BUREAU OF ENERGY EFFICIENCY

MSMELINE

GEF-WORLD BANK PROJECT

Financing Energy Efficiency at MSMEs

Issue 1 Oct. - Dec. 2012 e-newsletter

Message from Secretary, BEE

It is my pleasure to present this introductory issue of MSME Line, an e-newsletter covering quarterly updates of the GEF-World Bank project 'Financing Energy Efficiency at MSMEs'.

The MSME sector in India plays a significant role in terms of promoting balanced and sustainable growth, employment generation and development of entrepreneurial skills. At the same time, MSMEs face inherent issues ranging from technological obsolescence, information deficiency and poor management practices. Chronic standing of such factors has resulted in higher energy intensity, lack of financing options and non-availability of energy professionals with sound understanding of MSMEs needs. Since long, stakeholder groups among MSMEs have raised these issues and similar concerns at various institutional platforms and voiced the need for a systematic redressal of such barriers.

In this context, this GEF-World Bank project has been launched at five MSME clusters from different industrial sectors, namely, Ankleshwar (Chemical), Faridabad (Mixed), Kolhapur (Foundry), Pune (Forging) and Tirunelveli (Limekiln). Since each cluster has its own need regarding Energy Efficiency deployment, specialist agencies have been entrusted for this purpose. Many of these agencies might have already contacted you for various activities. This inaugural issue of the newsletter shall help you to identify these agencies and their specific roles. It is heartening to see that MSME stakeholders have given a warm and encouraging response to the initial activities under the project. We request your continued cooperation to the agencies in their field activities and solicit your contribution towards making this project a successful initiative.

Abha Shukla

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The World Bank

Global Environment Facility

Small Industries Development Bank of India (SIDBI)

Bureau Of Energy Efficiency

About the project

The "Financing Energy Efficiency at MSMEs" project is a part of the Global Environmental Facility (GEF) Programmatic Framework (2010-14) for Energy Efficiency in India with an objective to increase demand for energy efficiency investments in targeted MSMEs clusters and to build their capacity to access commercial finance.

The project aspires to address the current gap in the understanding between energy auditors and bank loan officers and demonstrate a viable mechanism of synergic tie-up between MSMEs, energy auditors, financial consultants/chartered accountants, local industrial or MSME associations and local bankers.

The GEF implementation agency for the project is World Bank. The project will be jointly executed by Bureau of Energy Efficiency (BEE) and Small Industries Development Bank of India (SIDBI).

ANKLESHWAR
Chemical Cluster
1200 SME Units
Main Fuel:
Gas / Electricity

FARIDABAD
Mixed Cluster
2000 SME Units
Main Fuel:
Electricity / Oil

KOLHAPUR
Foundry Cluster
350 SME Units
Main Fuel:
Coke

PUNE
Forging Cluster
150 SME Units
Main Fuel:
Furnace Oil

TIRUNELVELI
Limekiln Cluster
100 SME Units
Main Fuel:
Charcoal

Five Target MSME Clusters

The project activities have been grouped into three categories and explained below.

Building Capacity and Awareness

-Marketing & Outreach effort to clusters; Capacity Building of Industry Association
-Technical Assistance to energy professionals
-Support to financial Institutions as well as support to MSMEs in accessing-finance
-Vendor outreach, enlistment & support

Increased Investment in Energy Efficiency - Project Development

-Energy Efficiency related project development support such as Energy - Audits/DPR preparation
-Performance linked grants for demonstration of Energy Efficient Technologies

Knowledge Management and Sharing

-Knowledge Portal
-Help line
-Success stories and case studies
-Policy inputs on Knowledge Management

Who's who?

Specialist agencies have been entrusted the task of carrying out these activities in each cluster as shown below.

Cluster	Faridabad	Tirunelveli	Ankleshwar	Kolhapur	Pune
Cluster Coordination	IamSMEofIndia	Zenith Energy Services Pvt. Ltd.	Cluster Pulse	See-Tech Solutions Pvt. Ltd.	MITCON Consultancy and Engineering Services Pvt. Ltd.
Awareness, Media & Outreach	PricewaterhouseCoopers Pvt. Ltd. (PwC) & COMFED				
Energy Audits & DPR prepration	Development Environergy Services Limited. (DESL)		The Energy and Resources Institute (TERI)		
Tech. Assistance to Energy Professionals	Confederation of Indian Industry	Zenith Energy Services Pvt. Ltd.	Devki Energy Consultancy Pvt. Ltd.	To be announced	See-Tech Solutions Pvt. Ltd.

A cluster coordination consultant is appointed in the respective clusters, as mentioned above. The role of these consultants is to build capacity of the local industrial association and coordinate project activities. A Cluster Coordination Committee (CCC) with representation from a multitude of stakeholders like MSMEs, Industry Associations, Financial Institutions, etc. has been created in each cluster to closely monitor and support various project activities in the cluster. The CCC in each cluster meets periodically to review project progress, and discuss on future course of action. The CCC meetings are facilitated by the Cluster Coordination Consultant.

Awareness, Media and Outreach consultants (PwC and COMFED) have completed a detailed Communication Gap and Need Analysis study in all five clusters. The findings of this study will form the basis of an extensive and cluster specific information campaign, throughout the duration of this project.

The task of conducting preliminary & detailed energy audits and DPR preparation has been assigned to TERI & DESL in respective clusters. Many MSMEs have registered for these audits and are availing benefits of the free energy conservation services offered by these expert agencies. Since the no. of audits to be conducted in this project is limited, we appeal to all MSMEs to register early for these audits and avail the benefits.

To provide technical assistance to energy professionals at the cluster level, respective agencies have been engaged. These agencies will be instrumental in building technical competence of local energy professionals and empowering them with knowhow on the latest sector specific Energy Efficiency measures.

Benefit to MSMEs

Identify and approach the cluster level agency working in your cluster to avail a host of FREE OF COST benefits, i.e.

- Energy Audits to clearly understand Energy Efficiency Measures and Technologies suited for your unit
- Engineering / implementation support for Energy Efficiency Projects and Measures identified
- In-depth consultancy services for EE improvement
- Awareness generation among MSMEs and capacity building of managers and operators to adopt modern technologies
- Hand holding support for access to institutional finance for implementing EE projects
- Knowledge Management and Sharing

Highlights from Clusters

Mr. Mike Brown, International Foundry Expert visits Kolhapur Foundry Sector

As part of the capacity building and awareness component of the 'Financing Energy Efficiency at MSMEs' program, Bureau of Energy Efficiency (BEE) collaborated with Institute for Industrial Productivity (IIP) in the Kolhapur Foundry sector to study the current practices followed there and accordingly suggest the applicable International Best Practices under the guidance of Mr. Mike Brown, an International foundry expert having more than 40 years of experience worldwide, including India.

The event saw a number of programs including interaction with members of Kolhapur Engineering Association and foundry unit owners, training of local energy professionals and detailed process mapping of six representative units of the foundry sector followed by a questionnaire survey in twenty units. A significant achievement of the whole event was engagement and capacity building at the local level to strengthen knowledge management and sharing.

During various interactions, Mr. Mike Brown emphasized that any energy efficiency effort, in addition to energy consumption, should also focus on overall equipment and its performance efficiency, process yield and labour productivity. He stressed that the melting section accounting for the maximum energy consumption may not necessarily reap the highest energy savings. Thus, the significance of complete process mapping was thrust upon during the programme. As part of the outcome, Mr. Brown benchmarked the performance of Kolhapur foundry units internally and with the foundries in Developing and Western European counties.

Based on the data provided and observations made during the Industrial visits, Mr. M Brown developed a cluster specific manual “Energy Consumption, Measurement and Conservation in the Kolhapur Foundry Sector”, and a “Best Practice Guide for the Foundry Sector of India”. These reports can be downloaded from http://beeindia.in/schemes/wb_dprs_kolhapur.html

Table 1: Comparison of Key Performance Indicators (KPIs) of Kolhapur foundries with foundries of Western Europe and other developing countries.

Key Performance Indicators	Kolhapur	Developing Countries		Western Europe	
	Average Performance	Average Performance	Best Practice	Average Performance	Best Practice
Melting Loss	6.8%	3.9%	1.7%	2.0%	1.0%
Pig & Spillage	4.6%	2.8%	2.4%	3.0%	2.4%
Runners & Feeders	19.7%	47.7%	41.2%	38.0%	35.7%
Scrap & Rejects	4.6%	6.9%	2.0%	3.0%	2.1%
Process Yield	68.1%	45.5%	55.3%	57.6%	60.8%
Downtime Nil	NIL	13.1%	13.2%	15.0%	13.7%
Slow Running	50.0%	18.8%	4.0%	5.0%	4.5%
Bad Moulds	2.4%	6.1%	0.9%	1.0%	0.9%
Scrap & Rejects	4.6%	6.9%	2.0%	3.0%	2.1%
Effective Production	46.6%	48.9%	80.9%	77.5%	80.0%
TEEP	28.8%	21.2%	43.5%	47.7%	52.8%
Energy Consumption Per Tonne Melt	1057 kWh	5151 kWh	841 kWh	620 kWh	596 kWh
Per Tonne Good Castings	1770 kWh	4121 kWh	3861 kWh	1675 kWh	1405 kWh
Sand Consumption New Sand/t castings	0.50t	0.63t	0.18t	0.23t	0.20t
Cores/t castings	0.08 t	N/R	N/R	N/R	N/R
Sand Reclamation	59.0%	91.7%	100.0%	94.7%	97.8%
Productivity Man hours/t castings	48.9	65.1	34.7	22.8	15.4
Direct Ratio	4	N/R	N/R	N/R	N/R

Veneering - An energy efficiency measure for the heat treatment furnaces

In a forging unit, energy cost represents 10-12% of the total cost of production. Forging and heat treatment furnaces are the major energy consuming areas and alone account for 60-70% of the total energy consumption. Therefore, to exhibit the benefits of Veneering (hot face insulation) technology in heat treatment furnaces, a pilot activity was conducted at SB Engineers, Pune. Veneering (Hot face insulation) technology helped in reducing heat losses due to:

(1) High Amount of heat Storage by refractory material,

(2) Radiation losses.

The post implementation results as confirmed by plant personnel are as follows:

Cold Start: For cold start, the time required to reach the desired temperature (940 ^{0}C) reduced considerably from 9 hrs to 4 hrs. Also, the fuel requirement during cold start reduced to 50% without any design or process modifications.

Heat treatment process: As reported by the plant, there have been around 8-10% reduction in fuel consumption during the heat treatment process.

Thermal scanning of the furnace confirmed reduction in the surface temperature from 120 ^{0}C to 55 ^{0}C thereby reducing radiation losses. The cost of 75mm thick veneer module is appx. ₹1200/ ft^{2} (including the mason work). At SB Engineers, Pune with 225 days of operation and 72 cold starts per annum, the estimated payback period is 5-6 months. However, the actual payback period will differ from unit to unit based on:

1) Number of cold starts per year;
2) Type of heat treatment processes carried out;
3) Number of days of operation; and
4) Operational practices.

Project team inspecting the heat treatment furnace

Heat treatment furnace before Veneering

Heat treatment furnace after Veneering

More details about the pilot activity and veneering technology can be obtained from the link http://beeindia.in/schemes/wb_dprs_pune.html

A documentary of this activity can be seen on http://www.youtube.com/watch?v=BQxaIZ4eGng

Sector Specific Hands on Training Programs at CETEE, Chennai

Bureau of Energy Efficiency (BEE) is organizing a series of sector specific Hands on Training program at the Centre of Excellence for Training in Energy Efficiency (CETEE), Chennai. CETEE is a joint initiative of the Indo-Japanese Government co-operation and is a unique world class facility with the objective of bridging the gap between Energy Efficiency theory and practice. The center, using state-of-the-art technology from Japan, aims to providing international exposure to the participants in the field of Energy Efficiency.

Participants observing the performance variation of an energy efficient and ordinary motor

By undergoing the technical support programme at CETEE, the trained energy professionals are expected to play crucial role in promoting Energy Efficiency in MSMEs. The programmes will ensure the availability of energy professionals within the cluster that can subsequently facilitate MSMEs in identifying energy efficiency interventions along with financing for such energy efficiency projects.

A practical session on Air Compressors

With this objective, first of such technical program was conducted for the foundry sector of Kolhapur, in the month of Nov. 2012. As this was a Hands-on Training program, the batch size was limited to 20 participants, so as to give each participant ample time to work on simulators installed at the training centre. The feedback obtained from these participants was very encouraging and all of them have promised to recommend this training programme to their colleagues.

More of such programs are scheduled for other clusters of the project. The cost of training program and board/lodging of the participants will be borne by BEE. However, travel arrangement to and from Chennai is to be arranged by the respective industry/participant.

To know more details please contact Mr. Bhavesh Swami, Manager- Media and Awareness at : bswami@beenet.in

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