



"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).

Using waste heat from furnace to vaporise the LPG gas

Objective

To reduce the electrical energy used for vaporization of LPG gas by using the waste heat from furnace.

Implementation

Using waste heat from the furnace in place of electrical heating to heat the water in the vaporiser.

Principle

LPG vaporiser requires hot water to vaporise the LPG gas. This hot water is typically generated using electrical heaters. Instead, it could be generated using the hot water from the coil cooling system of the induction furnace. This will reduce the energy consumption of the vaporiser and also the load on the cooling tower.



₹ 2,24,640



Investment

₹ 32,000



Pay Back

2 months



Unit Profile

Big Castings Pvt. Ltd. is a foundry unit located in Belgaum region. Unit manufactures steel castings for mining, construction and earth-moving equipment. Production capacity of the unit is 3,000 MT per year.

Benefits

- Waste heat recovery
- Reduced load on cooling tower
- Reduced energy consumption and energy costs



Outcomes



28,800 kWh of annual energy saving



₹ 2,24,640 of annual cost saving



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



Replication Potential

In all the foundry units with electrical LPG vaporiser

Cost Economics

Energy saved per day	96 kWh
Energy saved per year (300 days/year)	28,800 kWh
Cost savings per year (₹ 7.8/kWh)	₹ 2,24,640
Investment cost	₹ 32,000
Simple Payback period	2 months



Calculation

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

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