

"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).

Energy conservation by modifying compressed air line system

Objective

To save energy in the compressed air system by modifying the traditional galvanised steel pipeline to aluminium pipeline

Implementation

Replaced the galvanised steel pipes in the compressed air system to aluminium pipes to reduce pressure drop and leakages to conserve energy

Principle

Aluminium piping fittings are corrosive resistant and ductile compared to galvanised steel fittings. So, compressed air system of aluminium pipeline will minimize the pressure drop and leakages and improve life of the system. With reduction in pressure drop, the generation pressure can be reduced from the existing level and this results in power saving. 1 bar reduction in generation pressure results in 8% power saving. In addition, aluminium piping is light in weight and easy to install and maintain



Savings

₹2,37,600



Investment

₹4,00,000



Pay Back

21 months

Benefits

- Reduced pressure drop
- Reduction in leakages
- Improved life of pipeline and lower maintenance costs
- Reduced energy consumption



Outcomes



31,680 kWh of
annual energy
saving



₹ 2,37,600 of
annual cost
saving



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

Cost Economics

Energy saving per day	96 kWh
Energy saving per year (330 days / yr)	31,680 kWh
Cost savings per year (₹ 7.5/kWh)	₹ 2,37,600
Investment cost	₹ 4,00,000
Simple Payback period	21 months



Replication Potential

In all the units with galvanised steel pipes in the compressed air distribution system



Calculation

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

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