SMALL AND MEDIUM ENTERPRISES: ENERGY EFFICIENCY KNOWLEDGE SHARING

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SAMEEEKSHA NEWSLETTER

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Inside...

Promoting Energy Efficiency in SMEs

SAMEEEKSHA

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

SHAKTI SUSTAINABLE ENERGY FOUNDATION

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Creating Innovative Solutions for a Sustainable Future

MSME
MICRO, SMALL & MEDIUM ENTERPRISES

A PLATFORM FOR PROMOTING ENERGY EFFICIENCY IN SMEs

IN THIS ISSUE...

The theme of this issue is the scheme titled 'Assistance in Deploying Energy Efficient Technologies in Industry and Establishments' (ADEETIE), launched by the Government of India through Bureau of Energy Efficiency (BEE) in order to catalyse and accelerate the adoption of energy-efficient technologies (EETs) among MSMEs. TERI is providing technical support to BEE to facilitate the implementation of the ADEETIE scheme, under a project supported by the Foreign, Commonwealth and Development Office (FCDO), Government of U.K.

The theme article summarizes the basic features of the ADEETIE scheme, which offers comprehensive financial and technical assistance to MSMEs that have registered themselves on the Udyam portal, to help them implement EETs that can achieve at least 10% energy savings. The financial assistance is provided in the form of interest subvention on loans taken for the eligible EETs, after approval of the loan applications by BEE and the sanctioning bank(s). The scheme also covers the expenses/fees for carrying out investment-grade energy audits (IGEA), preparation of detailed project reports (DPRs), and monitoring and verification (M&V) reports on the EET implementations. The article also presents a brief account of two awareness workshops on the ADEETIE scheme that were held in the Rajkot and Karnal MSME clusters during January 2026, including examples of some of the EET opportunities available for MSMEs.

SAMEEEKSHA Secretariat

ADEETIE SCHEME: END-TO-END SUPPORT FOR MSMEs TO IMPROVE ENERGY EFFICIENCY

The Government of India, through Bureau of Energy Efficiency (BEE), Ministry of Power, has recently launched a flagship scheme titled 'Assistance in Deploying Energy Efficient Technologies in Industry and Establishments' (ADEETIE), in order to catalyse and accelerate the adoption of energy-efficient technologies (EETs) among MSMEs. TERI is providing technical support to BEE to facilitate the implementation of the ADEETIE scheme, under a project supported by the Foreign, Commonwealth and Development Office (FCDO), Government of U.K. As reported in this newsletter over the years, TERI has partnered with BEE in implementing several other major initiatives in the Indian industrial sector, such as conducting 'Resource Mapping Studies' in selected energy intensive MSME sub-sectors; preparing EE guidelines and codes for large industries as well as for MSMEs; implementation of the Perform, Achieve and Trade (PAT) scheme; capacity building of local service providers (LSPs) under the GEF-UNIDO-BEE project titled 'Promoting energy efficiency and renewable energy in selected MSME clusters in India'; training energy professionals in the foundry industry; and hosting the SAMEEEKSHA knowledge-sharing platform, to cite a few examples.

The next section summarizes the basic features of the ADEETIE scheme. It is followed by a brief account of the presentations and discussions during two awareness workshops on the ADEETIE scheme that were held in the Rajkot and Karnal MSME clusters during January 2026, including examples of some EET opportunities available for MSMEs.

ADEETIE scheme

The ADEETIE scheme offers comprehensive financial and technical assistance to MSMEs that have registered themselves on the Udyam portal, to help them implement EETs that can achieve at least 10% energy savings. The financial assistance is provided in the form of interest subvention on loans taken for the eligible EETs, after approval of the loan applications by BEE and the sanctioning bank(s). The scheme also covers the expenses/fees for carrying out investment-grade energy audits (IGEA), preparation of detailed project reports (DPRs), and monitoring and verification (M&V) reports on the EET implementations.

The ADEETIE scheme is being implemented over a three-year period from FY 2025–26 to FY 2027–28, with an outlay of Rs 1,000 crores in its first phase, of which Rs 875 crores is earmarked for interest subvention and Rs 50 crores for IGEA fees. The scheme targets 60 MSME clusters covering 14 energy intensive sub-sectors, namely: (1) brass, (2) bricks, (3) ceramics (4) chemicals, (5) fisheries, (6) food processing, (7) forging, (8) foundry, (9) glass & refractory, (10) leather, (11) paper, (12) pharma, (13) steel re-rolling, and (14) textile. The aim is to target another 100 MSME clusters in the next phase of the ADEETIE scheme.

Sub-sectors and clusters targeted under ADEETIE scheme

Brass	Jagadri, Jamnagar, Moradabad, Salem
Bricks	Bengaluru, Begusarai, Indore, Nagpur, Tripura
Ceramics	Morbi region, Thangadh
Chemicals	Ankleshwar & Panoli, Jamshedpur, Karnal, Thane, Vapi
Fisheries	Kochi, Bhubaneswar, West Godavari
Food processing	Ganjam & Nayagarh, Kaithal, Ludhiana, Pune
Forging	Bangalore, Chennai, Delhi-NCR, Ludhiana, Pune
Foundry	Batala-Jalandhar-Ludhiana, Belgaum, Coimbatore, Howrah, Rajkot
Glass & Refractory	Ambala, Chirkunda, E & W Godavari, Firozabad
Leather	Kanpur, Kolkata, Pallavaram & Vaniyambadi, Jalandhar
Paper	Coimbatore & Erode, Kashipur, Muzaffarnagar-Saharanpur, Vapi
Pharma	Baddi, Medak, Madgaon, Ahmedabad, Bidar
Steel rerolling	Jaipur, Jalna, Mandi Gobindgarh & Ludhiana, Raipur
Textile	Ludhiana, Panipat, Solapur, Surat, Tirupur

Highlights

- **Streamlined project Implementation**: End-to-end support is provided through all stages of the EET implementation process, from initial awareness creation among MSMEs, to technical and financial assistance for IGEAs, DPRs, commissioning of EETs, strengthening local delivery systems (LSPs, TSPs), and preparation and submission of post-implementation M&V reports for claiming the financial assistance.
- **Interest subvention**: The scheme provides interest subvention of 5% for micro and small enterprises, and 3% for medium enterprises, on loans taken for implementation of EETs that yield at least 10% energy saving as determined by post-implementation M&V.
- **Scheme duration**: Three years, from FY 2025–26 to FY 2027–28.
- **Eligible enterprises**: MSMEs registered with Udyam, and operating in any of the 60 identified MSME clusters under 14 industry sub-sectors.

The process flow of ADEETIE starts with the MSME registering its 'Expression of Interest' (EOI) on the ADEETIE portal and following it up with the IGEA; and it is completed with the interest subvention amount being released to the financing bank after the post-implementation M&V report is submitted to and approved by BEE. Currently, about 700 MSMEs have registered on the ADEETIE portal with EOIs, of which 86 have done so along with IGEAs.

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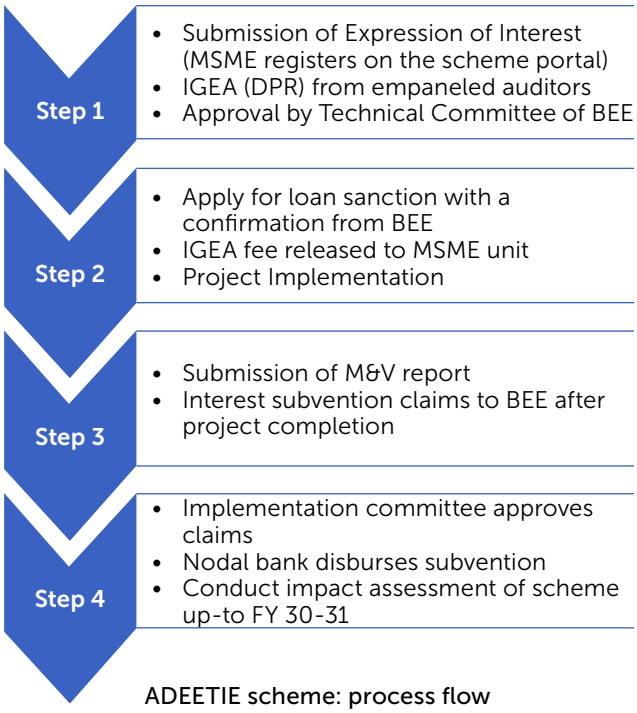
The ADEETIE website (https://adeetie.beeindia.gov.in/) provides detailed information and guidelines on the scheme, including lists of the Certified Energy Auditors and Approved Energy Auditor Firms empanelled with BEE for the ADEETIE scheme; registered banks/ financial institutions (FIs); list of EETs; operational guidelines; template for DPRs; etc.

Awareness workshops

Under the FCDO project, TERI in partnership with BEE organized two awareness workshops on the ADEETIE scheme during January 2026: one in the Rajkot cluster (Gujarat) on 9th January 2026, and the other in the Karnal cluster (Haryana) on 29th January 2026. The primary aim of these events was to generate awareness on the ADEETIE scheme among the MSME entrepreneurs in these clusters, and encourage them to avail of the opportunities that the scheme offers for adopting EETs that can bring improved energy performance, consequent savings in production costs, reductions in emissions, and other benefits. Besides senior functionaries from BEE, TERI, Energy Efficiency Services Limited (EESL) and SIDBI, the participants in these events included MSME entrepreneurs and operators, office bearers from leading industry associations, technology consultants, and representatives from government agencies, banks/ financial institutions, and academia. Snapshots of both clusters are presented below, along with summaries of the discussions and presentations during the two workshops.



ADEETIE scheme: process flow

Rajkot cluster

Types of industries

- Automobile components
- Bearings
- Diesel engine generator sets
- Forging
- Foundry
- Hardware/Kitchenware
- Pump sets
- Other allied engineering industries

Leading industry associations

- Rajkot Engineering Association (REA)

- Institute of Indian Foundrymen (IIF), Rajkot Chapter
- Indian Investment Casting Manufacturers Association (IICMA)
- Lodhika Industrial Association
- Machine Tools Manufacturers Association
- Aji GIDC Industries Association
- Shapar-Verval Industrial Association

Summary of workshop

Mr Girish Sethi, Senior Program Director, TERI mentioned TERI's long engagement with the Rajkot cluster that began around 2003, with the successful introduction and promotion of the divided blast cupola (DBC), an EE melting technology for foundries. The widespread and sustained replications of the DBC in the cluster, coupled with the success of other EE initiatives that have been undertaken in Rajkot over the last two decades, has evidenced the dynamism of this cluster and made it a natural choice for launching the awareness event on the ADEETIE scheme. Mr Dhiraj Kumar Srivastava, Director General, BEE, expressed his confidence that the Rajkot cluster would be a torch-bearer in availing the benefits of ADEETIE on a large scale, thereby demonstrating its advantages and utility to motivate MSME clusters across the country to follow suit.

Mr Narendrakumar Pachani, President, REA, spoke on the diversity of the Rajkot engineering units and outlined the background and activities of the REA, including the setting up of a Common Facility Centre (CFC), a BIS-certified testing laboratory, and an auditorium for the benefit of units in the cluster. Mr Vijay Siyani, Chairman, IIF, Rajkot Chapter, spoke on the long association between IIF and TERI in promoting EE technologies for foundries dating back to 1993, when the DBC technology was first demonstrated in the Howrah foundry cluster (West Bengal). Mr Rahul Patel, Vice President, IICMA, spoke on this important industry association which represents about 200 investment casting units in Rajkot that employ about 50,000 skilled workers. Energy efficiency is of particular interest for investment casting units as they are highly energy intensive. All the speakers expressed their keen support for supporting the ADEETIE initiative.

Mr Sandip Chaudhari, Assistant Project Executive, Gujarat Energy Development Agency (GEDA), described the dual role and activities of GEDA: as the state nodal agency for Ministry of New and Renewable Energy (MNRE), Government of India to promote renewable energy (RE) in Gujarat, as well as the state designated agency (SDA) of BEE to promote energy efficiency and energy conservation. He invited local industrialists to contact GEDA for queries and assistance regarding ADEETIE. Dr Rajesh S Ransing, Associate Professor, Mechanical Department, Swansea University, UK, spoke on how AI-enabled process engineering systems like digital twinning can optimize

process efficiencies and productivity in foundries, by 'connecting the dots' between data sets in different process areas. He expressed his interest in working with TERI and other stakeholders under ADEETIE to help the foundry industries apply and benefit from this approach.

Detailed presentations were made on the ADEETIE scheme including its aims, design, application process, and other operational aspects by Mr P Shyam Sundar, Director, BEE; Mr Girja Shankar, General Manager, Energy Efficiency Services Limited (EESL); and Mr Anas Aftab, Senior Manager, EESL.

Dr Naran M Pindoriya, Professor and Head, Dept. of Electrical Engineering, IIT, Gandhinagar (IITGN), outlined the nationwide initiative to promote EE titled 'Kotak–IIT Madras Save Energy Mission' (KISEM); a CSR initiative launched by Kotak Mahindra Bank in collaboration with IIT Madras, which has now expanded to include all 10 IITs as well as other banks. The KISEM centre at IITGN has worked in many clusters in Gujarat and Rajasthan. IITGN-KISEM has so far conducted about 94 walkthrough energy audits and 52 detailed energy audits (DEAs) in MSMEs, and identified and recommended the adoption of EETs with potential energy savings worth about Rs 27 crores, of which nearly a third (Rs 9 crores) has been realized through EET implementations. He presented a number of case studies to highlight the success of the KISEM interventions. He also underlined that as a CSR initiative, KISEM does not charge MSMEs for its services.

Mr Prosanto Pal, Senior Fellow, TERI, summarized the engagement of TERI with the Rajkot cluster, including promoting the DBC for foundries; strengthening business development services, such as identifying and training a local consultant for promoting BEE star-labelling of EE pump sets, and supporting the preparation of DPR for the Common Facility Centre; commissioning of Japanese gas heat pump (GHP) systems in two investment casting units; and conducting studies in foundry units and providing technical assistance for EET implementations. He presented a few successful case studies on EETs such as the DBC, EE induction furnace, compressed air system optimization, EE water pumps for coil cooling, and relining of shell baking furnace.

The event concluded with a free-wheeling question-and-answer session, during which information and insights on the various financing schemes available for EETs under ADEETIE as well as other schemes were provided by Mr Rishi Pandey, General Manager, SIDBI; Mr T S Saravanan, Deputy General Manager, SIDBI Regional Office, Rajkot; and Mr Jignesh Tolia, Assistant Vice President - Commercial Banking Group & Circle Sales Manager, Axis Bank, Gujarat (West).

Some EET options for MSMEs in Rajkot cluster[1]

Technology	Energy savings (%)	Investment (Rs lakhs)	Monetary savings (Rs lakhs/ year)	Simple payback period (months)
Energy Management System	15–30	7–10	3–4	24–36
Harmonic filter	4–5	8	6	11–12
Electric melting furnace/ Induction furnace	20–30	20–25	8–12	24–36
Divided blast cupola	20–25	6–8	3–4.5	20–24
EE pumps	15–30	0.7–4,5	0.25–5	20–25
Temperature controller for cooling tower fan	10–25	0.2–-0.3	0.2–0.3	12–15
EE screw compressor	25–40	2.5–6.5	1.5–7.5	20–25
Hanger shot blast machine	30–40	18–20	8–10	24–30
IGBT based induction furnace	20–30	20–25	15–20	15–18
EE motors (IE3, IE4, IE5)	25–40	5–7	2–3	20–25

1 Source: TERI presentation at the Rajkot workshop

Screw compressor with PM motor	15–20	6–7	3.5–4	18–24
High pressure moulding line	50–60	150–175	26–30	60–72

Karnal cluster

Types of industries

- Agricultural implements
- Ayurvedic products
- Chemical including paints, resins, soaps, detergents and surfactants
- Food processing
- Pharmaceuticals/API (active pharmaceutical ingredients)
- Rice mills
- Textiles

Leading industry associations

- Haryana Pharmaceutical Manufacturers Association (HPMA)
- Haryana Ayurvedic Manufacturers Association (HAMA)
- Karnal Ayurvedic Drug Manufacturers Association (KADMA)
- Karnal HSIIDC Industries Welfare Association
- Laghu Udyog Bharti
- Karnal Paints and Chemicals Manufacturers Association
- Karnal Pharma Association
- District Karnal Rice Millers & Dealers Association
- Karnal Rice Miller Association

In his welcome remarks, Mr Girish Sethi, TERI, underlined the importance of the ADEETIE scheme as an initiative to help both medium and small scale industrial units to improve energy efficiency, noting that industries account for nearly 50–60% of India's total energy consumption. Ms Archana Chauhan, Head- Energy Sector Reforms, Foreign, Commonwealth & Development Office (FCDO), British High Commission, New Delhi, reaffirmed the U.K. Government's commitment to supporting India's energy transition through initiatives like ADEETIE, and highlighted the long-standing U.K.–BEE partnership, including platforms such as iDeeksha to promote peer learning.

Mr R L Sharma, President, HPMA, emphasized the need for regular awareness and capacity-building programs to ensure that industries remain informed and engaged on supportive initiatives such as the ADEETIE scheme. He also shared the concerns of local MSMEs regarding the high fixed electricity charges imposed on industrial load, and requested policy-level intervention to rationalize costs and reduce the financial burden on MSMEs. Mr Anup Bhardwaj, President, HAMA, underlined the importance of energy efficiency for the pharmaceutical and ayurvedic sector, noting that medium-scale units typically require 300–400 kW electricity connections, resulting in significant energy costs ranging from Rs 40–50 lakhs annually. Mr Abhishek Gupta, President, Karnal Ayurvedic Drug Manufacturers Association and Laghu Udyog Bharti, Karnal, emphasized that industries require not only adequate financial support but practical implementation support mechanisms to achieve meaningful energy savings through investment in EETs. He suggested that more handholding support, together with flexible financing mechanisms, would help spur the adoption of EETs.

Mr Raj Kumar Gupta, President, District Karnal Rice Millers & Dealers Association, highlighted the concerns of the rice milling sector regarding access to government schemes and financial incentives for adopting EETs, with procedural complexities and limited awareness often acting as barriers. Mr Rajinder Monga, Senior Vice President, District Karnal Rice Millers & Dealers Association, pointed out that the rice milling industry is largely seasonal, operating for only about 5–6 months annually; this significantly affects financial viability of units, particularly given the high electricity tariffs. He also raised concerns regarding regulatory pressures—particularly in NCR districts—due to pollution control norms and restrictions on diesel generator use. While appreciating initiatives such as concessional interest offered by SIDBI for green technologies, he added that many MSMEs face challenges related to documents

such as NOCs (no objection certificate) and CLU (change of land use) permissions, which limit access to schemes. He urged authorities to broaden scheme eligibility, simplify procedures, and consider the unique operational realities of seasonal industries like rice milling, to enable them to adopt EETs.

Mr K C Panigrahy, Director General, BEE reiterated the significant opportunities offered by the ADEETIE scheme to MSMEs for improving business profitability as well as contributing to India's overall energy transition and national development goals. He outlined BEE's pioneering initiatives covering industries, appliances, buildings, transport, and demand-side management, noting that the various energy efficiency interventions have resulted in cumulative savings of over 53.6 million tonnes of oil equivalent (Mtoe) along with over 300 million tonnes of CO_2 emissions reductions.

Mr Sanjeev Chawla, Additional Development Commissioner, MSME-DFO, stressed the need for industries to measure and monitor energy consumption through proper energy audits, noting that schemes such as ADEETIE support / provide valuable opportunities for MSMEs to achieve 10–20% energy savings through technology upgradation. He also recommended expanding the scheme across all MSME sectors and clusters, on the lines of earlier capital subsidy schemes of the Ministry of MSME. Further, he raised the need for aggregation mechanisms to enable MSMEs to benefit from carbon credit markets, which are currently inaccessible due to high transaction and consultancy costs. Mr Ritul Singla, Joint Director (MSME), District Industries Centre (DIC), Karnal, pointed to the diversity of industry sub-sectors in Karnal and emphasized that broader sectoral inclusion would enable more MSMEs to benefit from the ADEETIE scheme. He also informed participants about Haryana's Energy Conservation Scheme (2020), under which units achieving at least 15% energy savings through energy audits can avail capital subsidies up to Rs 20 lakh, with varying support levels across industrial categories.

Mr Sukhchain Singh, Project Officer, Haryana Renewable Energy Development Agency (HAREDA) explained the differences between schemes like PAT and ADEETIE, noting that MSMEs may not yet be ready for target-based mechanisms for energy efficiency but can benefit significantly from direct financial support schemes like ADEETIE. He urged industries to maintain records of energy consumption, connected load, and equipment performance to identify inefficiencies and reduce unnecessary costs. Through practical examples, he explained how energy audits and proper planning can help industries prioritize investments and access subsidies. He assured participants of HAREDA's support in facilitating DPR submissions to BEE under the ADEETIE scheme.

Mr Girja Shankar, EESL, made a detailed presentation on the ADEETIE scheme, and encouraged industry associations to form working groups and nominate coordinators to accelerate participation in the scheme. Mr Sandeep Singh, Assistant General Manager, SIDBI, Karnal underlined SIDBI's strong commitment to supporting the implementation of the ADEETIE scheme through its existing financial products. He noted that eligible units can benefit from collateral-free or flexible financing options depending on project viability, and emphasised that banks are keen to support viable energy efficiency projects as they improve productivity and reduce operating costs. He also addressed queries from industry participants regarding eligibility, loan processing, and financing conditions, clarifying that banks remain open to supporting both new investments and upgrades that deliver measurable energy savings.

Prof Dhiraj Kumar Mahajan, IIT-Ropar, shared insights from energy audits conducted across multiple sectors by the Centre of Research on Energy Efficiency and Decarbonization (CREED) at IIT Ropar. Under a national CSR initiative, CREED has worked with over 320 industries and identified energy efficiency options offering potential savings of about Rs 240 crores and significant carbon emission reductions, often with payback periods of less than one year. He described the common energy efficiency opportunities that exist

across industry sub-sectors, particularly in utilities such as steam systems, compressors, motors, cooling towers, and electrical systems, where issues like leakages, poor insulation, excess air, and lack of speed control lead to avoidable losses. Through case examples, he demonstrated how relatively small investments can generate substantial annual savings, emphasizing the importance of measurement, monitoring, and structured energy audits. Under the KISEM initiative, CREED offers a limited number of free energy audits annually for MSMEs with high decarbonization potential, and is developing data-driven tools and AI-based solutions to support industries in identifying efficiency improvements. He encouraged participants to engage with IIT Ropar for audits, implementation support, and technology solutions.

Some EET opportunities in energy intensive utilities for MSMEs in Karnal cluster [2]

Technology	Investment (Rs lakhs)	Monetary savings (Rs lakhs/ year)	Simple payback period (months)
Steam system			
Excess air optimization in boilers	2.5	3.8	8
Insulation rectification and leakage arrest in steam lines	4	14	3.5
Flash steam recovery	1.7	3	7
Compressed air system			
Speed control through VFD technology	4	18.7	2.5
Replace reciprocating compressor with VFD-driven screw compressor	8.8	10	10.5
Arrest air leakages	–	3	Immediate
Cooling towers			
Speed control of pumps through VFD technology	5	23	2.5

2 Source: drawn from presentation by CREED, IIT-Ropar at Karnal workshop

Mr A M Ghosh, Fellow, TERI, presented detailed case studies to illustrate practicable and low-cost EET options for chemical industries and rice mills industries in the Karnal cluster, such as preheating combustion air and boiler feed water; monitoring temperature trends to identify fouling or scaling in boiler tubes; proper maintenance of insulation and steam systems; recovering and reusing waste heat; and improving compressed air management. He also discussed operational improvements, including efficient motor selection, avoiding common shaft drives where possible, and optimizing drying and cooling processes. He apprised the participants about a few U.K.-based technology suppliers which provide EETs for chemical industries. In conclusion, he emphasized that substantial energy savings can be achieved through better maintenance, monitoring, and adoption of good engineering practices, with support available from certified energy auditors.