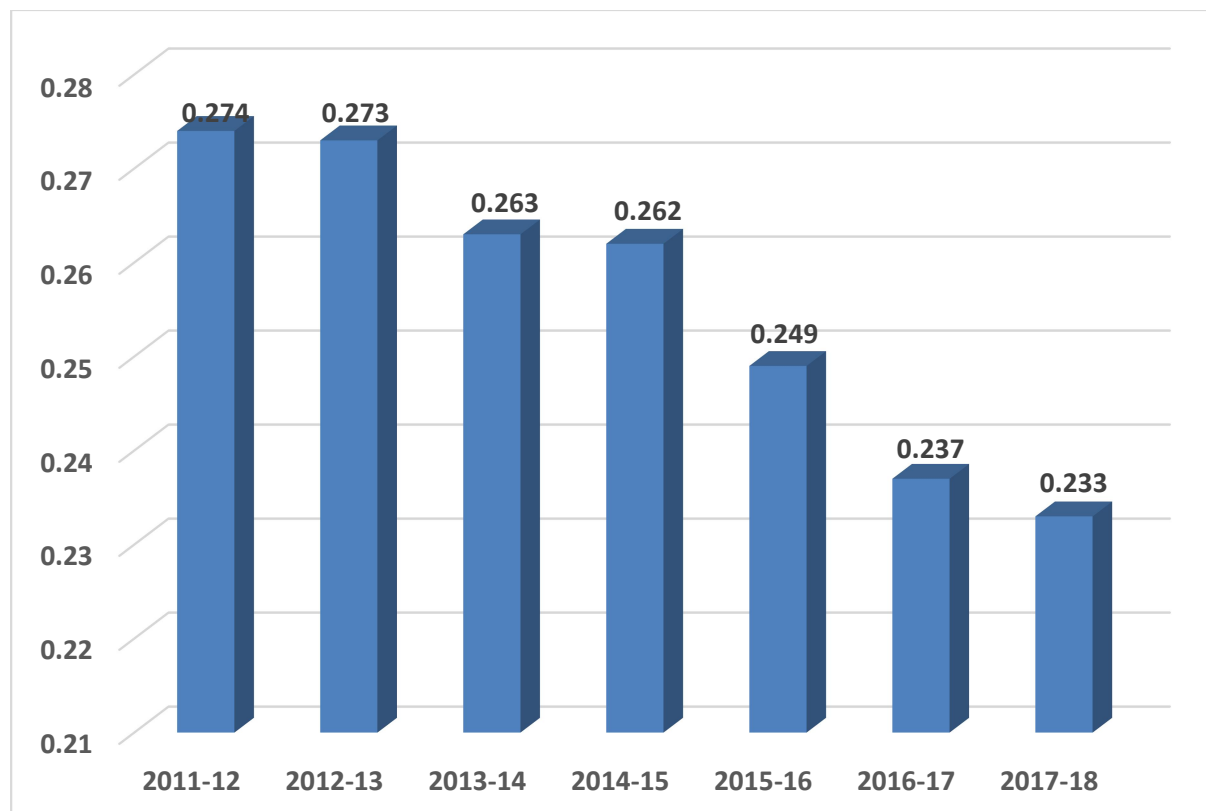


ENERGY CONSERVATION

With the GDP expected to grow at around 8%, if energy consumption in India were to continue along current lines, it could lead to a growing imbalance between supply and demand. The gap between supply and demand can be fulfilled by either increasing generation or by enhancing the efficiency of energy usage. Enhancing energy efficiency provides an attractive solution for meeting the ever-rising demand without sacrificing the greater goal of high growth. India has committed itself to reduce the emission intensity of its GDP by 33 to 35% from 2005 level. Reducing energy intensity of GDP by achieving higher energy efficiency levels in both demand as well as supply side, is the key to achieve India's NDC targets by 2030 under the Paris Agreement.

Owing to the various energy efficiency measures taken so far, energy intensity of the country has declined from 0.273 mega joule per INR in 2012-13 to 0.233 mega joule per INR in 2017-18 indicating an efficiency increase of 15%. This will have direct impact on reduction of emissions intensity which is aimed at 33-35% reduction by 2030 under Paris commitment. The energy efficiency will contribute in achieving upto 56% of this target.

Energy Intensity of India at 2011-12 prices in Mega Joule / rupee



Source: Energy Statistics 2019

India has assumed leadership role in promotion of energy efficiency and conservation towards addressing global issue of climate change. Government of India has undertaken a two-pronged approach to cater to the energy demand of its citizens while ensuring minimum growth in CO₂ emissions, so that the global emissions do not lead to irreversible damage to the ecosystem. In

the generation side, the Government is promoting greater use of renewable in the energy mix mainly through solar and wind and at the same time shifting towards supercritical technologies for coal based power plants. Efforts are also being made to efficiently use energy in the demand side through various innovative policy measures under the overall ambit of Energy Conservation Act 2001 (EC Act).

EC Act was enacted in 2001 with the goal of reducing energy intensity of Indian economy. Bureau of Energy Efficiency (BEE) was set up as a statutory body on 1st March 2002 at the central level to facilitate the implementation of the EC Act. The Act provides regulatory mandate for: standards & labeling of equipment and appliances; energy conservation building codes for commercial buildings; and energy consumption norms for energy intensive industries.

PROMOTING ENERGY EFFICIENCY IN BUILDINGS

Building sector represents about 32% of electricity consumption in India, with commercial sector and residential sector accounting for 8% and 24% respectively. ECBC-compliant buildings can use 40% to 50% less energy than conventional buildings. It is estimated that the nationwide mandatory enforcement of the ECBC will yield annual savings of approximately 1.7 billion kWh.

ECBC was developed as a first step towards promoting energy efficiency in the building sector. While taking into account different climate zones, the Code also addresses site orientation and specifies better design practices and technologies that can reduce energy consumption without sacrificing comfort and productivity of the occupants. The updated code has defined three levels of energy performance standards. In ascending order of efficiency these are ECBC Building, ECBC+ Building and Super ECBC Building.

The Code is applicable to buildings or building complexes that have a connected load of 100 kW or greater or a contract demand of 120 kVA or greater and are intended to be used for commercial purposes. The Scope can be made stringent at state level.

ECBC has been developed by BEE, its enforcement lies with the State governments and urban local bodies. 13 States and 2 UTs having already notified ECBC.

Considering the utilization of Energy in residential building sector, Ministry of Power has launched **EcoNiwas Samhita** 2018 in December 2018, which prescribed the minimum energy performance through energy efficient envelop design for residential building. The Eco Niwas Samhita (Part I: Building Envelope) sets minimum building envelope performance standards to limit heat gains (for cooling dominated climates) and to limit heat loss (for heating dominated climates), as well as for ensuring adequate natural ventilation and daylighting potential. The code is applicable to all residential buildings and residential parts of 'mixed land-use projects', both built on a plot area of 500 m² or greater. However, states and municipal bodies may reduce the plot area based on the prevalence in their area of jurisdiction.

Energy Efficiency Label for residential Buildings was launched on 26th February, 2019 by MoP. The objective of this program is to provide information to consumers on energy efficiency standard of the homes, benchmark to compare one home over the other on the energy

efficiency standards & steering the construction activities of India towards international best practices norms



Energy efficiency in existing buildings is also a key thrust area of the Government of India, and the voluntary scheme for star rating of commercial buildings was developed with an aim to create a market pull for energy efficient buildings. Currently the scheme is applicable to 4 categories of buildings i.e. Day use Office buildings, Shopping Malls, BPOs and Hospitals.

Achievements

- The Energy Conservation Building Code is notified in the following thirteen States and two Union Territory: Assam, Rajasthan, Odisha, Punjab, Andhra Pradesh, Telangana, Karnataka, Kerala, Uttarakhand, Haryana, West Bengal, Uttar Pradesh, Himachal Pradesh, Andaman & Nicobar Island, UT of Puducherry.
- 24 Nos. ECBC Cells have been established covering 28 States & 8 UTs under the institutional framework & capacity building on ECBC implementation in States/UTs.
- A Memorandum of Understanding (MoU) is signed between Bureau of Energy Efficiency (BEE) and Central Public Works Department (CPWD) for “Energy Efficiency in CPWD managed Buildings”.
- For monitoring of energy consumption pattern of all new and existing buildings, EMIS (Energy Management Information System) portal is developed. Pilot with Telangana and Maharashtra states is in process.
- In 2019, 110 buildings have been provided with technical assistance for ECBC compliance to achieve energy efficiency in building design.
- “Energy Efficiency Label for Residential Buildings” launched by Hon’ble Minister of State (IC) for Power and Renewable during the conference of Ministers for Power, New & Renewable Energy of States & Union Territories held at Gurugram, Haryana on 26th February, 2019.

- International Conference (ANGAN) on Building Energy Efficiency was held in Delhi during 9th to 11th September, 2019. Over 800 participants, 100 International Delegates from 15 countries participated.
- Knowledge Exchange Programs conducted in Germany & Australia. Over 40 Central & State Govt. officials participated from around 25 organizations.

Fuel Efficiency in Transport Sector

Vehicle population in India growing continuously. In FY 2016-17, more than 2.5 Crores vehicles were manufactured as per SIAM data. This production includes all types of Vehicles. A majority of the vehicle produced are fuelled by fossil fuels which is further translated to increasing trend of Fossil fuel consumption in India. Continuous rise in demand for Diesel, Petrol and other fuels causing hurdle in achieving target of 10% Crude oil import reduction as set by the Government of India. Government is pushing the E-mobility and Bio-fuel powered vehicles to reduce demand for petroleum products in transport sector. One of the measures taken by the government is to introduce Fuel Efficiency Norms for Vehicles manufactured or imported in India. Previously Fuel Economy norms for Cars and Heavy-Duty Vehicles was notified by Ministry of Power in consultation with BEE. Norms for rest of the category is also under development.

Corporate Average Fuel Economy Norms for Passenger Cars:

Fuel Economy norms for M1 category of vehicles (having GVW 3.5 tonnes and/or below) was notified vide S.O. 1072 (E) in 2015. The first phase of the norms implemented on 1st April 2017 while the second phase of the norms will be implemented in 2022.

The norms for second phase was derived on the average weight of 1145 kg in assumed for 2022, and requires the average fuel consumption to be less than 4.77 ltr/100km at this average weight. These equations as per the norms for the second phase are under revision of the Committee in order to revise the value of the average weight and to derive the target fuel consumption value.

Carbon Trading Mechanism for Car Manufacturers:

In addition to the revision of the phase-II norms, BEE is also working to develop trading mechanism for Vehicle Manufacturers to promote the fuel efficiency of the vehicles and to penalise the non-achievers. This scheme may be merged with the PAT scheme of BEE or may be exclusively for the transport sector only.

Constant Speed Fuel Consumption (CSFC) norms for Light & Medium Commercial Vehicles:

The development of Fuel Economy norms for Light & Medium Commercial vehicles of Gross vehicle weight ranging from 3.5 tonnes to 12 tonnes has been completed and notified on 16th July 2019 vide S.O. 2540 (E). The norms are applicable to the Vehicles of M2, M3 & N2 category of vehicles having Gross Vehicle Weight (GVW) ranging between 3.5 tonnes and 12 tonnes both inclusive.

The vehicle having GVW 3.5 tonnes to 7.5 tonnes will be tested at constant speed of 50 kmph while the vehicles having GVW 7.5 tonnes to 12 tonnes will be tested on two speeds i.e 40

kmph and 60 kmph. The vehicles fuel consumption per 100 kms should be lower than the value obtained from the target equation for the corresponding GVW.

The first phase of norms will be implemented from 1st April 2020. The fuel saving of 0.06 MMT in a year and cumulative 0.25 MMT fuel saving in 3 years is anticipated by implementation of these norms.

Other initiatives in Fuel Efficiency in Transport Sector:

Development of Star Labelling for Agricultural tractors is also under process. For tyres standard and labelling programme has been initiated also. Voluntary phase of both the programmes are expected to be launched soon.

STANDARDS AND LABELING SCHEME

Standards and Labelling (S&L) scheme is a flagship initiative of Ministry of Power that was launched with the key objective of providing consumers an informed choice regarding the energy savings and thereby the cost-saving potential of various energy consuming appliances. S&L scheme covers the star labelling program for 24 appliances, out of which 10 appliances are under mandatory regime and remaining 14 appliances are under voluntary regime.

Achievements:

- Revision of energy consumption standards for Self-ballasted LED lamps, Air Conditioners, Pump sets, Ceiling Fans, Domestic LPG cook stoves have been done during the year 2019 with a view to bring more efficient appliances in the market.
- The revised energy consumption standards for Air Conditioners have been notified in the Gazette of India vide S.O. 3897 (E) dated 30th October, 2019. The energy consumption standards for Self-ballasted LED lamps have been notified in the Gazette of India vide S.O. 3631 (E) dated 9th October, 2019.
- Retailers Training Programme is being organized to disseminate knowledge among the retailers to enable them explain and convince customers to choose energy efficient appliance. 3rd phase of Retailer Training Program initiated in the year 2019. As on date, 36 Nos. workshops conducted. Last Retailer Training Workshop held in Nizamabad on 28.12.2019.
- Voluntary star labelling program for Washing machines and Microwave Ovens was launched on 8th March, 2019.
- BEE provided technical inputs to develop India Cooling Action Plan which was launched on 8th March, 2019 by MoEF& CC.
- Voluntary star labelling program for Solar Water Heater was launched on 14th December, 2019.

CAPACITY BUILDING OF DISCOMS

Demand Side Management (DSM) programs encourage the installation of end-use technologies that consume less energy, thereby reducing and/or shifting the customers' overall electric bill. DSM programs help utilities to reduce their peak power purchases on the wholesale market, thereby lowering their overall cost of operations. Therefore, capacity building and other support is essential for the DISCOMs to implement DSM in their respective areas. In this context, Bureau of Energy Efficiency has launched a program for capacity building of DISCOMs during FY 2012-17. This has helped in capacity building of DISCOMs officials and development of various mechanisms to promote DSM in their respective areas.

During Phase – I, 34 DISCOMs have participated in this programme and the activities like establishment of DSM cell, manpower support, capacity building of officials of DISCOMs, load research and preparation of DSM Action plans have been completed. Under this program, various DSM program are being implemented by these beneficiary DISCOMs. Remaining 28 DISCOMs have been included under this programme during 2017-2020. A tripartite MoU has been signed between BEE, 28 DISCOMs and their respective SDAs for implementation of said activities under this programme. All the activities stated above are to be carried out by respective Project Management Consultant (PMC) engaged by BEE.

A series of Regional meetings for five zones (southern, western, north-east, northern and eastern region) were organized by BEE in association with SDAs, DISCOMs and SERCs/JERCs to highlight the roles and responsibilities of officials of each stakeholder under this programme and to further understand the needs of the DISCOMs in-order to effectively implement the DSM activities.



Achievements

First Phase

- 34 DISCOMs were selected for participating as beneficiary DISCOMs under this programme and Memorandum of Understanding (MoU) was signed with them.
- DSM Cell has been established by these DISCOMs.
- DSM regulations has been notified in 22 States/UTs for 34 DISCOMs.
- Manpower support was provided to each DISCOM for facilitation of DSM related activities. This provision will be continued for the period 2017-20.
- Load survey is completed for all 34 DISCOMs and their DSM action plans have been prepared.
- National Power Training Institute was engaged by BEE to conduct training programs for the officials of DISCOMs to create Master Trainers on DSM and Energy Efficiency. Under this

programme, 504 officials of senior/middle-level management of these DISCOMs were trained as Master Trainers under Training of Trainers activity.

- About 5000 circle level officials of DISCOMs have been trained on DSM and Energy Efficiency.

Second Phase

- Additional 28 DISCOMs have been included as beneficiary DISCOMs under this programme.
- A tripartite MoU has been signed amongst BEE, 28 DISCOMs and respective SDAs for implementation of activities under this programme.
- Zone wise five Project Management Consultants (PMCs) have been engaged by BEE for assisting in the implementation of activities under this programme.
- DSM cell has been established by 26 DISCOMs.
- Load survey is completed for 12 DISCOMs.
- Remaining States/UTs are in the process of notifying their DSM Regulations.
- About 800 senior officials of these DISCOMs have been trained as Master Trainers on DSM & Energy Efficiency and capacity building programme for about 4000 circle level officials would be undertaken. Till date, 1000 circle level officials have been trained on DSM and Energy Efficiency.

AGRICULTURE DEMAND SIDE MANAGEMENT

Agriculture sector is one of the most important sectors of Indian economy. Agriculture plays a significant role in the overall socio-economic development of India. This sector accounts for approximately 80% of India's total water consumption.

This programme promises Energy efficiency through agriculture demand side management by reduction in overall power consumption, improving efficiencies of ground water extraction, reducing subsidy burden on state utilities and also investment in power plants through avoided capacity. The studies undertaken by BEE reveals that the current efficiency level of pump sets is in range of 20-25% and efficiency improvements can reach up to 40-50% for existing pump sets and also for new pump sets which could be installed.

As per the available data, more than 2.1 crore pump sets are installed in agriculture sector, majority of the pump sets are inefficient. Statistics shows that 2.5 to 5 lakh new pump set connections added every year to the sector. Major activities under this program are as follows:-

1. Revised framework towards mandating the use of BEE star labelled pump sets for new connections through SDAs:

BEE has made significant efforts towards mandating the use of EE pumps in agriculture by involving state regulatory commissions. BEE is undertaking stakeholder consultation meetings and capacity building sessions for DISCOMs, SERCs, SDAs and manufacturers to mandate the EE pumps for new connections. In consequent to the efforts made by BEE, States govts. Of Haryana, Himanchal Pradesh, Puducherry, Punjab, Kerala, Odisha, Karnataka, Tamil Nadu, Maharashtra and Uttarakhand have made it mandatory to use star labeled Energy Efficient Pumpsets (EEPS) for all the new pumpset connections.

2. Driving nationwide awareness programs for farmers to promote the adoption of EE pumps:

BEE being the nodal agency of the country is focusing towards conducting large scale awareness programs for farmers to promote the adoption of EE pumps by them. BEE is exploring different kinds of outreach channels such as local print and electronic media (including television and local radio channels), village cultural events, grameen sabhas or other panchayat initiated public events, etc. Till now, around 150 training and awareness programs have been organized in different KVKs covering almost 4000 farmers and stakeholders.

3. Organizing technical training programs for pump technicians:

Under AgDSM programme, BEE is organizing training programs for pump technicians who have a major role to play in replacing old inefficient pumps with BEE star rated pump sets. BEE is also issuing a certificate to these technicians post successful completion of the training program.

4. Signing of MoU with ICAR:

An MoU has been signed between **Bureau Of Energy Efficiency (BEE)** and **Indian Council of Agricultural Research (ICAR)** to conduct training and awareness programs for farmers to promote the use of Energy Efficient (EE) agricultural pumpsets. This would create awareness among the farmers for using Energy Efficient pumpsets and its operational practices so as to adopt energy and resource efficient approaches to reduce the cost of cultivation and to increase farmer's income in harmony with strategies of **"Per drop more crop"** and **"Doubling Farmer's income"**.

MUNICIPAL DEMAND SIDE MANAGEMENT

The energy consumption of the municipalities is characterized by frequent changes and rising peaks in power load curves in the morning hours due to water pumping and evening hours for street lighting. The inefficient use of electricity due to limited diffusion of energy efficient technologies and Demand Side Management (DSM) initiatives have considerably increased the energy spent by the municipalities.

Identifying the immense energy saving potential in municipal sector, BEE initiated Municipal Demand Side Management (MuDSM) during XIth plan. The basic objective of the project is to improve the overall energy efficiency of the Urban Local Bodies (ULBs) which could lead to substantial savings in the electricity consumption, thereby resulting in cost reduction/savings for the ULBs. Under MuDSM programme, BEE intends to provide training and awareness to the officials of Urban Local Bodies (ULBs), Urban Development Directorate (UDDs), Municipal Corporations (MCs) and Public Water Bodies to promote wider adoption of Energy Efficiency measures in municipal sector.

National Programme on Energy Efficiency in MSMEs

Indian small and medium enterprises (SME) sector consumes energy equivalent to about 50 million tons of oil equivalent annually. The SME sector in India is heterogeneous in terms of products manufactured, size of enterprise, process and technology use, and production volumes. SMEs account for 45 per cent of India's total industrial output and 8% of the national GDP. The energy consumption of SME sector is around 25% of total industrial energy consumption in India.

Whereas, Perform, Achieve and Trade (PAT) scheme of Ministry of Power aims at improving energy efficiency of MSMEs, there is no such regulatory framework for SMEs in India for improving their energy efficiency. A combination of lack of awareness of benefits, knowledge of alternatives and perceived higher costs prevented small and medium industries from implementing energy efficiency or technology upgradation measures. Many continue to operate vintage equipment, low-efficiency processes that result in wasteful energy consumption, which affects profitability and competitiveness.

Considering the urgent need to develop, demonstrate and disseminate energy efficient technologies at the cluster level, “National Programme on Energy Efficiency and Technology Upgradation in SMEs” has been initiated by Bureau of Energy Efficiency to address the various challenges faced by MSMEs in India. Bureau of Energy Efficiency is also implementing project in this sector with support from Global Environment Facility through UNIDO.

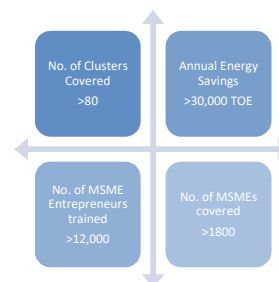
The major achievements of the programme for FY 2019-20 are as below –

1. National Conclave on Enhancing Energy Efficiency in MSMEs was organised on September 23-24, 2019. An exhibition on eminent energy efficient technologies was also organised with this conclave.



2. Energy Conservation Guidelines for MSMEs was developed and launched by Hon’ble Minister of MSME and Hon’ble Minister of State for Power & NRE (IC).
3. Fifty (50) multimedia tutorials on Energy Efficient Technologies in MSMEs was developed. These tutorials were launched on recently developed knowledge portal for MSMEs namely Simplified Digital Hands-on Information on Energy Efficiency in MSMEs (SIDHIEE).
4. An MoU was inked with Office of Development Commissioner, MSME to strengthen the energy security of MSMEs in India by uptake of energy efficiency in this segment.
5. The project ‘Financing Energy Efficiency in MSMEs’ implemented by BEE through World Bank was concluded. The project was implemented in more than thirty (30) energy intensive MSME clusters.
6. Technical Assistance was provided to more than fifty (50) MSMEs for implementation of ISO-50001: Energy Management System. The certificates were awarded during National Conclave on Enhancing Energy Efficiency in MSMEs.

7. GEF – UNIDO -BEE project namely “Promoting Energy Efficiency and Renewable Energy in MSMEs in India” was scaled up in further 12 clusters. The project is now being implemented in



twenty-four (24) clusters. Energy Management Centre in Sikkim cluster was also inaugurated under this project.

8. 16th and 17th meeting of SAMEEEKSHA (Small and Medium Enterprises Energy Efficiency Knowledge Sharing) platform was organized in Coimbatore and New Delhi respectively.
9. Various training programmes and dissemination workshops were organised in MSME clusters for acceleration in adoption of Energy Efficient (EE) technologies and best practices.
10. Following key activities were initiated during FY 2019-2020 and are under progress -
 - Energy and Resource Mapping of MSMEs in 10 energy intensive sectors.
 - Development of Benchmarking and Analytical Tool for Energy Management in MSMEs
 - Development of compendium of Energy Efficient (EE) technologies for energy intensive MSME sectors.
 - Demonstration of eighteen (18) pilot projects on Energy Efficient (EE) technologies.

STRENGTHENING OF STATE DESIGNATED AGENCIES TO PROMOTE EFFICIENT USE OF ENERGY AND ITS CONSERVATION

In exercise of powers conferred by section 15(d) of EC Act 2001, 36 State Governments/ UT Administrations have designated State Designated Agency (SDA) to coordinate, regulate and enforce the provisions of this Act within the State, either by assigning additional responsibilities to one of the existing departments of the State Government or by establishing a dedicated Stand-Alone SDA for energy efficiency.

Achievements:

The SDAs have carried out capacity building activities like workshops and training programmes involving the Energy Managers, Energy Auditors and Designated Consumers appraising about their roles as per the mandate of the EC Act 2001. Media and awareness campaign has been undertaken by SDAs on large scale in their respective states to disseminate information and create awareness on benefits of efficient use of energy and its conservation. The major focus areas include promotion through electronic and print media, awareness campaign in schools and colleges through brochures and banners, formulation of energy clubs and organizing promotional EC activities, etc. Most of the SDAs celebrate Energy Conservation (EC) week every year and organize ceremony of state-level EC awards wherein, due recognition is given to industries and institutions who have taken lead in promoting the cause of energy efficiency in the state. In addition to this, some of the major successful accomplishments of the scheme are as follows:

- About 50 demonstration projects in the areas of street lighting, water pumping and waste heat recovery have been successfully completed by SDAs.
- 65 nos. of villages have been taken up by the SDAs under “Model Energy Efficient Village Campaign” for converting them into model energy efficient villages by replacing existing

inefficient electrical equipment/appliances including household bulbs, street lights, fans, water pumps, etc. with BEE star rated appliances.

- Replacement of existing conventional appliances with energy efficient appliances in about 4500 nos. of Govt. schools by SDAs is underway. This endeavor has been completed in about 1000 nos. of schools.
- SDAs have undertaken implementation of energy efficiency measures in around 5-10 nos. of Government hospitals as pilot project within their state. Implementation of these pilot projects in around 100 nos. of Govt. hospitals across the country is in progress.
- Almost 200 nos. of employees are engaged by the SDAs, who are involved in facilitating and enforcing efficient use of energy and its conservation at the State level.
- SDAs have conducted many workshops/seminars and capacity building programmes to disseminate information and address practical issues faced by various stakeholders. Target audience of these workshops include accredited/certified energy auditors, energy managers, Designated Consumers, building professionals, architects, Financial Institutions, ESCOs, etc. Many such workshops cum training programmes have been organized by the SDAs.
- All the SDAs have established dedicated website highlighting energy efficiency measures undertaken in the state. The websites are linked with Bureau of Energy Efficiency and other SDAs to facilitate information exchange, and are updated regularly to incorporate recent developments and latest information pertaining to energy efficiency advancements within the states and the country, as whole.

CONTRIBUTION TO STATE ENERGY CONSERVATION FUND (SECF)

Section 16(1) of the Energy Conservation Act 2001 requires State Governments to constitute a fund called SECF for the purpose of promotion of efficient use of energy and its conservation within the state. In this context, a scheme called “Contribution to State Energy Conservation Fund (SECF)” to be governed by BEE was approved by the Ministry of Power.

The SECF can facilitate to overcome the major barriers for implementation of energy efficiency projects. It is intended to be used as an instrument to facilitate implementation of energy efficiency projects through market transformation. For undertaking energy efficiency projects through SECF, major part of the funds disbursed under SECF is to be earmarked separately as Revolving Investment Fund (RIF). This RIF may be used to finance implementation of energy efficiency projects in public buildings including those of Central Government, State Government and Central or State Government undertakings’ / agencies’ buildings, energy efficiency street-lighting or common area lighting projects, energy efficiency projects in public drinking water pumping stations and in agricultural pumping, energy efficiency projects in various industrial sectors and MSME clusters etc.

The contribution under SECF is made to those State Governments / UT Administrations who have created their SECF and finalized the rules and regulations to operationalize the same. The scheme is for contribution to all the State/UTs with a maximum ceiling of Rs. 4.00 Crore for any State/UT provided in two installments of Rs. 2.00 Crore each. The second installment of Rs. 2.00 Crore under contribution to SECF is released only after the states have provided a matching contribution to the first installment of Rs. 2.00 Crore provided by BEE. It may be mentioned

here that the matching contribution by the State Government for North Eastern States and the UT Administrations is relaxed to Rs. 25.0 lakhs instead of Rs 2.0 Crore.

Achievements:

SECF has been constituted in 31 states, out of which, 26 states have provided matching contribution.

NATIONAL ENERGY CONSERVATION AWARD AND PAINTING COMPETITION

The National Energy Conservation Awards are presented to industry and other establishments every year by the Ministry of Power with the objective of promoting energy conservation among all sectors of economy. These awards recognize and encourage endeavors of industrial units, institutions and establishments in reducing energy consumption by felicitating them with Energy Conservation Awards on the occasion of National Energy Conservation Day, celebrated on 14th December every year.

The awards were given for the first time on December 14, 1991, which was declared as the 'National Energy Conservation Day'. Since then, National Energy Conservation Awards (NECA) has been attracting the attention of all the stakeholders and has witnessed increasing participation level year after year. These awards are presented on National Energy Conservation day by eminent dignitaries and highest functionaries such as Hon'ble President, Hon'ble Prime Minister and Hon'ble Union Minister of Power.

This year in NECA 2019, Hon'ble Minister of State (I/C) for Power and New & Renewable Energy and Hon'ble Minister of State for Skill Development & Entrepreneurship presented the Awards to the Awardees on the occasion of National Energy Conservation Day.

Achievements:

- From 2017 onwards, applications are invited for NECA on rolling cycle of three years, which implies that few sectors are allowed to participate every year and every sector will get a chance to apply for the NECA within a block of three years.
- For the first time, applications for National Energy Conservation Award 2019 were received online through NECA portal (www.bee-neca.in). **355** industrial units, establishments, and organizations participated in NECA-2019.
- The savings reported through their applications for award denotes annual electrical energy saving of 10566 million units which translate to GHG Emission Reduction of 17.3 Million Ton of CO₂ emissions.



An Awardee receiving award from Hon'ble Minister of State (I/C) for Power and New & Renewable Energy and Hon'ble Minister of State for Skill Development & Entrepreneurship

Painting Competition on Energy Conservation for School Children

Bureau of Energy Efficiency had organized a National Painting Competition on Energy Conservation in two Categories. Students of 4th, 5th and 6th standards under Group 'A' and of 7th, 8th & 9th standards under Group 'B' were eligible to participate in this competition. About 85 lakhs students participated from all the 36 States and Union Territories. 12 CPSUs working under the administrative control of the Ministry of Power had provided active support through their nominated nodal officials to supervise and implement the scheme. The competition is held at three stages, i.e School, State and National Level.

- **School:** School Principals were requested to register their schools on web portal www.bee-studentsaward.in to participate in School Level Painting Competition. School principals had selected 2 best paintings from each Category 'A' & 'B' and uploaded on the web portal.
- **State:** 50 paintings were selected by the constituted jury drawn at School Level Competition by students from categories 'A' & 'B' separately and were invited for two hours on-the spot Painting Competition on 14th November, 2019. Each participating student from Categories 'A' & 'B' was paid ₹ 2000/- in cash and a participation certificate. Cash prizes amounting to ₹ 63 lakhs were distributed amongst the winners of State Level Competition.
- **National:** 1st, 2nd and 3rd prize winners of State Level Painting Competition of Group 'A' and 'B' from each State/UT were invited to Delhi to participate in "National Level Painting Competition" which was held on 12th December, 2019. Eminent Jury selected 1st, 2nd and

3rd and 10 consolation winners from each Category. Winners of both the categories of National Painting Competition have been given Cash prize of ₹ 6.60 lakhs and 6 laptops on 14th December, 2019 by Shri R. K. Singh, Hon'ble Minister of State (I/C) for Power and New and Renewable Energy and Hon'ble Minister of State for Skill Development & Entrepreneurship.



Winners of the National Painting Competition with Hon'ble Minister of State (I/C).



A child explaining about her painting to the Hon'ble Minister of State (I/C).

NATIONAL MISSION FOR ENHANCED ENERGY EFFICIENCY (NMEEE)

The National Mission for Enhanced Energy Efficiency (NMEEE) is one of the eight missions under the National Action Plan on Climate Change (NAPCC). NMEEE aims to strengthen the market for energy efficiency by creating conducive regulatory and policy regime and has envisaged fostering innovative and sustainable business models to the energy efficiency sector.

The NMEEE spelt out four initiatives to enhance energy efficiency in energy intensive industries which are as follows:

- (i) **Perform Achieve and Trade Scheme (PAT)**, a regulatory instrument to reduce specific energy consumption in energy intensive industries, with an associated market based mechanism to enhance the cost effectiveness through certification of excess energy saving which can be traded.
- (ii) **Market Transformation for Energy Efficiency (MTEE)**, for accelerating the shift to energy efficient appliances in designated sectors through innovative measures to make the products more affordable.
- (iii) **Energy Efficiency Financing Platform (EEFP)**, for creation of mechanisms that would help finance demand side management programmes in all sectors by capturing future energy savings.
- (iv) **Framework for Energy Efficient Economic Development (FEEED)**, for development of fiscal instruments to promote energy efficiency.

Achievements:

(i) Perform Achieve and Trade Scheme (PAT):

- Perform, Achieve and Trade (PAT) scheme is one of the flagship programs of Bureau of Energy Efficiency aimed at reduction in Specific Energy Consumption (SEC) in large energy intensive industries. The energy saved by these industries is converted into tradable instruments called Energy Saving Certificates (ESCerts) and are traded at the Power Exchanges.
- Upon completion of PAT cycle –I with an energy savings of 8.67 Million Tonne of Oil Equivalent (MTOE) followed by trading of around 13 lakh Energy Saving Certificates (ESCerts) worth Rs. 100 crores for compliance, PAT cycle –II was notified with effect from 1st April 2016. PAT cycle –II, under which 621 Designated Consumers from 11 sectors (eight sectors of PAT cycle -I and 3 new sectors) were notified with a total target on 8.869 MTOE. PAT cycle –II has completed on 31st March 2019. Verification of energy savings achieved by DCs of PAT cycle –II is under process.
- PAT cycle –III, IV and V that commenced from 2017, 2018 and 2019 respectively are under process. A total of 335 Designated Consumers are under process of adoption of energy efficiency measures to achieve the targets notified to them. It is envisaged that by 2022, through the implementation of PAT scheme, a total energy savings of about 20 MTOE will be achieved under the scheme which will also translate into avoiding of about 70 million tonnes of CO₂ emissions.
- Meanwhile, under widening exercise process of PAT scheme, BEE has also carried out a feasibility study. Through the study, the sectors namely Sugar, Chemicals, Non Ferrous Metals, Ceramics and Mining have been identified by BEE for inclusion under the PAT scheme in the future cycles.

(ii) Market Transformation for Energy Efficiency (MTEE)

This initiative under the National Mission for Enhanced Energy Efficiency (NMEEE) aims to accelerate the shift to energy efficient appliances in designated sectors through innovative measures to make the products more affordable.

(iii) Framework for Energy Efficient Economic Development (FEEED)

Framework for Energy Efficient Economic Development (FEEED), seeks to develop fiscal instruments to promote energy efficiency including innovative fiscal instruments and policy measures like the Partial Risk Guarantee Fund for Energy Efficiency (PRGFEE) and Venture Capital Fund for Energy Efficiency (VCFEE).

➤ **Partial Risk Guarantee Fund for Energy Efficiency (PRGFEE)**

PRGFEE is a risk sharing mechanism to provide financial institutions (banks and NBFCs) a partial coverage of risk involved in extending loans for energy efficiency projects. The guarantee will not exceed Rs. 10 crore per project or 50% of loan amount, whichever is less. Government of India has approved funds of Rs. 312 crore for PRGFEE. Sectors covered under PRGFEE are Government buildings, Private buildings having commercial or multi-storey residential accommodations, Municipalities, SMEs and Industry.

Achievements:

- Andhra Bank, YES Bank, IDFC Bank, Tata Cleantech Capital Ltd. and IndusInd Bank have been empanelled as Participating Financial Institutions.
- PRGFEE Rules have been notified.
- Operations Manual for the PRGFEE has already been published.

➤ **Venture Capital Fund for Energy Efficiency (VCFEE)**

Venture Capital Fund for Energy Efficiency (VCFEE) is a fund to provide equity capital for energy efficiency projects. Any single investment by the fund shall not exceed Rs. 2 crore. The Fund will provide last mile equity support to specific energy efficiency projects, limited to a maximum of 15% of total equity required, through Special Purpose Vehicles or Rs. 2 crore, whichever is less. Sectors covered under VCFEE are government buildings, Private buildings and Municipalities. The support under VCFEE has been provided to only government buildings, private buildings (commercial or multi-storey residential buildings) and municipalities.

Achievements:

- The Trust of VCFEE has been constituted under provisions of Indian Trust Act 1882, the trust deed was registered with jurisdictional sub-registrar Government of Delhi.
- Board of Trustees for VCFEE has been constituted.
- VCFEE Rules have been notified.

(iv) Energy Efficiency Financing Platform (EEFP)

EEFP is one of the important initiatives under NMEEE with the objective to provide a platform to interact with financial institutions and project developers for implementation of Energy Efficiency projects. Under this programme, MoUs have been signed with financial institutions to work together for development of energy efficiency market and for identification of issues related to this market development. MoUs are already being signed by BEE with M/s. PTC India Ltd, M/s. SIDBI, Tata Capital and IFCI Ltd. to promote financing for Energy Efficiency projects.

For capacity building of FIs, BEE has signed MoU with Indian Banks' Association for training programme on Energy Efficiency financing for Scheduled Commercial Banks. With an objective "to build greater knowledge and confidence through training programme within the financial sector on EE financing", in Phase 1 BEE has successfully completed 4 training of trainers (ToT) workshops. BEE launched the Phase 2 of these training workshops to create awareness amongst the loan officers / risk managers / credit managers towards technical/financial appraisal of EE projects. More than 650 banking/NBFC officials have been trained on EE financing under this programme.

Following are the publications:

- Training Manual for Energy Efficiency Financing in India.
- Success stories for Energy Efficiency Projects Financed in India.
- Market Assessment for Partial Risk Guarantee Fund for Energy Efficiency and Venture Capital Fund for Energy Efficiency.
- Guidelines for Financing Energy Efficiency Projects in India.