

# MSME forging unit invests less than Rs 3 lakhs in energy efficiency – and saves over Rs 10 lakhs annually!

## Background

Pune, in Maharashtra, is a forging industry cluster. Large-scale units account for about 65–70% of the cluster’s forging production, while MSMEs account for the remaining 30–35%. There are over 50 MSMEs producing forged components, with 20 heat treatment MSMEs functioning as their vendors. The production capacity of these units varies from 500 tonnes to over 3500 tonnes per annum (tpa).

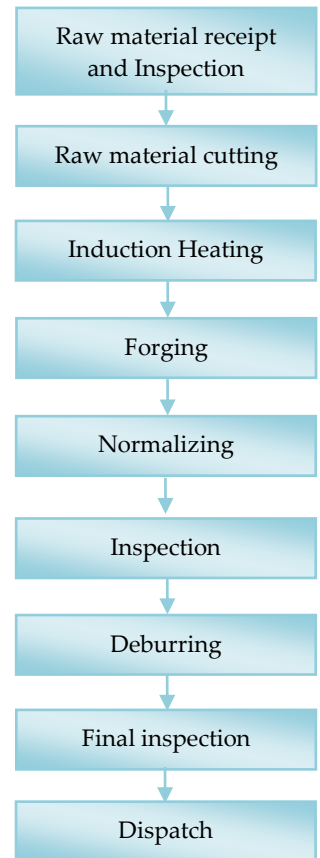
## Unit profile

M/s P8 is an MSME unit that manufactures forged components like gear blanks and transmission parts, producing about 1500 tonnes annually. The total annual energy bill of the unit was INR 343 lakhs, which was around 44% of turnover. The annual energy consumption was about 507 tonnes of oil equivalent (toe), of which grid electricity accounted for 60% (305 toe), LPG 28% (141 toe), and diesel 12% (61 toe).

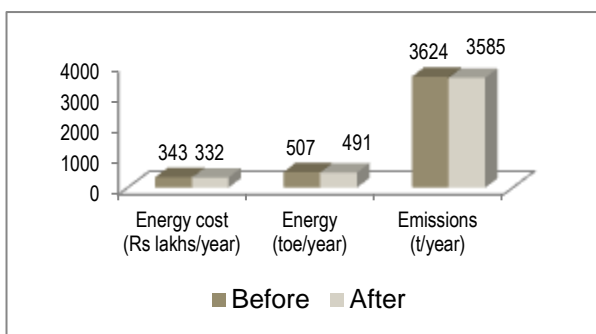
## Process description

The manufacturing process involves the cutting of steel rods in the form of billets. The billets are heated in electrical induction furnaces, forged with hammers and presses, subjected to heat treatment in an LPG-fired normalizing furnace, and deburred to give the final products.

The main energy consuming equipments used were three electrical induction furnaces, one electrical normalizing furnace, one LPG-fired normalizing furnace, and electrical motors associated with utilities like air compressor and pumps.



## Overall Impact: post- implementation



**Overall Impact**  
 3% reduction in total energy bill (i.e. annual savings of INR 11 lakhs) with a simple payback of 0.2 year

*This case study has been prepared under WB GEF Project titled “Financing Energy Efficiency at MSMEs in India”. The project aims to identify, design & implement Energy Efficiency (EE) solutions in 500 MSMEs in 5 clusters with potential of EE investment of more than Rs. 100 crore and reduction in GHG emissions equivalent to 1.2 million tonne CO<sub>2</sub>. This project is being co-implemented by Small Industries Development Bank of India (SIDBI) and Bureau of Energy Efficiency*

## INTERVENTIONS

### Application of veneering module at LPG-fired normalizing furnace

#### Baseline Scenario

The unit was operating an LPG-fired normalizing furnace of 600 kg per hour capacity. This furnace had an efficiency lower than 10% due to high surface heat losses (estimated at 36,139 kcal per hour) resulting from poor insulation.



#### Recommendation

The unit was advised to apply veneering modules on the inside surface of the furnace to reduce heat losses.

#### Implemented

As recommended, the unit applied veneering modules on the inside of the LPG-fired furnace. Implementation of veneering not only reduces the surface heat losses but also save the residual heat stored during the non-firing time.



This investment of INR 2.5 lakhs is saving INR 10.6 lakhs annually. The simple payback period is 0.2 year, i.e., barely three months.

#### Support provided under the project

- Walk-through & Detailed energy audit
- Identification of energy efficiency interventions in the unit
- Finalization of specifications for the energy efficiency interventions
- Identification of technology providers/vendors
- Facilitation for interactions between unit and technology providers;
- Technical support during commissioning
- Monitoring & Verification

**Disclaimer:** This case study has been compiled by TERI on behalf of SIDBI under WB-GEF Project. While every effort has been made to avoid any mistakes or omissions, these agencies will not be in any way liable for any inadvertent mistakes/omissions in the publication.

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