

## "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).

### Reduce energy consumption by modifying the design for shell core making process in a foundry

#### Objective

To minimize the energy consumption by modifying the design of shell core making process in a foundry.

#### Implementation

Changed the design of shell core making process to an efficient and uniform one with less sand requirement to minimize energy consumption.

#### Principle

Shell core making is one of the most energy intensive processes in a foundry. This process involves use of electrical energy to cure the sand in the core box by heating the box. The new design for core box is uniform and will require less sand compared to the earlier one. This will improve the efficiency and reduce energy consumption of the core making process.



**Savings**

₹ 4,08,096



**Investment**

₹ 12,00,000



**Pay Back**

**36 months**



#### Replication Potential

In all the foundry units with shell core making process.



## Unit Profile

Amijet founders is a foundry unit located in Belgaum region. Unit manufactures products like valve, pumps, motor bodies and hydraulic equipment parts, etc. Average production of the unit is in the range of 700 to 900 MT per annum.

## Benefits

- Improved efficiency of the core making process
- Reduced energy consumption and energy costs



## Outcomes



51,012 kWh of annual energy saving



₹ 4,08,096 of annual cost saving



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



## 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
Shells per shift	50	350
Energy consumption per shift (kWh)	64	68
Energy consumption per shell (kWh)	1.28	0.19
Energy saving per shell (kWh)	1.09	
Energy saving per day (kWh)	163.5 (150 shells/day)	
Energy saving per annum (kWh)	51,012 (312 days /year)	
Cost savings per year ( ₹ 8/ kWh)	₹ 4,08,096	
Investment cost	₹ 12,00,000	
Simple Payback period	3 years	

### Contact details :

#### Unit

Mr. Sandeep Kamble,  
Amijet founders, Plot No. 182  
Udyambag, Belgaum - 590 008.  
+91 831 2440785

#### Cluster Leader

Mr. Sadanand D.H  
Belgaum cluster leader  
+91 94482 72499  
sadananddh@gmail.com

#### 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