

9% reduction in energy bill of a washing soap MSME unit through Energy Efficiency Measures

Background

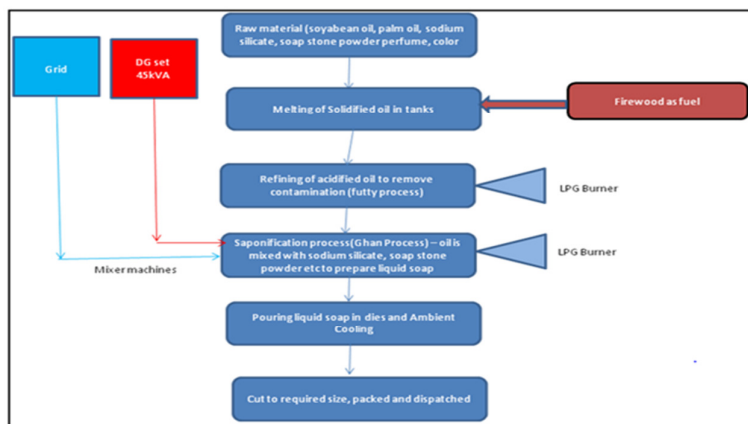
Faridabad is a mixed cluster in Haryana having over 12000 MSMEs majorly manufacturing various kinds of automobile parts, sheet metal components and fabrics. There are majorly 15 industrial segments in the cluster with a high range of products from soaps to tractors.

Unit Profile

M/s ABC is a MSME unit engaged in manufacturing washing soaps and chips producing about 7900 tpa. Total Energy bill of the unit was Rs.82.0 lakh per annum which was around 13% of total turnover. About 81% of the unit's energy bill was on account of Piped Natural Gas, 12% accounted for Grid electricity and remaining 7% accounted for HSD in DG

Process description

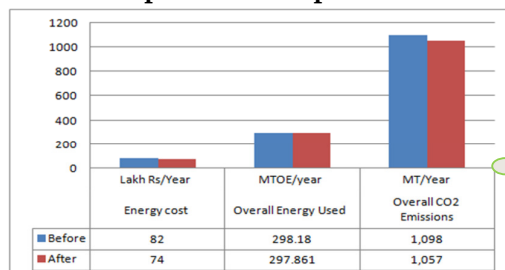
The manufacturing process involves the receiving of acid oils followed by processes like Melting Process in which acid oil first undergoes melting process where the solidified acid oil is heated using firewood followed by refining process the liquefied acid oil is then refined for 6-8 hours which is locally known as futty process followed by saponification process in which the refined acid oil is mixed and heated



with caustic soda in presence of water which is known as saponification. Here the actual required quality of soap is maintained. Further sodium silicate, soap stone powder, color and perfume are added and heated in gas pan using LPG burners; this process is locally known as Ghan process. After the mixture gets thicken it is poured into dies and is ambient cooled. Then the soap cakes are cut to the required sizes (finished products) and after packing are dispatched.

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

Overall Impact - Post implementation



Overall Impact

9% reduction in Total Energy bill (i.e. savings of INR 18 lakh p.a.) Simple payback of 6 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 fuel from LPG to PNG for refining and saponification

Baseline Scenario

The unit is using industrial LPG cylinders of 49 kg each as fuel in the refining and saponification process to heat the liquid mixture (majorly oils) to not more than 70°C. Conversion of LPG burners to PNG has been recommended. As per the measurements done during the field visit the soap temperature is maintained at around 70°C-75°C in both saponification and refining tanks. Also the unit has 5 refining tanks and 15 saponification tanks. Analysis of the historical LPG consumption figures (for FY 2011-12) shows that the average consumption of LPG in the unit is 9,055 kg/month.

Recommendation

The unit was advised to replace the existing fuel i.e. LPG with PNG.

Implemented Scenario

Based on the project's recommendation, the unit replaced LPG with PNG for meeting thermal energy demand.

Newly installed system consumes 1,50,928 SCM of PNG per annum.



The Investment of Rs.10 lakh made by the unit has resulted in monetary savings in energy cost of Rs.7.3 lakh per year with simple payback period of 16 months.

Reduction in opening loss in refining vessels

The heat loss from the refining tank was 3.5 M kcal/year. As suggested, the unit has covered the refining tank with metal sheet to reduce opening loss to about 0.7 M kcal.. This has helped the unit to reduce the heat loss and the overall fuel consumption.

Replacement of T-12 lamps by T-8 lamps

The unit was lighting the production area through 50 no. of T-12 lamps. With the suggested recommendation, the unit has replaced 50 no. of T-12 lamps by 70 no. of T-8 lamps. This has resulted in an annual energy saving of 414 kWh of electricity, equivalent to about Rs. 3,528 per year with simple payback period of 26 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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