

Fuel switch from HSD to natural gas for painting oven, water heater and pre-treatment tank

Tags

Type: Unit case study

Sub-sector: Forging

Location: Pune

Partners: GEF, World Bank, SIDBI, BEE, TERI, Association of Indian Forging Industry (AIFI)

Year: 2012–14

Cluster background

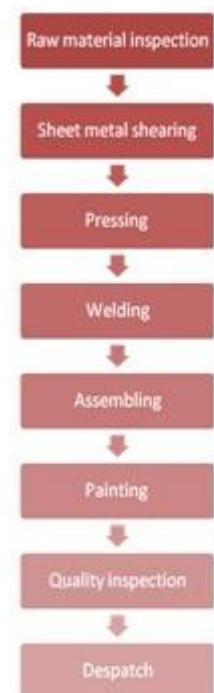
Pune (Maharashtra) is one of the important forging industry clusters located in India. There are more than 50 MSMEs in the cluster involved in the production of forged components, with 20 heat treatment MSMEs functioning as their vendors. The production capacity of MSME units is in the range of 500–3500 tonnes per annum (tpa). Large forging units account for about 65–70% of total production in the cluster, while MSMEs account for about 30–35%.

Unit profile

The MSME unit **P12** manufactures pressed sheet metal auto components. The average production is about 3308 tpa. The annual energy bill of the unit was Rs 119 lakhs, which was around 3% of total turnover. Different sizes of presses are used to press sheet metal according to the requirements of different frames for automobiles. The pressed components are welded together, and then assembled to form frames. The frames are painted and then sent to a baking oven where the paint is dried to give the final products.

Energy consumption

The main energy consuming equipment used in the unit was oil-fired baking oven. Other equipment included press, boiler, shearing machine, pipe cutting machine, welding machine, and crane. The annual energy consumption was around 141 tonnes of oil equivalent (toe), of which grid electricity accounted for 59% (84 toe) and HSD 41% (57 toe).



Intervention

The unit was operating an HSD-fired painting oven, water heater and pre-treatment tank. The energy audit revealed that the specific energy cost of heating was very high. With natural gas (NG) being readily available in the cluster, the unit was advised to switch from using HSD to NG for these systems.



Fuel switch from HSD (L) to natural gas (R) for painting oven, water heater and pre-treatment tank

The unit switched from using HSD to natural gas (NG) as fuel for its painting oven, water heater and pre-treatment tank

As recommended by the energy audit, the unit switched over from using HSD to natural gas (NG) as fuel for its painting oven, water heater and pre-treatment tank. These systems consume about 54,360 standard cubic metres (SCM) of NG annually, but avoid consumption of about 59,038 litres of HSD. The fuel switch from HSD to NG required an investment of Rs 21.3 lakhs, and is saving Rs 10.2 lakhs annually. The simple payback period is 2.1 years. The GHG reductions with switchover from HSD firing to NG firing in painting oven, water heater and pre-treatment tank are about 55 tonnes CO₂ per year.

