

Tips to Reduce Energy Costs

Steam Generation & Distribution

- Ensure proper selection of fuel firing equipment viz. Burners, mechanical stokers etc.
- Ensure correct temperature and pressure of fuel oil at the burner tip as per manufacturers specifications.
- Reduce radiation losses from boilers, furnaces and auxiliary equipment by improved thermal insulation.
- Employ blow down and waste process-heat to preheat the boiler feed water.
- Use of steam and power within the boiler house should be subject to critical scrutiny. For instance, loss of steam from relief valves and other fittings should be effectively checked and stopped.
- Meters for fuel consumption, and steam generated and transmitted should be provided and properly maintained.
- Calibrate all the process control equipments at regular intervals.
- Analyse flu-gases and try to achieve the optimum percentage of carbon dioxide and oxygen levels.
- In coal firing, ensure correct pressure of primary air and maintain uniform thickness of coal bed. Avoid segregation.
- Consideration should be given to waste heat recovery for heating feed water or combustion air by using economizers and recuperators.
- Schedule your process operations to avoid heavy fluctuations in boiler loads.
- Avoid excessive blow downs.
- Avoid air infiltration and gas ex-filtration.
- Keep the heat transfer surfaces clean by preventing excessive scale formation and adequate soot blowing.
- In coal firing, try to reduce un-burnt carbon in ash. Adjust speed, feed and air supply to stabilize the flame and achieve complete combustion.
- Do not allow an unstable flame, and prevent the flame from impinging upon the furnace surface.
- Size pipelines for maximum anticipated loads.
- Long circuitous pipelines should be avoided.
- Long radius bends should be preferred to sharp elbows and smooth Ys preferred to Ts.
- Pipes should be gradually sloping (12mm in 3m) towards the receiving end and adequate provision for condensate removal should be made.
- Pipe sag should be periodically rectified to avoid danger of water hammering.
- Isolate steam lines not in use
- Use appropriate chemicals to avoid scaling and consequent loss of heat exchange rate.

Source:

Chemical Industry Digest, Second Quarter 1997 (June), pp 132