









"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 furnace in place of thyristor control furnace in a foundry

Objective

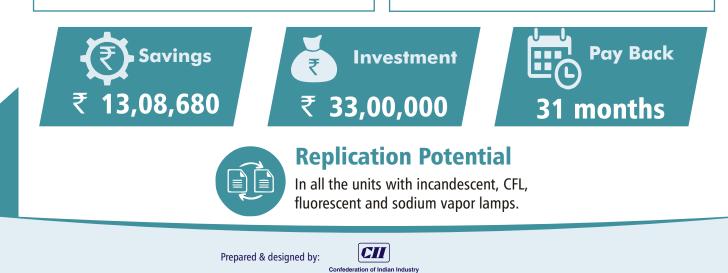
Energy saving by installing IGBT controlled induction furnace in place of thyristor control furnace in a foundry.

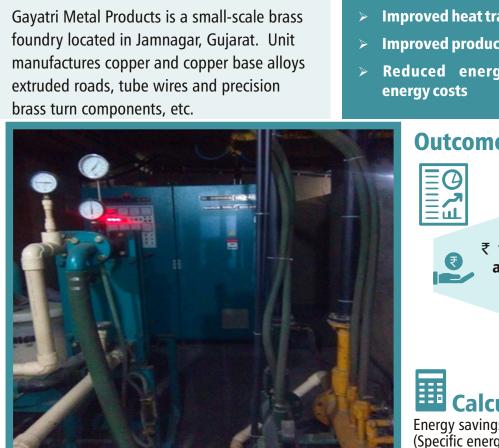
Implementation

Installed a 750 kg, 250 kW IGBT controlled induction furnace in place of 300 kg, 100 kW thyristor control furnace in a foundry.

Principle

IGBT controlled induction furnaces have better heat transfer efficiency compared to thyristor controlled furnaces. IGBT controlled furnaces have precise monitoring and control of temperatures compared to thyristor controlled furnaces, thus having better overall furnace efficiency resulting in power savings.

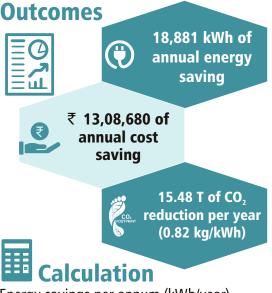




Unit Profile

Benefits

- Improved heat transfer efficiency
- Improved production capacity
 - Reduced energy consumption &



Energy savings per annum (kWh/year) = (Specific energy consumption before implementation- after implementation, kWh/kg) * annual production, kg

Cost Economics	Before implementation	After implementation
Weight per batch (kg)	330	750
Energy consumed per batch (kWh)	125	260
Specific energy consumption per kg	0.378 kWh/kg	0.346 kWh/kg
Annual production (kg)	5,90,040	9,00,000
Reduction in energy consumption per kg	0.032 kWh/kg	
Energy saving per annum (kWh/year)	18,881 (production 5,90,040 kg)	
Cost savings per year (₹ 7.75/ kWh)	₹ 1,46,330	
Cost saving in a year due to improved production ₹ 11,62,350		52,350
Net cost savings	₹ 13,08,680	
Investment cost	₹ 33,00,000	
Simple Payback period	31 months	

Contact details :

Unit

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Cluster Leader 0

PMU

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