



The Changing Energy Landscape: A How-To Guide

Decrease energy costs. Increase efficiency.

Energy conservation has become an industry-wide focus because of its growing financial and social implications. With the rising costs of global energy prices, requirements that once included increasing production efficiency alone now also include increasing energy efficiency.

How can responsible businesses and consumers react to changing energy costs?

I
Discover the cost of
wasted energy

Most pneumatic components manufacturers can provide solutions that address energy consumption. However, they are not able to deliver a full package. Such elements include: reliable results, automation system expertise, and a full suite of products. All of these are required to reduce costs.

II
Quantify lost costs

In order to reduce your business costs, your energy efficient components must be selected from a well established company. This partner should have a long-standing history of providing all of these elements with forward-thinking technology.

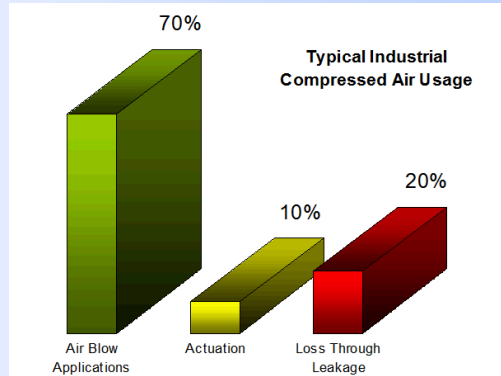
III
Take steps to resolve

By addressing both production efficiency and energy conservation, the opportunity to decrease costs is even greater.

This how-to guide includes: calculations to determine lost dollars in your facility, equations to determine the dollars that could be saved, and details on the products that will create the savings.

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Most compressed air users are unaware that their systems are not very energy efficient. Internal SMC studies show, typical industrial compressed air usage is divided into: 70% air blow applications, 10% actuation, 20% lost through leakage as the graph shows.



20% waste is significant. To determine just how much, calculate using:

II
Quantify lost costs

8,760 hours of operation (24 hours/day x 365 days/year = theoretical maximum)
90% electrical motor efficiency (0.90)
4 CFM per BHP (Brake Horsepower)
\$0.10 per Kw hour (average USD estimate)

The power-cost formula is:

$$\text{Annual Cost} = \frac{\text{BHP} \times 0.746 \times \text{Hours of Operation} \times \text{Cost per kWh}}{\text{Motor Efficiency}}$$

Estimate the annual cost of running a 200 HP compressor:

$$\text{Annual cost} = \frac{200 \times 0.746 \times 8760 \times \$0.10}{0.90} = \$145,221$$

Estimate the potential waste savings by cutting leaks in half:

$$\begin{aligned} \$145,221 \times 20\% &= \$29,044 \\ \$29,044 \times 50\% &= \$14,522 \text{ in potential annual savings.} \end{aligned}$$

III
Take steps to resolve

Businesses save energy and money just by becoming more energy efficient. Across all industries, utility costs are being reduced by focusing on energy waste.

Rising energy costs can be addressed by implementing products and solutions that specifically reduce energy consumption. By selecting SMC products, you are choosing a partner that can provide: reliable results, automation system expertise, and a full suite of products.

Product Example 1: Energy Saving Valve Series ASR/ASQ



Energy Saving Valve
Up to 40% Reduction in Air Consumption

The energy saving valve, SMC series ASR / ASQ, cuts air consumption by operating the non-working actuator stroke at a reduced pressure. The cost savings of this change are significant. In conventional installations the working and non-working stroke operate at the same pressure. Reducing pressure from 100 PSI to 50 PSI on the non-working side of a cylinder can reduce the annual cost of operation.

Consider a system with 10 cylinders that costs \$1,798.40 annually to operate. After installation of the series ASR/ASQ energy saving valve, the operating cost of these 10 cylinders falls below \$1,100*. The savings is multiplied with every cylinder in the building.

To calculate your system savings, visit www.smcusa.com/ASR for an online calculator.

*This calculation assumes a 2.5 inch bore, 0.625 inch rod diameter, 6 inch stroke, 30 CPM, and 80PSI.

Product Example 2: Directional Control Valve Series SY



Directional Control Valve
30% Reduction in Wattage

With the SMC directional control valve, series SY, power consumption is reduced to 0.35W (or 0.1 W with an optional energy saving circuit). The reduced energy use is accomplished by reducing the wattage required to hold the valve in an energized state.

An industry standard valve uses 0.6 W to 0.9 W. The SY valve uses 0.35 W.

The SMC SY series valve incorporates multiple features into a single series. Thus, feature functionality isn't sacrificed for lowered costs.

Visit www.smcusa.com/SY for catalog and CAD model information.

Product Example 3: Automatic Leak Detection System Series ALDS



Automatic Leak Detection
Detects Leaks Proactively

SMC's Automatic Leakage Detection System enables your machine's control system to not only warn you if a leak developed, but also provides a report that can indicate the total amount of leakage, the number of leaks, and the part of the system actually leaking. These benefits are accomplished with a simple integration between the ALDS and your machines' PLC.

By quantifying the daily amount of leakage on a machine, the ALDS provides companies with clear data containing the exact value of the leak in liters per minute with a detailed report listing the location of each leak (i.e. "Machine XX on line XY; Press cylinder XYZ leaks 12 L/min in pressing position, and 3 L/min in home position").

Visit www.smcusa.com/ALDS for a leak cost calculator. Input the leak rate in CFM and view the annual cost of the leak.



Predictable
Results

+

Expertise in
Automation

+

Full Suite of
Products

=

SMC's
Unique
Benefit

As world leaders in pneumatics, our experts have developed some of the most innovative ranges of energy saving products for compressed air systems. These products will help you save money as well as help limit impacts on the environment.

For more information on these, or any SMC products, please submit a contact us form at www.SMCUSA.com/email or contact your SMC distributor directly.

Adding SMC energy saving components to your system makes you a proactive participant in your finances.

- Detect Leaks When They Occur
- Install Energy Conscious Products

All with SMC, the best partner in pneumatics.

Determine Your Savings Today

Calculate your system savings, visit www.smcusa.com/ASR for an online calculator.

Get catalog and CAD model information on our energy saving valve, visit www.smcusa.com/SY.

Calculate your leak costs, visit www.smcusa.com/ALDS. Input the leak rate in CFM and view the annual cost of the leak.