MICRO, SMALL & MEDIUM ENTERPRISES
सूक्ष्म, लघु एवं मध्यम उद्यम

Ministry of New and Renewable Energy
Government of India

"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 bulk milk chillers with thermal storage and rapid chillingat the milk receiving and chilling centres in place of conventional chilling system

Objective

To improve milk quality and to minimize the energy consumption by implementing bulk chilling technology in place of traditional chilling at the milk receiving and chilling centres

Implementation

Installed sixbulk milk chillersof 200 L capacity each to cool the milk from 30^{0}C to $<$10^{0}C in the milk receiving and chilling centres of Sarhad dairy.

Principle

Bulk milk chilling technology with rapid cooling combined with thermal storageis energy efficient and requires less time to cool the milk compared to traditional milk chilling technology. It improves the quality of milk by rapid cooling even during power cut times and maintains the milk temperature less than $<$10^{0}C. This reduces the overall energy consumption in milk receiving and chilling centres of the dairy units.

Savings
₹ 1,08,000

Investment
₹ 2,16,000

Pay Back
24 months

Prepared & designed by:
Confederation of Indian Industry

Unit Profile

Sarhad dairy processes milk and produces various milk products. It was established in 2009. The milk processing capacity of the dairy is 3,50,000 L per day.

Benefits

- **Reduced time for chilling and better milk quality**
- **Reduced energy consumption and energy costs**

Outcomes

14,472 kWh of annual energy saving

₹ 1,08,540 of annual cost saving

11.9 T of CO_2 reduction per year (0.82 kg/kWh)

Replication Potential

In all the dairy units with traditional mill chilling technology

Cost Economics

Energy saving per day per chiller	**6.7 kWh**
Energy saving per year per chiller	**2,412 kWh (360 days/ yr)**
Energy saving per year for 6 chillers	**14,472 kWh**
Cost savings per year	**₹ 1,08,540 (₹ 7.5/kWh)**
Investment cost	**₹ 2,16,000**
Simple Payback period	**2 years**

Calculation

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

Contact details :

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