



## Pressure's off

### How compressed air system improvements can save industrial facilities energy & money

From powering pneumatic tools and cleaning parts to conveying materials through pipes and hoses, compressed air systems play an important role in manufacturing operations. The versatility of these systems has made them a popular technology in many industrial facilities, especially in applications where using electricity may present safety concerns. No matter how large or small the operation, compressed air is a practical tool that can result in notable manufacturing efficiencies.

However, in addition to the many benefits associated with compressed air systems, there is one potential disadvantage — they can be incredibly energy intensive. On average, 10% of most industrial energy costs are related to the electricity required to run compressed air systems, and any inefficiencies associated with the system can lead to energy and financial losses. The costs associated with inefficiencies can be difficult to manage, from increased monthly energy bills to higher operating and maintenance costs. Leaks are a particularly common culprit; they can represent 30% of compressed air loads when not managed properly.

#### The rationale for compressed air system improvements

To maximize the overall efficiency of a facility, it's important to diagnose and correct issues associated with its compressed air system. Whether it's properly sizing the system, identifying and eliminating leaks, maintaining and monitoring the system, or replacing it altogether, taking appropriate action now can lead to long-term savings and benefits. In fact, system optimization efforts can lower energy costs by an average of 30%, and in some cases, upwards of 85%. They can also correct issues such as low air pressure, moisture in air lines, poor reliability, and production outages.

The multitude of competing priorities in your manufacturing facility and challenges associated with system improvements may make the task feel complicated and labour-intensive. Luckily, Efficiency Manitoba can make the process straightforward and more affordable.

#### Efficiency Manitoba is here to help

Efficiency Manitoba, Manitoba's Crown corporation dedicated to energy efficiency, understands the complexities involved with compressed air technologies. That's why they're equipped to help industrial facilities make improvements to their systems, providing them with technical support to guide them through the process and even offering financial incentives. Whether it's time to look at replacing or upgrading your equipment or you'd like to assess the way your existing system is running, Efficiency Manitoba's variety of offers can facilitate the assessment and proper sizing of new equipment, as well as the maintenance of your systems for optimal use.

Efficiency Manitoba can conduct a free benchmark study on your system to identify energy-saving opportunities. This begins with a compressed air contractor gathering baseline data of your existing system. Efficiency Manitoba's technical experts analyze the data and prepare a benchmark study that can aid in properly sizing replacement equipment, identifying other areas for improvement, and estimating the energy savings associated with these upgrades.

Efficiency Manitoba can also quantify any financial incentives available to offset your capital investment through their Custom Energy Solutions Program, which provides performance-based incentives of \$0.15 per kilowatt-hour (kWh) and \$0.30 per cubic metre (m<sup>3</sup>) of energy saved. The greater the energy reduction,

the higher the incentive. Their network of experienced vendors and contractors will work with customers to implement these upgrades.

If a capital upgrade isn't in your budget, Efficiency Manitoba also supports energy waste reductions by addressing leaks in compressed air systems. Leak audits are an effective way to maintain and optimize your system; not only can they reduce wasted energy, but they can also minimize unnecessary wear on compressors and prevent operational downtime.

Being available to assist customers throughout the entire improvement process is important to Efficiency Manitoba. Their systems-level approach resulted in several successfully completed projects throughout the province, including two recent projects in Altona and Headingley.

#### Big savings at Buffalo Creek Mills

Buffalo Creek Mills, an oat ingredient producer of high-quality ingredients suitable for human consumption, pet food, and feed markets, works in partnership with local farmers as well as buyers and distributors from Manitoba and around the world. This Altona-based business is growing rapidly, leading to increased production needs.

"As we were preparing for an expansion, our production facility's existing compressed air system needed to be upgraded to increase its supply capacity," said Phil Carriere, Director of Operations at Buffalo Creek Mills. They reached out to Efficiency Manitoba to make this vision come to life.

With assistance from Efficiency Manitoba's offers, Buffalo Creek Mills was able to successfully upgrade their compressed air system. The project started with their contractor, Air Unlimited, performing a baseline logging of their existing compressed air system. The industrial systems engineer at Efficiency Manitoba analyzed the data and prepared a benchmark study. The facility then began exploring options to optimize their compressed air system, which ultimately led to installing a new higher-efficiency compressor, a heated blower desiccant dryer with dewpoint control, oversized filters, a central regulator, and two 660-gallon storage tanks.

"We've already seen a difference in our energy use with these upgrades," Carriere said. "Efficiency Manitoba estimated we'd save 356,000 kWh in electricity and \$23,200 on our energy bills

annually, which are huge savings for us." These savings meant Buffalo Creek Mills received an incentive of over \$41,000 from Efficiency Manitoba, resulting in a payback of under three years.

"The financial and technical support Efficiency Manitoba provides through their programs was instrumental in us identifying potential improvements and designing efficient solutions for the customer," said Juan Londono, Applications Engineer at Air Unlimited. "We knew that system control was a potential issue, and efficiency and reliability were top priorities with the new system at Buffalo Creek Mills.

"Efficiency Manitoba was a big help in modelling the overall system reliability and energy usage. Their modelling helped to confirm that our approach for setting up the system would ensure it runs at the highest efficiency for the customer."

#### New savings opportunities at Norspan

Norspan, an engineered wood products manufacturer and supplier located in Headingley, wanted to make improvements to their facility, and Efficiency Manitoba's Compressed Air Small System Initiative was an ideal fit. This program is tailored to businesses like Norspan that operate a smaller single compressor system. For projects less than or equal to 25 horsepower, this program removes the need to conduct baseline and verification logging by estimating system load using the compressor size and the industry type of the system. This simplifies the process for small systems while still maintaining a great deal of accuracy in system sizing.

Efficiency Manitoba worked with Norspan and Pritchard Industrial (a local air compressor supplier) to install a new 15-horsepower variable-speed drive compressor at the facility. With the new system in place, Norspan is expected to save approximately 9,600 kWh of electricity every year.

"Participating in Efficiency Manitoba's program was easy" said Sue Matic, CEO. "They provided us with an incentive of over \$1,400 for the project. This is a valuable bonus on top of the savings we're going to see on our monthly energy bills for years to come."

#### Get started on your own energy-saving project

Improved compressed air systems are creating significant energy savings at industrial facilities — and that's only part of what Efficiency Manitoba does. They're committed to providing industrial customers with programs, incentives, and technical support to help make your operations more energy efficient to optimize your energy needs, lower your operating costs, and reduce your environmental impact. To learn more about their offers for energy-efficient industrial and commercial technologies and systems, visit [efficiencyMB.ca/industrial](http://efficiencyMB.ca/industrial).

