

“PROMOTING ENERGY EFFICIENCY AND RENEWABLE ENERGY IN SELECTED MSME CLUSTERS IN INDIA”

To develop and promote a market environment for introducing energy efficiency and enhanced use of renewable energy technologies in process applications in the selected energy-intensive MSME clusters, United Nations Industrial Development Organization (UNIDO) in collaboration with Bureau of Energy Efficiency (BEE) is implementing a project titled “Promoting Energy Efficiency and Renewable Energy in selected MSME clusters in India” funded by Global Environment Facility (GEF) and co-financed by Ministry of Micro, Small and Medium Enterprises (MoMSME) and Ministry of New and Renewable Energy (MNRE).

Energy saving in melting section by modifying the layout of melting section in a foundry

Objective

To save energy in the melting process by modification of the layout.

Implementation

Modified the layout of the metal pouring bay so that its in near to the induction furnace to reduce energy consumption.

Principle

Metal pouring was done in the cupola bay. The bay was far from the induction furnace, causing substantial temperature drop of the molten metal. To compensate this drop, tapping temperature was increased. This was resulting in high energy consumption. To minimize the energy consumption, cupola bay was shifted near to the induction furnace. This resulted in reducing the excess tapping temperature by 20 to 30 OC, reduction in fuel consumption and energy saving.



Savings

₹ 1,21,680



Investment

₹ 70,000



Pay Back

7 months



Unit Profile

Fluid Metals is foundry unit located in Belgaum region. Unit manufactures elevator parts, housings and pump housings, etc. Average production of the unit is in the range of 900 to 1100 MTs per Annum.

Benefits

- **Reduced tapping temperature**
- **Reduced energy consumption and energy costs**



Outcomes



18,720 kWh of annual energy saving



₹ 1,21,680 of annual cost saving



15.35 T of CO₂ reduction per year (0.82 kg/kWh)



Replication Potential

In all the foundry units where cupola bay is far from the induction furnace



Calculation

Energy savings per annum (kWh/year) = (Energy consumption before implementation- after implementation, kWh/day) * no of working days/year

Cost Economics

Reduction in tapping temperature	20 - 30 OC
Energy saving due to reduction in tapping temperature per heat	10 kWh
Energy saving per month (156 heats/month)	1,560 kWh
Energy saving per year	18,720 kWh
Cost savings per year (₹ 6.5/kWh)	₹ 1,21,680
Investment in fabricating the top cover	₹ 70,000
Simple payback period	7 months

Contact details :

Unit

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