

## "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).

### Reduced specific energy consumption by installing correct size/capacity motors in a forging unit

#### Objective

To reduce the specific energy consumption of the forging unit by installing correct size / capacity motors there by improving the motor loading and efficiency.

#### Implementation

Installed one 4 kW, two 2 kW and three 1.5 kW motors in place of 7.5 kW, 4 kW and 2 kW motors in shank grinder, stone grinder and furnace blower respectively to reduce the energy consumption. Capacity reduction was 9 kW.

#### Principle

Various motors were installed in the forging unit. Rated capacity of most of the motors was higher than the actual required capacity, resulting in low loading of the motors. At low loads, motor efficiency decreases resulting in higher power consumption. Installing adequate capacity of motors in place of high capacity motors will improve the loading of the motors. This in turn improves the efficiency of motor and reduces the energy consumption.



**Savings**

**₹ 2,41,560**



**Investment**

**₹ 2,00,000**



**Pay Back**

**10 months**



## Unit Profile

Sterling Cast & Forge is located in Jalandhar. Unit manufactures wide range of high-quality assortment of hand tools products as per the international standards.

## Benefits

- Improved efficiency of motors
- Reduced energy consumption
- Reduced energy costs



## Outcomes



32,816 kWh of annual energy saving



₹ 2,41,560 of annual cost saving



26.9 T of CO<sub>2</sub> reduction per year (0.82 kg/kWh)

## Cost Economics

Energy savings per month	2,684 kWh
Energy saving per annum	32,816 kWh
Cost savings per year (₹ 7.5/kWh)	₹ 2,41,560
Investment cost	₹ 2,00,000
Simple Payback period	10 months



## Replication Potential

In all the forging units with low loading of motors.



## Calculation

Energy savings per annum (kWh/year) = (Energy consumption before implementation - after implementation, kWh/month) \* 12

### Contact details :

#### Unit

Mr. Subhash Chander  
Sterling Cast & Forge  
Shiv Puri Road, Basti Danish Mandan  
Jalandhar, Punjab - 144001  
+91 9814 001192

#### Cluster Leader

0

#### PMU

GEF-UNIDO-BEE  
4th Floor, Sewa Bhawan, Sector-1,  
R.K. Puram, New Delhi - 110066  
gubpmu@beenet.in  
+011-26194770

#### United Nations Industrial Development Organization

Mr Sanjaya Shrestha  
Industrial Development Officer  
UNIDO  
s.shrestha@unido.org