



TEAM UP FOR ENERGY SAVINGS

Compressed Air

Saving the environment and saving money can be as easy as patching a hose. That means you're on the front line for energy-saving opportunities. Team up with co-workers to spot ways to reduce the energy your compressed air system uses – it's good for the environment and good for the bottom line.

Pump up compressed air energy savings

Check out your compressed air system. It's the most expensive and sometimes the most inefficient utility in many plants. For example, for every 100 units of energy, fewer than 10 units are turned into useful compressed air. To conserve energy and cut costs, there are three main areas to consider:

1. Housekeeping

- » Know your loads and check them regularly. Load changes may be due to leaks or new process requirements. Load changes may require changing the size or number of compressors.
- » Regularly inspect and maintain the air system and the control and monitoring equipment.
- » Shut off compressed air when not required.
- » Don't use valuable compressed air for dusting and cooling.
- » Prevent leaks – check joints, valves, fittings and hose connections.
- » Generate compressed air at the lowest possible pressure for each job.
- » Check that the system isn't requiring higher pressure than it was designed for.
- » Maintain air filters.

2. Low-cost opportunities

- » Institute compressed air management (meter use by end-users, calculate costs per user, ask users to justify use).
- » Eliminate as many hoses and couplings as possible to reduce leakage opportunities.
- » Use the coolest possible intake air (consider outside air).
- » Discharge air-cooled compressors outside in summer and inside in winter.
- » Investigate recapturing heat rejected by compressors.
- » Ensure the system is dry to prevent leaks from corrosion and winter freeze-ups.
- » Install sequence controls for compressors used in parallel. For example, for partial loads, use the reciprocating compressor and shut down the screw compressor.

3. Retrofits

- » Integrate independent compressed air generating and distributing circuits.
- » Consider an intelligent control system to reduce idle time and maintain correct pressure.
- » Consider a combustion-engine-driven compressor for heat recovery opportunities and better part-load efficiency than electrical motors.
- » Upgrade to an energy-efficient compressed air dryer.
- » Consider a large buffer tank to improve compressor loading on older compressors.



- » Large facilities can benefit from a centralized automatic leak-measuring system.
- » Consider replacing old steel pipes with plastic pipes to avoid corrosion and leaks.
- » Review loads and compressor types and sizes. Consider replacing compressors to make your operations more energy efficient.

Evaluate your compressed air system

1. Are there any leaky pipes, hoses, connections or fittings?

- Yes Repair leaks as soon as possible.
- No Recheck periodically.

Done by: _____

Date: _____

2. Is compressed air needed after the end of a shift?

- Yes If only instrument air is required, use a separate, smaller compressor to supply it, and shut off the plant air compressor.
- No Shut off the air compressor at the end of a shift.

Done by: _____

Date: _____

3. Is compressed air supplied to areas where it isn't needed?

- Yes Disconnect air service in those areas (leaks are more likely to go unnoticed in low-use areas such as warehouses and storage areas).
- No No action required.

Done by: _____

Date: _____

4. Are air filters clean?

- Yes Recheck monthly.
- No Replace clogged filters to reduce losses in system pressure.

Done by: _____

Date: _____

5. Is the air pressure higher than required?

- Yes Lower set point on controls and verify operation.
- No No action required.

Done by: _____

Date: _____

6. Does equipment need repair or maintenance?

- Yes To ensure maximum efficiency and minimum use of compressed air, have all air-using equipment maintained and lubricated regularly.
- No No action required.

Done by: _____

Date: _____

7. Does the load need all the compressors running?

- Yes No action required.
- No Investigate.

Done by: _____

Date: _____

FOR MORE INFORMATION on these and other energy-saving opportunities, see Natural Resources Canada's *Energy Efficiency Planning and Management Guide* at: oee.nrcan.gc.ca/publications/infosource/pub/cipec/efficiency.

