

# BEE LINE NEWSLETTER



Hon'ble Minister of Power, Government of India, Shri R K Singh addressed the virtual gathering on 11<sup>th</sup> Clean Energy Ministerial Meeting (CEM11)

Implementing Demand Side Management Programmes towards Energy Efficiency

Impact of COVID-19 on the Energy Sector and the role of Energy Efficiency



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**Abhay Bakre**  
Director General, BEE

## MESSAGE

With the growing Indian economy, there has been an increase in the energy demand. So, efficient use of energy resources and their conservation take up enormous significance and are essential to reduce wasteful consumption and ensure sustainable development in our country.

To achieve energy efficiency, we have executed several new measures in our energy-efficient schemes such as inclusion of new appliances under the Standards and Labelling programme, notification of PAT cycle 6, introduction of the Energy Conservation Building Code in commercial and non-residential buildings in Andhra Pradesh with an objective to ensure energy efficiency during the construction of new buildings in the state, and several others in the recent time. BEE's schemes are formulated to improve energy efficiency and decrease India's emissions intensity.

With the current pandemic situation around the world, we need to adopt best practices of energy efficiency in our day to day life and ensure efficient use of energy for our nation and leverage on it in the post COVID world as well.



**R K Rai**  
Secretary, BEE

## MESSAGE

India being a developing economy, the primary concern is to enhance the energy efficiency in order to reduce the carbon emissions. In our country, there is a huge potential of energy conservation, be it in buildings, home appliances, industries etc.

There is a need to optimize energy consumption in various energy-intensive sectors and reduce the carbon emission of our country. With the growth in the economy, our country has witnessed an increase in the demand of energy. This has led to a serious matter of concern specially in some of the energy intensive sectors. Sectors under PAT scheme has chipped in with various innovative ways and technologies to cater to the growing demand, as BEE carries out several schemes to ensure energy efficiency in the country and conduct several sector specific studies.

The Bureau of Energy Efficiency is dedicated to spread awareness amongst its stakeholders and the citizens of India and promote energy conservation, through its various schemes and awareness programmes, as there is a need for everyone to come together to strengthen India's energy security.

# Implementing Demand Side Management Programmes towards Energy Efficiency

Managing demand in energy is not easy. Given that the consumer demand for energy is increasing and will continue to rise in future, it makes sense to invest in programmes that help to save on energy. These include announcing financial incentives to reduce peak demand and inspire consumers to buy energy-efficient technologies. Both the central and state governments need to chip in while formulating energy policies as implementing these programmes would lead to overall lower electricity demand that in turn saves on the amount spent on building new generators and transmission lines.

Demand Side Management (DSM) has a lot to do with the response to demand. As energy demands increase exponentially in response to continued development, the Bureau of Energy Efficiency (BEE) aims to modify power consumption habits including promising financial incentives and encouraging behavioural changes through education. Almost every central and state mission now focuses on DSM to promote energy efficiency. Though energy management during peak hours does not have a reducing effect on total energy consumption, it does lower the investment need towards new networks or added power plants for meeting peak demands.

## **Agriculture Demand Side Management Programme**

Continued agricultural reforms by various governments in the past has led to increased introduction of farming technologies in cultivation and harvesting of crops. Use of agricultural pump sets is on the rise. However, most of them being inefficient, consume more power and energy to operate. The introduction of the Agriculture Demand Side Management (Ag-DSM) scheme by the BEE during the XI<sup>th</sup> plan aimed to enhance the efficiency level of agricultural pump sets, thus, reducing the energy demand of the of agriculture pumping sector. It is estimated that roughly 2.5 to five



lakh new pump sets are being added every year to the existing stock of more than 2.1 crore pump sets till date. Since many of these pump sets are locally made and, hence, do not conform to the energy efficiency requirements, energy consumption is high in most cases. Besides, the low electricity tariffs for agriculture consumers do not encourage farmers to invest in higher efficiency pump sets.

However, with the country's agricultural sector consuming more than 18 per cent of the energy of the total energy generated, BEE has adopted measures to inspire farmers and agriculturists to adopt energy-efficient technologies in the farming sector. Informed decision making is the best route to affecting long-term changes. The BEE officials have installed and incorporated means to educate farmers about how energy-efficient pump sets can result in reduced power consumption, improved efficiencies in groundwater extraction, reduced burden of subsidies on state utilities and investment in power plants through avoided capacity.

For the promotion of energy efficiency practices among farmers, states including Haryana, Punjab, Karnataka, Maharashtra, Tamil Nadu, Himachal Pradesh,



Puducherry, Kerala, Odisha and Uttarakhand have mandated the use of energy-efficient pump sets (above 3-star rating) for availing new electricity connections for irrigation purposes.

The BEE signed an MoU with the Indian Council for Agriculture Research (ICAR) to educate farmers and other stakeholders about energy-efficient measures and their significance. Till date, 155 workshops providing training and awareness programmes to farmers/stakeholders/pump technicians on 'Energy and Water Conservation' have been carried out by State Development Authorities through Krishi Vigyan Kendras and Agriculture Training and Research Institute. More than 11,000 farmers and pump technicians have benefited from the takeaways of these workshops.

Farmers in the North East states like Nagaland have learned from demonstration projects conducted to promote smart and energy-efficient agriculture practises on 'IoT based devices/equipment like a smart controller for pumps, IoT based micro-

irrigation, soil moisture sensors, etc.’ These measures are also under implementation in Uttarakhand to help the local farmers save more on energy bills. Many state governments like that in Punjab, Andhra Pradesh, and Karnataka have fervently promoted the idea and need for conserving energy through awareness initiatives including the use of print and electronic media platforms.

## **Municipal Demand Side Management Programme**

Taming energy needs is not easy. The BEE started on a nation-wide Municipal Demand Side Management (MuDSM) programme to address energy efficiency needs in drinking and sewage water pumping system, street lighting and public building infrastructure across urban local bodies (ULBs) and municipal organisations.

Under the MuDSM programme, capacity building workshops for the ULBs’ officials, public water bodies, urban development directorates, municipal corporations and other implementing agencies in cities under the Atal Mission for Rejuvenation and Urban Transformation (AMRUT) project have been carried out to promote and ensure the use of energy-efficient pump sets in drinking and sewage water pumping system. Till date, the BEE has organised workshops under the MuDSM programme in 10 different states with more than 2,500 participants.

There has been a continued influx of population from the rural to the urban areas. Besides, the living standards of people living in cities have improved considerably. This has led to the ULBs consuming more energy for the services they provide, for example, the ULBs consume electricity to provide various utility services including street lighting along with water pumping and sewage treatment in public buildings. With roughly 30 per cent of India’s population residing in urban areas and more rural people migrating to cities in search of better lives, there is an added burden on the ULBs.

In urban areas, peak hours of electricity consumption include morning and evening hours due to the use of pumps to draw water and street lighting respectively. Limited use of energy-efficient technologies and ineffective DSM initiatives have led to increased energy spending by the municipalities. It is expected that the MuDSM programme will improve the overall energy efficiency of the ULBs that could lead to more savings in electricity consumption, thus, resulting in reduced costs and increased savings for the ULBs.

# Impact of COVID-19 on the Energy Sector and the role of Energy Efficiency

The effect of the coronavirus pandemic has had led to prolonged lockdown in all Indian states since March 2020, which also had a significant impact on electricity demand. There was a drop in the commercial demand initially, due to reduced commercial and industrial activities. However, residential electricity consumption has increased owing to two reasons - people spending more time at home and rise in summer temperatures. With the season changing, people are expected to lessen the use of water coolers, air conditioners, etc., thus, lowering electricity consumption.

The current coronavirus threat has changed the way one works, and this includes the energy sector too. The unprecedented nature of the pandemic underscores the indispensability of the sector and the extent to which this country's social and economic structure depends on reliable electric supply. The mandatory lockdown forced a temporary shutting down of many industries and their business operations. Fearing the virus spread, people were relegated to working from homes, thus, upping the domestic electricity demand. As the entire country geared up to face the COVID-19 crisis, the power sector responded by ensuring regular electric supply to both rural and urban areas. Reliable electric supply and efficient consumption underlie the success of most domestic activities and services.

## **Role of Energy Efficiency**

Energy efficiency can play a vital role in the current scenario as efficient use of energy could generate an unused source of fuel, which can be taken into consideration for future generations. The COVID-19 pandemic has compelled the Bureau of Energy Efficiency to focus all its efforts and resources to maintain and enhance the energy efficiency in the country. As India is emerging from lockdown, using energy more efficiently could help to stimulate growth and help people to reduce monthly electricity bills.

In the longer term, increased efficiency will make it easier to cope with the increasing demand. BEE is determined to ensure that enough energy should be available for future generations. Efficient use of energy during the current pandemic makes energy more affordable for consumers and reduces greenhouse gas emissions. BEE is constantly working to identify opportunities and potential for energy efficiency to serve the country. With amendment and improvement in the various energy-efficient schemes like Standards and Labelling, India Cooling Action Plan, Energy Conservation Building Code, Demand Side Management, etc. BEE is determined to bridge the gap of energy demand and supply through efficient use of energy. The Bureau of Energy Efficiency with other stakeholders, has developed the State Energy Efficiency Index to drive energy efficiency policies at both the state and local levels. The State Energy Efficiency Index has enhanced the framework to include Energy Conservation Building Code, Electric Vehicles, energy efficiency in State Designated Agencies, Micro, Small & Medium Enterprises and other departments.

BEE has been working relentlessly to initiate new policies while updating the old regulations aimed at achieving an energy-efficient country. Notification was carried out for the PAT cycle 6 to reduce the specific energy consumption in the energy-



intensive industries. In the building sector, the Energy Conservation Building Code has been notified recently in the states of Tripura and Arunachal Pradesh as these states have made it obligatory to abide by the Energy Conservation Building Code (ECBC) guidelines for new buildings.

BEE has been working unceasingly to widen and deepen its other energy-efficient schemes like Perform, Achieve and Trade, Standards and Labelling, etc. and is also setting foot in one of the untapped areas with great potential of emission reduction, i.e., Electric Vehicles. With charging infrastructure being set up in a phased manner across the country, the BEE is providing opportunities to the consumers to opt for Electric Vehicles and help reduce Carbon Emissions in the atmosphere.

Efficient use of energy during the current scenario and even post-COVID times can help conserve energy for the future, reduce the greenhouse gas emissions, and improve the quality of life. The focus should be more on energy efficiency, instead of energy generation. BEE's initiatives for energy efficiency has improved households, industrial, agricultural productivity in the past and is expected to contribute to strengthening India's economy in the post-COVID era as well.

# Successful Completion of PAT Cycle II

The market-based mechanism of PAT scheme has always focused on reducing the Specific Energy Consumption (SEC) ie, energy used per unit of production. The Cycle – II of the PAT scheme to reduce the specific energy consumption for large energy intensive industries ended on 31st March 2019. The Perform, Achieve and Trade (PAT) scheme in its second cycle (2016-17 to 2018-19) achieved an overall energy savings of 13.28 Mtoe for which energy reduction targets were assigned and notified to DCs in 11 sectors. PAT Cycle II commenced from 1st April 2016 included three new sectors viz. Railways, Refineries and DISCOMs apart from the existing 8 sectors in the 1st cycle.



The result was announced to assess the achievement in reduction target and energy savings through PAT Scheme (Cycle II) in India. The total energy savings achieved in 2016-19 is 13.28 Mtoe (Million Tonne of Oil Equivalent) and emission reduction of 61.34 Million tons of CO<sub>2</sub>, Leading to monetary savings of ₹31,445 Crores. Riding on the success of PAT I, the second cycle of PAT scheme was launched in 2016 with addition of three sectors, namely, Petroleum Refineries, DISCOMs and Railways. With this widening of sectors and deepening among existing sectors, 173 DC were added during PAT Cycle II, taking the total number of DCs to 621 across 11 target sectors. Since 2017 and onwards every year, PAT Cycles are notified on rolling basis.



## Launch of Outcome of cycle –II under Perform, Achieve and Trade (PAT) scheme

Perform Achieve and Trade (PAT) is the flagship program under National Mission for Enhance Energy Efficiency (NMEEE). The mission is implemented by Bureau of Energy Efficiency (BEE) under Ministry of Power.

The first cycle of PAT which ended in 2015 included 478 units from eight sectors including Aluminium, Cement, Chlor-Alkali, Fertilizers, Iron & Steel, Pulp & Paper, Textile and Thermal Power Plants. The energy saving achievements in this cycle was 8.67 million tonne of oil equivalent translating into avoiding in reduction of about 31 million tonne of CO<sub>2</sub>. Subsequent to PAT cycle – I, PAT Cycle - II was notified in 2016 and it ended in 2019. This cycle included almost all DCs of PAT Cycle-I and New DCs from the running sectors and also new DCs from three new sectors such as Railways, Petroleum, Refinery and DISCOM. In total 621 units from these 11 sectors participated and upon completion of Monitoring and Verification (M&V), energy saving of 13.28 million tonne of oil equivalent (MTOE), which corresponds to avoidance of over 60 million tonne of CO<sub>2</sub>.

The detailed outcome of PAT Cycle-II including energy savings, investment reported, technology up gradation as well as reduction in CO<sub>2</sub> emission was documented by BEE as “**Pathways for Accelerated Transformation in Industry Sector**” and was launched on 9th July 2020 by the Hon’ble Minister.

### Energy Mapping Exercise of Thermal Power Plants

Thermal Power Plants sector has been notified as one of the Designated Consumers (DCs) sectors under the Perform, Achieve and Trade (PAT) scheme with 225 nos of plants accounting for annual energy consumption of 165.16 million ton of oil equivalent. Being one of the most energy intensive industries, energy efficiency plays a very important role to comply the mandate to reduce its energy consumption by reducing its heat rate.

Further, upon the assignment of PAT Cycle targets, exploring the opportunity of energy saving becomes even more urgent to meet the compliance. In this context, towards improving efficiency and performance optimization in Thermal Power Plants and also to identify the gaps in the unit leading to higher heat rates,

BEE has entrusted with the task of exercising energy mapping of some of the most inefficient state/central thermal power plants through the diagnostic tool.

Energy mapping study of power plants has provided a database and broadly identified areas required for improving energy efficiency. The mapping report has also indicated the measures that could be taken up immediately with comparatively small expenditure to improve plant performance before going in for regular R&M measure. With the help of diagnostic tool software (used during energy mapping exercise), the plant operators are able to prioritise the maintenance and other corrective action. In the initial phase, energy mapping work in 10 identified TPPs (State + Central) has been initiated in July, 2019 in a meeting chaired by Shri RKG Rahate (IAS), Additional Secretary, Ministry of Power.

With acceptance of TPPs, agencies have submitted their final reports (gap analysis and recommendation report) as per the deliverable mentioned in WO in the last week of Dec, 2019. The report submitted is the performance evaluation of heat rate, plant and equipment efficiency.



Reduction potential assessed during energy mapping (in terms of Million toe, CO<sub>2</sub> emission and coal saving) are listed below-

Table 1: Savings potential projected during mapping work

Reduction potential (in Million toe)	0.335
CO <sub>2</sub> emission reduction (Million tons)	0.844
Coal Saving (Million tons/year)	0.957

## Promoting Waste Heat Recovery Applications from Energy Intensive Industries

Waste Heat Recovery (WHR) is a method of recycling and re-using the heat that is escaping the industrial processes after useful work is accomplished. The Government is promoting energy conservation under the ambit of EC Act. It is estimated that 20-50% of input energy is lost into the environment in the form of hot gases, hot air, hot water, etc, due to process inefficiencies and technical limitations. These energy losses cannot be recovered fully but may be reduced partially by improving efficiency of processes / equipment as well as by deploying Waste Heat Recovery (WHR) Systems. In this matter a meeting was convened on 01.04.2020 by Secretary (Power), to discuss the feasibility of adopting such waste heat recovery technologies in potential industries. After the meeting, Chair suggested to form two separate groups, i.e., (a) Technical and (b) Policy Advisory Group, to give recommendations including appropriate Policy measures to promote adoption of WHR systems in the country.

**Technical Group:** Two meetings were convened on the 17<sup>th</sup> and 24<sup>th</sup> of April, 2020 to discuss the feasibility of WHR in various industries. A detailed discussion with industry and their associations was held to understand the requirements for faster adoption of WHR technologies. A comprehensive report was submitted by the technical group to Policy group on 1<sup>st</sup> May, 2020 with the focus on feasibility of WHR based cooling system using VAM (Vapour Absorption Machine) in Thermal power plants.

**Policy Group:** Four meetings of policy group were held on 21st April, 1st May, 7<sup>th</sup> May and 29<sup>th</sup> May, 2020. These meetings were followed by smaller sub-group meetings with CEA on 2nd June, 2020 and with Cement Manufacturing Association (CMA) on 9th June, 2020. Based the discussions held in these meetings and the report submitted by the technical group, this document attempts to consolidate the recommendations of the policy group.

The draft policy report was prepared drawing findings of the report of Technical Group and in consultation with Central Electricity Authority (CEA) and other key stake holders and the same was submitted on 22nd September, 2020 to the Ministry.

## HIGHLIGHTS OF THE QUARTER (July - September 2020)

### Webinar on Energy Efficient Enterprise (E3) Certification Scheme for Brick Industry: A Market Transformation Initiative

The Bureau of Energy Efficiency (BEE), Government of India has drafted Energy Efficient Enterprise (E3) Certification Scheme for the Brick Industry. The scheme welcome brick manufacturing enterprises adopting energy efficient manufacturing and produce resource efficient bricks, will be awarded E3 Certificate. The BEE's outreach and market initiatives will help in enhancing market demand for products of E3 Enterprises. Looking towards the market transformation initiative, BEE organized a webinar on 01<sup>st</sup> July 2020 to certify brick manufacturing enterprises adopting energy efficient manufacturing and producing resource efficient bricks.



In this regard, BEE invited Expression of Interest (EOI) from eligible brick manufacturing units to participate in the proposed E3 scheme.

### BEE participated in a Workshop on “Circular Carbon Economy (CCE) Accelerator” on 02<sup>nd</sup> July.

The G20 Presidency, Kingdom of Saudi Arabia, organized a workshop on “Circular Carbon Economy (CCE) Accelerator”. Shri Abhay Bakre, Director General, Bureau of Energy Efficiency participated from India in the workshop. He highlighted the successful case studies of Standards and Labeling program for Appliance sector and also presented achievements of the flagship PAT (Perform, Achieve and Trade) Scheme for the Industry sector.



## HIGHLIGHTS OF THE QUARTER (July - September 2020)

### Webinar on the “Indian Model of Energy Efficiency Cooling Development” on 14<sup>th</sup> July 2020

Bureau of Energy Efficiency in partnership with CLASP conducted a webinar on the Indian Model of Energy Efficiency Cooling Development on 14<sup>th</sup> July 2020. Director General, BEE, Shri Abhay Bakre was the keynote speaker as a discussion on the Impact of various energy efficiency measures with special focus on the contribution of the Standards & Labeling program



towards overall energy efficiency took place. DG BEE, Shri Abhay Bakre, and Director BEE, Shri Sameer Pandita, along with the CLASP's CEO, Christine Egan, and her team attended the Climate talks on "The Indian model of Energy Efficiency Cooling Policy Development". More than 100 participants attended the webinar. The Bureau of Energy Efficiency highlighted the development of more energy efficient cooling policies for India to meet the NDC target. Shri Sameer Pandita, presented BEE's approach on "Energy Efficiency policies for Cooling Appliances" and discussed the impact and associated outcomes during the webinar.



## HIGHLIGHTS OF THE QUARTER (July - September 2020)

### Energy and Resource Mapping of SME sectors of India

The Bureau of Energy Efficiency is conducting, Energy and Resource mapping of Nine energy intensive Small and Medium Enterprises sectors of India. The study aimed to understand the present scenario of energy consumption in the focused sector and examine the existing processes, technologies and readiness of the cluster in adopting energy efficient solutions. The study intend to generate large momentum towards shifting to clean and energy efficient technologies.

As an outcome of the study, sectoral strategic roadmap will be designed for transforming the Indian SME sector's energy scenario. A consultative approach has been adopted in this process, which also features detailed energy audits and allied resource surveys in identified SME clusters.

6 Agencies have been contracted to pursue the mapping exercise and in this quarter 14 cluster webinars were organized in different sectors, namely: Foundry, Forging, Steel Re- Rolling Mills, Paper, Dairy, Bricks and Pharma.

### Stakeholder Discussions for Designing PAT like Schemes for Small Scale Industries

A stakeholder workshop was organized in association with Indian Institute of Foundrymen for formulating an incentive-oriented PAT scheme for MSMEs. Doing this BEE can promote voluntary action on energy efficiency without fear of overburdening small enterprises.

# HIGHLIGHTS OF THE QUARTER (July - September 2020)

## Webinar on 'Energy Efficiency in Commercial and Residential Building'

A webinar on 'Energy Efficiency in Commercial and Residential Building' was organized by ASHRAE- Chandigarh and PEDAA with the support of the Bureau of Energy Efficiency (BEE) on 14<sup>th</sup> August 2020. This webinar provided information regarding ECBC for Commercial Building and Eco-Niwas Samhita for Residential Building to the participants. The Webinar was attended by participants like architects, developers, and individual dwelling space owners.

Jointly Organized By: Supported By:

PANEL DISCUSSION

"Energy Efficiency in Commercial & Residential Buildings"

14<sup>th</sup> August 2020  
(Friday)

4:00 PM – 5:30 PM  
(India Time)

Special Invitees from GEM

Mr. Surinder Bahga  
Chairman,  
GEM Punjab Chapter

Mr. Neeraj Arora  
Sr. Director & Head,  
ASSOCHAM GEM  
Green Building Certification Program

PANELISTS

Mr. Saurabh Diddi  
Director,  
Bureau of Energy Efficiency

Mr. Balkar Singh  
Joint Director (EC)  
Punjab Energy Development Agency

MODERATOR

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Managing Partner,  
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Services LLP, Jaipur

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Technical Expert & Head,  
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Mr. Anurag Bajpai  
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Chairman  
IPA Chandigarh Chapter Ar. Sanjay Goel  
Chairman  
IIA Punjab Chapter

## HIGHLIGHTS OF THE QUARTER (July - September 2020)

### **Notification of Energy Conservation Building Code in Arunachal Pradesh and Sikkim**

Considering importance of energy efficiency in building sector, Government of Arunachal Pradesh and Sikkim has taken one more step towards adoption of Energy Conservation Building Code (ECBC). ECBC 2018 is approved by the cabinet of Arunachal Pradesh and Sikkim.

After notification, it will be mandatory for all the upcoming commercial buildings in Arunachal Pradesh and Sikkim to comply with the ECBC to achieve energy efficiency and to build an energy efficient new India.

### **Stakeholder meeting on 'Preparation of database and adaptive model for thermal comfort of occupants in Residential Building of India.'**

Stakeholder meeting on 'Preparation of database and adaptive model for thermal comfort of occupants in Residential Building of India" was conducted by Bureau of Energy Efficiency (BEE) with the support from GIZ-India and CRDF – CEPT University on 20th August 2020. This meeting was conducted to discuss the development of the model on thermal comfort in line with the energy efficiency for the residential building in India. The meeting was attended by various stakeholders like architects, government officials, and institution professionals.



## HIGHLIGHTS OF THE QUARTER (July - September 2020)

### Bureau of Energy Efficiency participated in the 11<sup>th</sup> Clean Energy Ministerial (CEM11) meeting

Bureau of Energy Efficiency co-hosted a CEM11 pre-event in the 11<sup>th</sup> Clean Energy Ministerial (CEM11) meeting. DG BEE, Shri Abhay Bakre addressed the virtual gathering on “Promoting Energy Efficiency and Clean Energy in Industry Featuring the Energy Management Leadership Awards” on 15<sup>th</sup> September 2020 in association with UNIDO, where discussions on Global energy management leadership and the role of clean energy took place.



## HIGHLIGHTS OF THE QUARTER (July - September 2020)



Hon'ble Minister of Power, Govt. of India addressed the virtual gathering in the presence of Hon'ble Minister of Energy, Govt. of UK.

This event focused on Global energy management leadership through a high-level dialogue among energy ministers and CEOs from the private sector on advancing clean energy in industry, especially energy-intensive sectors such as Steel and Cement.

Clean Energy Ministerial (CEM) platform brings together world's leading countries and international experts to accelerate clean energy transitions.

CEM member countries (26) together account for about 90% of the world's energy. CEM initiatives endorse their commitment towards inclusive, focused actions to meet our Clean Energy goals.

## HIGHLIGHTS OF THE QUARTER (July - September 2020)

India is a founding member of CEM and co-leads or participates across several work-streams.

In this extraordinary year, the 11<sup>th</sup> annual Clean Energy Ministerial meeting (CEM11) was hosted virtually by the Kingdom of Saudi Arabia, livestreamed for the global audience.

During the CEM11 plenary and pre-events, Energy ministers highlighted the Clean energy's role in supporting a rapid and sustainable recovery.

CEM11 Pre-event on “Key Financing Principles for CCUS” was scheduled on 15th September 2020. At this event, the CEM Initiative on “Key Financing Principles for CCUS”, crafted in consultation with representatives of financial sector organizations was launched.

CEM11 Pre-event on “Flexibility in clean energy systems: the enabling roles of nuclear energy” was also scheduled on 15th September 2020. The event showcased clean energy options through nuclear energy innovations.

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CEM11 Pre-event on “Achieving a circular carbon economy through multilateral collaboration [joint MI-CEM event]” was scheduled on 16th September 2020. This year CEM11 and MI 5 were hosted by the Kingdom of Saudi Arabia (KSA) alongside the G20 Energy Ministerial. The KSA Presidency has proposed the Circular Carbon Economy (CCE) approach to accelerate transitions to more sustainable and cleaner energy systems.

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CEM11 Pre-event on “10 years of EVI: entering the decade of electric drive” was scheduled on 16th September 2020. The event showcased the Electric Vehicles Initiative (EVI)'s achievements since its launch in 2010, and open the gates to the next decade, outlining the opportunities that lie ahead.

## HIGHLIGHTS OF THE QUARTER (July - September 2020)

CEM11 Pre-event on “A holistic approach to low emission energy systems through sector integration” was scheduled on 16<sup>th</sup> September 2020.

The focus was on key policy support, including market design, multi-stakeholder coordination, cross-sectoral approaches.

CEM11 Pre-event on “The Biofuture Platform Initiative launch: accelerating the transition to a sustainable low-carbon bioeconomy” was also scheduled on 16<sup>th</sup> September 2020.

The initiative aimed at raising international ambition and advance sustainable bioenergy production, trade and use globally, via analysis, policies, programs and projects, making bioenergy a key enabler in clean energy transitions.

### **Webinar on India Buildings Roadmap: Shaping a common vision for energy efficiency in residential buildings**

The Bureau of Energy Efficiency along with IEA organized a webinar on India Buildings Roadmap: Shaping a common vision for energy efficiency in residential buildings on 18<sup>th</sup> September to discuss how to advance progress in energy efficiency in residential buildings India, with a set of dignified speakers from national, state and local governments.

This was part 1 of many stakeholder consultations to unlock the vast potential for energy efficiency residing in the India residential building sector. At stake are jobs, cleaner air, more livable cities, more affordable energy services, and more comfortable homes. DG, BEE, Shri Abhay Bakre addressed the virtual gathering along with Ms. Melanie Slade, IEA, and Ms. Natalie Toms, British High Commission. Eminent panelists including Shri Ajay Jain, Principal Secretary, Housing Department, Andhra Pradesh, Shri Vipin Sharma, Commissioner, Thane Municipal Corporation, and panelists from KREDL, ASCI, SDC and GIZ, emphasized on the importance of energy efficiency in Residential buildings and role of ULBs for implementation.

In this webinar the IEA and BEE launched the project on "Roadmap on Mainstreaming Energy Efficiency in Residential buildings in India", followed by a panel discussion. Discussions on various topics took place:

## HIGHLIGHTS OF THE QUARTER (July - September 2020)

- Importance of energy efficiency in residential building sector
- Challenges present at local level to mainstream energy efficiency in the states
- Existing opportunities and learning from Global ABC roadmap
- What are the different incentive mechanism and policy pathway required by the sector to reach its full efficiency?
- What impact the COVID 19 pandemic has had on the sector and how is it expected to recover in future?
- What are the best possible ways to address the multiple benefits of energy efficiency from this sector?



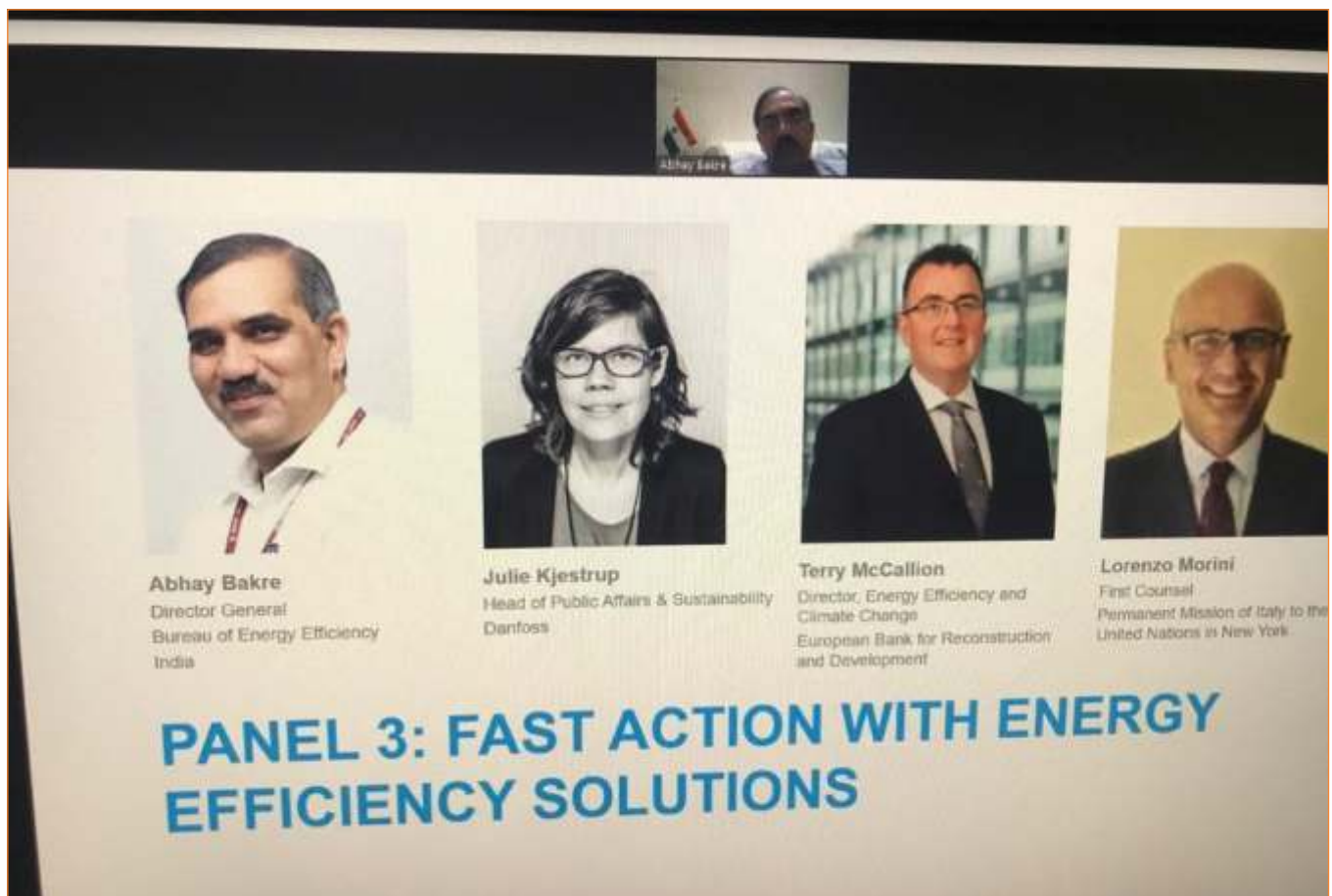
## HIGHLIGHTS OF THE QUARTER (July - September 2020)

### हिंदी दिवस

हिंदी दिवस के अवसर पर ऊर्जा दक्षता ब्यूरो में 14 सितम्बर से 28 सितम्बर 2020 तक हिंदी पखवाड़ा का आयोजन किया गया, जिसके अंतर्गत विभिन्न प्रतियोगिताओं एवं कार्यक्रमों का आयोजन ऑनलाइन कराया गया।

### DG BEE participated in a panel discussion on Fast Action with Energy Efficiency Solutions part of webinar organized under the Initiative on "Energy Efficiency: The Three Percent Club"

Shri Abhay Bakre, DG, BEE participated in a panel discussion on Fast Action with Energy Efficiency Solutions, part of webinar organized under the Initiative on "Energy Efficiency: The Three Percent Club" on 14<sup>th</sup> September 2020. In the webinar, officials from Governments of UK, Italy, Canada and Senegal participated along with representatives from UNIDO, WRI, Alliance to Save Energy, Johnson Controls, Danfoss, Signify and EBRD.



## HIGHLIGHTS OF THE QUARTER (July - September 2020)

Shri Bakre highlighted outcomes of Perform, Achieve and Trade (PAT) and Standards & Labelling which are the flagship schemes launched by Government. The PAT scheme is currently in its 6th cycle and covers 1073 large units from 13 energy intensive sectors. The S&L program covers star labels for 26 appliances and is a major contributor to the energy savings.

India is one of the first countries to develop a comprehensive Cooling Action plan. ICAP seeks to reduce cooling demand across sectors by 20% to 25%, refrigerant demand by 25% to 30%, by 2037. He highlighted that successful implementation of various energy efficiency measures in the country has resulted in total cost savings worth USD 13 billion which is equivalent to reduction in carbon dioxide emission of around 151.74 Million Tonnes.

The webinar was organized under the broad theme of international collaboration and greater collective action are needed to achieve accelerated energy efficiency progress towards 3% annual improvement goals and a sustainable recovery in line with the Paris Accord. It is part of the larger series hosted by the Denmark UN mission along with Ethiopia as the co-leads for the Energy Transition Track Initiative, marking one-year anniversary of the Climate Action Summit. The session was moderated by Head of Energy Efficiency, International Energy Agency (IEA).



## HIGHLIGHTS OF THE QUARTER (July - September 2020)

### Highlights of the Quarter for Residential Buildings

- 1. Webinar and launch of report on "Thermal Performance of Walling Materials & Walling Technologies" – 9<sup>th</sup> July** - The accurate computation of U-value of the external wall is essential for checking compliance with ENS. Presently, ENS provides reference values for a few types of bricks, that needs to be expanded given the diversity of walling material and walling technologies used in India. To fill this gap, a two-part project was jointly undertaken by the Centre for Advanced Research in Building Science and Energy (CARBSE) at CEPT University and Greentech Knowledge Solutions Pvt Ltd (GKSPL) to build a database of thermo-physical properties of walling materials and walling technologies. The methodology and the test results of the two research studies were shared and discussed in the webinar. The research work was supported by the Shakti Sustainable Energy Foundation.
- 2. Webinar to seek technical insights for developing a catalogue of replicable designs for Energy-Efficient Residential Buildings in India – 13<sup>th</sup> July** - A catalogue of replicable designs for Energy Efficient Residential Buildings in India is being developed. The objective of this study is to proliferate the transformation towards climate responsive design and encourage effective use of efficient building materials which can offer major energy and cost savings to the stakeholders. Energy-efficient residential building design options have been developed for all the five climatic zones of India. To ensure constant technical assistance to all the developers and other stakeholders across India, a web tool has also been developed with all the relevant design options. A second webinar was organised to seek valuable suggestions from the stakeholders to enhance the productivity of the design catalogue. The objective of this webinar was to present the approach, discuss findings and to seek views to make it a workable concept for the Indian building sector.

## HIGHLIGHTS OF THE QUARTER (July - September 2020)

### 3. ENS Awareness Webinars:

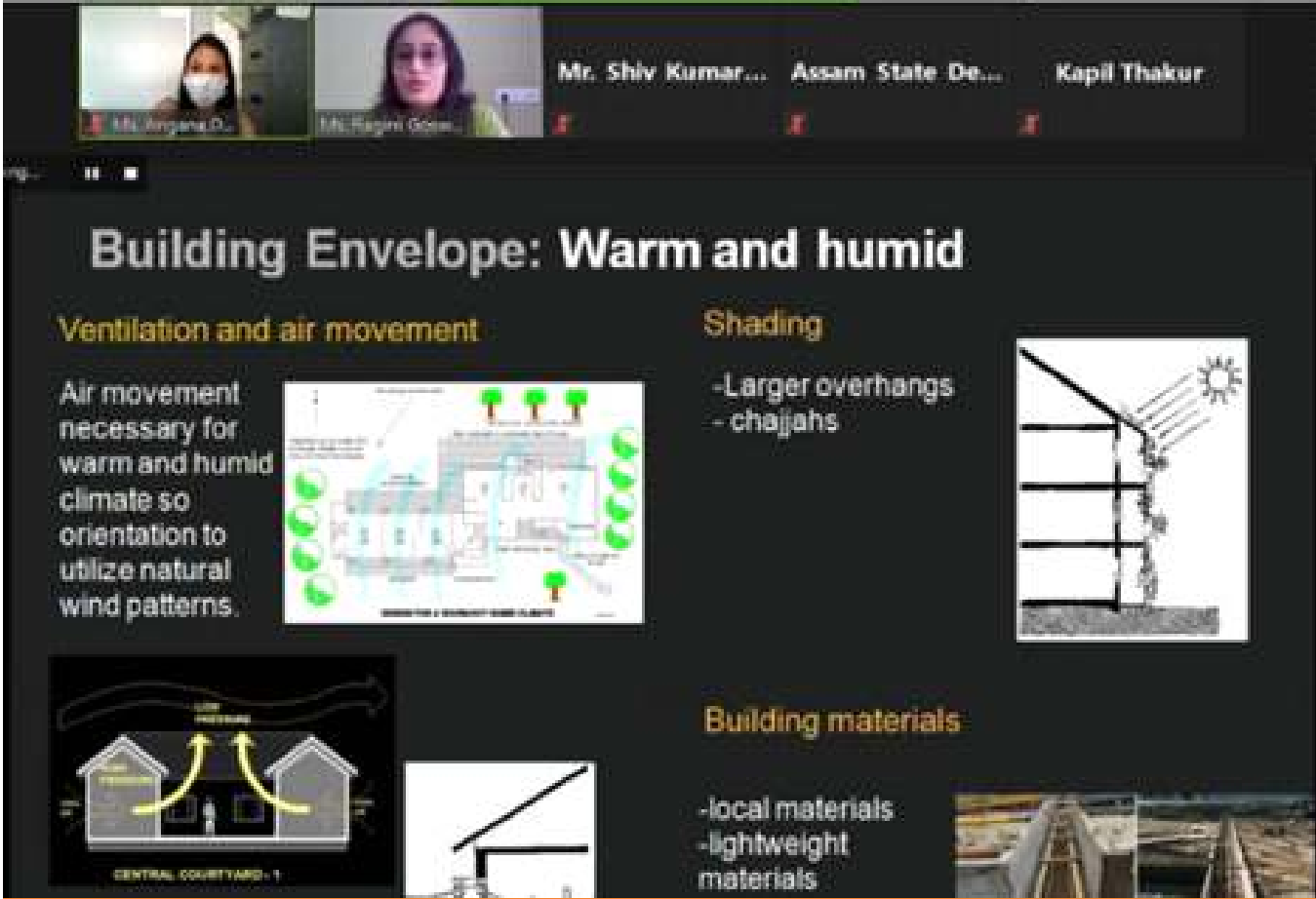
- a. One Day Webinar on ENS Awareness was conducted for Gujarat on 18<sup>th</sup> July, 2020, in association with GEDA and BEEP.
- b. One Day Webinar on Eco-Niwas Samhita and Labelling Programme was conducted on 28<sup>th</sup> of July, 2020, in association with EEREM, GIZ and ENS Cell Delhi.
- c. One Day Webinar on ENS Awareness and Training for Andhra Pradesh was conducted on 18<sup>th</sup> of August, 2020, in association with BEEP.
- d. Two One-Day Webinars on Eco-Niwas Samhita and Labelling Programme were conducted for architects and developers on 14<sup>th</sup> and 18<sup>th</sup> of September, 2020, in association with GIZ, KREDL and ENS Cell Karnataka.
- e. One-Day Webinar on ENS Awareness was conducted on 25<sup>th</sup> of September, 2020, for NAREDCO Karnataka Chapter, in association with GIZ, KREDL and ENS Cell Karnataka.
- f. One-Day Webinar on ENS Awareness was conducted on 30<sup>th</sup> of September, 2020, for PWD Karnataka, in association with GIZ, KREDL and ENS Cell Karnataka.

### 4. ENS Awareness Webinars for Colleges:

- a. Three One-Day Awareness Webinars on Eco-Niwas Samhita and Labelling Programme were conducted on 24<sup>th</sup>, 27<sup>th</sup> and 29<sup>th</sup> of July, 2020, for 3 colleges in Delhi and Karnataka, in association with EEREM and KREDL, GIZ, and ENS Cells in Delhi and Karnataka.
- b. One-Day Awareness Webinars on Eco-Niwas Samhita and Labelling Programme were conducted on 27<sup>th</sup> August, 2020, 3<sup>rd</sup>, 4<sup>th</sup>, 11<sup>th</sup>, 19<sup>th</sup> and 24<sup>th</sup> of September, 2020, for 17 colleges in Maharashtra, in association with Maharashtra Association of Schools of Architecture, GIZ, MEDA and ENS Cell Maharashtra.

## HIGHLIGHTS OF THE QUARTER (July - September 2020)

- c. One-Day Awareness Webinars on Eco-Niwas Samhita and Labelling Programme were conducted on 1<sup>st</sup>, 18<sup>th</sup> and 23<sup>rd</sup> of September, 2020, for 3 colleges in Delhi, in association with GIZ, EEREM Centre and ENS Cell Delhi.
  - d. One-Day Awareness Webinars on Eco-Niwas Samhita and Labelling Programme were conducted on 23<sup>rd</sup> and 30<sup>th</sup> of September, 2020, for 2 colleges in Punjab, in association with GIZ, PEDA and ENS Cell Punjab.
5. Media Engagement Webinar: Media Engagement Webinar on Energy Efficient Buildings was conducted on 26<sup>th</sup> and 27<sup>th</sup> August, 2020, for media professionals, in association with Indo-Swiss BEEP and Centre for Media Studies.

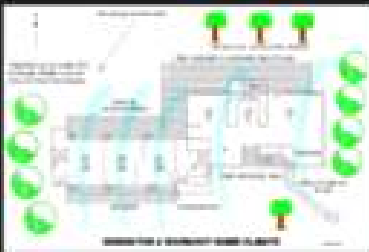


Mr. Shiv Kumar... Assam State De... Kapil Thakur

### Building Envelope: Warm and humid

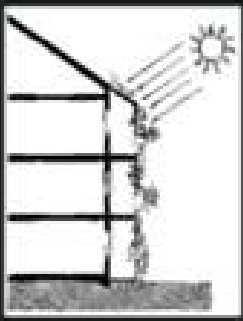
**Ventilation and air movement**

Air movement necessary for warm and humid climate so orientation to utilize natural wind patterns.






**Shading**

- Larger overhangs
- chajjahs



**Building materials**

- local materials
- lightweight materials



**Webinar Conducted in Assam**

# HIGHLIGHTS OF THE QUARTER (July - September 2020)



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Climate Zone	Typical Building EPI (kWh/m <sup>2</sup> -yr)	ECBC EPI (kWh/m <sup>2</sup> -yr)	% Savings
Cold	~200	~155	21%
Composite	~215	~165	22%
Hot Dry	~225	~175	22%
Moderate	~195	~155	20%
Warm Humid	~215	~160	25%

## Webinar in Andhra Pradesh

## HIGHLIGHTS OF THE QUARTER (July - September 2020)

### Highlights of the Quarter for Commercial Buildings

Energy Conservation Building Code (ECBC) has been developed by Bureau of Energy Efficiency (BEE), its enforcement lies with the State Governments and Urban Local Bodies (ULBs) through notification & capacity building within their states. The objective of the ECBC capacity building program is to provide training on various aspects of the code with the intent of creating awareness among stakeholders like: Administrators, Government officials, Architects, Engineers, Developers, Builders, code compliance officials of the State Government/ ULBs.

As we all are aware that presently, India is battling against the pandemic “Covid-19” for past 8 months. To curb a growth in infections, the central government has been working with the nation’s 28 states and 8 Union territories to prevent the risk of infection and aware people to follow social distancing. Mass congregations for training program/Workshop/Meetings may be avoided to avoid the further spread of the virus. In such scenario, physical ECBC training programs were converted to webinar (virtual training programs).

About 149 No. of webinars (virtual ECBC training programs) conducted in States/UTs in the month of July-Sep 2020.

- Review meeting conducted with all SDAs in the month of Aug 2020, to discuss the progress of ECBC activities and way forward.

### Notification of Energy Conservation Code in Andaman & Nicobar Island

ECBC & Rules notified in Andaman & Nicobar Island. Now it is mandatory for all the upcoming commercial buildings in Andaman & Nicobar Island to comply with the ECBC to achieve energy efficiency and to build an energy efficient new India.

# बिजली बचाएंगे तो रोशन होगा इंडिया



मानक और लेबलिंग कार्यक्रम



ऊर्जा संरक्षण भवन संहिता



मांग पक्ष प्रबंधन



परफॉर्म, अचीव एंड ट्रेड



ऊर्जा दक्षता ब्यूरो (बी ई ई)

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