

23% reduction in Energy bill of an Auto Component MSME unit through Energy Efficiency Measures

Background

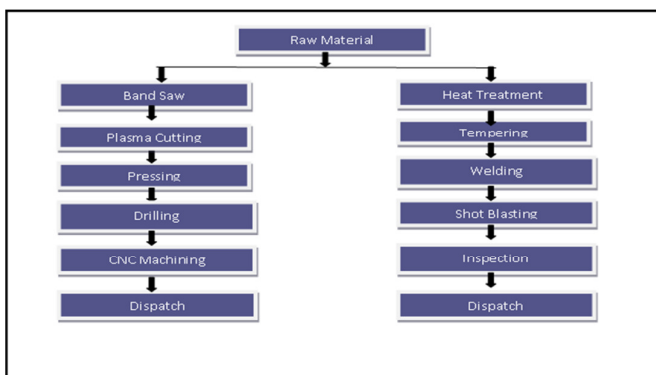
Faridabad is a mixed cluster in Haryana having over 12000 MSMEs majorly manufacturing various kinds of automobile parts, sheet metal components and fabrics. There are majorly 15 industrial segments in the cluster with a high range of products from soaps to tractors.

Unit Profile

M/s ABC is an MSME unit engaged in manufacturing of auto components (Heat Treatment), steel metal. Total Energy bill of the unit was Rs.39.81 lakh per annum. About 54% of the unit's energy bill was on account of Piped Natural Gas, 41% accounted for Grid electricity and remaining 5% accounted for Diesel-DG.

Process description

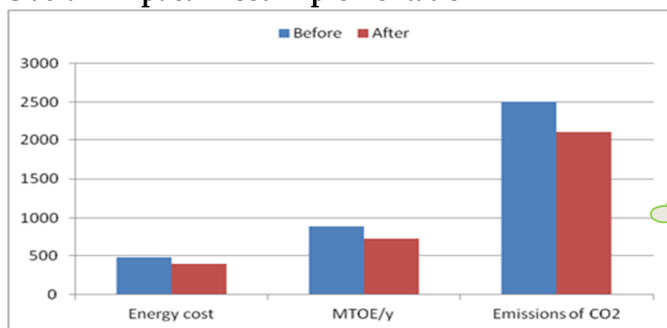
The manufacturing process involves two parallel processes; viz machining and heat treatment followed by finishing operations. In the first stream, metal pipes are sent for Bending using Band saw machine. Bending is followed by Plasma cutting. After cutting, it is sent for pressing using hydraulic pressing. The next step is drilling, followed by machining using CNC machines. Then the component is dispatched. The second



stream uses metal sheets as raw material; heat treatment is done on these. Heat treatment is followed by tempering using tempering Furnaces where maximum temperature maintained is 700°C. There is automatic temperature monitoring and controlling system where automatic cut-off is done once the required temperature is attained. The next step is Butt welding; welding is followed by Shot blasting. Then the component is dispatched after inspection.

Piped natural Gas and Grid Electricity were used to operate major energy consuming equipments in the unit i.e. welding machines, presses and other utilities i.e. pumps, motors associated with equipments, and lighting.

Overall Impact - Post implementation



Overall Impact

23% reduction in Total Energy bill (i.e. savings of INR 109 lakh p.a.) Simple payback of 12 months

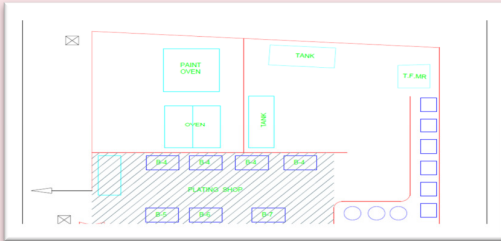
This case study has been prepared under WB GEF Project titled "Financing Energy Efficiency at MSMEs in India". The project aims to identify, design & implement Energy Efficiency (EE) solutions in 500 MSMEs in 5 clusters with potential of EE investment of more than Rs. 100 crore and reduction in GHG emissions equivalent to 1.2 million tonne CO₂. This project is being co-implemented by Small Industries Development Bank of India (SIDBI) and Bureau of Energy Efficiency (BEE).

INTERVENTIONS

Reducing the power consumption of Plating Shop

Baseline Scenario

There were seven plating tanks with three transformers (1x1000Amp, 1x750 Amp, 1x500Amp). The heating was done by individual heaters in each tank which account to total heating load of 8kW. There were 6 rinse pumps.



Recommendation

The unit was advised to install Cathode Electro Deposition (CED) plating line.

Implemented Scenario

Based on the project's recommendation, the unit installed Cathode Electro Deposition plating line where rinse pumps have been reduced from 6 to 3.

Newly installed TFH saves 73908 kWh of electricity per annum.



The Investment of Rs.16.17 lakh made by the unit has resulted in monetary savings in energy cost of Rs.14.92 lakh per year with simple payback period of 13 months.

Improvement of Energy performance in Welding

The unit had MIG welding SPMs, having total rating power of 60kW with the average power consumption of 48kW. As suggested, the unit has replaced the 60kW manual MIG welding machines by 40kW Robot welding and installed VFD in Butt welding pump to reduce the power consumption.

Shop Lighting System performance Improvement

The unit was lighting the production area through 173 no. of T-12 FTL lamps. With the suggested recommendation, the unit has replaced th T-12 FTL with T-5 FTL with electronic choke. This has resulted in an annual energy saving of 9108 kWh of electricity, equivalent to about Rs. 66000 per year with simple payback period of 18 months.

Support provided under the Project

- Walk Through & Detailed Energy Audit
- Identification of Energy Efficiency Interventions in the unit
- Finalization of the specifications for the Energy Efficiency Interventions
- Identification of technology providers/vendors
- Facilitation for an interactions between the unit and technology providers;
- Technical support during commissioning
- Monitoring & Verification

Disclaimer: This case study has been compiled by DESL on behalf of SIDBI under WB GEF Project. While every effort has been made to avoid any mistakes or omissions, any agency would not be in any way liable to any person by reason of any mistake/ omission in the publication.

For Further Information please contact at

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