



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




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



PROMOTING MARKET TRANSFORMATION FOR ENERGY EFFICIENCY IN MICRO, SMALL & MEDIUM ENTERPRISES

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 - 5

Installation of Agitech Nutsche Filter Dryer (ANFD , 3kl capacity)

Objective:

Centrifuge and drying are important processes in any chemical processing units. At present, most of the units in the Ankleshwar Chemical Cluster use centrifuge (for filtration) and tray dryer (for cake drying using hot air generated in HAG) systems. Centrifuge and convention dryer systems are inefficient and requires a lot of manpower. Agitech Nutsche Filter Dryer (ANFD) can be used as a replacement of both centrifuge and dryer process, thus leading to significant saving in terms of batch time and energy consumption.

Implementation:

The unit was using conventional centrifuge and dryer system in their plant. The project supported installation of a 3 kilo-liter Agitech Nutsche Filter Dryer (ANFD), thus making the system energy efficient and cost competitive

Principle:

The ANFD comprises of a pressure vessel in which a main shaft rotates and also moves in the vertical direction. Specially designed stirrer blades are mounted on the shaft, capable of performing various functions. A side discharge arrangement is provided, closing and opening through hydraulic / mechanical means. ANFD combines the centrifuge and dryer process, thus improving the system efficiency. ANFD is a closed vessel designed to separate solid and liquid by filtration under pressure or vacuum. The closed system ensures an odourless, contamination free and non-polluting working conditions maintaining product purity and hygiene.



Unit Profile

Vandana Chemical, located in GIDC Ankleshwar, Gujarat is one of the reputed chemical manufacturer in the country. The group produces high-quality organic reagents and is in existence for over 18 years.

Benefits



- ◆ Reduction in specific energy consumption by 10-20 %
- ◆ Man hours reduction by 50-55%
- ◆ Downtime reduction by 70-80%
- ◆ Noise free operation
- ◆ Highly reliable



Before



After

Project Economic

Savings
₹ 7,00,000

Investment
₹ 25,00,000

Payback
0.8 Y (9 months)

Project Impacts



95,621 kWh of annual electricity saving



8.5 TOE of annual energy savings



88 tCO₂ GHG emission reduction per year

Cost Economics

Power consumption (Baseline)	22 kW
Power consumption (Post Implementation)	8 kW
Man hours (Baseline)	252 hour/batch
Man hours (Post Implementation)	12 hours/batch
Annual electricity Saving	95,621 kWh/h
Annual steam saving	7,650 kg/y
Annual Monetary Saving	Rs 7,00,000
Investment	Rs. 25,00,000
Payback	9 months

Replication Potential



The technology has significant replication potential in across different industrial processes. In Ankleshwar chemical cluster, the replication potential is expected in 20 % of the units i.e. around 80 units.

Calculation

Annual Monetary Savings = (Energy consumption in centrifuge and dryer -Energy consumption in ANFD) x Annual batches



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