नवीन एवं नवीकरणीय ऊर्जा मंत्रालय
MINISTRY OF NEW AND RENEWABLE ENERGY
सत्यमेव जयते

Workshop on Introduction and Adoption of Biomass for Green Steam and Heat Applications in MSMEs

Special Focus on

Biomass for Industrial Thermal Applications
&
Report Launch of
"Decarbonizing MSMEs: Use of Biomass for Green Steam and Heat Application"

16 January 2026, MNRE, New Delhi

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Background

Modern bioenergy is particularly noteworthy in that it not only offers clean fuel options, but also numerous social and environmental advantages. For instance, implementing bioenergy applications can aid in the mitigation of air, water, and land pollution, while simultaneously generating local jobs and business opportunities, and lowering energy import expenses. Additionally, it can foster the growth of independent and decentralized communities. Furthermore, there are benefits for the private sector, including the ability to reduce industrial carbon footprints.

In India, 'decarbonisation of industrial process heat' represents a critical component in eliminating industrial greenhouse gas (GHG) emissions, given the rising share of industrial energy consumption (56%) and associated fuel consumption (75%). With plethora of low carbon technology options available, the optimal fuel choice for a given industry involves significant techno-commercial due diligence to account for different variables – quantum and timing of heat requirement, fuel pricing, infrastructural requirement, technology integration, associated modifications, fuel availability among others. In this context, biomass represents one of the promising alternatives that can substitute up to 100% of the fossil fuel consumed in the industries.

There is an urgent need to encourage industries to incorporate biomass as an alternative fuel alongside conventional options. The surplus biomass produced in the country currently lacks processing facilities and demand from end consumers, leading to a loss in energy value. However, if industries were to use biomass for thermal applications, there could be a decrease in the demand of conventional fossil fuels such as coal, wood, furnace oil, and naphtha. This, in turn, could lead to a lower carbon intensity of the industry. Furthermore, it serves as an ideal renewable energy source for various process applications in industries. With the recent surge in coal prices, industries are increasingly seeking cleaner and more cost-effective fuel options for steam/heat production. The availability of biomass-based boilers, retrofitting options for conventional boilers, and multifuel-based boilers have also incentivized industries to adopt biomass as a fuel.

However, large scale biomass management and utilization remain a challenge that needs to be addressed to reduce harmful practices like stubble burning across the country**.** It is essential that industries and MSMEs must be encouraged to adopt biomass across its various types in heating or steam related application and a unified framework is necessary to coordinate efforts across ministries, standardize processes, incentivize innovation, and build resilient biomass supply chains. To support high levels of adoption of bioenergy, the role of aggregators (includes FPOs); individual farmers; farm machinery suppliers; financial institutions as well as other knowledge/research partners (such as KVKs, Agri universities, think tanks, CSOs etc) are equally important.

To promote the use of biomass as a sustainable energy source, Ministry of New and Renewable Energy (MNRE), Government of India launched the Biomass Programme under the National Bioenergy Programme in FY 2021–22, with implementation planned through FY 2025–26. It's primary objective is to support the establishment of biomass briquette and pellet manufacturing plants and to encourage biomass (non-bagasse) based cogeneration projects in industries and MSMEs. This program aims to reduce dependence on fossil fuels, enhance energy security, and contribute to environmental sustainability by utilizing agricultural and forestry residues for energy production.

In the above context, The Deutsche Gesellschaft für Internationale Zusammenarbeit (formally known as GIZ) in partnership with Ministry of New and Renewable Energy (MNRE) are jointly organizing a pioneering workshop on BioEnergy. This workshop is focus on industrial (thermal) applications of bioenergy. Both GIZ and MNRE will take the opportunity to jointly launch the report on "Decarbonizing MSMEs: Use of Biomass for Green Steam and Heat Application". Grant Thornton Bharat is a knowledge partner and supporting MNRE, GIZ and few pilot states in creating market eco-system for Bioenergy.

Objectives and Outcome of the Workshop

To support the adoption bioenergy across industries by creating an appropriate market ecosystem, this workshop serves as a platform to bring together diverse stakeholders and state-level representatives.

The primary objective is to gather actionable insights, share best practices, and foster collaboration across regions to address biomass management challenges—especially stubble burning—and promote sustainable energy solutions for industries.

The workshop is keen to generate the following outcomes

- **To create an inclusive platform** for sectoral networking, knowledge exchange and knowledge co-creation and among key stakeholders
- **To showcase and disseminate sectoral experience and best-practices** to understand potential market opportunity, scope of co-operation and sector solutions/challenge/issues
- **To understand experience of various pilot states** as an input for designing and implementing national policy/program/standard/ schemes
- **Giving open access to report** on Decarbonizing MSMEs: Use of Biomass for Green Steam and Heat Application (report summary explained as Annex)
- **Exploring status and scope of sectoral innovation and R&D**

Detailed Agenda of the Workshop

Date: 16th January 2026

Location: Auditorium, MNRE

Time: 10.30 am to 5.15 pm

Time	Agenda	Speaker/Moderator
10.30 am – 10.40 am	Welcome Address	Dr. Gaurav Mishra, Sci F, MNRE
10.40 am – 10.50 am	Special Address	Official from German Embassy
10.50 am – 11.05 am	Special Address	Shri. Santosh Kumar Sarangi, Secretary, MNRE
11.05 am – 11.15 am	Report Introduction	Member from GIZ
11.15 am – 11.40 am	Report launch and Keynote Address by MoS, MNRE	Shri. Shripad Yesso Naik, MoS, MNRE
11.40 am – 12.00 pm	Tea Break	
12.00 pm – 01.00 pm	**Panel 1 – Advancing biomass supply chain using digital platforms - Biomass Availability, Collection, Aggregation and use of Advance Machinery** Presentations (7 min): CEEW Panel Discussion (Potential): • Dr. Virinder Sharma, Member Technical, Commission for Air Quality Management (CAQM) • Smt. S. Rukmini, Joint Secretary, Ministry of Agriculture • Sh. Ravi Prakash Agrawal, MD, SAMARTH • Mr. Varun Karad, CEO, RE dynamics • Mr. Suhas Baxi, CEO, Biofuel Circle	Ms. Kurinji Selvaraj, CEEW
01.00 pm – 2.00 pm	**Panel 2 – Pellet/Briquette Manufacturing, Best Practices, role of State Gov and Social Institutes** **Presentation (7 min):** by GT on the core theme/trends Panel Discussion: • Officer form SIDBI • Mrs. Neelima, CEO, Punjab Energy Development Agency (PEDA) • Mr. Amrit Khater, Director, Hi Tech Agro Energy Pvt. Ltd. • Mrs. Ankita Vidhyarthi, Sci. D, Bureau of Indian Standards (BIS)	Shri. Sanjay Kumar Shahi, Sci (E), MNRE
2.00 pm – 3.00 pm	**Lunch Break**	
3.00 pm – 4.00 pm	**Panel 3 – Role of Green Heat Steam in Industries** **Presentation (7 min):** by GT on the core theme/ trends Panel Discussion • Mrs. Khushbu Bhatia, CEO Thermax Onsite Energy Solutions Ltd. (A Thermax Company) • Textile Association Member • Dr. Baruah, Director, Assam Energy Development Agency (AEDA)	Mr. Vineet Bhatia, ED, Grant Thornton

	• Food / Pharmaceutical Industry Member	
4.00 pm – 5.00 pm	**Panel 4 – Adoption of Green Heat Steam by MSMEs and Way Forward** Presentation (7 min): by GT on the core theme/trends Panel Discussion • Shri. Sanjeev Joglekar, GEDA Goa • IREDA Bioenergy portfolio • Mr. Rakesh Mahajan, CEO, Steamax • Mr. Saurabh Diddi, Director, BEE	Mr. Jitesh Kumar, GIZ
5.00 pm – 5.15 pm	Closing remarks	Shri. Pabitra Barik, Sci D, MNRE

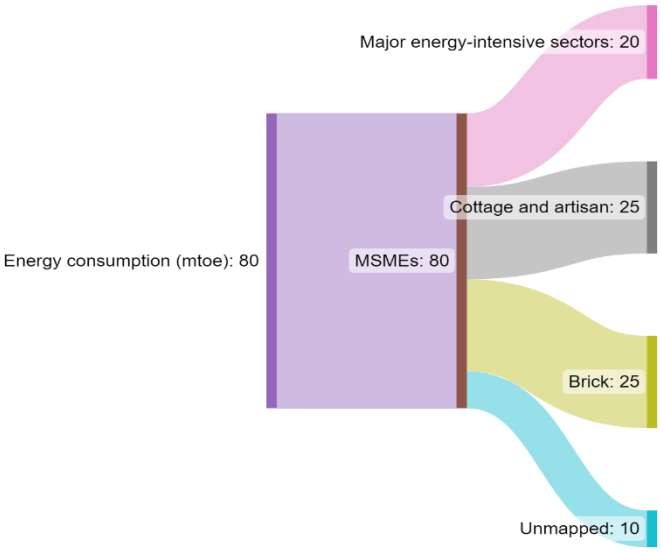
ANNEX

Brief Summary of Report on Decarbonizing MSMEs: Use of Biomass for Green Steam and Heat Application

The report, jointly developed by MNRE and GIZ in support identifies the key industries and sectors such as textile, food processing, chemical, metallurgical/foundry that need to adopt green heat and steam using biomass related solution. The report also provides recommendation to promote biomass usage in industries by having a Biomass Deployment Obligation, developing a biomass exchange and trading platform, specific industrial policy to promote usage of biomass, standardising steam supply agreements to mention a few. The report provides an overall understanding at where industries stand now in terms of energy consumption and adoption of biomass and what India can do to increase biomass and Green heat and steam adoption.

Use of Biomass for MSMEs in India

Biomass is rapidly gaining popularity as a source of fuel due to its ability to substitute polluting fossil fuels, such as coal, with a cleaner option for heat generation in industry. An essential aspect of biomass fuel is its carbon neutrality, which means that the carbon dioxide released during combustion is equal to the amount absorbed during photosynthesis. This cycle makes biomass an environmentally friendly alternative to traditional fuels. Firing biomass as a fuel in boilers has a lower environmental impact compared to coal, in terms of emissions released into the environment. Furthermore, it serves as an ideal renewable energy source for various process applications in industries. With the recent surge in coal prices, industries are increasingly seeking cleaner and more cost-effective fuel options for steam production. The availability of biomass-based boilers, retrofitting options for conventional boilers, and multifuel-based boilers have also incentivized industries to adopt biomass as a fuel.



The MSME (micro, small and medium enterprises) sector, is a heterogeneous sector in terms of the products manufactured, sizes, manufacturing processes, output and technology used in manufacturing. MSMEs engaged in manufacturing, account for about 33% of India's manufacturing output and around 28% contribution in the GDP as whole. The MSME sector account for a quarter of the total industrial energy consumption in India. They are the backbone of the OEMs and with the projected growth in the large industries sector, the MSMEs are also projected to grow in terms of their economic output. MSMEs typically are characterised with a high degree of heterogeneity within the manufacturing processes across various geographic locations even for similar product offerings. The MSMEs in India are about 63 million – and a majority of them have not been implemented any modern (or) decarbonisation technologies and/or process, they largely rely on vintage technologies.

The MSMEs consume about 80 million tonne of oil equivalent energy in FY19. The MSMEs can be categorised based on their energy intensity (share on energy in overall cost of production): (a) <5%, (b) 5-10%, and (c) >10%. The cottage industries and artisan units are largely under category (a), meaning are low energy intensive. Brick is a major MSME sector and has high energy intensity i.e. >25% share of energy cost. There are about 10% of unmapped MSME clusters/sectors. About 20 mtoe equivalent energy is consumed by MSMEs in major energy-intensive sectors.

Major MSMEs sectors in India and its thermal and electrical energy requirement:

There are over 1000 MSME clusters covering numerous sectors spread across the country. The top 15 MSME sectors based on energy intensity, number of MSME units and sheer quantum of energy consumption are as presented below.