনা কৰি থাকিব লাগিব। আচল চাবিকাঠি হৈছে শক্তিৰ সংৰক্ষণ। আপোনাৰ কষ্টোপাৰ্জিত ধনেৰে উৎকৃষ্ট, উচ্চ দক্ষতা সম্পন্ন এ'চিহে কিনক। এ'চি কিনাৰ আগেয়ে বিইইৰ তৰাচিহ্নিত লেবেল চাই লওক।

শক্তি সংৰক্ষণ আইন ২০০১ অনুসৰি ভাৰত চৰকাৰৰ শক্তি মন্ত্ৰণালয়ৰ অধীনত ব্যুৰো অফ এনাৰ্জী এফিচিয়েন্সিয়ে 'ৰাষ্ট্ৰীয় শক্তি লেবেল' (National Energy Lebelling) আঁচনি আৰম্ভ কৰিছে। এনে লেবেলৰ পৰা আপোনাৰ এ'চিটো কিমান দক্ষ বা কৰ্মক্ষম আপুনি জানিব পাৰিব। অনকথাত বিইই লেবেলত যেছি তৰাচিহ্নিত এটি কিনিলে আপুনি অধিক শক্তি সংৰক্ষণ কৰিব পাৰিব। অৰ্থাৎ অধিক মিতব্যয়ী বা আপোনাৰ সঞ্চয় সুৰক্ষিত। সেয়েহে বিইইৰ তৰাচিহ্নিত লেবেলযুক্ত এ'চি ব্যৱহাৰ কৰি অধিক লাভবান হওক।

বিদ্যুৎ ব্যয় কমোৱাৰ সম্পৰ্কে অধিক জানিব খুজিলে ইনটাৰনেটত **www.bee-india.nic.in** অথবা **www.asda.gov.in** চাওক। বিইই লেবেলত থকা শক্তি মিতব্যয়ী সূচক চাওঁক। এয়াৰকণ্ডিচনাৰ বা এ'চিৰ ক্ষেত্ৰত আপুনি তৰাচিহ্নিত বিইইৰ লেবেল চাই সেই এ'চিয়ে কিমান বিদ্যুৎ শক্তি ব্যয় কৰিব তাৰ হিচাপ উলিয়াই ল'ব পাৰে।

এনে বিদ্যুৎ ব্যয়ৰ হিচাপ আপুনি ইনটাৰনেটৰ পৰাও পাব পাৰে। ইয়াৰ বাবে ৱেবচাইট **www.bee-india.nic.in** অথবা **www.asda.gov.in** চাওক। এই ৱেবচাইটত থকা হিচাপৰ পৰা এটা এ'চিয়ে কিমান বিদ্যুৎ শক্তি ব্যয় কৰে, তাৰ কাৰ্যকালত কিমান শক্তি বাহি কৰিব আদিৰ হিচাপ উলিয়াব পাৰিব। গ্ৰাহকসকলে এই ৱেবচাইটত বিভিন্ন ব্ৰেণ্ড আৰু মডেলৰ এটি কিনাৰ বিষয়ে অধিক প্ৰয়োজনীয় তথ্য পাব।



শক্তি সঞ্চয়সূচক লেবেল বিশ্লেষণ ঃ

- বঙা অংশত থকা তৰাচিহ্নই এটিটোৰ তুলনামূলক শক্তি সঞ্চয়ৰ মান বুজায়।
- সকলো এ'চিৰ কমেও এটা তৰাচিহ্নিত শক্তি সঞ্চয়ৰ সূচক থাকিব লাগিব। পাঁচ তৰাচিহ্নিত এ'চিটোৰ কৰ্মক্ষমতা বা দক্ষতা আটাইতকৈ বেছি আৰু ই উপভোক্তাৰ বাবে আটাইতকৈ বেছি বিদ্যুৎ শক্তি সংৰক্ষণ কৰিব।
- ডাঙৰ কোঠাৰ বাবে অধিক শীতল কৰিব পৰা এচিৰ প্ৰয়োজন।
- এই লেবেলত থকা তথ্যসমূহ উৎপাদনত ব্যৱহাৰ হোৱা প্ৰযুক্তি বিদ্যাৰ ওপৰত নিৰ্ভৰশীল।
- যদি এটা এ'চিৰ তৰাচিহ্নিত এ'চিৰ বাৰ্ষিক বিদ্যুৎ ব্যয়ৰ বিল ৮,৫০০ টকা হয়, তেনেক্ষেত্ৰত এটা পাঁচ তৰাচিহ্নিত এ'চিয়ে আপোনাৰ ব্যয়ৰ পৰা বছৰি ২,১০০ টকা পৰ্যন্ত বাহি কৰিব পাৰে।
- পাঁচ তৰাচিহ্নিত এ'চি আপোনাৰ আৰু আপোনাৰ পাৰিপাৰ্শ্বিকতাৰ বাবে অনুকূল।
- এক কিলোৱাট বিদ্যুৎ আৰু এক কিলোৱাটৰ এ'চিয়ে কৰিব পৰা শীতলীকৰণ / কিলোৱাট অনুপাতক 'শক্তি সঞ্চয়ৰ মান' বুলি কোৱা হয়।
- প্ৰস্তুতকাৰকৰ নাম আৰু মডেলৰ বিতং বিবৰণ
- অধিক তৰাচিহ্ন, অধিক শক্তি মিতব্যয়ী।

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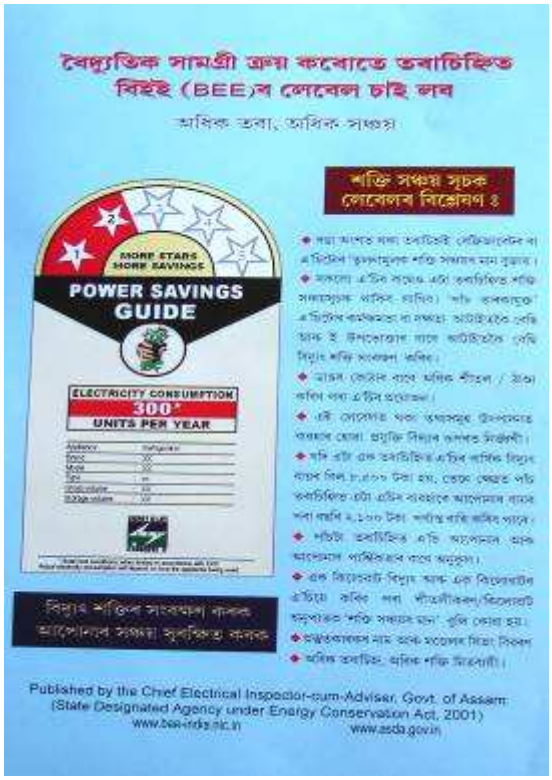

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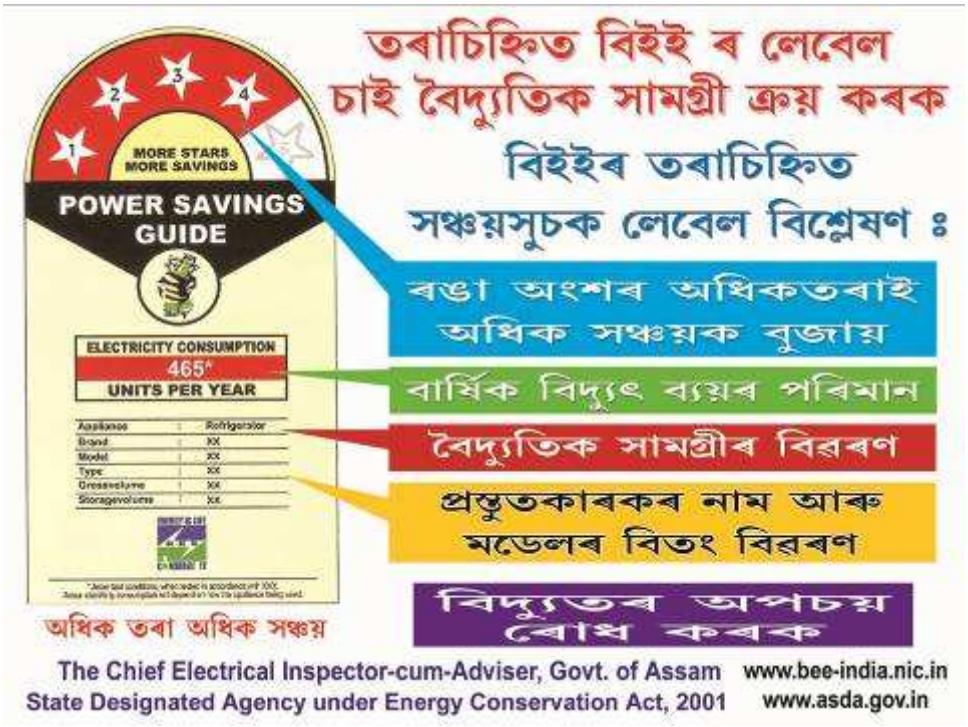
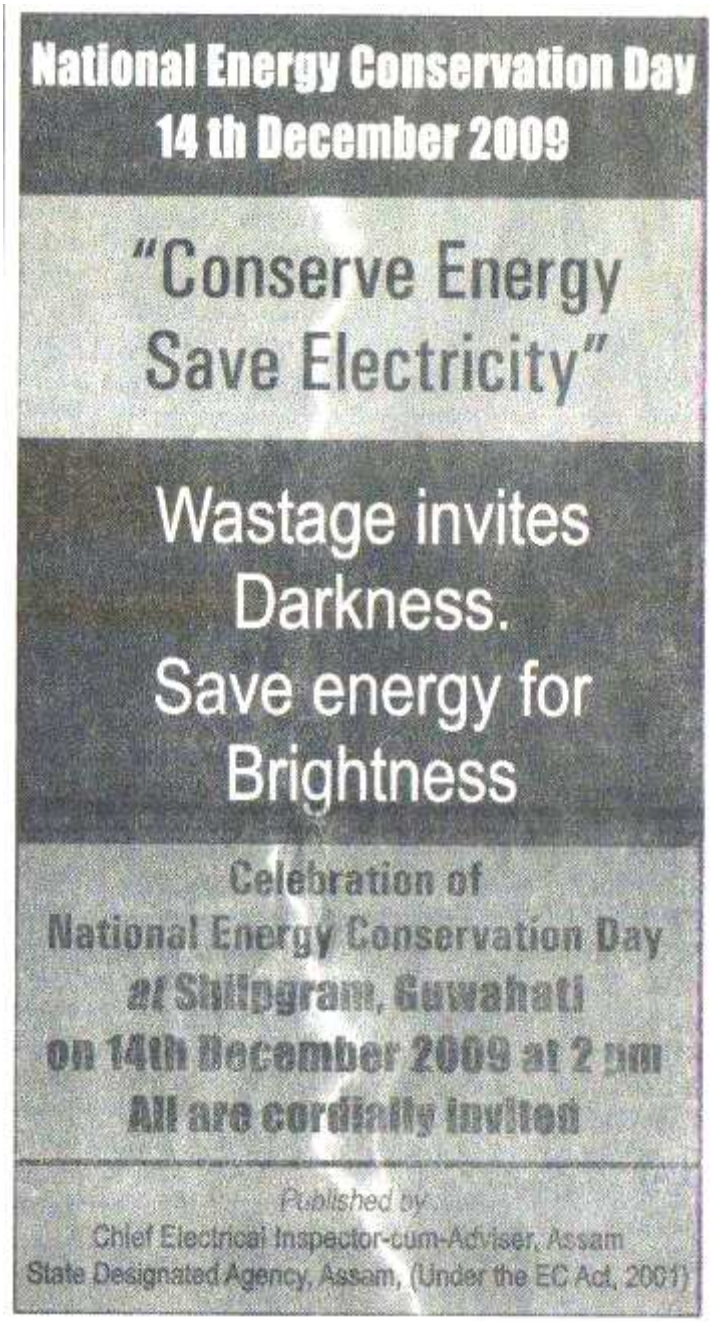


Promotional Banner

Promotional Hoarding

Promotional Hoarding

Promotional Hoarding



Newspaper advertisement on National EC Day 2009

19. DEMO PROJECT ON LED STREET LIGHTING AT DIBRUGARH TOWN:

A demo project was undertaken at Dibrugarh town replacing existing Sodium Vapour, CFL street lights at the road section from Phulbagan to the office of the Deputy Commissioner, Dibrugarh District.

Total length of the road is 3.15 KM and having existing 70 nos of street lights fittings. The existing fittings were of different ratings from 150 W Sodium Vapour, 85W CFL and 40W TFL.

70 street light fittings of 50W LED street lights were chosen for replacement in the said section of road with four sets of lights at three road junctions.

50W LED street light

Traffic point at Phulbagan, Dibrugarh

Portion of a street with LED street lights

20. BEE'S NATIONWIDE LED VILLAGE CAMPAIGN SCHEME

Name of village: Makumpathar No. 4 village.
Village census No. 01610000
District: Tinsukia, Assam.

Bureau of Energy Efficiency's Nationwide 'LED Village Campaign Scheme' project in Assam is completed and inaugurated by Shri Pradyut Bordoloi, Hon'ble Minister, Power, Industries & Commerce Assam on 7th July 2010. A function was held on the occasion at the village site attended by the Hon'ble Minister, President of the Gaon Panchayat and other senior officials from Government departments and villagers.

100 LED Street lights have already been installed in the village area replacing existing fittings and 2 to 3 nos 6W LED lamps were distributed among electricity consumers on the occasion by the Hon'ble Power Minister, President of the Gaon Panchayat and the Sub Divisional Magistrate of Margherita Sub Division. The function was largely attended by the villagers and Media persons.

Sri Pradyut Bordoloi, Honb'le Minister, Assam, Power, Industries & Commerce distributing LED lamps to villagers

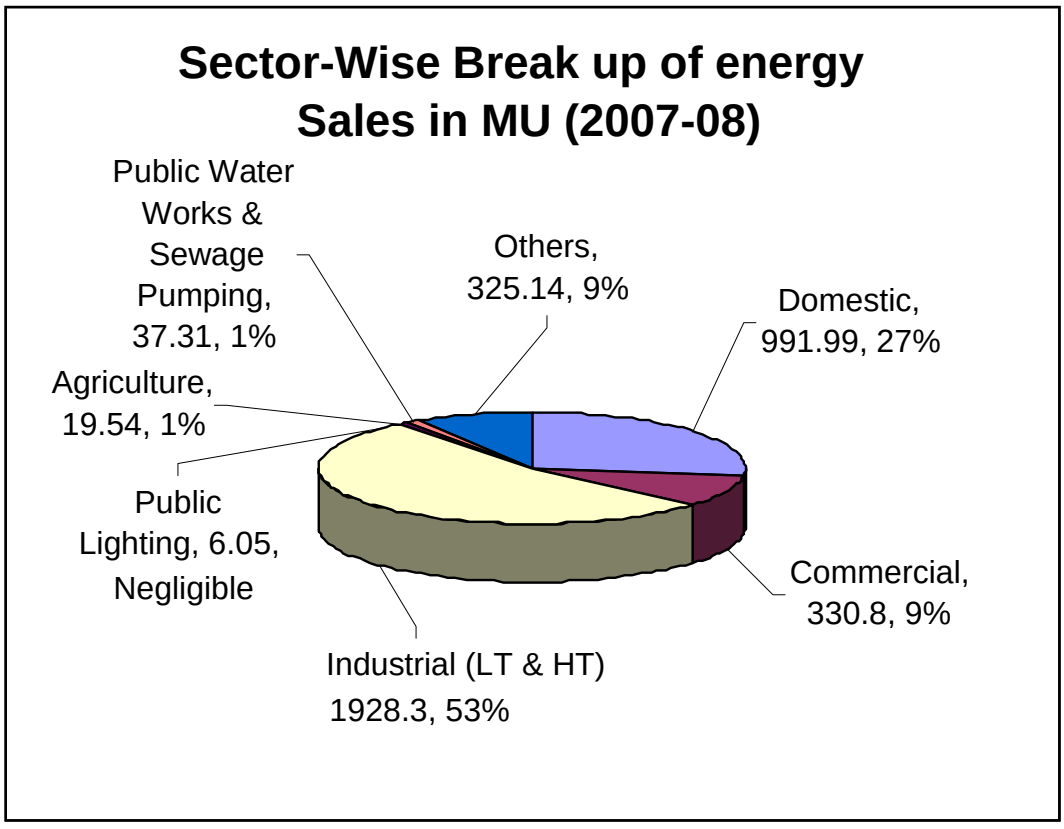
Views of the gathering at Makumpathar No.4 LED Village

A view of Makumpathar No.4 Village street with LED Street Lights

21. Executive Summary-Energy Consumption & Conservation Potential in Assam, a study by National Productivity Council in 2009

The salient features of power scenario are as under:

POWER SCENARIO OF ASSAM FOR 2007-08	
INSTALLED CAPACITY	1062.3 MW
TOTAL ENERGY SALES	3639.13 MU
PEAK DEMAND	848 MW
PEAK MET	766 MW
PEAK DEFECIT / SURPLUS	-82 MW (-9.7 %)
ENERGY DEFICIT / SURPLUS	- 404 MU (-8.4%)



The total energy sold in the state is 3.639 Billion units. Sectors such as traction & miscellaneous constitutes only 9 % of the total energy sold and are not assessed for energy saving potential.

1. ENERGY SAVING POTENTIAL IN AGRICULTURAL SECTOR

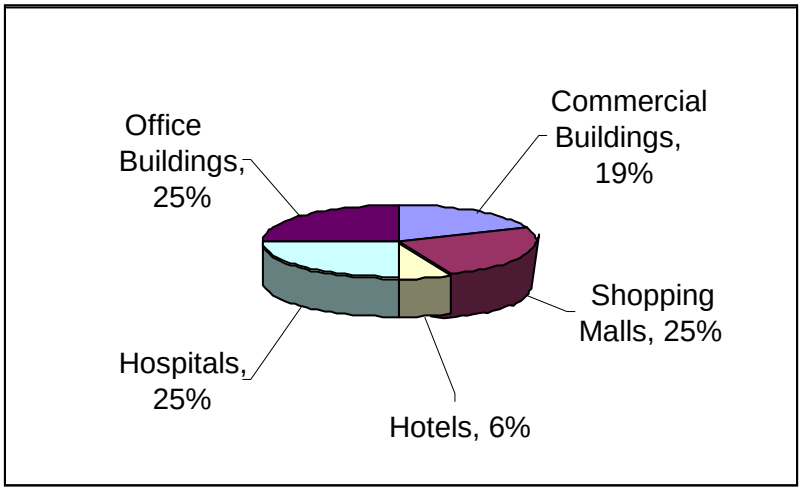
The annual electricity sale to agriculture sector is 19 MU. The major energy consumption is in the area of energising agricultural pumps. There are 220905 numbers of diesel pumps and 1200 electrical pump sets in Assam. The diesel pump sets are distributed by the State Agricultural Deptt at subsidized rates to the farmers. The operation and maintenance is done by the farmer. The 1200 electrical agricultural pump sets account for a connected load of 70000.164 kW and annual consumption of 5.6 MU. The energy saving potential assessment has been carried out only for agricultural pump sets.

Based on several studies carried out on agricultural pumpset efficiency, it has been found that the pump efficiency varies from 25-35% due to various factors. By adopting BEE star labelled agricultural pumpsets, the efficiency can be enhanced upto 50-52%. It is estimated that, by replacement of existing pumps with the BEE star labelled pumps, the achievable saving potential is 30-40% and sectoral saving potential works out to be 1.7 MU per year.

2. ENERGY SAVING POTENTIAL IN COMMERCIAL SECTOR

The annual electricity sale to commercial sector is 330 MU and accounts for 9 % of the total electricity sold. The commercial sector constitutes Government & private establishments, hospitals, hotels, restaurants, educational institutions, malls etc. For assessment of saving potential, only those buildings with over 500 kW connected load have been considered.

There are 16 commercial buildings in the state accounting for annual energy consumption of 20.4 MU which works out to about 6% of the sectoral consumption. The break up of energy consumption category wise is shown in the figure:



Various studies reveal that energy savings potential in commercial buildings varies from 20-30%. The annual energy savings potential for those 16 commercial buildings is assessed to be 4.1 MU. There is a good case for addressing smaller buildings with connected load lesser than 500 kW connected load as well, since 94% energy consumption in sector is from such buildings.

3. ENERGY SAVING POTENTIAL IN MUNICIPALITIES

The annual electricity sale to public lighting and Public water works is 43 MU. There is only one Municipal Corporation in Assam which is in Guwahati.For considered Municipal Corporation of Guwahati, Annual electricity consumption for street lighting is 6.23 MU, while for PWW, annual electricity consumption is 7 MU.

Based on sample studies, the energy savings potential for street lighting in municipalities & corporations is assessed to be 25% and works out to 1.6 MU per annum, and for PWW is assessed to be 20% & works out to be 1.4 MU. The assessed savings potential is 3.0 MU.

4. ENERGY SAVING POTENTIAL IN SME CLUSTERS

Tea & Iron and steel rolling mills is the major energy intensive SME clusters identified in Assam. Consumption and saving assessment is as follows.

Cluster Location	Cluster type	Total Units listed (nos.)	Estimated Total Energy Consumption	% Savings potential assessed	Annual energy saving Potential assessed
Assam	Tea	926	460 MU	25	115 MU
Assam	Iron and steel rolling mills	2	9.3 MU	25	2.32 MU

In addition to the above, BEE has been implementing national schemes for promoting energy efficiency in household sector and Industrial sector. While in the household sector, replacement of inefficient lights and appliances are the key thrust areas, industrial energy efficiency is being mandated under section 14 of the Act as well as promoted through the National Energy Conservation Awards.

5. ENERGY SAVING POTENTIAL IN DOMESTIC SECTOR

In Assam, the annual electricity sale to domestic sector is 991 MU which accounts for 27% of the total electricity sold. The domestic sector electricity consumption varies with respect to rural and urban segments and climatic seasonal variations. In the rural segment major use of electricity is towards lights & fans. In the urban segment the typical energy consumption pattern includes the following.

S.No.	Appliances	Energy consumption in %
1	AC & refrigeration	52 %
2	Lights & fans	28%
3	Coolers , TV , Washing M/cs etc	16%
4	Others	4%

The energy use in air conditioners also varies significantly with seasons and climatic conditions.

The major avenues for energy savings in rural domestic sector include:

- Replacement of GLS bulbs with CFLs
- Adoption of BEE star labeled domestic appliances like ceiling fans, refrigerators, AC units, tube lights etc

The savings potential in rural segment by adopting CFLs and BEE star rated products is 40-50%.

The savings potential in urban segment by adopting BEE star rated products is 15-20%.

On the whole, the energy savings potential in domestic sector is estimated 20-25% which accordingly works out to 198 MU per year.

6. ENERGY SAVING POTENTIAL IN INDUSTRIES

The annual electricity sales to the industry sector including low & medium voltage consumers (SME) and high voltage consumers (large industries) is 1928 MU and works out to 53 % of the total electricity sold. The larger industries segment is covered for energy efficiency under the mandates of EC Act as designated consumers, while SME

segment is being addressed for energy efficiency through cluster based initiatives by Bureau of Energy Efficiency.

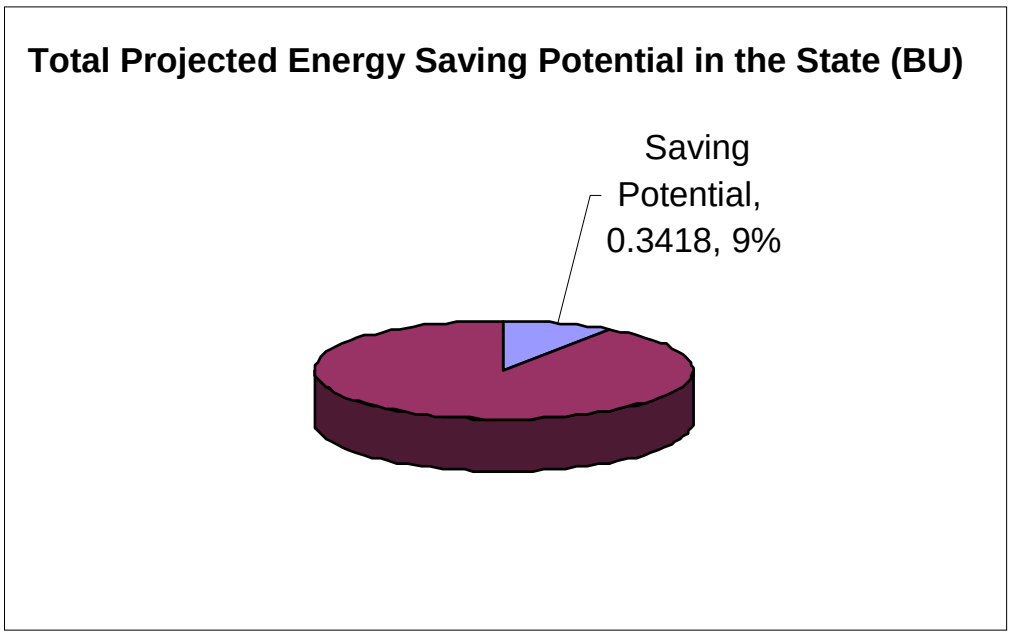
Based on several studies & energy audits, the electrical energy saving potential in industry sector varies from 7-10%. The energy savings potential for the sector is assessed to be 135 MU.

7. TOTAL ENERGY SAVING POTENTIAL IN ASSAM

S.No.	Sector Reference	Assessed annual Saving Potential (MU)
1	Agricultural	**1.7**
2	Commercial	**4.1**
3.	Municipalities	**3.0**
4.	SME Cluster	*****
5.	Domestic	**198**
6.	Industries	**135**
TOTAL		**341.8 MU (0.3418 BU)**

*SME clusters electrical energy savings potential is already included in Industrial sector.

The total energy saving potential for the state among the above sectors is 0.3418 BU representing 9.35 % of the annual energy sold.



22. VISIBLE RESULTS

BEE star labeled appliances:

Increase in sale of BEE star labeled appliances like air conditioners and refrigerators is a positive indication towards energy efficiency.

Effects of the efforts of SDA, Assam:

Though the Energy Conservation Act is in the initial stage of implementation in the State, the rising trend is indeed very encouraging that reflects growing awareness on Energy efficiency and its Conservation among people.

Commercial establishments/ Shopping Malls using CFL & T5 lamps

Growing popularity of CFL among street vendors

23. TIPS FOR SAVING ENERGY:

Home lighting system:

1. One of the best energy-saving devices is the light switch. Switch off the light and fans in unoccupied rooms.

2. Change over to energy efficient slim tube lights from power consuming incandescent lamps

3. Fluorescent tube lights and CFL (Compact Fluorescent Lamps) convert electricity to visible light upto 5 times more efficiently than ordinary bulbs and thus saves about 70% of electricity for the same lighting level.

4. Ninety percent of energy consumed by an ordinary bulb is wasted as heat rather than visible light.

5. A 15Watt CFL lamp produces the same amount of light as a 60Watt incandescent bulb.

Room Air-conditioners:

1. Use ceiling fans or table fans as first line of defense against summer heat. Ceiling fans, for instance, cost about 30 paise an hour to operate-much less than air-conditioner (Rs. 8-10 per hour).
2. You can reduce air-conditioning energy use as much as 40 percent by shading your home's windows and walls. Plant trees and shrubs to keep the days hottest sun off your house.

Refrigerators :

1. Be sure that the refrigerator is kept away from all sources of heat, including direct sunlight, oven and cooking range.
2. Refrigerator motors and compressors generate heat. So allow enough space for continuous airflow around refrigerator. If the heat can't escape, the refrigerator's cooling system will work harder and use more electricity.
3. A full refrigerator is a fine thing, but be sure to allow adequate air circulation inside.
4. Allow hot and warm foods to cool and cover them well before putting them in the refrigerator.
5. Make sure that refrigerators' rubber door seals are clean and tight.

Heaters & Oven:

1. By reducing temperature setting of water heaters from 60 degree to 50 degree C, one could save over 18 percent of energy used at higher setting.
2. Microwave ovens save energy by reducing cooking time. In fact, one can save up to 50 percent on your cooking energy costs by using a microwave oven instead of regular oven, especially for small quantity of food.
3. Microwave cooks from the outside edge towards the center of the dish, so if we are cooking more than one item, place larger and thicker items on the outside.

READY RECKONER:

Power Consumption by Electrical appliances in day to day use:

MONTHLY ENERGY CONSUMPTION

APPLIANCES of regular use	**Rating** (Watts)	*Average usage **in hours** per day*						
		1	**2**	**4**	**6**	**8**	**10**	**12**
		ESTIMATED UNITS CONSUMED IN 30 DAYS						
TUBE LIGHT (*Ordinary Choke*)	52	2	3	6	9	12	16	19
TUBE LIGHT (Electronic Choke)	36	1	2	4	6	9	11	13
TUBE LIGHT (T5)	32	0.9	1.8	3.6	4.4	8	9.8	11.6
INCANDESCENT LIGHT BULB	100	3	6	12	18	24	30	36
CFL	5	0.2	0.3	0.6	0.9	1.2	1.5	1.8
CFL	9	0.3	0.5	1	1.5	2.3	2.8	3.3
CFL	11	0.4	0.7	1.3	2	2.7	3.5	4
CFL	18	0.5	1	2	3	4.5	5.5	6.5
CEILING FAN / TABLE FAN	40	1	2	5	7	10	12	14
CEILING FAN	75	2	5	9	14	18	23	27
PEDESTAL FAN	100	3	6	12	18	24	30	36
EXHAUST FAN : DOMESTIC	250	8	15	30	45	60	75	90
FRIDGE 165 LTRS	100	2 units / day on continuous running						
FRIDGE 310 LTRS	400	3 units / day on continuous running						
RADIO / TAPE	50	2	3	6	9	12	15	18
COLOR TV	80	2	5	10	14	19	24	29
VCP / VCR / CD / VCD	30	1	2	4	5	7	9	11
COMPUTER	300	9	18	36	54	72	90	108
MONITOR	70	2	4	8	13	17	21	25
PRINTER	25	1	2	3	5	6	8	9
FAX / TELEX	250	8	15	30	45	60	75	90
WATER PUMP 0.5 HP	375	11	23	45	68	90	113	135
ROOM A/C 1 TON	1400	42	84	168	252	336	420	504
ROOM A/C 1.5 TON	2100	63	126	252	378	504	630	756
AIR COOLER SMALL	250	8	15	30	45	60	75	90
AIR COOLER BIG	400	12	24	48	72	96	120	144

APPLIANCES of intermittent use	**Rating** (Watts)	*Average usage **in minutes** per day*						
		10	**20**	**30**	**40**	**50**	**60**	**120**
		ESTIMATED UNITS CONSUMED IN 30 DAYS						
ELECTRIC IRON (Normal domestic)	750	4	8	11	15	19	23	45
ELECTRIC IRON (Heavy duty/Dhobi)	1000	5	10	15	20	25	30	60
COOKER	1200	6	12	18	24	30	36	72
TOASTER	750	4	8	11	15	19	23	45
MIXER BIG	400	2	4	6	8	10	12	24
MIXER SMALL	250	1	3	4	5	6	8	15
GEYSER 1	2000	10	20	30	40	50	60	120
GEYSER 2	3000	15	30	45	60	75	90	180
HEATER STORAGE TYPE	1000	5	10	15	20	25	30	60
IMMERSION ROD	1500	8	15	23	30	38	45	90
ELECTRIC KETTLE / STOVE	1000	5	10	15	20	25	30	60
ELECTRIC OVEN 1	350	2	4	5	7	9	11	21
ELECTRIC OVEN 2	500	3	5	8	10	13	15	30
WASHING MACHINE SEMI AUTO	230	1	2	3	5	6	7	14
WASHING MACHINE FULLY AUTO	320	2	3	5	6	8	10	19
VACUUM CLEANER	600	3	6	9	12	15	18	36
SEWING M/C CLOTH	100	1	1	2	2	3	3	6

(The above figures are very helpful in working out energy consumptions, though those are gross general figures and hence may vary case to case. For accurate results, item specific figures with actual run/usage time should be used.)

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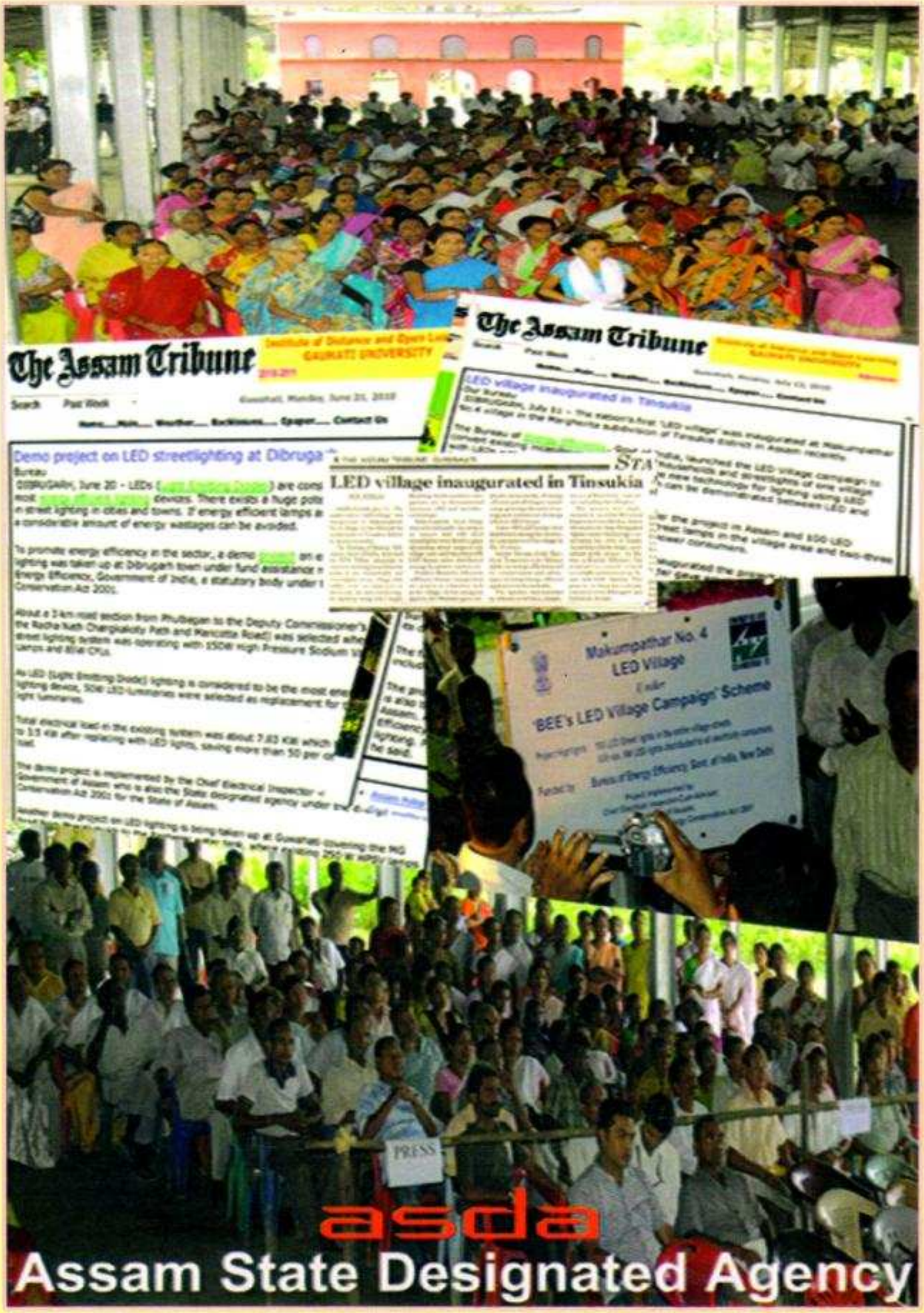
The Assam Tribune
Demo project on LED streetlighting at Dibruga
LED village inaugurated in Tinsukia
Makumpathar No. 4
LED Village
'BEE's LED Village Campaign' Scheme
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