

## **“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).

### **Reducing the impurities in the scrap by shot blasting to save energy in a foundry**

#### **Objective**

To save energy in a foundry by using shot blasted scrap with less impurities in the furnace.

#### **Implementation**

Scrap used in the furnace had 1.5 to 3% of impurities like sand resulting in high slag generation. This scrap was shot blasted to remove the sand particles and fed in the furnace.

#### **Principle**

Impurities in the scrap leads to slag generation. This slag sticks to crucible walls and erodes the lining material. Slag build up reduces the metal holding capacity of the furnace affecting output quantity. Slag build up also reduces the induction effect and leads to increase in melting time. By using shot blasted scarp all these will be avoided. This will also result in reduced energy consumption, reduction in heat time and improved energy efficiency.



**Savings**

**₹ 15,52,318**



**Investment**

**₹ 0.00**



**Pay Back**

**Immediate**



## Unit Profile

Gokul Ferrocast Pvt. Ltd. is foundry unit located in Belgaum. The unit manufactures S.G. Iron and cast iron castings. The average production of the unit is in the range of 5000 to 6000 tons per annum.

## Benefits

- Improved life of the crucible lining
- Reduced energy consumption and energy costs
- Reduction in heat time
- Improved energy efficiency of the furnace



## Replication Potential

In all the foundry units with impurities in the scrap



## Calculation

Net annual cost saving = (energy saving per year in induction furnace, kWh - energy consumption per year in shot blasting, kWh) \* cost of electricity, ₹/kWh



## Outcomes



1,97,496 kWh of annual energy saving



₹ 15,52,318 of annual cost saving



161.9 T of CO<sub>2</sub> reduction per year (0.82 kg/kWh)

## Cost Economics

Energy savings per heat	20 kWh
Energy saving per year in induction furnace (15,600 heats/year)	3,12,000 kWh
Energy consumption per year in shot blasting	1,14,504 kWh
Net energy savings	1,97,496 kWh
Net cost savings per year (₹ 7.86 /kWh)	₹ 15,52,318
Investment	Nil
Simple payback period	Immediate

### Contact details :

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