



**Liberty
Utilities®**

KEY POINTS

- **Up to 30% of steam traps may fail without regular maintenance, wasting energy and money**
- **An annual steam trap survey can reduce system fuel costs by 5% to 15%**
- **Steam trap testing methods include: temperature, acoustic, visual and electronic**

Find out what incentives are available for your home or business. Energy Efficiency 603-216-3698
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Steam System Maintenance

Saves Energy and Money

Do you have a steam trap maintenance program in place?

Steam traps are automatic valves located on distribution lines that help optimize system performance by purging condensate and maintaining steam quality. In systems that have not received maintenance in three to five years, up to 30 percent of steam traps may have failed, according to the U.S. Department of Energy (DOE).



Source: U.S. Dept of Energy

Failed steam traps waste energy by allowing live steam to escape into the condensate return systems. Since many steam systems have hundreds of traps, the energy—and money—loss can be substantial.

Regular maintenance equals savings

Steam trap replacement can pay for itself quickly. For facilities that don't currently have a regular steam maintenance program, an annual steam trap survey can save 5 to 15 percent of system fuel costs.

Here's an example of the potential energy savings in dollars. In a plant where the value of steam is \$8.50 per thousand pounds, an open inspection program indicates that a trap on a 150 psig line is stuck open. The trap orifice is one-eighth inch in diameter and has an estimated steam loss of 62 pounds per hour—see the following table. The annual cost savings would be approximately \$4,617 ($62 \times 8,760 \text{ hr/year} \times \$8.50 = \$4,617$) if the failed trap were repaired. At a cost of approximately \$600, the payback for the newly installed steam traps would be less than two months.

Trap Orifice Diameter (inches)	Steam Loss (pounds per hour)			
	Steam Pressure (psig)			
	50	100	150	300
1/16	6	11	16	30
1/8	25	43	62	119
3/16	55	98	140	268
1/4	98	174	249	477
3/8	221	391	561	1,073

Source: U.S. Department of Energy



An annual steam trap survey can save 5% to 15% of system fuel costs.

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- may fund a portion of the cost of an energy audit study
- provides incentives on energy savings improvements
- may require pre-approval of the audit and incentives

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Testing Storm Traps

Inspect and test steam traps regularly to ensure that they are functioning properly. You can test traps in four ways:

- **Temperature.** Plugged traps are cool while operating; leaking traps are hot. Check the temperature of the trap with a noncontact, infrared thermometer.
- **Acoustic.** Listen. If you hear a modulating, continuous flow, the trap is operating fully. An intense rushing sound may indicate a blow-by condition or some other problem. Don't hear anything? The trap may be plugged.
- **Visual.** Visual inspection involves venting live steam to check the discharge valve downstream of the trap. Visual inspection isn't 100 percent reliable, but it can help you spot design issues that can lead to steam trap failures.
- **Electronic.** Ultrasonic testers let you hear what's going on inside the trap. Touch the trap on the downstream side with the instrument's contact probe and adjust the sensitivity to hear the flow better.

Establish a plan of action

Establish a program for regular steam trap inspection, testing and repair. To minimize energy losses, test at the following intervals:

- High pressure (150 psig and above)—weekly to monthly
- Medium pressure (30-150 psig)—monthly to quarterly
- Low pressure (below 30 psig)—annually

See the [Steam Systems](#) from the DOE for additional tools, tips and resources for optimizing steam system performance.



source: <https://energy.gov/>

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