



COMPRESSED AIR OPERATION TIPS & BEST PRACTICES

Ten tips for reducing your operating costs

- 1 Eliminate leaks. Each audible leak can cost \$1,400 per year in energy.
- 2 Turn off each compressor when it is not needed. Unloaded compressors consume 30% of the power of a fully loaded compressor.
- 3 Consider using the following alternatives to compressed air:
 - For open blowing or mixing: use fans, blowers, mixers or nozzles
 - For personnel cooling: use electric fans or air conditioning
 - For parts cleaning: use brushes or vacuums
 - For air motors and air pumps: use electric motors where applicable
- 4 Replace dirty air-filters to avoid unnecessary pressure drops.
- 5 Keep the compressor room well ventilated; the cooler the space the better. If you reduce the temperature of the air drawn into the compressor by 5° F, you will save 1% in energy use.
- 6 Shut off the air supply to “off-line” production equipment.
- 7 Record the unload sump pressure periodically for load/unload compressor operation. If it gets high, check maintenance and settings on the compressor.
- 8 Operate the system at the lowest possible pressure. Every 2-psig reduction saves 1% of energy use. Some ways to do this include:
 - Avoid using long hoses where rigid piping or shorter hoses would do the job
 - Eliminate unnecessary elbows and undersized piping
 - Check minimum pressure requirements periodically and adjust setpoints downward when possible
- 9 Operate centrifugal compressors and modulating (inlet throttling valve) compressors close to full load for base loads.
- 10 If a compressor has the capability, make sure load/unload has enough receiver capacity to do so without short cycling (typically a minimum of 3 gallons/cfm, but 5 gallons/cfm recommended).

QUESTIONS?
(206) 684-3800
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ENERGY ADVISOR**

Compressor equipment upgrades may be eligible for incentives

After performing the routine operation and maintenance tasks described on the front, more energy-efficiency improvements may be possible with equipment upgrades. Seattle City Light can analyze projects and help pay for upgrades. Here are some examples of upgrade opportunities:

- Replace standard rotary-screw compressors with VSD rotary-screw compressors or reciprocating compressors, either of which can match energy consumption to the load. Reciprocating compressors are energy efficient and suitable for spaces where noise is not an issue. However, they require more maintenance than energy-efficient VSD rotary-screw compressors, and they are not recommended for continuous duty.
- If only a small amount of air is needed during off hours, consider installation of a small, dedicated compressor specifically for that purpose.
- Consider installation of a local receiver and control check valve for any short-term pressure peaks to further reduce system pressure.
- To avoid blow-off, consider installation of inlet guide vanes for centrifugal compressors.
- Use variable speed drives (VSD) or load/unload compressors for trim (variable load operation).
- Install and maintain no-loss condensate traps (at each receiver and at low points in distribution piping) and close manual valves left open to drain condensate. Make sure receiver isn't filling up with water.
- Replace non-cycling refrigerated dryers with cycling refrigerated dryers. Turn off desiccant dryers seasonally if a refrigerated dryer can provide a low enough dewpoint during the summer.



Compressed air best practices

For more guidance on operating compressed air systems, visit www.airbestpractices.com to subscribe to Compressed Air Best Practices magazine. This resource is for compressed air professionals, plant engineers and plant maintenance managers interested in optimizing compressed air systems. Guidance includes:

- How to reduce related energy costs
- How to improve productivity
- New technologies

For an analysis of your current system and to learn more about funding to help pay for upgrades, call (206) 684-3800 to talk with an energy analyst.



Seattle City Light is dedicated to delivering customers affordable, reliable and environmentally responsible electricity services.