

Boilers Tips

1. Preheat combustion air with waste heat. (22 °C reduction in flue gas temperature increases boiler efficiency by 1%)
2. Use variable speed drives on large boiler combustion air fans with variable flows.
3. Burn wastes if permitted.
4. Insulate exposed heated oil tanks.
5. Clean burners, nozzles, strainers, etc.
6. Inspect oil heaters for proper oil temperature.
7. Close burner air and/or stack dampers when the burner is off to minimize heat loss up the stack.
8. Improve oxygen trim control (e.g. -- limit excess air to less than 10% on clean fuels). (5% reduction in excess air increases boiler efficiency by 1% or: 1% reduction of residual oxygen in stack gas increases boiler efficiency by 1%)
9. Automate/optimize boiler blowdown. Recover boiler blowdown heat.
10. Use boiler blowdown to help warm the back-up boiler.
11. Optimize deaerator venting.
12. Inspect door gaskets.
13. Inspect for scale and sediment on the water side. (A 1 mm thick scale (deposit) on the water side could increase fuel consumption by 5 to 8%.)
14. Inspect for soot, flyash, and slag on the fire side. (A 3 mm thick soot deposition on the heat transfer surface can cause an increase in fuel consumption to the tune of 2.5%)
15. Optimize boiler water treatment.
16. Add an economizer to preheat boiler feedwater using exhaust heat.
17. Recycle steam condensate.
18. Study part-load characteristics and cycling costs to determine the most-efficient mode for operating multiple boilers.
19. Consider multiple or modular boiler units instead of one or two large boilers.
20. Establish a boiler efficiency-maintenance program. Start with an energy audit and follow-up, then make a boiler efficiency-maintenance program a part of your continuous energy management program.