

MSME forging unit invests Rs 29 lakhs for improving energy efficiency – and saves Rs 13 lakhs every year!

Background

Pune, in Maharashtra, is a forging industry cluster. Large-scale units account for about 65–70% of the cluster’s forging production, while MSMEs account for the remaining 30–35%. There are over 50 MSMEs producing forged components, with 20 heat treatment MSMEs functioning as their vendors. The production capacity of these units varies from 500 tonnes to over 3500 tonnes per annum (tpa).

Unit profile

M/s P12 is an MSME unit that manufactures pressed sheet metal auto components, producing about 3308 tpa. The annual energy bill of the unit was INR 119 lakhs, which was around 3% of total turnover. The annual energy consumption was around 141 tonnes of oil equivalent (toe), of which grid electricity accounted for 59% (84 toe) and high speed diesel (HSD) 41% (57 toe).

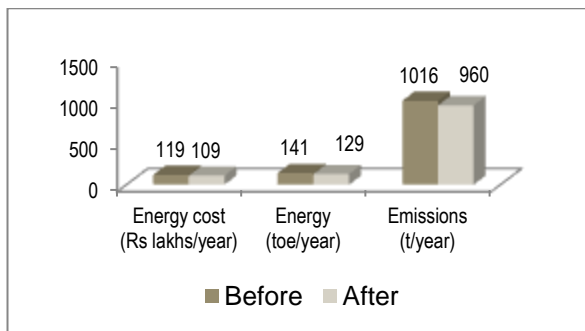
Process description

Different sizes of presses are used to press sheet metal according to the requirements of different frames for automobiles. The pressed components are welded together, and then assembled to form frames. The frames are painted and then sent to a baking oven where the paint is dried to give the final products.

The major energy consuming equipments used were an HSD-fired baking oven, an HSD-fired water heater, and electrical motors associated with process equipment such as air compressor, pumps, etc.



Overall Impact: post-implementation



Overall Impact
 11% reduction in total energy bill (i.e. annual savings of INR 13 lakhs) with a simple payback of 2.2 years

This case study has been prepared under WB GEF Project titled “Financing Energy Efficiency at MSMEs in India”. The project aims to identify, design & implement Energy Efficiency (EE) solutions in 500 MSMEs in 5 clusters with potential of EE investment of more than Rs. 100 crore and reduction in GHG emissions equivalent to 1.2 million tonne CO₂. This project is being co-implemented by Small Industries Development Bank of India (SIDBI) and Bureau of Energy Efficiency

INTERVENTIONS

Fuel switch from HSD to natural gas for painting oven, water heater and pre-treatment tank

Baseline Scenario

The unit was operating HSD-fired painting oven, water heater and pre-treatment tank, in which the specific energy cost of heating was very high.



Recommendation

As natural gas (NG) was readily available in the area, the unit was advised to switch over to NG as fuel for all these systems.

Implemented

As recommended, the unit switched from using HSD to NG as fuel for its painting oven, water heater and pre-treatment tank. The systems now consume about 54,360 SCM of NG annually, but save about 59,038 litres of HSD.



This investment of INR 21.3 lakhs saves INR 10.2 lakhs annually. The simple payback period is 2.1 years.

Replacement of existing screw air compressor with energy efficient compressor with VFD

The unit was operating a 50-HP screw air compressor (CPC-50) to meet the compressed air requirement of processes. As advised, the unit replaced this compressor with a new inverter type air compressor with variable frequency drive (VFD) that automatically adjusts the speed of the compressor according to varying load. This investment of INR 8.2 lakhs is saving 28,361 kWh per year, equivalent to INR 2.6 lakhs. The simple payback period is 3.3 years.

Support provided under the project

- Walk-through & Detailed energy audit
- Identification of energy efficiency interventions in the unit
- Finalization of specifications for the energy efficiency interventions
- Identification of technology providers/vendors
- Facilitation for interactions between unit and technology providers;
- Technical support during commissioning
- Monitoring & Verification

Disclaimer: This case study has been compiled by TERI on behalf of SIDBI under WB-GEF Project. While every effort has been made to avoid any mistakes or omissions, these agencies will not be in any way liable for any inadvertent mistakes/omissions in the publication.

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