



ENERGY EFFICIENCY SERVICES LIMITED
A JV of PSUs under the Ministry of Power




Ministry of Micro, Small and Medium Enterprises,
Government of India



PROMOTING ENERGY EFFICIENCY AND RENEWABLE ENERGY IN SELECTED MSME CLUSTERS IN INDIA

Ministry of micro, small and medium enterprises (MoMSME), Government of India in association with United Nations Industrial Development Organization (UNIDO) is implementing a project funded by Global Environmental Facility (GEF) titled “Promoting Market Transformation for Energy Efficiency in Micro, Small and Medium Enterprises” in India. Energy Efficiency Services Limited (EESL) is the implementing partner for the project.

The overall project objective is to promote the implementation of energy efficiency in the MSME sector; to create and sustain a revolving fund mechanism to ensure replication of energy efficiency measures in the sector; and to address the identified barriers for scaling-up energy efficiency measures and consequently promote a cleaner and more competitive MSME industry in India. The project envisages to extend support to 470 MSME units across 10 identified energy intensive MSME clusters with a target of reduction of energy consumption by 110,000 tonnes of oil equivalent and greenhouse gas emissions by 1 million tonnes of CO₂ emission, leveraging an investment of USD 150 million towards energy efficiency, during its tenure.

CASE STUDY - 8

Installation of Automation & Control System for Natural Gas Fired Tea Dryers (2 Nos.)

Objective:

Drying of fermented tea leaves is an important process in tea production, wherein moisture in leaves is maintained at about 3%. Clean and odorless hot air is passed through the fermented tea particles using natural gas or coal fired dryers. Vibro fluid bed dryers (VFBD) are the most common types of dryers used in the cluster. A significant improvement in the process can be done by controlled flow of air in the cooling zone and also synchronized operation of the vibro-feeder.

Implementation:

The unit has 2 Nos. of natural gas fired VFBD dryers which was operated without any automation. The project supported the installation of automation and control system in the existing dryers helping the units to improve the process

Principle:

The oxidized leaf is passed into a hot air dryer for about twenty minutes where the moisture content is reduced to just 3% - 4 % and the familiar black color of CTC tea develops. The automation helps to monitor and maintain the desirable parameters like feed rate at dryer, dual drying inlet temperatures (T1 & T2) and the residence time / throughput time of dryer. This is carried out by synchronized operation of the feed conveyer, the cold air fan and vibro-feeder.

Implementation partner





Unit Profile

Arin Tea Pvt. Limited, located at Golaghat, Assam was incorporated in the year 1999. The unit is one of the leading producer of premium quality CTC tea in the region. The unit employs close to 30 regular employees.

Benefits



- ◆ Reduction in specific energy consumption by 3-5%
- ◆ Quality improvement
- ◆ Productivity improvement
- ◆ Reduced leaf burnout
- ◆ Improve working environment



Tea dryer



After

Project Economic



Savings

₹ 4,21,000



Investment

₹ 10,05,000



Payback

2.4 Y (29 months)

Project Impacts



7,377 kWh of annual electrical saving



0.6 TOE of annual energy savings



6.6 tCO₂ GHG emission reduction per year

Cost Economics

Electrical Energy Consumption (Baseline)	73,766 kWh/year
Electrical Energy Consumption (Post Implementation)	66,389 kWh/year
Electrical Energy Savings	7,377 kWh/ year
Annual Monetary Saving	Rs. 4,21,000
Investment	Rs 10,05,000
Simple Payback	29 month

Replication Potential



The technology has significant replication potential in the cluster. In Jorhat Tea Cluster, the replication potential is expected in 10% of the units i.e. around 20 units.

Calculation

Energy saving :
Baseline energy consumption – Post Implementation energy consumption



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