

SAMEEEKSHA

SMALL AND MEDIUM ENTERPRISES: ENERGY EFFICIENCY KNOWLEDGE SHARING

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NEWSLETTER

Inside...

- National Conclave on Enhancing Energy Efficiency in MSME sector



VISION

SAMEEEKSHA envisages a robust and competitive SME sector built on strong foundations of knowledge and capabilities in the development, application, and promotion of energy-efficient and environment-friendly technologies.



Bureau of Energy Efficiency



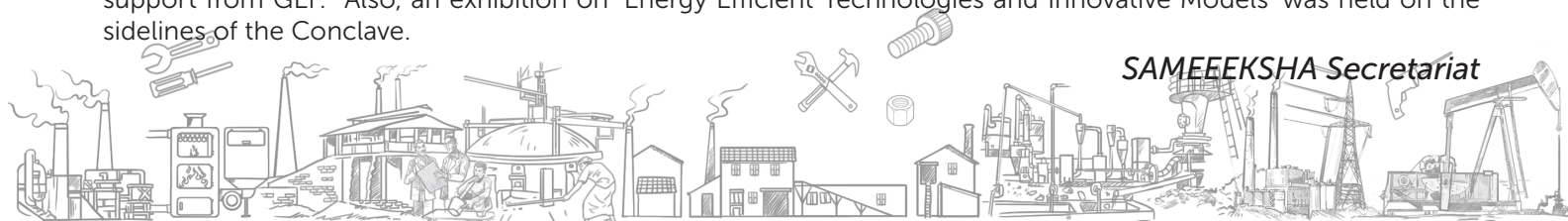
A PLATFORM FOR PROMOTING ENERGY EFFICIENCY IN SMEs

IN THIS ISSUE...

This issue presents the highlights of the 'National Conclave on Enhancing Energy Efficiency in MSME sector' that was organized by BEE in New Delhi during 23–24 September 2019. Among the dignitaries who attended were Chief Guest Mr Nitin Gadkari, Minister of MSME and Minister of Road Transport and Highways; and Guest of Honour Mr R K Singh, Minister of State (IC) for Power and New & Renewable Energy and Minister of State for Skill Development and Entrepreneurship. Other participants comprised stakeholders from across India that have been actively involved in bringing about energy efficiency (EE) improvements in the MSME sector—including entrepreneurs, industry associations, implementing agencies, technical consultancies, representatives from banks/financial institutions, R&D organizations and government agencies.

As summarized in the issue, the Conclave provided a platform for the participants to share their perspectives, experiences, success stories and insights; take stock of achievements, and outline the way forward. A number of knowledge resources and initiatives for promoting EE among MSMEs were launched during the Conclave, including a manual prepared by BEE on 'Energy Conservation Guidelines for MSME Sector'; and a knowledge portal titled *Simplified Digital Hands-on Information on Energy Efficiency in MSMEs (SIDHIEE)* developed by BEE, showcasing EE technologies that have been successfully demonstrated in various energy intensive MSME sub-sectors. An MOU was signed between DC-MSME and BEE aimed at improving the overall energy security of the MSME sector through initiatives such as comprehensive energy mapping of MSMEs, knowledge exchange and capacity building programs, and demonstration of EE technologies. Certificates were awarded to MSMEs that have achieved ISO 50001 standards for their Energy Management Systems with support from the GEF-UNIDO- BEE Program 'Financing Energy Efficiency at MSMEs'; and to MSME entrepreneurs who have developed innovative low carbon technologies (LCTs) under the 'Facility for Low Carbon Technology Deployment' being implemented by BEE and UNIDO with support from GEF. Also, an exhibition on 'Energy Efficient Technologies and Innovative Models' was held on the sidelines of the Conclave.

SAMEEEKSHA Secretariat



NATIONAL CONCLAVE ON ENHANCING ENERGY EFFICIENCY IN MSME SECTOR

Backdrop

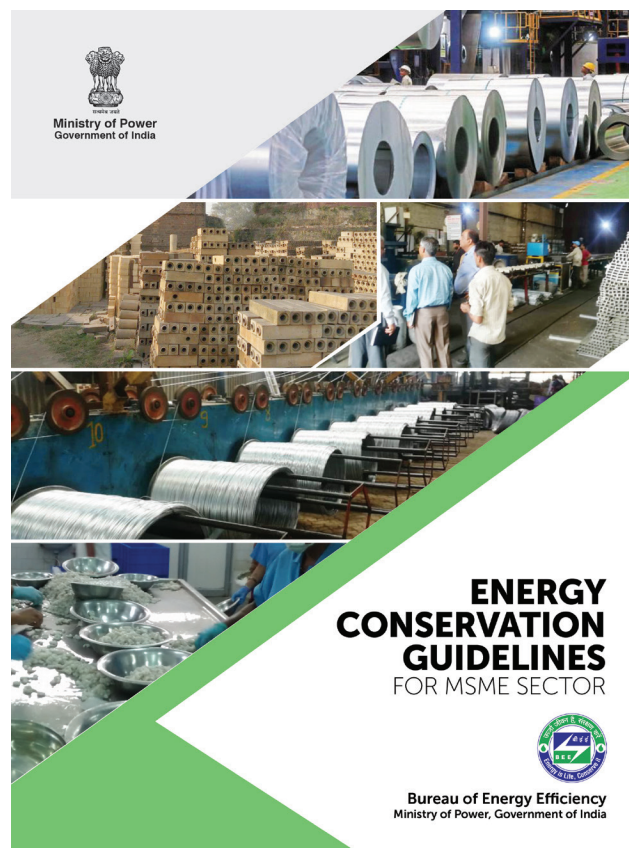
The importance of the MSME sector to India's socio-economic development is well understood, in terms of its contribution to GDP, exports and employment. So too is the immense need and potential for improving the energy efficiency (EE) and productivity of MSMEs, so that they can become competitive enough to face the challenges of a globalized market, as well as help India achieve its CO₂ emission reduction targets for mitigating the effects of climate change. Although significant progress has been made towards achieving these goals through interventions by various agencies and organizations, public and private, many gaps still remain in the ecosystem for providing EE services to MSMEs.

In order to bring together the various MSME stakeholders and enable them to take stock of what has already been achieved, what remains to be done, and to chart the course ahead, the Bureau of Energy Efficiency (BEE) organized a 'National Conclave on Enhancing Energy Efficiency in MSME sector' in New Delhi during 23–24 September 2019. Over 300 participants attended the Conclave. They included MSME entrepreneurs and office-bearers of various cluster associations from across India; representatives from Ministry of MSME (MoMSME), Ministry of Power (MoP) and other government departments/institutions; banks and financial institutions; implementing agencies; technical consultancies; R&D institutions; and other agencies and organizations engaged in promoting EE in the MSME sector.

The event began with the inauguration of an Exhibition on 'Energy Efficient Technologies and Innovative Models', jointly by Chief Guest Mr Nitin Gadkari, Minister of MSME and Minister of Road Transport and Highways; and Guest of Honour Mr R K Singh, Minister of State (IC) for Power and New & Renewable Energy and Minister of State for Skill Development and Entrepreneurship.

Highlights

A number of knowledge resources and initiatives for promoting EE among MSMEs were launched during the Conclave. Among them were:



ENERGY CONSERVATION GUIDELINES FOR MSME SECTOR



Bureau of Energy Efficiency
Ministry of Power, Government of India

- » *'Energy Conservation Guidelines for MSME Sector'*; a manual prepared by BEE with support from TERI. This document contains detailed guidelines that will help MSMEs in different industrial sub-sectors to adopt best operating practices (BOPs) in their processes and equipment to improve their energy efficiency and productivity.
- » *Simplified Digital Hands-on Information on Energy Efficiency in MSMEs (SIDHIEE)*; a knowledge portal developed by BEE, comprising multimedia tutorials on EE technologies (EETs) that have been successfully demonstrated in 18 energy intensive MSME sub-sectors. The tutorials are also available on the SAMEEEKSHA website.
- » *MOU signed between DC-MSME and BEE for energy security of MSMEs*. The major outcomes envisaged under this MOU include comprehensive energy mapping of MSMEs in India; knowledge



exchange and capacity building programs for Enterprise Development Center and National Resource Centers established by Ministry of MSME; and demonstration of EETs.

BEE has since carried out this task, and prepared a manual on 'Energy Conservation Guidelines for MSME Sector' with benchmarks for a range of MSME sub-sectors.



Release of 'Energy Conservation Guidelines for MSME Sector'

Framing the context

Mr Raj Pal, Economic Advisor, MoP outlined the agenda of the two-day Conclave and the context in which it was being held. Setting the theme for the conference, **Mr Abhay Bakre**, Director General, BEE recalled that exactly a year earlier (on 23 September 2018), the Power Minister had released a report on the impacts of the PAT Scheme, which revealed that during its 1st cycle, about 500 Designated Consumers (DCs) had invested about Rs 25,000 crores (250 billion) on EETs, against which they had saved electricity worth about Rs 9500 crores (95 billion) and mitigated about 31 million tonnes of CO₂ emissions. He added that the Minister had also released Energy Conservation Guidelines for large industries, and suggested that similar guidelines could be prepared for MSMEs to give them an opportunity to benefit from adopting EETs and BOPs. Mr Bakre expressed his satisfaction that

MSMEs awarded ISO 50001 Certificates

Certificates were awarded to 50 MSMEs that have achieved ISO 50001 standards for their Energy Management Systems, with support from the GEF-UNIDO-BEE Program 'Financing Energy Efficiency at MSMEs'.



Mr Abhay Bakre, Director General, BEE

Mr Rene Van Berkel, UNIDO Representative and Head of UNIDO Regional Office in India, said that EE initiatives in the MSME sector should focus on three goals: (1) create awareness among MSMEs on the critical importance of energy usage, and provide them with energy management services; (2) transform markets for EETs, services and financing; and (3) bring more innovative EETs within the realm of techno-economic viability. **Mr Ram Mohan Mishra**, Additional Secretary & DC, MSME, identified two key domains related to MSMEs that must be deliberated upon: (1) 'technologies for business'—developing innovative EETs that can improve productivity and competitiveness of MSMEs; and



Mr Rene van Berkel, Head, UNIDO Regional Office in India



(2) 'business of technology'—providing support to the technology developers and suppliers so that their innovative EETs find a ready market among MSMEs. He added that banks and FIs will have to play a key role in overcoming the challenges and addressing the needs in these two areas. **Mr Sanjeev Nandan Sahai**, Special Secretary, MoP, remarked that in India, energy demand from industry has increased substantially during the last five years, and is expected to triple in the next 25 years. He outlined various interventions by BEE in the MSME sector in partnership with multilateral agencies, and added that the experiences and lessons from these interventions will be extended to initiatives in 400 more MSME clusters.

Address by Chief Guest

Mr Nitin Gadkari, Union Minister, MoMSME, said that the government aims to substantially increase the share of MSME sector in the country's GDP from the present 29%, and ensure that the sector provides employment to at least 15 crore people against the 11.1 crore at present. He elaborated on the challenges that must be addressed in achieving these goals:

- » *High logistics costs.* In India, logistics expenditure amounts to about 16–18% of GDP, compared to 8–10% in China and 12% in European countries. As a consequence, Indian products are not price-competitive in international markets. The government is making efforts to reduce logistics costs: for instance, through developing inland waterways for transport. Transport by inland waterways offers huge cost savings compared to rail and road transport. "What costs Rs 10 to transport by road, and Rs 6 by rail, will cost only Rs 1 by water."
- » *High capital cost.* Elsewhere in the world, interest on capital ranges between 1–3%; in India, capital is available only at very high interest rates, particularly for MSMEs: typically at 11% or more. The need is to reduce capital cost: towards this, an MOU has been signed between GOI, World Bank, ADB and KfW for a large credit line which will make capital available to MSMEs at low interest rate.

"Innovation, entrepreneurship, science & technology, research and skills—these are the elements of knowledge, and they also help convert knowledge into wealth to secure our future..."

—**Mr Nitin Gadkari**, Union Minister of MSME, Government of India

- » *High power cost.* Grid electricity price is very high; typically, Rs 11/kWh at a time when the cost of solar power has been reduced to Rs 2.4/kWh. The development and promotion of innovative EE equipment/appliances at affordable prices for MSMEs, and facilitating the usage of RE-based power, can help reduce the overall demand and cost of power from the grid.



Mr Nitin Gadkari, Union Minister, MoMSME

Mr Gadkari underlined the multiple benefits that can be derived from innovative management of resources, including wastes. For instance, the Nagpur Municipal Corporation is supplying treated sewage water to power generation plants in the state, and earning Rs 180 crores annually, while the power plants are no longer drawing fresh water for their operations—thereby saving this precious natural resource. Nagpur has also demonstrated that organic wastes from fruit/vegetable/fish markets can be processed to produce bio-CNG, which is used as fuel for transport. These models can be replicated across the country. He also mentioned a variety of grass with very high calorific value—Napier grass—that can be cultivated as an energy crop to provide feedstock for bio-CNG plants—thus providing assured income for millions of farmers, and a sustainable source of energy.

Turning to the government's ongoing drive to promote electric vehicles (EVs), Mr Gadkari said that the aim is to convert all buses to EVs over the next few years, adding that these will be truly 'green' vehicles if they are operated on electricity from renewable sources. He acknowledged that there are barriers faced by industries and other consumers in adopting RE systems, as well as in linking their RE systems and waste-to-energy plants with the grid. He stressed that these barriers have to be resolved quickly in national interest by all stakeholders, and



added that KfW is ready to provide a credit line for promoting rooftop solar systems on a large scale.

Address by Guest of Honor

Mr R K Singh, Minister of State (IC), Ministry of Power, underlined that MoP has already made it compulsory for power plants to use treated sewage water, where available, from sewage treatment facilities located within a radius of 50 km. MoP has also allowed any costs on this account to be treated as 'pass through' (i.e., to be taken into account while fixing electricity tariff for consumers). He added that it is already mandatory for discoms to purchase power from waste-to-energy plants. However, this issue is being examined to find ways by which the policy can be implemented successfully—given the reluctance of discoms to comply, in view of the relatively high price of power from such waste-to-energy plants.

"Providing free or subsidized power leads to wastage of energy, because the consumers have no incentive to save power... with Direct Benefit Transfer the consumers will realize that they can save money by using less power."

—**Mr R K Singh**, Minister of State (IC) for Power

Regarding electricity tariff, he explained that in India power is subsidized for retail consumers—particularly farmers and poorer sections of the populace—and as a result power for industry is costlier than power for domestic (retail) consumers; the opposite holds true in developed countries. He underlined that the problem is not the subsidy per se; it is that the cost of this subsidy is not absorbed by the government, but instead loaded on to other consumer categories (i.e., through 'cross-subsidy'). The Electricity Act, 2003, envisaged that the cross-subsidy on power would progressively be reduced; but this has not happened. Under its new tariff policy (currently before Cabinet) the government proposes a roadmap to reduce the cross-subsidy in stages over a four-year period, to a point where a maximum power cross-subsidy of 20% will be allowable. Any subsidy over and above this level will have to be provided to consumers only through Direct Benefit Transfer (DBT), i.e. transfer of the equivalent money directly to the consumers' bank accounts.

The government is also addressing the barriers related to 'open access' being faced by consumers. The open access policy gives consumers the right to purchase electricity from any power producers (typically, RE-based plants) who offer electricity at a



Mr R K Singh, Minister of State (IC) for Power

lower price; but discoms levy surcharges on the RE power to make its price uncompetitive. In its new tariff policy, the government plans to phase out all the surcharges that are hindering open access. Mr Singh summarized the significant achievements in terms of energy saving and avoided CO₂ emissions from schemes such as PAT, Standards & Labeling (S&L), and Ujala, and stressed that there is still vast potential for reducing energy consumption and improving EE in every sector of the economy. He cited a few examples:

- » Under an MoP program, one crore municipal streetlights across India are being replaced by LED lamps, saving almost 50% in energy consumption.
- » In the agriculture sector, EESL is implementing an MoP program to replace the existing low efficiency pump sets by EE (5-star rated) pump sets, free of cost to farmers. The respective state governments, which are already providing free power to the farmers, are able to pay for the EE pump sets through the annual savings in electricity costs.
- » A related scheme is Kisan Urja Suraksha Evam Utthaan Mahabhiya (KUSUM), which aims at converting every agricultural pump set to solar-based operation. The pump systems are also linked to the grid, so that the farmers can sell any excess solar power generated when the pumps are not in use, to the discoms. This helps farmers earn additional income, and also give them a strong incentive to switch off their pumps when not required.

Valedictory Address

Mr S C Garg, ex-Secretary, MoP, acknowledged the many initiatives that have been undertaken to promote EE in the MSME sector. He emphasized that



EETs become attractive for MSMEs only if and when the entrepreneurs are convinced that these EETs can improve their businesses—by reducing their energy costs, increasing their profits, and making them more competitive. He pointed out that while MSMEs generally operate on thin profit margins (often as low as 5–10%), there are a large number of MSMEs in which energy costs make up 20–30% of production costs. For such energy intensive MSMEs, reduction in energy costs by even a few percentage points will bring them huge increase in profits. Yet, adoption of EETs by MSMEs is slow—even in cases where the EETs have been shown to offer paybacks on investments within six months! Clearly, there are financial barriers that hinder the adoption of EETs—evidenced by the fact that the share of EE loans is very small among banks and NBFCs. Mr Garg suggested that MSME entrepreneurs (the ‘demand’ side for EETs) and the EET providers (the ‘supply’ side) should be brought together along with representatives from banks and NBFCs to understand the barriers that prevent MSMEs from adopting EETs—and to evolve attractive, innovative financing models for the EETs that will overcome the barriers and bring benefits to both demand and supply sides.

policy till date has been to allow manufacturers to do voluntary EE labeling of appliances, and so on. However, the time may have come to re-examine this issue, and draw up plans to phase out all energy-inefficient equipment/appliances from the market. In parallel, schemes can be drawn up to support the concerned manufacturers in modernizing their production facilities.

- » To strengthen the enabling policy framework for EE,
 - Improve and consolidate data on energy use in manufacturing MSMEs
 - Achieve coherence of policies on energy, MSMEs and climate
 - Develop convergence between various ministries/departments, and promote EE policies and instruments for MSMEs such as public procurement, standardization and performance ratings for equipment such as boilers, furnaces and compressors.
- » Energy security of MSMEs should be seen not only in terms of higher energy efficiency with reduction in specific energy consumption (SEC);

Awards for Innovation

Annual 'Innovation Challenge' competitions are held to encourage entrepreneurs to conceptualize and develop innovative low carbon technologies (LCTs), under the GEF-supported project 'Facility for Low Carbon Technology Deployment' (FLCTD) that is being implemented by BEE and UNIDO. The top three winners in the 2018 Innovation Challenge were felicitated during the Conclave. They are:

Process Category	Winners
Low grade waste heat recovery	Mr KP Ashwin Krishna, Director, M/s Promethean Energy Pvt Ltd
Pumps and pumping systems	Dr Manoj Modi, Head (R&D), M/s Shakti Pumps (I) Ltd
Space conditioning	Mr Nitin Goel, CEO and Co-Founder, M/s Inficold

Key takeaways

A number of panel discussions were held during the Conclave, in which the participants shared their experiences, perspectives and ideas related to promoting and scaling up EE in the MSME sector. Some of the salient points from the presentations and discussions are summarized below.

Strategy, policy

- » The Energy Conservation Act, 2001 gives government the power to ban the manufacture and sale of energy-inefficient products. When the law came in, it was felt that this provision might adversely affect small manufacturers; hence, the

but also in terms of improved productivity (e.g., through less usage of resources like water and raw materials) and reduced carbon intensity (e.g., through recovery and reuse of waste heat, RE-based technologies, and so on).

- » EETs can be scaled up through demand aggregation coupled with bulk procurement to

"India will achieve its full growth potential only if the MSMEs in India succeed...and in this globalized economy, success can only flow from genuine competitiveness and not from artificial sops!"

Mr Ajay Shankar, Distinguished Fellow, TERI



bring down EET costs; cluster-wide interventions; and lines of credit to make capital available at low cost.

- » In order to make EE policies and programs effective and comprehensive, a synergetic or '360°' approach is needed covering every stage of the EE project lifecycle: creating base line data; identifying and developing EE technology solution(s); selecting vendors; capacity building; enabling finance; conducting pilot demonstrations; and implementations.
- » Although solar and wind plants are already providing electricity at a cost lower than that from a new thermal power plant, a major challenge they face is that their power generation is not uniform during the day. Regulatory support should be explored for promoting RE power, through avenues such as net metering, energy banking, etc.
- » While designing lines of credit (LOCs) for EE, thought must be given as to whether to broaden the scope of these LOCs to cover general modernization of facilities that leads to improvements in productivity.

Implementation

- » There is huge need and potential to increase awareness, among MSMEs, that even simple, low-cost EE measures can yield significant energy and cost savings with very attractive paybacks on investment. For example, a water pump operating at 25–30% efficiency and consuming about 4.7 kW power can be replaced by an EE pump designed for 60% efficiency and consuming 2.35 kW. The energy saving may appear small; but because the pump operates continuously, the monetary saving works out to almost Rs 350 daily or Rs 125,000 annually! The investment on the EE pump can be recovered within three months.
- » Monitoring and minimizing wastage of resources presents huge opportunities for improving EE and productivity among MSMEs. For example, the level of melting losses in aluminium melting among Indian SMEs is usually between 4–6 % as compared to 1–2% in developed countries. To reduce wastes and save energy and costs, the technological solutions must be found in process optimization (e.g. with upgraded equipment/machinery, temperature control systems, waste heat recovery systems, and so on).
- » Innovative business models can help overcome the two primary barriers that prevent an MSME entrepreneur from adopting an EET, namely:



Mr. S C Garg, Secretary, Ministry of Power

(1) reluctance to invest in a 'new' or 'unproven' technology; and (2) inability to meet the relatively high upfront capital cost of the EET. An example is provided by Surat textiles cluster, one of 10 MSME clusters in which EESL, UNIDO and MoMSME are implementing a program under GEF-5 to demonstrate and promote EETs. These EETs are being demonstrated under a business model wherein the MSME pays 20% of the EET cost upfront. The remaining amount of 80% is paid by UNIDO/EESL. The MSME has to repay the balance 80% from savings in energy costs in quarterly installments that can go up to a maximum period of three years.

"Four things have changed the business of SMEs, indeed of all enterprises across the world. The first is globalization. The second is technology. The third is scalability—if any business is not scalable, it won't last long. The fourth is sustainability..."

Mr Rajive Chawla, Chairman, IamSMEofIndia

- » The setting up of common utilities at the cluster level offers an innovative approach to promote EE and reduce production costs among local MSMEs. An example is in Surat textiles cluster where, under an ESCO model, a common boiler facility that generates 14 MW power from cogeneration has been established to provide high-pressure steam as well as metered low-cost electricity to 25 textiles units, which have discontinued using their own boilers.
- » A cadre of qualified EE professionals should be created, who can work at cluster/unit level to create local capacities and help scale up EETs. Towards this, a few more industrial energy training and pilot institutes should be set up, similar to the Dr Ambedkar Institute of Productivity (AIP) established in Chennai by NPC.





Conclave in session



ISO 50001 Certificates for MSME entrepreneurs



Exhibition on Energy Efficient Technologies and Innovative Models

ABOUT SAMEEEKSHA

SAMEEEKSHA is a collaborative platform aimed at pooling the knowledge and synergizing the efforts of various organizations and institutions—Indian and international, public and private—that are working towards the common goal of facilitating the development of the Small and Medium Enterprise (SME) sector in India, through the promotion and adoption of clean, energy-efficient technologies and practices.

SAMEEEKSHA provides a unique forum where industry may interface with funding agencies, research and development (R&D) institutions, technology development specialists, government bodies, training institutes, and academia to facilitate this process.

For more details, please contact

Mr Sachin Kumar
Secretary—SAMEEEKSHA
Industrial Energy Efficiency Division
TERI, Darbari Seth Block
IHC Complex, Lodhi Road
New Delhi – 110 003, India
Tel: +91 11 2468 2100, 2468 2111,
Fax: +91 11 2468 2144, 2468 2145
Email: sachink@teri.res.in
Website: <http://sameeksha.org>

