

"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 ammonia desuperheater to preheat boiler feed water

Objective

To utilize waste heat in the superheated refrigerant gas to preheat the boiler feed water

Implementation

Installed an ammonia desuperheater to preheat the boiler feed water from waste heat in the superheated refrigerant gas

Principle

Refrigeration plants with air-cooled condensers dissipate lot of waste heat to the ambient air. By installing desuperheater, a large proportion of this waste heat can be utilized in various applications like preheating of boiler feed water. Desuperheater units are located between the compressor and condenser of the refrigeration plants to utilize the high-temperature energy of the superheated refrigerant gas



Savings

₹5,08,572



Investment

₹16,00,000



Pay Back

38 months

Benefits

- Reduced condenser load
- Reduced fuel consumption and fuel costs



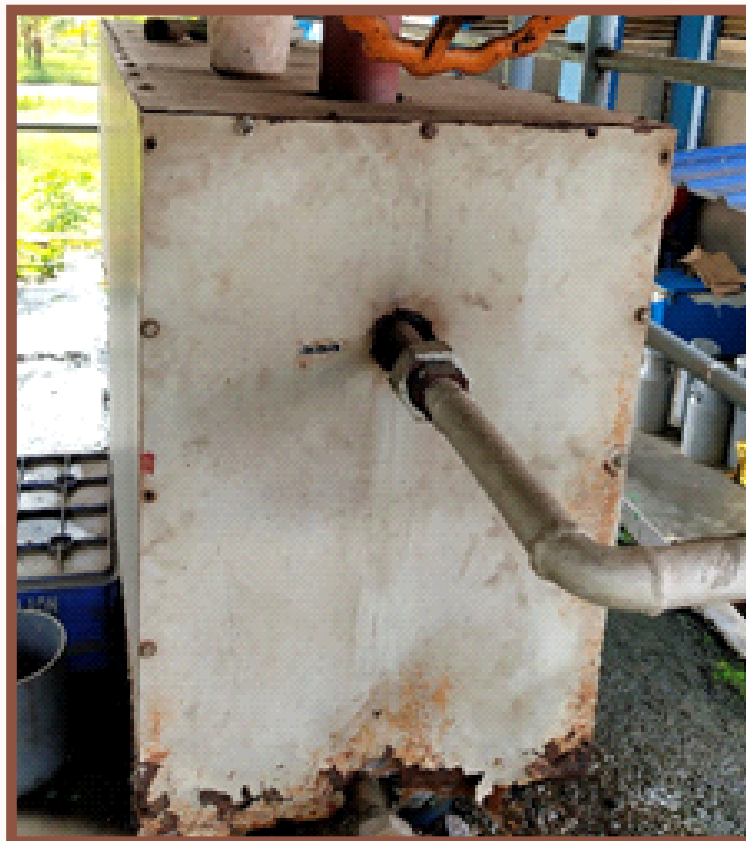
Outcomes



72,653 kg of
annual
briquettes saving



₹ 5,08,572 of
annual cost
saving



Cost Economics

Increase in temperature of feed water	30°C
Briquettes saving per hour	13.27 kg/hr
Briquettes savings per annum	72,653 kg
Cost savings per year (₹ 6.5/kg)	₹ 5,08,572
Investment cost	₹ 16,00,000
Simple Payback period	38 months



Replication Potential

In all the units with refrigeration plants



Calculation

Fuel saved per year, kg = (heat gained by the feed water per hour, kCal/hr * no of working hours/day) / (efficiency of the boiler * calorific value of the fuel, kCal/kg)

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