

MSME foundry unit invests in energy efficiency measures – and recovers investment in four months!

Background

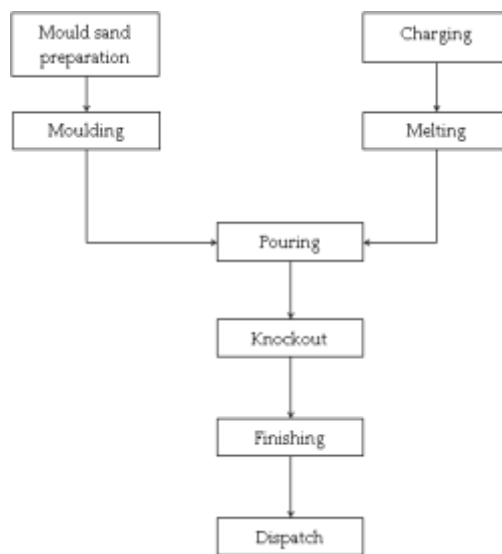
Kolhapur, in Maharashtra, is a foundry cluster. It has around 300 MSME foundries producing about 600,000 tonnes of castings annually, accounting for about 7–8% of India’s total castings production. The production capacity of these units varies from less than 1000 tonnes to over 10,000 tonnes per annum (tpa).

Unit profile

M/s K6 is an MSME unit that manufactures graded cast iron (CI) castings, producing about 16,345 tpa. The annual energy bill of the unit was INR 1185 lakhs. The annual energy consumption was around 1575 tonnes of oil equivalent (toe) in the form of grid electricity.

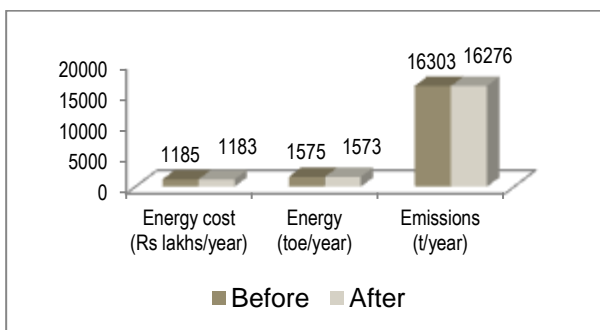
Process description

The major process steps are mould preparation, melting, pouring, knockout and finishing. Green sand is prepared using sand mixer and manually moulded. The charge is melted in an electrical induction furnace. The liquid metal is poured into moulds, which are left to cool and then ‘knocked out’ manually to yield the castings. The sand is reused, and the castings are subjected to shot blasting and machining to give the finished products.



The major energy consuming equipments used were the electrical induction furnace and electrical motors associated with process equipment such as reaction vessels, pumps, etc.

Overall Impact: post-implementation



Overall Impact

0.2% reduction in total energy bill (i.e. annual savings of INR 2 lakhs) with a simple payback of 0.3 year

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

Replacement of soft water pump motor by energy efficient motor

Baseline Scenario

It was observed that the unit's soft water pump had been rewound three times, as a result of which it had a very low efficiency.

Recommendation

The unit was advised to replace the existing soft water pump with a new energy efficient pump.

Implemented Scenario

As recommended, the unit replaced its soft water pump with a new energy efficient pump of 91.3% efficiency.

This investment of INR 0.4 lakh is saving about 26,000 kWh annually, equivalent to INR 1.9 lakhs. The simple payback period is 0.2 year.

Energy efficient lighting

The unit had about 25 fluorescent tube lights (FTLs) of 40W with copper ballasts. As advised, these were replaced with 28W FTLs having electronic ballasts. This investment of INR 0.3 lakh is saving 4752 kWh per year, equivalent to INR 0.4 lakh. The simple payback period is one year.

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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