

"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 14,500 energy efficient ceiling fans for drying process in a ceramic cluster for energy saving

Objective

To minimize energy consumption in the drying process of ceramic plants in a cluster by replacing 14,500 traditional ceiling fans with energy efficient fans.

Implementation

Replaced 14,500 traditional ceiling fans (70 W) with 14,500 new energy efficient BLDC (brush less direct current) fans (28 W) to save energy in drying process of ceramic plants.

Principle

Energy efficient fans with BLDC (brush less direct current) technology consume 28W at full speed. Which resulted in 60 % savings in power consumption compared to traditional fans. With these fans, there is no heating of the motors and they can easily sustain in extreme conditions.



Savings

₹ 92,56,800



Investment

₹ 4,35,00,000



Pay Back

57 Months



Unit Profile

Thangadh ceramic cluster is located in Gujarat, consisting of around 225 MSME ceramic units. These units are of three types - pottery works, insulation works and sanitary wares.

Benefits

- Elimination of friction & associated power loss
- Better flexibility over controlling motor speed
- No spark and minimal electrical noise as no slip ring or mechanical brushes are used
- Reduced energy consumption and energy costs



Outcomes



13,22,400 kWh of annual energy saving



₹ 92,56,800 of annual cost saving



1,084 T of CO₂ reduction per year (0.82 kg/kWh)



Replication Potential

In all the ceramic units with traditional ceiling fans

Cost Economics

	Before implementation	After implementation
No of fans	14,500	14,500
Wattage of each fan (W)	70	28
Energy consumption per year (kWh)	44,08,000 (7,600 hr/yr)	30,85,600 (7,600 hr/yr)
Energy saving per year (kWh)		13,22,400
Annual cost saving (₹ 7/kWh)		₹ 92,56,800
Investment		₹ 4,35,00,000
Simple payback period		57 months



Calculation

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

Contact details :

Unit

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