

11% reduction in energy bill of a automotive components MSME unit through Energy Efficiency Measures

Background

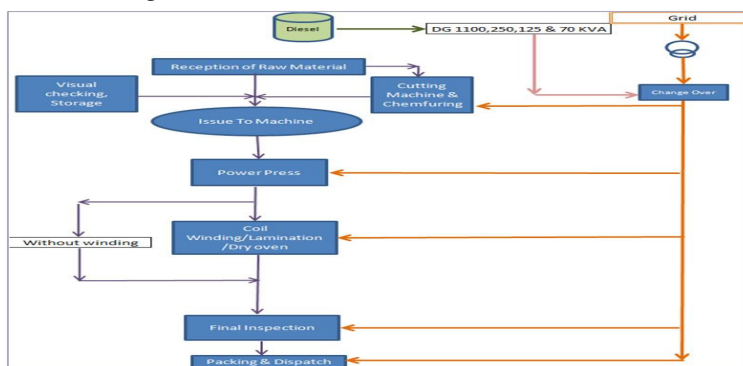
Faridabad is a mixed cluster in Haryana having over 12000 MSMEs majorly manufacturing various kinds of automobile parts, sheet metal components and fabrics. There are majorly 15 industrial segments in the cluster with a high range of products from soaps to tractors.

Unit Profile

M/s ABC is an MSME unit engaged in manufacturing of automotive components (electrical lamination and stampings) producing about **1000** tpa. Total Energy bill of the unit was Rs.96.7 lakh per annum which was around 62% of total turnover. About 55% of the unit's energy bill was on account of Grid electricity and remaining 45% accounted for Diesel-DG.

Process description

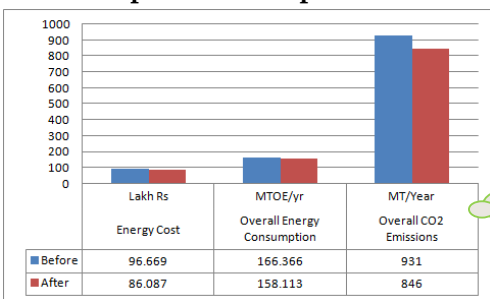
The manufacturing process involves the receiving of raw material in the form of round coil sheet metal and are issued to machines after inspection. The continuous feed press machines are having an arrangement in which a full length of wound sheet metal coil is arranged and feed is continuous. The mechanical press without continuous feed are provided with the sheet metal cut into small lengths. The cut profile is riveted at the same continuous feed machine and a semi finished work piece is formed. The semi finished work piece is sent to coil winding section, where the copper coils are wound around the pieces as per desired number of turns and is assembled with plastic parts imported from vendors. The finished product from the winding section is sent for lamination, where a lamination is applied and then the pieces are sent for drying in the electric ovens. Miscellaneous operations like grinding or drilling are done and the product is ready for dispatch.



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

Overall Impact - Post implementation



Overall Impact
 11% reduction in Total Energy bill (i.e. savings of INR 11 lakh p.a.) Simple payback of 14 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

Switching off one water circulation pump of Air Washer

Baseline Scenario

The unit was having two air washers. The air washers installed at office area was having a fan blower and two no's of water circulation pumps. The pumps were installed as one running and one stand by. The opening in the spray wall results in poor room temperature. Further both the pumps were found to be running to maintain the temperature.

Recommendation

The unit was advised to switch off one of the two running circulation pumps installed for air washer.

Implemented Scenario

Based on the project's recommendation, the unit switched off one of the circulation pump.

Newly modified system consumes 0.6 kW of power.



The Investment of Rs.5000 made by the unit has resulted in monetary savings in energy cost of Rs.7000 per year with simple payback period of eight months.

Installation of capacitor bank to improve power factor

The average power factor of the unit was low, at 0.960. As suggested, the unit has installed a fixed capacitor bank to improve the power factor to about 1.00. This has helped the unit to reduce distribution losses and voltage fluctuation besides avoiding penalty.

Replacement of Window AC with efficient AC

The average specific power consumption was 2.606 KW/TR. With the suggested recommendation, the unit has replaced 10 no. of AC's with energy efficient AC's. This has resulted in an annual energy saving of 20,132 kWh of electricity, equivalent to about Rs. 1.9 lakh per year with simple payback period of 24 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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