



"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).

Installing IGBT (insulated gate bipolar transistor) controlled induction heater in place of LPG fired heater in a foundry unit

Objective

Energy saving by installing IGBT controlled induction heater in place of LPG fired heater in a foundry unit.

Implementation

Installed a 50 kW IGBT controlled induction heater in place of LPG fired heater in a foundry to minimize energy consumption.

Principle

IGBT controlled induction heaters can provide precise localized heating. Induction heating is energy efficient and compact when compared to LPG fired heating. High temperatures can be achieved in less time with induction heating.



Savings

₹ 1,36,393



Investment

₹ 8,56,406



Pay Back

76 months



Unit Profile

Brasstech Engineering Pvt Ltd is a medium scale foundry unit located in Jamnagar, Gujarat. Unit manufactures 200 tons of brass components per year.

Benefits

- Improved heating capacity
- Reduced energy consumption & energy costs



Outcomes



3,377 kg of annual LPG saving



₹ 1,36,393 of annual cost saving



10.2 T of CO₂ reduction per year (66.7 kg CO₂/GJ of LPG)

Cost Economics

LPG used per year (24 T production)	3,377 kg
Cost of LPG per year (₹ 70/kg)	₹ 2,36,390
Electricity consumed per year	13,333 kWh
Cost of electricity per year (₹ 7.5/kWh)	₹ 99,997
Net cost savings per year	₹ 1,36,393
Investment cost	₹ 8,56,406
Simple Payback period	76 months



Replication Potential

In all the units with inefficient centrifugal pumps.



Calculation

Cost savings, ₹ = (Cost before implementation - after implementation, ₹/kg) * production, kg

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Unit

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Cluster Leader

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