

## “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 foundry

#### Objective

To reduce the specific energy consumption of sand mixing process by installing correct size (capacity) motors there by improving the motor loading and efficiency.

#### Implementation

Installed two new motors of capacity 11 kW and 0.75 kW in place of 22 kW and 1.5 kW in sand muller and water mix pump respectively to reduce the energy consumption. Total capacity reduction was 12 kW.

#### Principle

Sand mixing process is the second major electrical energy consumption area in induction furnace based foundry units. Sand mixing process consists of sand muller, blender and water mix pump. Rated capacity of the motors was higher than the actual capacity required in the sand mixing process, 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.



₹ 2,16,000



Investment

₹ 2,00,000



Pay Back

12 Months



## Unit Profile

Best Engineers Pumps Pvt. Ltd. is a medium scale pumps assembly division located at Somayampalayam, Coimbatore. Average monthly production of the unit is around 200 MT of liquid metal.

## Benefits

- Reduced energy consumption
- Quick payback period



## Outcomes



7,500 kWh of monthly energy saving



₹ 6,75,000 of annual cost saving



73.8 T CO<sub>2</sub> reduction per year (@0.82 kgCO<sub>2</sub>/kWh)



## Replication Potential

In all the foundry units with low loading of motor.

## Calculation



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

## Cost Economics

	Before implementation	After implementation
<b>Total capacity (kW)</b>	22.5	11
<b>Actual power drawn (KW)</b>	21	9
<b>Electricity consumption per month (200 hr/month) (kWh/month)</b>	4,200	1,800
<b>Electricity consumption per annum</b>	50,400	21,600
<b>Energy saving per annum</b>	28,800 (kWh/year)	28,800 (kWh/year)

### Contact details :

#### Unit

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