

7.8 % reduction in energy bill of a machine manufacturing MSME unit

Background

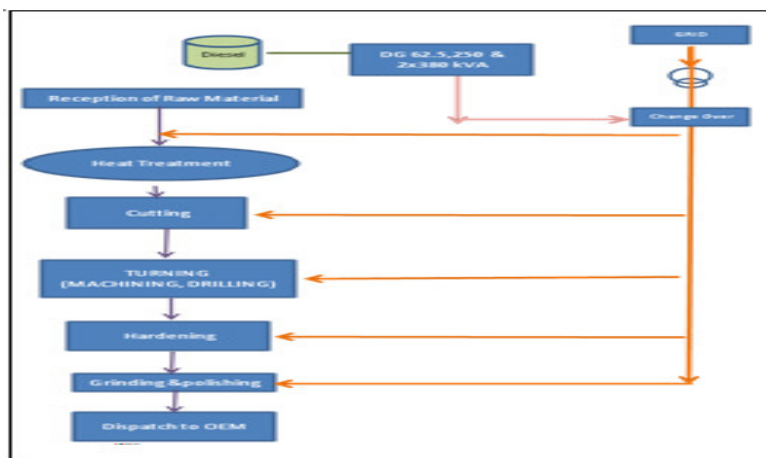
Faridabad is a mixed cluster in Haryana having over 12000 MSMEs majorly manufacturing various kinds of automobile parts, sheet metal components and fabrics. There are majorly 15 industrial segments in the cluster with a high range of products from soaps to tractors.

Unit Profile

M/s ABC is an MSME unit engaged in manufacturing of components for earth moving equipments producing about 4800 tpa. Total Energy bill of the unit was Rs.302.31 lakh per annum which was around 13% of total turnover. About 81% of the unit's energy bill was on account of Grid Electricity, 18% accounted for Diesel-DG and remaining 1% accounted for Thermal.

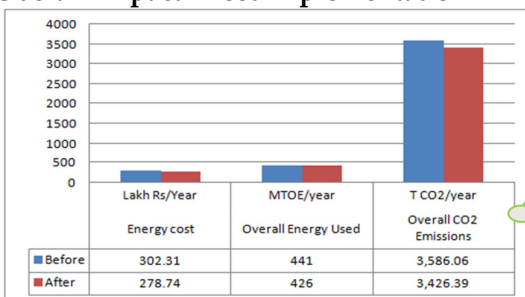
Process description

The manufacturing process involves the procurement of raw material from market followed by various heat treatment and mechanical processes. After the heat treatment is done in Induction furnace, the material is sent for cutting & turning process & drilling. These products again go for hardening process & before final finishing: grinding & polishing have been carried out. After that the product is ready for dispatch to O.E.M



Grid Electricity and Diesel were used to operate major energy consuming equipments in the unit i.e. induction furnace, heat treatment machines and other utilities i.e. pumps, motors associated with equipments, and lighting.

Overall Impact - Post implementation



Overall Impact
7.8% reduction in Total Energy bill (i.e. savings of INR 25 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

Installation of Energy Monitoring System for Main Incomer & Metering Instruments

Baseline Scenario

Online data measuring was not done on the main incomer as well as for various electrical panels for the energy consumption. The energy consumption of major electrical machines were 36,63,970 kWh per annum. Improper monitoring of energy consumption leading to high energy loss and inadequate electrical consumption by various machines leading to low efficiency of machines.

Recommendation

The unit was advised to install the energy monitoring online system for main incomer and metering instruments on electrical distribution panels inside the plant to reduce overall energy consumption by 3%

Implemented Scenario

Based on the project's recommendation, the unit installed an online energy monitoring system.

Newly installed system saves 1,09,889 kWh of electricity per annum.

The Investment of Rs5.5 lakh made by the unit has resulted in monetary savings in energy cost of Rs.8.55 lakh per year with simple payback period of 78 months.

Installation of APFC to Improve Power Factor

The average power factor of the unit was low, at 0.960. As suggested, the unit has installed an automatic power factor controller to improve the power factor to about 0.995. This has helped the unit to reduce distribution losses and voltage fluctuation besides avoiding penalty.

Replacement of Sodium Vapour Lamps by Electronic T5 Lighting

The unit was lighting the production area through sodium vapour luminaries with magnetic choke. With the suggested recommendation, the unit has replaced sodium vapour lamp by 4 x 14 electronic T5 lamps. This has resulted in an annual energy saving of 36343 kWh of electricity, equivalent to about Rs. 2.7 lakh per year.

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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