



MSMELINE

GEF-WORLD BANK PROJECT

Financing Energy Efficiency at MSMEs

Jointly Executed by BEE and SIDBI

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e-newsletter



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Message from Secretary, Bureau Of Energy Efficiency

In India, MSMEs contribute to almost half of the manufacturing output but it is observed that their technical competence is quite low. Mahatma Gandhi once said, that if India wants to prosper, it needs to strengthen its small scale industry. Through this GEF-World Bank project, we have been working in this direction for the past few years and I am happy to share that after initial challenges, energy efficiency has become an important area of improvement in these MSMEs.



A total of 450 Detailed Energy Audits (DEA) have been completed under the project. Out of these, 222 DEAs are converted to Investment Grade Detailed Project Reports (IGDPRs) with a potential energy efficiency (EE) investment of appx. INR 5886 Lakh and 651 thousand tons of life time Green House Gas (GHG) emission reductions. Another 230 IGDPRs are under preparation. Learnings from these implementations are captured in the form of case studies, success stories and audio visual documentaries to be shared with MSME units in other similar clusters of India.

To sustain these efforts and their replication, project is also undertaking various awareness and capacity building initiatives. These include technical assistance to energy professionals, cluster level exhibitions on energy efficient technologies, hands-on training programmes on energy efficiency and capacity building of bankers and financial institutions. Through these initiatives, the project has been able to sensitize more than 2000 stakeholders, and is expected to reach many more.

Initiatives like Performance Linked Grant (PLG) are introduced to support the implementation of IGDPRs prepared under the project. Interventions which are new to the cluster and not practiced to a great extent are addressed through pilot activities. You will be reading more about these initiatives on the pages inside.

I wish more and more MSMEs get benefited by availing services offered under this project and realize the potential of energy efficiency savings thus paving the path for a sustained and profitable future.

Bhaskar Jyoti Sarma



The World Bank



Global Environment Facility



Small Industries Development Bank of India (SIDBI)



Bureau Of Energy Efficiency

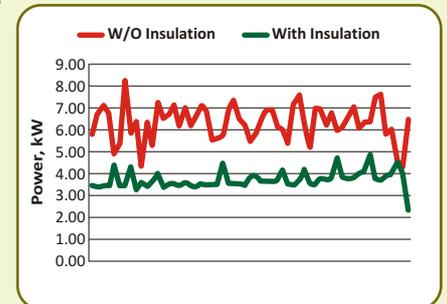
Success Stories from Clusters

Insulating exposed barrel surface in Plastic Injection Moulding Machines saves Rs 3 lakhs/year

An MSME unit in Faridabad manufactures automobile and machine-tool components using Plastic Injection Moulding Machines (PIMMs). During the detailed energy audit conducted under the project, it was observed that hot exposed surface of extruder barrels of some of the PIMMs were not insulated. Power Consumption for two similar Plastic Injection Moulding Machines was measured and is shown in the figure for two different scenarios - first with exposed barrel surface and second with barrel surface covered with suitable insulation. It is seen that the machine with exposed barrel surface is consuming higher power than one with insulated barrel surface.

The unit is recommended to insulate the exposed barrel surfaces to increase moulding quantity per unit of electricity consumption and is in an advanced stage of implementation.

Savings by reduction in energy consumption: Rs 3 lakhs/year
Energy Savings: 40,000 kWh/year
Productivity of Plastic Injection Moulding Machines increases from 400 g/kWh to 830 g/kWh by implementing this measure.



Insulating the exposed barrel surface for the machines will cost Rs 1.3 lakhs and pays back from energy saving in about 5 months!

Retrofitting Induction Melting furnace with Lid saves Rs 7.5 Lakhs/year

A foundry unit in Kolhapur has installed two induction melting furnaces for production of special grade castings. The unit produces 1,000 kg melt combined from the two furnaces. During the detailed energy audit conducted at the unit, it was observed that the induction furnaces are operated without covering the top opening during the melting cycle. On-site measurements with instruments indicated high energy loss from the furnace opening ranging up to 20 kWh per melt for each furnace. The unit was recommended to install hydraulically operated lid mechanism for covering the top opening during melting cycle.



Savings by reduction in energy consumption: Rs 7.5 lakhs/year
Energy Savings: 90,000 kWh/year

Retrofitting the two induction melting furnaces with hydraulic lids costs Rs 5.6 lakhs towards lid mechanism, installation and commissioning and pays back from energy saving in about 9 months.

Capacity Building Initiatives

As part of this initiative, several workshops and training programmes were conducted to meet the cluster's requirements. This includes:

Two hands-on training programmes at Centre of Excellence for Training on Energy Efficiency, Chennai

The two hands-on training programmes were focussed on Foundry Sector and Electrical Systems respectively. Total 41 participants attended these programmes, which takes the total tally of participants trained through these hands-on training programmes to 144. The feedback received from the participants has been encouraging. Some of the participants have shared their experiences on energy efficiency implementations taken up after attending the programme.



Practicals and equipment at Labs can set up the best examples. Until now, I had never had chance to test energy related theoretical concept practically. But during Lab Practicals at CETEE, theories were observed practically. This was an exceptional experience. Ketan Karnik - EnTek Services Mumbai.

It was a very fruitful program focusing on the concepts of major utilities. Though these utilities are available in the industries, working for our set parameters makes the CETEE hands-on training program a very informative and good value addition. My suggestion would be to not stop with this and interactions to be continued in a common platform or forum to discuss various case studies, technical issues etc. Varun JP - Parry Murugappa, Chennai.

Participant's feedback can be viewed on:

<https://www.youtube.com/watch?v=P3LO1zxtguk> and <https://www.youtube.com/watch?v=eDPnxFo5lmg>

Technical workshop on energy efficiency practices in Induction Melting for the foundry sector

As per the study undertaken by International foundry expert Mr. Mike Brown for the Kolhapur foundry sector, it was observed that in cupola based melting, the cluster consumes 5.0% more metallic materials to produce the same tonnage of good casting as compared to a similar foundry in Western Europe. A major reason identified for lower process yield was high rate of scraps and rejections.

To share similar insights and other relevant issues for foundry sector, two workshops were conducted at Kolhapur and Sangli. Foundry-men were made aware about the energy efficiency practices in melting section using Induction Furnaces. The workshops found great acceptance wherein the foundry-men participated with great enthusiasm to seek information on efficient melting practices and solutions to their specific queries.



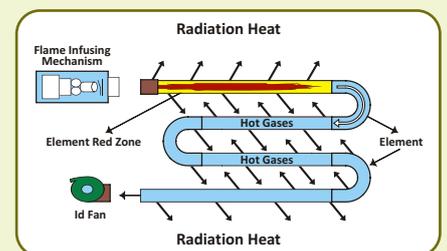
An awareness workshop focusing on emerging energy efficient technologies and control equipment for heat treatment furnaces was also conducted for forging and heat treatment industries of Pune. The workshop was followed by an industrial site visit to demonstrate the workshop applications at small scale forging units.

Those who could not participate in these programmes and wish to have the training material may send their request on save-energy@beenet.in

Energy Efficiency Opportunities in Heating Systems

BEE has in the past promoted and facilitated the implementation of proven and widely replicable energy efficient technologies. In continuation to these efforts, BEE during this quarter, has made yet another effort to assess opportunities for energy saving in Heating Systems, and other heating applications which are widely used in the Ankleshwar chemical cluster.

The feasibility and replication potential study was conducted for a relatively new technology to replace various forms of indirect heating (up to working temperatures of 550 °C) with Gas fired heating elements. Gas is burnt directly inside the elements (3" to 4" tubes) which in turn get heated and emit radiant heat to the surrounding media to be heated. Temperature control is thermostatic and existing circulation fans etc. can be used, with only the radiant tubes / elements and associated gas piping installed additionally.



PwC in consultation with BEE and TERI organized visits of experts for this technology to the cluster. The intent was to expose the technology experts, M/s. EnCon Thermal Engineers (P) Ltd., to the different heating applications prevalent in the cluster. The site visit and on-site interaction with entrepreneurs allowed an assessment of energy saving potential, feasibility and concerns in implementation of this technology.

A small group discussion was arranged for consultation with industries using relevant heating applications. The specifics of the technology, its energy saving potential and safety features, existing applications and case history of installations were discussed in-order to develop the necessary confidence and synergy among interested entrepreneurs for investing in the technology implementation. Representatives from Ankleshwar Industries Association were also present and the discussions were informal and productive. Some of the industries expressed willingness to further explore implementation possibility. Technical details are being finalized by experts based on measurements conducted by TERI.

Exhibitions on Energy Efficient Technologies

Technical Exhibitions showcasing Energy Efficiency Technologies (EETs) relevant for the Pune Forging and Kolhapur Foundry Sector popularly known as PTEx and KTEx were organized by FICCI on 8 and 10 October 2013. More than 30 technology suppliers exhibited EETs with potential application in Forging and Foundry units. The exhibition received over-whelming response and participation by foundry units from Pune, Kolhapur and adjoining industrial pockets. More than 250 visitors gained exposure to latest technological developments. Seminars were organized as a side-event to the exhibitions where participants sought solutions to their queries related to techno-commercial implication of EETs from speakers and subject matter experts.

Media and Outreach initiatives

Visit to Pune Forging Cluster by GiZ Experts, Journalists and local stakeholders

BEE was invited by GiZ and the embassy of Federal Republic of Germany to be a part of an interactive visit for environment Journalists from India and Germany. Experts from project representatives briefed the delegates on successful implementations undertaken by MSMEs in the project clusters. The visit included one to one discussion with MSMEs, special screening of veneering documentary for the journalists, research scholars from Pune University and NGOs working in the field of environment and sustainable development. Further, field visit were conducted at MSME units where successful energy efficiency measures were showcased. The implementations resulting in energy efficiency savings created keen interest in them and will go a long way in creating awareness among the media community and research faculty for effective coverage and replication of the successes achieved under the GEF-WB project.



Cluster Speaks

Mr. Surjitsing Pawar, Chairman, IIF – Kolhapur Chapter



The GEF-World Bank project has been a catalyst to promote energy efficiency technologies and practices among the small scale foundries in Kolhapur which is one of the biggest MSME foundry cluster in India with an estimated total production of 600,000 tonnes per annum.

In this era of perpetually rising energy costs, initiatives like these are of paramount importance. With the successful implementation of energy efficiency measures, several units in Kolhapur have marked a positive start to an energy efficient journey and we all should strive to sustain this momentum. The series of awareness creation and outreach activities conducted under the project have also played a vital role in enhancing awareness levels in the cluster.

Mr. Sanjay Dua, Dua Industries, Faridabad



Energy audit conducted by DESL in my unit has helped in generating awareness on the operating efficiency of the cupola furnace, the major energy guzzler in my plant. Further, the study has led to the identification of several energy cost savings avenues, aggregating to more than 33% of the annual energy bill. While we are in the process of implementing the projects we would like design stage interventions, like the one suggested in my unit, with the approvals at the sectoral association level for wider penetration of such energy cost reduction measures in our foundry industry.

Quiz

1. Which retrofit technology resulted in saving potential of Rs. 7.5 lakhs/annum in a Foundry unit in Kolhapur?
2. How much money per year will the Plastic Injection Moulding unit in Faridabad save by insulating exposed barrel surface?
3. Cost saving avenues aggregating to what percentage of total energy bill were identified at Dua Industries, Faridabad?
4. How much energy efficiency investment potential is identified in IGDPs generated under the GEF-World Bank project?



Readers are invited to send in their responses to above quiz at save-energy@beenet.in till 15 June, 2014, 5 pm. Three correct entries (based on random selection) shall stand a chance to win a prize (like solar cap/solar calculator). Project executing agencies/their representatives/BEE staff/other consultants involved in the project are not entitled for participation in this quiz.*

For any further information related to project activities, please contact :



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