

MSME pharma unit reduces energy bill by 19% through investment in energy efficiency measures!

Background

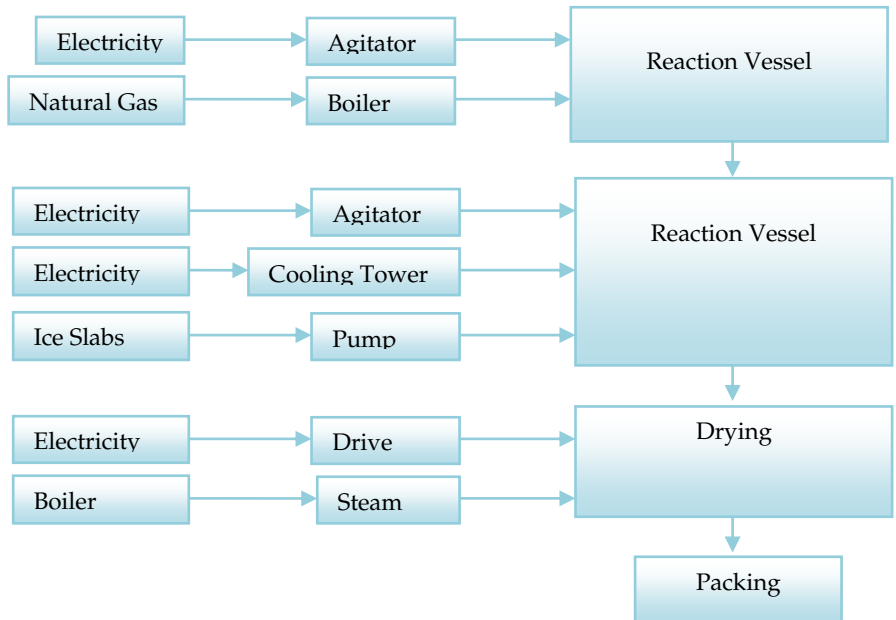
Ankleshwar is a chemical cluster in Gujarat. It has over 700 MSMEs manufacturing various kinds of chemicals (dyes and pigments—67%; pharma and pharma intermediates—27%; and pesticides and chlor-alkalis—6%). The production capacity of these units varies from 50 tonnes to over 10,000 tonnes per annum (tpa).

Unit profile

M/s A16 is an MSME unit manufacturing drug intermediates. The annual production is about 28 tonnes. The total annual energy bill of the unit was about INR 31 lakhs, which was around 56% of total turnover. The total annual energy consumption was about 69 tonnes of oil equivalent (toe), of which natural gas (NG) accounted for 91% (63 toe) and grid electricity 9% (6 toe).

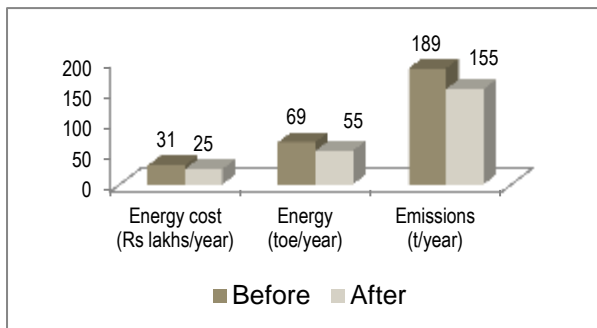
Process description

The raw materials are charged in a reaction vessel, which is heated indirectly by steam from an NG-fired boiler. The reaction products are transferred to a second reactor which is cooled by chilled water/ice from a cooling tower. The output from this reactor is dried using rotary vacuum dryer (RVD) to give the final products.



The major energy consuming equipments used were an NG-fired steam boiler of capacity 600 kg/hour and electrical motors associated with agitator, cooling tower, RVD, pumps and other utilities.

Overall Impact: post- implementation



Overall Impact
 19% reduction in total energy bill (i.e. annual savings of INR 6 lakhs) with a simple payback of 1.8 years

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 old inefficient boiler by energy efficient boiler


Baseline Scenario

The unit was operating a locally fabricated NG-fired vertical boiler of capacity 600 kg/hour. Its efficiency was low (68%) due to dry flue gas losses and lack of waste heat recovery.

Recommendation
The unit was advised to replace the existing boiler with an energy efficient package-type small industrial boiler (SIB).

Implemented Scenario

As advised, the unit replaced the existing boiler with an energy efficient package-type SIB.

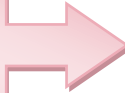


This investment of INR 10.4 lakhs is saving 15,203 SCM of NG annually, equivalent to INR 5.6 lakhs. The simple payback period is 1.9 years.

Replacement of the existing cooling tower pump with energy efficient pump with VFD

The unit was operating a mono block pump of 7.5 hp in close loop circuit for cool water circulation. Its efficiency varied in the range 29%–45%, which was quite low. As advised, the unit replaced the pump with an energy efficient pump with pressure-based variable frequency drive (VFD) to optimize the flow and efficiency levels. This investment of INR 0.80 lakhs is saving 8584 kWh of electricity annually, equivalent to around INR 0.6 lakh. The simple payback period is 1.4 years.

Support provided under the project



- Walk-through & Detailed energy audit
- Identification of energy efficiency interventions in the unit
- Finalization of specifications for the energy efficiency interventions
- Identification of technology providers/vendors
- Facilitation for interactions between unit and technology providers;
- Technical support during commissioning
- Monitoring & Verification

Disclaimer: This case study has been compiled by TERI on behalf of SIDBI under WB-GEF Project. While every effort has been made to avoid any mistakes or omissions, these agencies will not be in any way liable for any inadvertent mistakes/omissions in the publication.

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