

"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 induced draft cooling tower in a dairy unit to reduce energy consumption

Objective

To minimize the energy consumption by installing an induced draft cooling tower in a dairy unit.

Implementation

Replaced the existing spray pond type cooling tower with induced draft cooling tower to save energy in a dairy unit.

Principle

Induced draft is more efficient and cost effective compared to spray pond cooling tower. It operates with high efficiency as the induced draft increases the contact between the liquid droplet and the air flow. Increased contact results in faster and efficient cooling. Induced draft cooling tower requires less space than spray pond, reduces the water quantity needed for circulation and hence reduced power consumption.



₹ 8,22,528



₹ 6,00,000



Pay Back

9 months



Unit Profile

Dudhsagar dairy is a unit of the Mehsana District Co-operative Milk Producers' Union Ltd. The dairy was established in year 1960. Current processing capacity of the dairy is 25 lakh litre per day.

Benefits

- Improved cooling efficiency
- Reduced quantity of circulation water in the cooling circuit by effective cooling
- Less space requirement
- Reduction in energy consumption & energy costs



Outcomes



1,17,504 kWh of annual energy saving



₹ 8,22,528 of annual cost saving



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

Cost Economics

Energy savings per day	587.52 kWh
Energy saving per annum	1,17,504 kWh (200 days/yr)
Cost savings per year	₹ 8,22,528 (₹ 7/kWh)
Investment cost	₹ 6,00,000
Simple Payback period	9 months



Replication Potential

In all the units with spray pond type cooling towers



Calculation

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

Contact details :

Unit

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