

"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).

Installation of VFD to the blower in the sand cooling system

Objective

To minimize the energy consumption in the sand cooling process by regulating the speed of the blower as per requirement.

Implementation

Installed a variable frequency drive (VFD) to the blower in the sand cooling process to reduce the energy consumption.

Principle

Sand cooling process has an electrical blower to supply air. The load of the sand cooling process is not constant, it varies depending on the production. But the installed blower works on a constant speed irrespective of the load, consuming higher energy than the actual demand. So, to enable the blower to run at variable speeds and to minimize the energy consumption, VFD is installed to the blower. VFD is a specific type of adjustable-speed drive which controls the speed of motor according to the requirement. This will result in electrical energy saving.



Savings

₹ 1,37,776



Investment

₹ 1,20,000



Pay Back

11 months



Unit Profile

Belgaum Ferrocast is foundry unit manufacturing S.G. Iron and iron castings, located in Machhe Industrial Area, Belgaum. Total production of the unit is 7,000 to 8,000 MT/year.



Benefits

- **Reduced specific energy consumption**
- **Increased equipment efficiency**
- **Reduced energy costs**
- **Increased life of equipment**



Replication Potential

In all the foundry units with sand cooling operation



Calculation

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

Outcomes



17,222 kWh of annual energy saving



₹ 1,37,776 of annual cost saving



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

Cost Economics

Energy consumption before implementation	11.2 kWh
Energy consumption after implementation	8.9 kWh
Energy saving through implementation	2.3 kWh
Energy saving per annum (7,488 hr/day)	17,222 kWh
Annual monetary saving (₹ 8/kWh)	₹ 1,37,776
Investment	₹ 1,20,000
Simple payback period	11 months

Contact details :

Unit

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