



Common Performance Improvement Opportunities

Best Practice Tip 100

Several steam system improvement opportunities are common to many industrial facilities. These opportunities can be categorized according to the part of the system in which they are implemented. Common performance opportunities for the generation, distribution and recovery areas of a steam system are listed below.

Common Performance Improvement Opportunities for the Generation, Distribution and Recovery Parts of Industrial Steam Systems

Opportunity	Description
Generation	
Minimize excess air	Reduces the amount of heat lost up the stack, allowing more of the fuel energy to be transferred to the steam
Clean boiler heat transfer surfaces	Promotes effective heat transfer from the combustion gases to the steam
Install heat recovery equipment (feedwater economizers and/or combustion air pre-heaters)	Recovers available heat from exhaust gases and transfers it back into the system by preheating feedwater or combustion air
Improve water treatment to minimize boiler blowdown	Transfers the available energy in a blowdown stream back into the system, thereby reducing energy loss
Add/restore boiler refractory	Reduces heat loss from the boiler and restores boiler efficiency
Optimize deaerator vent rate	Minimizes avoidable loss of steam
Distribution	
Repair steam leaks	Minimizes avoidable loss of steam
Minimize vented steam	Minimizes avoidable loss of steam
Ensure that steam system piping, valves, fittings, and vessels are well insulated	Reduces energy loss from piping and equipment surfaces
Implement an effective steam trap maintenance program	Reduces passage of live steam into condensate system and promotes efficient operation of end-use heat transfer equipment
Isolate steam from unused lines	Minimizes avoidable loss of steam and reduces energy loss from piping and equipment surfaces
Recovery	
Optimize condensate recovery	Recovers the thermal energy in the condensate and reduces the amount of makeup water added to the system, saving energy and chemical treatment
Use high-pressure condensate to make low-pressure steam	Exploits the available energy in the returning condensate

Steam Tip Sheet information is adapted from information provided by the Industrial Energy Extension Service of Georgia Tech and reviewed by the DOE Best Practices Steam Technical Subcommittee. For additional information on industrial steam system efficiency, contact the EERE Information Center