Find energy savings in steam trap maintenance

Approximately 20% of the steam leaving a central boiler plant is lost via leaking traps in typical space heating systems without proactive assessment.

U.S. Dep't of Energy, Steam Trap Performance Assessment, EE-0193 (July 1999) at 1.

Steam traps are vital valves that control steam at points within boiler steam pipes. Properly functioning steam traps open to release condensate and automatically close when steam is present. Failed traps waste fuel, reduce efficiency, increase production costs and compromise the overall integrity of the steam and condensate systems. For that reason, steam traps should be tested on a regular basis — or the neglect may be quite costly considering how many steam traps make up a typical piping system.

Rebates savings for audit and repairs

The best place to begin assessing the performance and efficiency of your steam traps is through a steam trap audit. To offset your costs, we offer steam trap audit rebates of $15 per steam trap tested every other year.

Replacing or repairing malfunctioning, inefficient steam traps is the next step to savings. You can earn $30 for every steam trap repaired or replaced.

Cost avoidance is good business

With the assumption that steam costs $5/1,000 lbs., you can see how much addressing faulty steam traps can save you money.

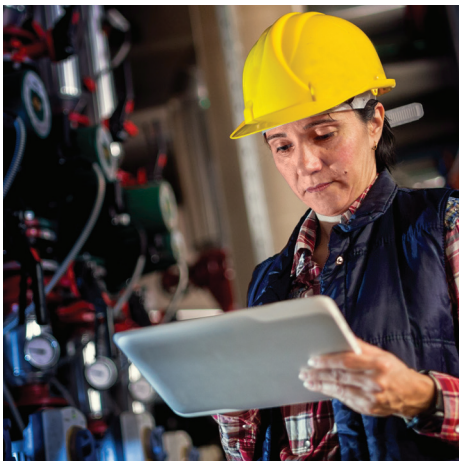
Size of orifice (in.)	Lbs. steam wasted per month	Total cost per month	Total cost per year
1/2	835,000	$4,175	$50,100
7/16	637,000	3,185	38,220
3/8	470,000	2,350	28,200
5/16	325,000	1,625	19,500
1/4	210,000	1,050	12,600
3/16	117,000	585	7,020
1/8	52,500	262	3,150

Source: The National Board of Boiler and Pressure Vessel Inspectors, Steam Traps Affect Boiler Plan Efficiency http://www.nationalboard.org/index.aspx?pageID=164&ID=229

3 reasons why steam traps fail

1. Dirt – by far the leading cause of failure resulting in either a leaking or plugged trap.
2. Pressure surges from sudden steam valve openings, improper piping, or trap misapplications resulting in internal steam trap damage.
3. Over-sizing traps can lose their prime; and thermodynamic traps can experience rapid cycling.

Case study summaries



Winona State University conducted a steam trap audit that uncovered several failed traps. The savings from replacing and repairing traps was over $130,000 annually.

- **Therms savings:** 219,413
- **Rebate savings:** $8,853
- **Annual cost savings:** $133,814

Lowry Building, LLC replaced 257 steam traps that had been in place anywhere from two to 50 years. The savings from replacing traps was over $10,000.

- **Therms savings:** 102,543
- **Rebate savings:** $7,710
- **Annual cost savings:** $10,254

Additional energy-saving rebates to improve your system systems:

Boiler equipment	Minimum requirements	Rebate
Steam boilers ≤ 10 million BTUH	81% efficient	$500/million BTUH

Boiler add-ons, system improvements or maintenance measures	Rebate
Boiler tune-ups	25% of tune-up cost; $250 maximum per boiler every other year
Outdoor air reset controls	$200 per control
Modulating burners with turndown ≤ 5:1	$1,500/million BTUH; $7,000 burner max
Turbulators	25% of equipment cost; $400 maximum per boiler
Stack dampers	25% of equipment cost: $250 maximum per damper
O_2 trim controls	25% of equipment cost; $5,000 maximum per boiler

Pipe insulation

Pipe diameter	Average fluid temp: 105 °F – 200 °F Conductivity 0.21 – 0.29 BTU In /(H ft² °F)		Average fluid temp: 201 °F – 250 °F Conductivity 0.27 – 0.30 BTU In /(H ft² °F)		Average fluid temp: 251 °F – 350 °F Conductivity 0.29 – 0.32 BTU In /(H ft² °F)	
	Minimum insulation thickness	Rebate $/ft	Minimum insulation thickness	Rebate $/ft	Minimum insulation thickness	Rebate $/ft
0.5" to < 1.0"	1.0"	$5	1.5"	$6	2.0"	$8
1.0" to < 1.5"	1.0"	$5	1.5"	$6	3.0"	$8
1.5" to < 4.0"	2.0"	$6	2.5"	$8	4.5"	$9
> 4.0"	2.0"	$6	3.0"	$8	4.5"	$9

How much can you save?

To learn how you can save money and energy, contact your account manager or an energy efficiency specialist at **855.839.8862** today!