

17% reduction in energy bill of a cable manufacturing MSME unit through Energy Efficiency Measures

Background

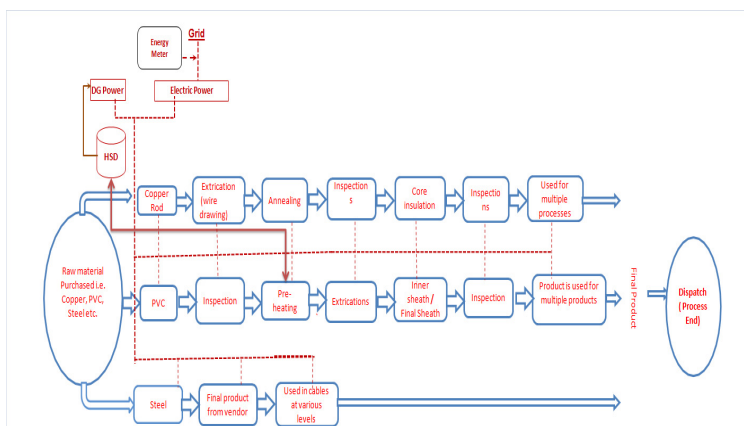
Faridabad is a mixed cluster in Haryana having over 12000 MSMEs majorly manufacturing various kinds of automobile parts, sheet metal components and fabrics. There are majorly 15 industrial segments in the cluster with a high range of products from soaps to tractors.

Unit Profile

M/s ABC is a MSME unit engaged in manufacturing of wires and cables producing about 4065 km length of wire per annum. Total Energy bill of the unit was Rs.131.84 lakh per annum which was around 2% of total turnover. About 65.4% of the unit's energy bill was on account of HSD-DG, 33.5% accounted for Grid electricity and remaining 1.1% accounted for HSD-Boiler.

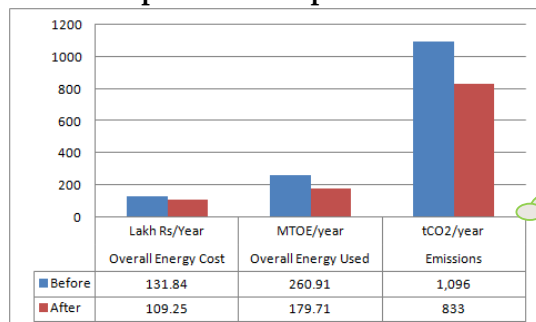
Process description

The manufacturing process involves the procurement of raw materials such as copper, PVC, steel etc. from the open market. Three different processes are applied for copper, PVC and steel, which are combined at the last stage. Copper rod is converted in to wire by extrication process and annealing is done for strengthening. Copper core is now insulated followed by inspection. PVC after inspection and pre heating is extruded and inner sheathing and final sheathing is done. Inner sheath or final sheath is produced and inspected. Steel is used for armoring the final sheathing. Final products after quality inspection are packed and stored for dispatch.



HSD and Grid Electricity were used to operate major energy consuming equipments in the unit i.e. extruder machines, wire drawing machines, compressor, DG sets and other utilities i.e. pumps, motors associated with equipments, and lighting.

Overall Impact - Post implementation



Overall Impact

17% reduction in Total Energy bill (i.e. savings of INR 23 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

Replacement of the existing DG set with UPS

Baseline Scenario

One DG set (380 KVA) was continuously running to feed uninterrupted power to two machines having connected load of 134 KW. The average diesel consumption in DG set is around 208000 liters per annum leading to energy generation of 875544 kWh per annum. The average running hours of the DG set was 9858 hours annually. Apart from the DG supply, an additional 301457 kWh per annum was required from grid leading to high additional cost.

Recommendation

The unit was advised to one 200 KVA UPS so that use of DG set is reduced.

Implemented Scenario

Based on the project's recommendation, the unit installed one 200 KVA UPS.

Newly installed UPS saves 338716 kWh of energy per annum.



The Investment of Rs.17 lakh made by the unit has resulted in monetary savings in energy cost of Rs.12 lakh per year with simple payback period of 18 months.

Tuning of PF controller to improve power factor

The average power factor of the unit was low, at 0.890. As suggested, the unit has tuned the PF controller to improve the power factor to about 0.99. This has helped the unit to reduce distribution losses and voltage fluctuation besides avoiding penalty.

Replacement of Low efficacy fixtures by High efficacy fixtures

The unit was lighting the production area through HPMV, HPMV and incandescent lamps. With the suggested recommendation, the unit has replaced no. these lamps by IL, T5 and CFL lamps. This has resulted in an annual energy saving of 29734 kWh of electricity, equivalent to about Rs. 2.7 lakh 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

Energy Efficiency Centre, Small Industries Development Bank of India (SIDBI), Ground Floor, E-1, Videocon Tower, Jhandewalan Extension, Rani Jhansi Road, New Delhi-110055, India, Ph. 011 23682473-77, www.sidbi.in

