

## Cinnamara Tea Estate Synopsis

Baseline	Intervention	Inference
<p>Production range (DMT): <b>10, 80, 396 kg.</b> per Year approximately.</p> <p>Power Purchased from ASEB: <b>4, 59, 448 kWh</b> Per Year approximately.</p> <p>Captive Power Consumption: <b>71, 840 kWh</b> Per Year approximately.</p> <p>Natural Gas Consumption : <b>4, 25, 602 SCUM</b> Per Year approximately.</p> <p>Annual Energy Cost : <b>INR. 82, 34, 996</b> approximately.</p> <p>Energy Cost per Kg Production Per Year : <b>INR. 7.62</b> approximately.</p>	<p>Replacement of Existing Energy Inefficient Burner with Energy Efficient <b>Burner in DF Heater, Drier 1 &amp; 2.</b></p> <p>Installation of <b>Automatic Power Factor Controller (APFC)</b> to Improve the Power Factor from 0.71 to 0.99</p> <p><b>Package 3:</b> Replacement of 15 kW Rotorvan Motor, 18.65 kW 1<sup>st</sup> Cut Motor, 15 kW 2<sup>nd</sup> Cut Motor and 15 kW 3<sup>rd</sup> Cut Motor with 11 kW, 15 kW, 15 kW and 11 kW IE3 Motor</p> <p><b>Package 4:</b> Replacement of 18.65 kW FBD ID Fan Motor, 22 kW VFBD ID Fan Motor, 3.73 kW VFBD Cold Air Fan Motor and 5.56 kW VFBD Vibrator Crankshaft Motor with 15 kW, 15 kW, 2.23 kW and 3.73 kW IE3 Motor</p>	<p>Pre Installation, Installed Power was <b>240.89 kW</b> considering the aforesaid Motors under 2 distinguished Packages, which has been come down to <b>191.96 kW</b> after ECMs Installation.</p> <p>In Terms of Electricity <b>20.40 %</b> savings has been achieved annually.</p> <p>In Terms of Natural Gas Consumption, <b>44.05 %</b> savings per year has been achieved.</p> <p>In Terms of Power Factor Improvement, <b>INR. 3, 64, 387</b> savings per year has been achieved.</p>



### Achievements at Cinnamara TE at a Glance:

- ✓ Connected Load has been reduced to **191.96 kW** in place of **240.89 kW** after ECMs Installation.
- ✓ In terms of Electricity, **20.40 %** savings has been achieved annually.
- ✓ In terms of Natural Gas Consumption, **44.05 %** savings per year has been achieved.

# Energy Efficiency efforts by some private sector Tea Industries in Assam

**Details of the ECMs** executed by **M/s Magnum Automation Systems**, situated at LAHOAL, District Dibrugarh,(Assam) since 2010.

## 1) **Controller Panel for Withering Troughs in tea factories:**

These CPs are based on VFDs, PLC, HMI with tailor made software for each of these CPs for a particular Tea Factory. There are usually, multiple Nos. of W.Troughs in each & every Tea Factory. One such CP automatically runs these Fans in the programmed fashion.

Each of these troughs have either **One** AF Fan or 2. At times there are also 3 AF Fans per one W.Trough. These AF Fans start /stop in unison and run at the same rpm.

For example, if there are **10 W.Trough** in a Tea processing factory (with yearly Production level of 6.0lacs kg DMT), and **each Trough with 2 AF Fans powered by 2.23kW TEFC Motors**, the total Power would be  $2.23 \times 2 \times 10 = 44.46 \text{ kW}$ .

The AF Fans run for a minimum of 12 hours/day for at least, 210 days/year. Thus the Electrical Energy consumption (for the withering operation) could be as high as  $(44.46 \times 8 / 0.7) \times 12 \times 215 = 131093 \text{ KWHrs}$  which might range as high as **20 to 28%** of total electrical Energy consumed by the said factory.

However, it has been found that withering is actually 50% over in the first 6 hours of AF Fan running. Most of the TE Factory Managers (FM), deploy withering trough supervisors, to keep a check on withering status, and keep the Fans switching ON/OFF as is required, to see that the leaf is withered properly-NOT UNDER or OVER.

ONE can well imagine one person (normally educated not beyond Class 8 or 9 at the best) to go around checking the leaf in the 10 Nos troughs, and switching the Fan motors. The FM is dependent on these Supervisors, who somehow do a sloppy job, which is at best, just so so, & accepted.

**M/s Magnum Automation Systems (MAS)** have devised a **CONTROLLER Panel** which Controls and Power the Fan motors via Variable frequency drives (VFDs). These VFDs are sequenced at different speeds for different periods, all in *preprogrammed manner*, by the FM, at 5:00 to 6:00pm, every evening, on the production day, after seeing the **quantum & quality of the tea green leaves** received on the day & the **weather ambient conditions** (%RH, Temperatures, etc.)

The net result is that the FM can now enhance the quality of withering, prevent damage to leaf,

And save Power to the extent of 40 to 45%. The **ROI** of such **CPs** is of the order of **50 to 65%**, **excluding the quality aspects of the Product.**

**MAS** has designed, engineered and installed such systems at

- a) **Bagrodia tea & Plantations (P) Ltd.**'s, brand new factory at Tengakhat, in Dibrugarh district, in 2011-12..
- b) **Shree Krishna Tea Industries'** AMSOI T.E. factory, at Dharamtul, in Nagaon district in 2012.



Photo of the Controller Panel at the factory of **M/s Bagrodia Plantations & Industries factory**, with **6 Nos, VFDs of 5.5kW (HD)** rating with one **7" HMI** (for daily menu driven programming), & **DPM** (to monitor Power & Energy). The DPMs have a **RS486** port to connect the system to PMS, later on, if so required.

The **6 VFDs power 12 AF Fans each of 2.23kW motor.** The tea Factory has reported Power savings of 40%, and the speed control feature very handy and useful. The **inside view of the Panel** showing the 6 VFDs for 12 Nos W.Trough motors, and one 11kW VFD for the ID Fan motor of the DF Heater providing hot Air to the troughs on a wet day. Also visible are the PLC and its extension modules.

The Cost of this Panel shown here is 4.85 Lacs including Installation, commissioning and VAT. **Per Trough costing** excluding the DFHEATER Fan VFD is `0.70 thousand.



2) **Controller Panel for Drier ID Fan for tea factories:**

In most of the tea drying machines, Fermented tea leaves are dried at temperatures not exceeding 115°C(for VFBDs) ,& 95°C( in conventional Driers).

The ID Fans providing the process Air at these temperatures, are usually Powered by **11, 15, 18.65, 22, 30 kW rated TEFC, 3Ø Motors**.The airflow rate is controlled by dampers installed in the Airflow path,controlling the flow ratebut increasing the path resistance.

However, **MAS** has devised a system where in, the dampers are set at full open position with Fan speed being decreased to the level required such that the teas are fluidized and dried with no adverse effect on quality. Net result is **Power savings up to 60%,ROI up to 80 to 90%**-just about unbelievable.

The user list is as follows:

User factory	DRIER DETAILS	Power(kW) savings reported	Remarks
AMSOI TE	Megaput,Tempest	47%	Installed in 2012.
NAMCHIK TE	VFBD <i>EE MODEL</i>	49%	Installed in 2012.
CLASSIC BLTF	VFBD <i>EE MODEL</i>	48%	Installed in 2012.
NAUPUKHRI BLTF	VFBD <i>FF MODEL</i>	50.40%	Installed in 2012.
Damayanti BLTF	VFBD <i>EE MODEL:2 Driers</i>	52%	Installed in 2011.
Teamafco BLTF	VFBD <i>EE &amp;FF MODEL: 3 DRIERS</i>	47%	Installed in 2011.
BAGRODIA TE	VFBD <i>300KgDMT</i>	45%	Installed in 2012.

Photographs of the VFD CPs installed in tea factory:



### 3) D.F. HEATER: EE, N.GAS BURNERS with combustion efficiency of Plus 93%.

These Burners are actually very safe from the point of view operation+ auto ignition+ auto shut off, if no flames are detected.

On power failures, Burners resume operation when power is returns. **MAS** interlock all Burners' re-ignition operation with the main ID Fan starter. Burner re-ignites, only if the ID Fan motor is started, by the operator.

The **combustion efficiency** of these Burners is 93 to 95 % and **fully modulating** Burners model are most fuel efficient plus the burner gas volume operation linked to inlet air temperature makes the system appealing from the tea quality point of view.

**MAS** sources the Burners from **M/s UNIGAS CIB,Italy** from the all India importers **M/s De Novo, New Delhi**. The Burners are recommended only after auditing the thermal Energy required for the dryers, at the USERs factory.

USER LIST OF EE Burners in different tea factories.

User factory	DRIER DETAILS	N.Gas (SCUM) Savings reported	Remarks
Damayanti BLTF	VFBD EE MODEL:2 Driers	12-12.5%	installed in 2011.
Teamafco BLTF	VFBD EE &FF MODEL: 3 DRIERS	10-15%	installed in 2010.
BAGRODIA TE	VFBD 300KgDMT	10%	installed in 2012.
Long tong BLTF	VFBD FF MODEL:2 Driers	12.00%	installed in 2011.
PIPRATOLI TE	VFBD 300Kg DMT	12%	installed in 2011.
GANGABARI	VFBD 300Kg DMT	15%	installed in 2012.
GREEN ASSAM TEA Industries	VFBD EE MODEL:1 Drier	8%	installed in 2012.
Boishabhi TE	w.t. DF HEATER	10%	installed in 2012.

Photographs of the Burners (**model NG550TN**) installed at the Damayanti Tea factory at Lahoal.



## Annual Energy Savings in Building & Industrial Sectors reported

(Energy savings achieved due to various EE measures adopted by some of Industrial installations and others in Assam 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 house 7425 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 MU 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 lamps 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**

## **7. Energy savings achieved through Retrofitting Energy efficient equipments:**

✓ ***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.

✓ ***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.

✓ ***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.

✓ ***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 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/ Year.
- 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.
- iii) Illumination Audit at IOCL, Digboi refinery.
- iv) Refinery Building Energy Audit.

### 3. JasRaj Encon Systems, Dibrugarh:

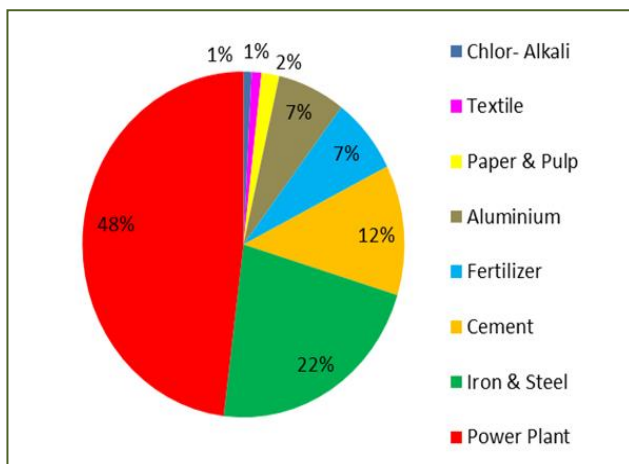
- i) Hotel Little Palace, Dibrugarh.
- ii) Manekshia Industries, EPIP, Amingaon, Guwahati.
- iii) Garampani Agro Industries, Golaghat.

## BEE's Encouraging Schemes adopted by ASDA

### Perform, Achieve and Trade (PAT) Scheme

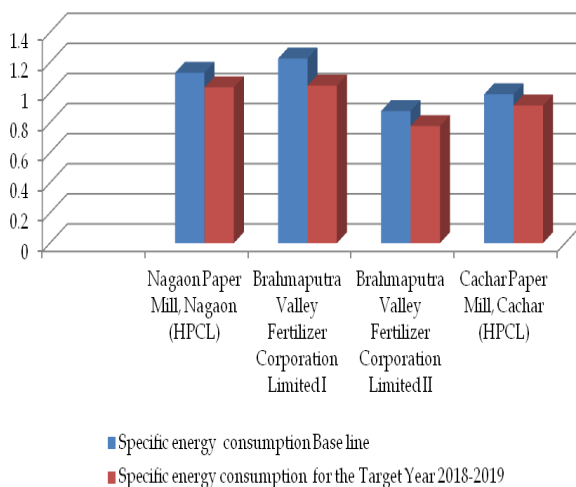
Enforcement of PAT started in the year 2012 and ended in the year 2015, which have later on been termed as PAT Cycle-I followed by PAT Cycle-II with relevant new inclusion of DCs as well as widening of mandated achievement targets.

#### I. Notified Sectoral Energy Saving Target under PAT Cycle-I



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

#### II. List of Designated Consumers in Assam under PAT Cycle I



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

**Status of “Perform Achieve Trade” (PAT) Scheme**

1. The **Perform Achieve Trade** (PAT) is an innovative, market-based trading scheme announced by the Indian Government in 2008 under its **National Mission on Enhanced Energy Efficiency** (NMEEE) in **National Action Plan on Climate Change** (NAPCC). It aims to improve energy efficiency in industries by trading in energy efficiency certificates in energy-intensive sectors.
2. A **Workshop** was conducted on **Filing of Annual Energy Consumption details and implementation of different Energy Conservation Measures under PAT scheme** on 19th August 2009 involving all identified Designated Consumers (DCs) at Guwahati.
3. Assam SDA received Notification of Targets and Rules for PAT from **Bureau of Energy Efficiency** (BEE), New Delhi (*under Ministry of Power*) on 27<sup>th</sup> April 2012 and circulated the same to identified DCs (by BEE) of Assam & the Commissioner and Secretary Power (Electricity Dept.) on 15<sup>th</sup> May 2012.
4. Assam SDA received **PAT Booklet** from BEE on 8<sup>th</sup> August 2012.
5. Received a letter from BEE on 14<sup>th</sup> July 2014 to perform the activities under PAT Cycle I for identified 7 designated consumers in the State of Assam i.e. Assessment of Performance (under Rule 6), Check Verification (under Rule 8) and Compliance of Energy Consumption norms and standards (under Rule 13).
6. Assam SDA passed an office order on 25<sup>th</sup> July 2014 to facilitate smooth and expedient in performance of the duties under PAT Rule 6, 8 and 13.
7. Assam SDA sent a letter to BEE on 20<sup>th</sup> February 2015 to get approval for Hiring of an Accredited Energy Auditor to assist in PAT related activities in the state of Assam.
8. BEE issued letter to Assam State Regulatory Commission (Copy to ASDA) on 18<sup>th</sup> March 2015 for Creation of Institutional Framework for Penalty and its Adjudication under PAT Scheme.
9. ASDA nominated one Nodal Officer and one Technical officer for issuance of **ESCerts** process and **Compliance** process under PAT mechanism on 15<sup>th</sup> May 2015 in response of the letter received from BEE regarding the same on 18<sup>th</sup> March 2015.
10. On receipt of M&V Report under PAT Cycle I along with Form Sh, Form A, Form B, Form I and Form II, ASDA had conducted meetings with individual DCs to check the authenticity and continuity of data of respective plants in presence of representatives of DCs at ASDA office by month of August 2015.
11. After verifying these data, ASDA submitted those to BEE in September 2015.

12. Received a letter from BEE on 16<sup>th</sup> February 2016 as a reminder of submission of Mandatory Energy Audit Report (MEA) and Form 2 under PAT Cycle I by designated consumers on or before 26<sup>th</sup> February 2016 and that was intimated to respective DCs through e-mail.
13. Received an e-mail from PATNET (PAT Cell under BEE) for non-cooperation and non-submission of relevant data from newly identified 2 DC under PAT Cycle II and the same was intimated to the respective plants on 8<sup>th</sup> April, 2016.

Sl. No.	Name of Designated Consumers	Report Card
1	Brahmaputra Valley Fertilizer Nampur-II	Very Good
2	Brahmaputra Valley Fertilizer Nampur-III	Good
3	Lakwa Thermal Power Station	Moderate
4	Namrup Thermal Power Station	<b>Poor</b>
5	North East Electrical Power Corporation Ltd.	<b>Poor</b>
6	Cachar Paper Mill (HPCL)	<b>Very Poor</b>
7	Nagaon Paper Mill (HPCL)	<b>Very Poor</b>

14. Assam SDA attended a Workshop at Shillong (i.e. organized by Meghalaya SDA) along with New Identified DCs from Assam for making better understanding on PAT Mechanism on May, 2016. During this Workshop, Assam SDA asked BEE to intimate the total number of DC along with DC's name, contact person name, address, contact number, baseline SEC (Specific Energy Consumption), Target SEC etc. under PAT Cycle II.
15. PAT Cycle I concluded in September 2015.

**III. Outcome of PAT Cycle I :\***

Sl. No.	Name of the DC	Baseline SEC	Target SEC	SEC Achieved	SEC Savings	Achievement
1	Brahmaputra Valley Fertilizer Nampur-II	1.689 TOE/T	1.487 TOE/T	1.2265 TOE/T	0.202 TOE/T	Target achieved
2	Brahmaputra Valley Fertilizer Nampur-III	1.154 TOE/T	1.016 TOE/T	0.8772 TOE/T	0.0994 TOE/T	Target achieved
3	North East Electrical Power Corporation Ltd.	2683 Kcal/kWh	2561 Kcal/kWh	2693.83 Kcal/kWh	-132.83 Kcal/kWh	<b>Target not achieved</b>
4	Lakwa Thermal Power Station	4279 Kcal/kWh	4237 Kcal/kWh	3220.8 Kcal/kWh	1016.2 Kcal/kWh	Target achieved
5	Namrup Thermal Power Station	3808 Kcal/kWh	3759 kcal/KWh	3847.88 Kcal/kWh	-88.88 Kcal/kWh	<b>Target not achieved</b>
6	Nagaon Paper Mill (HPCL)	1.037 TOE/T	0.966 TOE/T	1.35 TOE/T	-0.384 TOE/T	<b>Target not achieved</b>
7	Cachar Paper Mill (HPCL)	1.129 TOE/T	1.044 TOE/T	1.278 TOE/T	-0.234 TOE/T	<b>Target not achieved</b>

\*Prepared the report card based on M & V Report submitted by DCs to BEE and ASDA

**IV. Synopsis of PAT Cycle II**

- Based on M&V reports of the 434 DCs including 7 DCs of India Cement, baseline for PAT Cycle II have been established as per the norms and standards reached during the assessment year of PAT Cycle I (2014-2015).
- Targets for PAT Cycle II have been provided in accordance with the proposed amendment to Rule 3 (a & b) taking in to account following:

- *Timely submission of Energy Audit Report, FORM 2 & FORM 3 and data furnished in the said Energy Audit Report, said forms;*
  - *Average rate of reduction in specific energy consumption across all the designated consumers sectors;*
  - *Policy objectives of keeping the target of reducing the specific energy consumption a few percentage points above the average rate of reduction keeping in view the incentives through the issue of energy savings certificate to designated consumers who overachieve their targets in the target year.*
- Trend observed from the M&V reports and saving potential estimated in the MEA reports were considered along with the policy objectives.
- Saving potential analysis of cement and thermal power plant reported in MEA audit reports indicate a very low saving potential averaging 4.2-4.5 % in cement sector and 0.25% in coal based power plants.
- Sectoral technical committee of cement sector suggested that this may not be considered as one of the factors for calculating the targets.
- From the M&V reports the average rate of reduction in SEC across all the DC sectors were taken into consideration and it was found that the average rate of reduction is about 5.24% for PAT Cycle I.
- From the policy objectives drawn based on INDC commitments, an annual energy saving target of about 1.15% per year emerges.
- 3 different categories of DC sectors have been proposed for PAT Cycle II viz. Thermal Power Plant (involving energy conversion), global best sector (cement) and others.
- Further to incentivize at the sectoral level it is proposed that the top few DCs of the subsectors may either maintain their performance level i.e. 0% target or avail credit of equivalent over performance in the target of subsequent cycle.
- Targets for PAT Cycle II are as follows:
- Thermal Power Plant (2.60%)
  - Railways (2.4%)
  - Others 5.97%
  - Global best sector (5.5%)
- Overall target for all the sectors other than TPP is about 5.4% taking into account the credit given to over achiever.

Sr. No.	Sector	No. of DCs	Energy Consumption (MTOE)	Energy Savings (MTOE)
1	Thermal Power Plant	154	120.16	3.13
2	Cement	111	21.43	1.12
3	Aluminum	12	10.66	0.57
4	Chlor Alkali	24	1.77	0.101
5	Pulp & Paper	29	2.68	0.15
6	Iron & Steel	71	40.44	2.14
7	Textile	99	1.48	0.087
8	Fertilizer	37	8.25	0.446
9	Refinery	18	18.50	1.10
10	Railways	22	1.39	0.033
11	DISCOMs	44		
Total		621	226.76	8.869

- For PAT Cycle II, 448 DCs of PAT Cycle I and 173 New DCs including 89 DCs of PAT Cycle I Sectors has been included. Overall target for PAT Cycle II which covers 621 DCs is 8.8689 MTOE (the MTOE values exclude DISCOMS).

Sl. No.	Item	PAT Cycle I	PAT Cycle II		
		478 DCs	Existing DCs 478 Nos.	New DCs in Existing Sector	New DCs in New Sector
1	Data Reporting	Five Years (2005-10)	One Year (2014-15)	Three Years (2012-15)	Three Years (2012-15)
2	Baseline Year	Average of three years (2007-10)	One year (2014-15)	One year (2014-15)	One year (2014-15)
3	Pro-forma	Through Form I and Pro-forma	Through developed Form I and Pro-forma	Through developed Form I and Pro-forma	Pro-forma development under final stage through Form I and Pro-forma
4	Data Verification	Baseline Energy Audit	M&V	Baseline Data Verification through pro-forma	Baseline Data Verification through pro-forma
5	Data Fixation	Baseline Energy Audit In Assessment year	M&V with certain changes in Formulae of Product and Power mix in AY data	Baseline data Verification Report	Baseline data Verification Report



## Standards and Labeling (S&L)

The scheme was launched by the Hon'ble Union Minister of Power in May,2006, the Objectives of Standards & Labeling Program is to provide the consumer an informed choice about the energy saving and thereby the cost saving potential of the marketed household and other equipment. This is expected to impact the energy savings in the medium and long run while at the same time it will position domestic industry to compete in such markets where norms for energy efficiency are mandatory.

Presently only the distribution transformer manufacturers in the State have been informed about the BEE's S & L program which has become mandatory since 7th January 2010 and have been advised to take steps accordingly.

## State Energy Conservation Fund (SECF)

As required under Section 16(1) of the Energy Conservation Act, the Government of Assam created a fund called "Assam State Energy Conservation Fund" and opened an account in the State Bank of India, Dispur branch, Guwahati. The rule called "Assam State Energy Conservation Fund Rules, 2010" 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 is also framed.

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. A certain amount of fund has already been utilized for demonstration Project in Tea Estates and amendment of Energy Conservation Building Code (ECBC).

As on date ASDA received 4 crore from Bureau of Energy Efficiency under State Energy Conservation Fund and State Government contributed 1 crore 15 lacs 26 thousand only.

## Policy Level initiatives by State

### Notifications issued by State Government for Energy Efficiency

The Govt. of Assam issued Notification on 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, namely :-

1. Mandatory use of Energy Efficient lamps and appliances in Government buildings/Institutions/Boards/Corporations.
  1. Use of incandescent lamps in all new government buildings/ institutions/Boards/Corporations/Autonomous bodies is banned with immediate effect. In existing buildings, defective ~~in~~ 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 effect 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 provisions of 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 1000sq. 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, Power(Elect.) etc. Deptt.  
Dispur, Guwahati-781006.

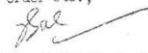
Contd....2/-

- 2 -

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.

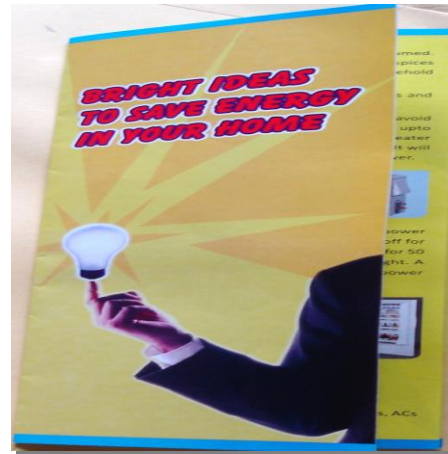
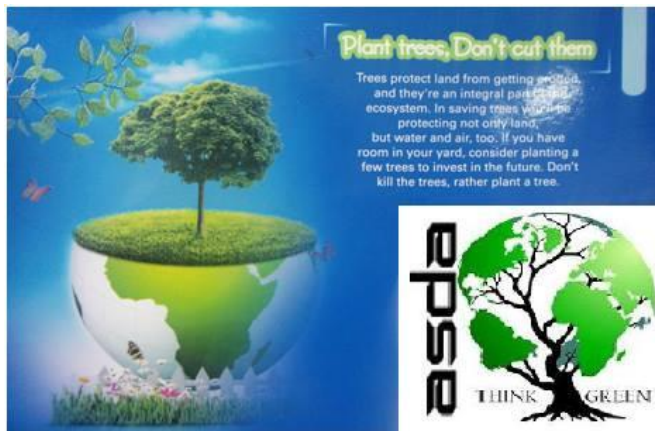
By Order etc.,

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

\*\*\*\*

# Screen shot of Some Activities undertaken by ASDA

Some of the Promotional Materials released by SDA, Assam





## Promotional Banner

**“বিদ্যুৎ শক্তি সঞ্চয় কৰক ৰাষ্ট্ৰৰ প্ৰগতিত সহায় কৰক”**

কেবল প্ৰয়োজনতহে বিদ্যুৎ ব্যৱহাৰ কৰক। বিদ্যুৎ অপচয় নকৰিব। ব্যৱহাৰ হোৱাৰ পিছত চুইচ বন্ধ কৰক।

বৈদ্যুতিক সা-সৰঞ্জাম কাম হোৱাৰ পিছতেই প্লাগৰ পৰা খুলি থওক।

সাধাৰণ বাল্বৰ সলনি চি,এফ,এল (কম্প্যাক্ট ফ্লোৰোসেণ্ট লেম্পচ) ব্যৱহাৰ কৰক।

বুদ্ধিৰে ব্যৱহাৰ কৰক বিদ্যুৎ শক্তি। শক্তিৰ লগতে ধনো ৰাখি কৰক।

**“অপচয়ে আনে অন্ধকাৰ সঞ্চয়ে নিশ্চিত কৰে অবিৰত বিদ্যুৎ যোগান”**

মুখ্য বিদ্যুৎ পৰিদৰ্শক তথা উপদেষ্টা,  
অসম চৰকাৰ, পূব শৰণীয়া পথ, তথাহাটী-৭৮১০০৩  
(শক্তি সংৰক্ষণ আইন, ২০০১ৰ অধীনত আৰ্থিক ডেভেলপমেণ্ট এজেন্সি)

**তৰাচিহ্নিত বিইই ৰ লেবেল  
চাই বৈদ্যুতিক সামগ্ৰী ক্ৰয় কৰক**

**বিইইৰ তৰাচিহ্নিত  
সঞ্চয়সূচক লেবেল বিশ্লেষণ :**

বঙা অংশৰ অধিকতৰাই  
অধিক সঞ্চয়ক বুজায়

বাৰ্ষিক বিদ্যুৎ ব্যয়ৰ পৰিমাণ

বৈদ্যুতিক সামগ্ৰীৰ বিৱৰণ

প্ৰস্তুতকাৰকৰ নাম আৰু  
মডেলৰ বিতং বিৱৰণ

বিদ্যুতৰ অপচয়  
ৰোধ কৰক

অধিক তৰা অধিক সঞ্চয়

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

**তৰাচিহ্নিত বিইইৰ লেবেল চাই বৈদ্যুতিক সামগ্ৰী ক্ৰয় কৰক**

**অধিক তৰা অধিক সঞ্চয়**

বিইইৰ তৰাচিহ্নিত  
সঞ্চয়সূচক লেবেল বিশ্লেষণ :

বঙা অংশৰ অধিক তৰাই  
অধিক সঞ্চয়ক বুজায়

বাৰ্ষিক বিদ্যুৎ ব্যয়ৰ পৰিমাণ

বৈদ্যুতিক সামগ্ৰীৰ বিৱৰণ

প্ৰস্তুতকাৰকৰ নাম আৰু  
মডেলৰ বিতং বিৱৰণ

অধিক তৰা অধিক সঞ্চয়

**বিদ্যুৎ শক্তিৰ অপচয় ৰোধ কৰক,  
আৰ্থিক স্বচ্ছলতা সবল কৰক।**

**বিদ্যুৎ শক্তিৰ অপচয় ৰোধ কৰক,  
ৰাষ্ট্ৰৰ অৰ্থনীতি সবল কৰক।**

**বিদ্যুৎ শক্তিৰ সংৰক্ষণ কৰক,  
বিদ্যুৎ যোগান সুনিশ্চিত কৰক।**

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

**বৈদ্যুতিক সামগ্ৰী ক্ৰয় কৰোতে তৰাচিহ্নিত  
বিইই (BEE)ৰ লেবেল চাই লব**

অধিক তৰা, অধিক সঞ্চয়

**শক্তি সঞ্চয় সূচক  
লেবেলৰ বিশ্লেষণ :**

- বঙা অংশত থকা তৰাচিহ্নই বেফিছাৰেটৰ বা এ চিটোৰ 'তুলনামূলক শক্তি সঞ্চয়ৰ মান বুজায়।
- সকলো এ চিৰ কমেও এটা তৰাচিহ্নিত শক্তি সঞ্চয়সূচক থাকিব লাগিব। 'পাঁচ তৰাকায়ুক্ত' এ চিটোৰ কৰ্মক্ষমতা বা দক্ষতা আটাইতকৈ বেছি আৰু ই উপভোক্তাৰ বাবে আটাইতকৈ বেছি বিদ্যুৎ শক্তি সংৰক্ষণ কৰিব।
- ডাঙৰ কোঠাৰ বাবে অধিক শীতল / ঠাণ্ডা কৰিব পৰা এ চিৰ প্ৰয়োজন।
- এই লেবেলত থকা তথ্যসমূহ উৎপাদনত ব্যৱহাৰ হোৱা প্ৰযুক্তি বিদ্যাৰ ওপৰত নিৰ্ভৰশীল।
- যদি এটা এক তৰাচিহ্নিত এ চিৰ বাৰ্ষিক বিদ্যুৎ ব্যয়ৰ বিল ৮,৫০০ টকা হয়, তেনে ক্ষেত্ৰত পাঁচ তৰাচিহ্নিত এটা এ চিৰ ব্যৱহাৰে আপোনাৰ ব্যয়ৰ পৰা বছৰি ২,১০০ টকা পৰ্যায় বাহি কৰিব পাৰে।
- পাঁচটা তৰাচিহ্নিত এ চি আপোনাৰ আৰু আপোনাৰ পাৰ্শ্বিকতাৰ 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 বিৱৰণ
- অধিক তৰাচিহ্ন, অধিক শক্তি মিতব্যয়ী।

বিদ্যুৎ শক্তিৰ সংৰক্ষণ কৰক  
আপোনাৰ সঞ্চয় সুবৰ্দ্ধিত কৰক

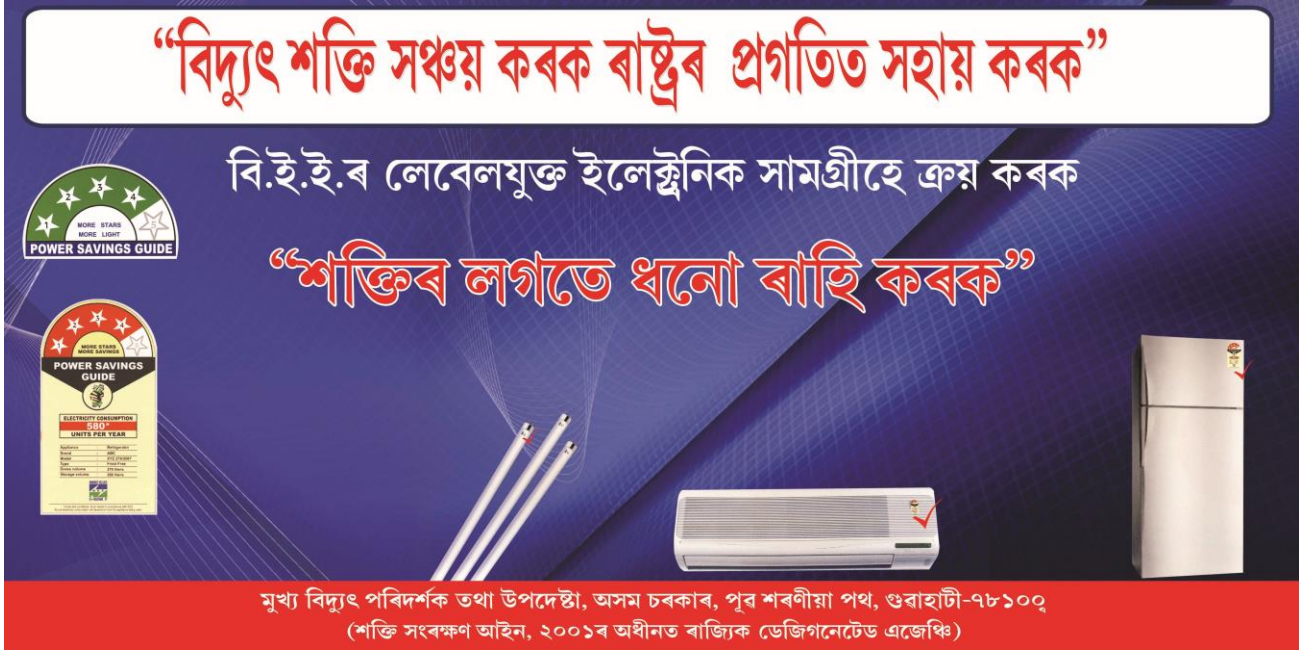
Published by the Chief Electrical Inspector-cum-Adviser, Govt. of Assam  
(State Designated Agency under Energy Conservation Act, 2001)  
www.bee-india.nic.in www.asda.gov.in

Promotional Hoarding

**“বিদ্যুৎ শক্তি সঞ্চয় কৰক বাস্তৱ প্ৰগতিত সহায় কৰক”**

বি.ই.ই.ৰ লেবেলযুক্ত ইলেক্ট্ৰনিক সামগ্ৰীহে ক্ৰয় কৰক

**“শক্তিৰ লগতে ধনো বাহি কৰক”**



মুখ্য বিদ্যুৎ পৰিদৰ্শক তথা উপদেষ্টা, অসম চৰকাৰ, পূব শৰণীয়া পথ, গুৱাহাটী-৭৮১০০  
(শক্তি সংৰক্ষণ আইন, ২০০১ৰ অধীনত ৰাজ্যিক ডেজিগনেটেড এজেন্সি)



**Demo project on LED street lighting at Dibrugarh town**



**Traffic point at Phulbagan,  
Dibrugarh**



### BEE's Nationwide LED Village Campaign Scheme



A view of the gathering at Makumpathar No.4 village



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



### Visible Effects of the efforts of SDA, Assam

Though the Energy Conservation Act is in the just past 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 are using LEDs**



## Annual Year Book of Assam

### List of Certified Energy Auditors and Energy Managers in the State (As per survey conducted by NPC)

#### Energy Auditors:

Name	Year of Certification	Regd. No.	Present Address for communication	Job description/ Organization Name & Address	Contact No./ e-mail
Aryind Kumar	2005	EA-2509	EMA- 22 Erector Hostel CPM Unit H.P,C Limited Pentagram 788802 Assam	H.P,C Limited Pentagram 788802 Assam	arvind251972@yahoo.com
Gapal Karmakar	2005	EA-2567	Assam Gas Based Plant Bokuloni Chariali, Dibrugarh 786191	North Eastern Electric Power Corp, Assam Gas Based Plant Bokuloni Chariali Dibrugarh 786191 Assam	gopal_kama@rediffmail.com
Jasbir Singh Dadihala	2005	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	2005	EA-1344	Mechanical Engineering Department Jorhat Engineering College , Jorhat Pin 785007	Lecture Mechanical Engineering Department Jorhat Engineering College , Jorhat, Pin 785007	09854530883 (M) debakt@yahoo.com
Kishore Deka	2005	EA-2800	Care: Manju Stores AIDC RG, Baruah Road, Guwahati Pin 781024 Assam	Oil India Limited, Duliajan, Pin 786602, Assam	919864108062 (M) dekakishore@rediffmail.com
Ravind Graoyal	2006	EA-4183	404Daula Atpartment Nabian Nagar Near Modern School, Zoo Road, Guwahati- 781024		
Suman Ghorai	2006	EA-5264	A302, Swapnalaly Ats. Narikol Bari Zoo Nareng Road , Guwahati-781 024		
Situsina Haionag	2006	EA-2817	Bunglow No.470C old No.1361 Office's Colonv, Nambari Maligaon, Guwahati- 781 011		shajong@yahoo.com
Durgeswar Roy	2006	EA-3516	P&U Department Digboi Refinery IOC(AOD) Digboi, Pin 786171, Assam	Indian Oil Corporation limited Digboi, Pin 786171, Assam	919435137827 (M) royd@iocl.co.in
Om Prasad Chetry	2006	EA-3517	P&U Department Digboi, Refinery	Digboi, Refinery IOC(AOD)	chetry_op@iocl.co.in

Name	Year of Certification	Regd. No.	Present Address for communication	Job description/ Organization Name & Address	Contact No./ e-mail
			IOC(AOD), Digboi 786171Assam	Digboi 786171Assam	
Phanindra Ch. Sharma	2007	EA-3337	49 Pub Sarania, Rajgarh Road, By Lane No.11, Guwahati-781 003		
Tapan Mahanta	2007	EA-4154	Gobinda kutir,chandmari, krishna nagar, Guwahati-781 003	ASEB, Bijulee Bhawan, Guwahati, Pin 781001, Assam	919864047060 (M) tapan_maha@yahoo.co.in
Khanindra Talukdar	2007	EA-5846	House-8, 5 th Bye Lane- , Gandhibasti, Guwahati-781 003	Nodal Office, APDRP ASEB, Paltan bazaar, Guwahati	
Jagadish Chandra Das	2007	EA-6020	Power And Utilities Department Indian Oil Corporation ( Assam oil division), Digboi-786 171	Indian Oil Corporation ( Assam oil division) Digboi-786 171	
Rajdeep Baruah	2006	EA-2654	House No.40 Krishna Nagar, Satribari, Guwahati-781 001		rajdeepbaruah@rediffmail.com
Sabyasachi Dhar	2006	EA-0869	Deputy Director Bureau of Indian Standards,5th Bye Land, Apurba Sinha Path, R.G. Baruah road, Guwahati-781003	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	2006	EA-4745	Chief Engineer All India Radio & Doordarshan North East Zone, Dr. P. Kakati;s, Near Ganeshguri Flyover, G.S. Road, Guwahati 781 006	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-	2006	EA-0460	39, Hemgiri Road, South Sarania.Guwahati-781 007	IIT Guwahati North Guwahati Guwahati 781039,	0361-2582063 09954497741 agoswami@iitg.ernet.in
Mrinmoy Baruah	2006	EA-3511	221B GNB Nagar Gauhati University, Jalukbari, Guwahati-781 014		anadditya@rediffmail.com
Deba Prasad Hazarika	2006	EA-3674	Arya Nagar College Road Guwahati-781 016	NF Railways Diesel Loco Shed New Guwahati Bamunimaidan, Guwahati Pin 781021 Assam	919864092040 (M) debaprasad_Hazarika@yahoo.com
Hari Krishna Bhimavarapur	2006	EA-4104	Q.No2375, Sector – 2, Noonmati, Guwahati-781 020		
Shankhaneel Borah	2006	EA-4696	Guwahati Refinery Indian Oil Noonmati, Guwahati-781 020	Guwahati Refinery Indian Oil Noonmati, Guwahati-781 020	
Jerold R	2006	EA-5158	Guwahati Refinery Indian Oil,RNo.315,Administrative, Noonmati Building,	Guwahati Refinery Indian Oil,RNo.315,Administrative, Noonmati Building,	

Name	Year of Certification	Regd. No.	Present Address for communication	Job description/ Organization Name & Address	Contact No./ e-mail
			Guwahati-781 020	Guwahati-781 020	
Baljeet Singh	2006	EA-6172	Qtr.No,2373 Sector-2, G.R Township Noonmati, Guwahati-781 020	Guwahati Refinery, Noonmati Guwahati 781020	
Manas Kumar Banerjee	2007	EA-6611	2404, Sector-2, Refinery Township Noonmati, Guwahati- 781 020	Guwahati Refinery, Noonmati Guwahati 781020	
Sandeep Mehta	2006	5947	CPWD, Bamuni Maidan, Guwahati-871 021	CPWD, Bamuni Maidan, Guwahati-871 021	
Jyoti Prakash Jena	2007	EA-6631	Guwahati Central Electrical Circle, Nirman Bhawan, Bamunimaidan, Guwahati-781 021	Central Electrical Circle, Nirman Bhawan, Bamunimaidan, Guwahati-781 021	
Devajit Bhuyan	2004	EA-2143	Flat No.201/a Tenement Apts. , Udaypath Zoo Road , Guwahati-781 024		pcra_guwahati@sify.com
Bijay Kumar Dash	2005	EA-3488	HPC Township Otr.No.C-6/3 Jagi Road, Kagajnar-782413	HPC, Jagi Road, Kagajnar-782413	buijayshalini@sify.com
Khanindra Talukdaar	2007	EA-5846	House no. 8 Bylene 5 Gandhi Basti, Guwahati, Pin 781003	Office of Nodal Officer APDRP Cell, Bijulee Bhawan ASEB, Paltan Bazar Guwahati Assam	0361-2662649 (O) 919435124503 (M) ktbasti@yahoo.co.in
Krishanu Dutta	2006	EA-5826	Qr.No.B-73/3 HPC Colony Jagi Road, P.O.Kagajnar-782413	HPC, Jagi Road P.O.Kagajnar-782413	
Samirbaran Das	2005	EA-2131	Dy. Manager TPM 465D, BRPL Township, Dhaligaron Bongaigaon	Dy. Manager TPM 465D, BRPL	
Pramod A Sathvaseelan	2006	EA-5506	G-8, Gail Township P.O. Lakshmi Nagar		
Ranieet Prasad	2006	EA-6018	Process Engineer Technical Service Department IOC(AOD) DIGBOI-786 171	IOC(AOD) DIGBOI-786 171	
Kamaljit Medhi	2006	EA-6019	Indian Oil Corpn L.td. IOC(AOD) DIGBOI-786 171	Indian Oil Corpn L.td. IOC(AOD) DIGBOI-786 171	
Saurav Gupta	2007	EA-8290	SPNE-HDTU HDT CONTROL ROOM – Digboi Refinery IOC(AOD) DIGBOI-786 171	Digboi Refinery IOC(AOD) DIGBOI-786 171	
Arindam Bhattacharyya	2004	EA-0355	Electrical Dptt. Oil India Limited Dist. Dibrugarh, Duliajan-786602	Electrical Dptt. Oil India Limited, Dist. Dibrugarh	arindam@oil.asm.nic.in

Name	Year of Certification	Regd. No.	Present Address for communication	Job description/ Organization Name & Address	Contact No./ e-mail
				Duliajan-786602	
Ashim Kumar Brharali	2006	EA-0356	Electrical Deptt Oil India Limited Dist. Dibrugarh, Duliajan-786602	Oil India Limited Dist. Dibrugarh Duliajan-786602	919435038413 (M) ashimbharali@oilindia.in <a href="mailto:ashim_bharali@yahoo.com">ashim_bharali@yahoo.com</a>
Dilip Kumar Baral	2006	EA-2931	C/o.Sh Pintu Paul, Prabasini Complex, 2nd, Floor G.C. College Road, Silchar-788004		Dkbaral_29@yahoo.com
Om Prakash Misra	2005	EA-0536	Hindustan Paper Corporation Limited, Cachar Paper Mill, Panchgram, Hailakandi-788 802	Hindustan Paper Corporation Limited, Cachar Paper Mill, Panchgram, Hailakandi-788 802	
Ashok Kumar Roy	2005	EA-3489	Cachar Paper Mill, Panchgram Hailakandi-788 802	(Utility) Cachar Paper Mill, Panchgram, Hailakandi-788 802	akmpm@yahoo.com
Rajeevan K.	2006	EA- 2727	S.P.E. Electronics Electrical P MC, HPC,CPM, Panchgram Hailakandi-788 802	S.P.E. Electronics Electrical P MC, HPC,CPM, Panchgram Hailakandi-788 802	
Ram Surat Singh	2007	EA-8416	DEE/DBWS NF Railway Mechanical Workshop, K.C Gogoi Path, Dibrugarh, Pin 786001, Assam	DEE/DBWS, NF Railway Mechanical Workshop, K.C Gogoi Path, Dibrugarh, Pin 786001, Assam	9194035130803 (M) sirghrsea@rediffmail.com
Debajit Das	2007	EA-5855	National Productivity Council Rajgarh road, Minakshi Bhawan, 2 <sup>nd</sup> floor, Guwahati-781 007	Sr. Consultant NPC Rajgarh road, Minakshi Bhawan, 2 <sup>nd</sup> floor, Guwahati-781 007	
Satyendra Narah Sing	2007	EA-1515	Electrical Deptt., Oil India Ltd., Duliajan, Dibrugarh-786602	Electrical Deptt., Oil India Ltd., Duliajan, Dibrugarh-786602	satyendra@oilindia.in
Altaf Hussain	2015	EA- 8694	ERIC Energy, Bamunimaidan, Ghy- 21, Assam	ERIC Energy, Bamunimaidan, Ghy- 21, Assam	Eric.energy16@gmail.com

## Energy Managers

Name	Year of Certification	Regd. No.	Present Address for Communication	Job, Job Description/ Organization Name & address	Contact No./e-mail
Prabir Kumar Dey	2004	EM-0042	Bongaigaon Thermal Power Station Salakati-783369 Assam	Bongaigaon Thermal Power Station Salakati-783369 Assam	pxdey@sanchamet.in
Raiendra Kumar Jha	2004	EM-0056	Bongaigaon Refinery & Petrochemical Limited P.O. Dhaligaon Dist. Bongaigaon Pin 783385	BRPL P.O. Dhaligaon Dist. Bongaigaon Pin 783385 Assam.	03664-253448 (O) 919435482488 (M) rkijhaji@hotmail.com
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Ajit Kumar Maiti	2004	EM-0423	TS 2 nd floor ADM Building NRL Golaghat -785699 Assam	NRL Golaghat Pin 785699 Assam	ajit.k.maite@nrl.co.in
Indrajit Kumar	2004	EM-0051	Otr.No.CT316 BRPL Township P.O. Dhaligaon Bongaigaon - 783385 Assam	Bongaigaon Refinery & Petrochemical limited, P.O. Dhaligaon Bongaigaon Pin 783385 Assam	krinrahit@radiffmail.com
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Nripen Kr. Bhattacharyya	2004	EM-0426	Numaligarh Refinery Ltd. P.O,NR Complex Golaghat - 785699	Numaligarh Refinery Ltd Golaghat - 785699	nripen.k.bhattacharjee@nrl.co.in
Ritooraj Sharma		EM-0809	Bamunimaidan, Ananda Nagar, Guwahati - 781 021		
Kishore Kumar Sarma	2004	EM-0055	Qr.No.175A BRPL Township Dhaligaon -783385 Assam	Bongaigaon Refinery & Petrochemical limited, P.O. Dhaligaon Bongaigaon Pin 783385 Assam	kk_sarma2@rediffmail.com
Swapnabrata Lahkar	2004	EM-0630	Tech. Services Deptt. Indian Oil Corporation Limited Digboi Pin 786171	Indian Oil Corporation Limited Digboi, Pin 786171, Assam	lahkarsb@iocl.co.in
Nur Alam	2005	EM-0310	Vill.Jogighopa P.O.Jogighopa Dist. Bongaigaon PIN.783382 Assam	Sr. Project Manager Simplex Infrastructures Limited	09979864785 jan_jury@yahoo.co.in
Banajvoti Sarma Kaushik	2005	EM-0996	CPP Control Room Numaligarh Refinery Limited Golaghat 785699	Numaligarh Refinery Limited Golaghat 785699	bs.kaushik@nrl.co.in
Kishore Kumar	2005	EM-0997	Dey Central Control Room Numaligarh Refinery Limited Golaghat 785699	Numaligarh Refinery Limited Golaghat 785699	kishorekdey@yahoo.co.in
Biju Sebastian		EM-1764	Cement Corporation of India P.O. Bokajan Karbi Anglong Diphu-782493	Cement Corporation of India P.O. Bokajan Karbi Anglong Diphu-782493	
Rajib Kumar Sarmah	2006	EM-0998	Numaligarh Refinery Limited Golaghat 785699 Assam	Electric Maintenance Department Numaligarh Refinery Limited Golaghat 785699, Assam	
Debabrata Nath	2006	EM-1475	Arya Nagar Pankagrnt Post, Numaligarh Refinery Complex Dist. Golaghat 785699	Numaligarh Refinery Complex Dist. Golaghat 785699	debabrata.nath@yahoo.co.in

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**II. Assam Energy Development Agency**

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Phone : 094351-30659

**IV. Bonti Consultancy Services.**

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**V. ERIC Energy.**

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Phone: 09132569439

## Monthly Energy Consumption



# SPOT LIGHT

### 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.

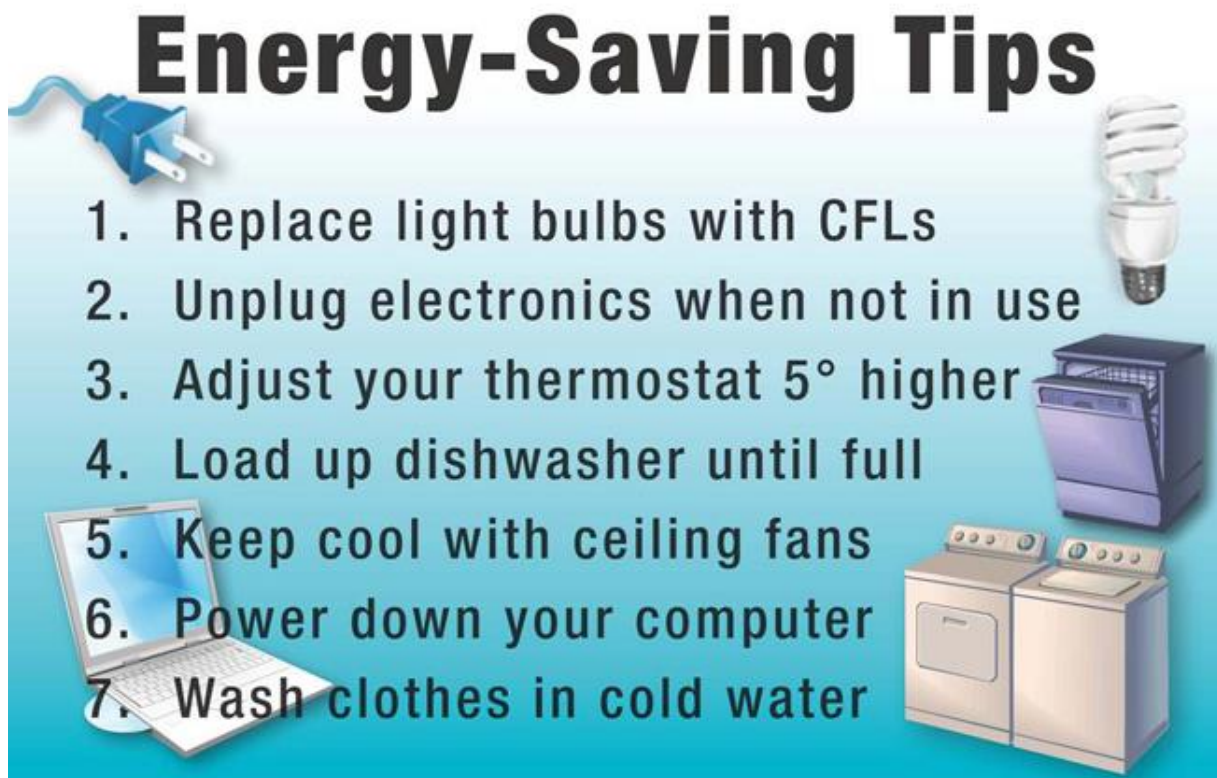
#### **Refrigerators :**

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.



## Energy-Saving Tips

1. Replace light bulbs with CFLs
2. Unplug electronics when not in use
3. Adjust your thermostat 5° higher
4. Load up dishwasher until full
5. Keep cool with ceiling fans
6. Power down your computer
7. Wash clothes in cold water

## Power Consumption by Electrical appliances in day to day use:

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 ( <i>Ordinary Choke</i> )	52	2	3	6	9	12	16	19
TUBE LIGHT ( <i>Electronic Choke</i> )	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 <i>in minutes</i> 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 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.)*

## Snap Shot of SDA Assam's Web Page

www.asda.gov.in/gallery.htm


Crack the creativity

Tuesday, 26 Jul 2016

**asda.**

**ASSAM STATE  
DESIGNATED AGENCY**  
Under Energy Conservation Act, 2001


- About Us
- Works Initiated
- EC
- Annual report
- Designated Agencies
- Energy Auditors
- Notifications
- Consumption Pattern
- Useful Downloads
- Acts
- Standards & Labelling
- EM & EA Deatils
- List of Installations
- Tenders
- Photo Gallery



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**P**hoto gallery

Group photo with participants in essay competition 2008



National workshop at Guwahati on 17th & 18th Oct 2008




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**asda.**

**ASSAM STATE  
DESIGNATED AGENCY**  
Under Energy Conservation Act, 2001

- About Us
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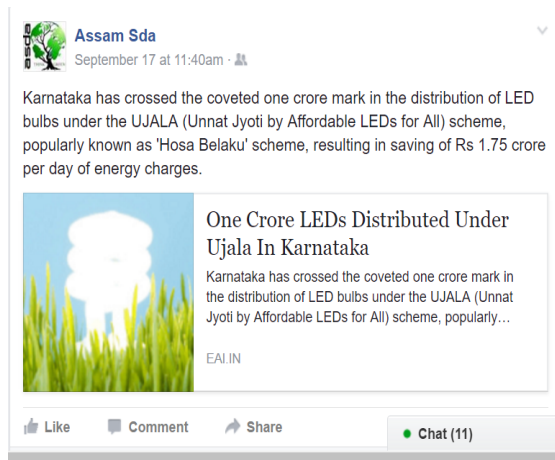
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## Publicity and Awareness Program on Energy Conservation by SDA Assam

The effort is aimed at accelerating the implementation of ongoing Publicity and Awareness Program through online Social outreach using dedicated page in Facebook & LinkedIn social media platform. The online activities have just started and following are the few snap shots.



### Brightness

	220+	400+	700+	900+	1300+
 <b>Halogen</b>	18W	28W	42W	53W	70W
 <b>LED</b>	4W	6W	10W	13W	18W
 <b>CFL</b>	6W	9W	12W	15W	20W
 <b>Standard</b>	25W	40W	60W	75W	100W

### Published by:

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