

The Hidden Cost of Compressed Air in Industrial Settings

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Details:

Home > Articles > The Hidden Cost of Compressed Air in Industrial Settings

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According to A2EP's research, compressed air systems can consume approximately 16% of a typical manufacturing site's electricity. This is significant because compressed air is often called the fourth utility in manufacturing, yet receives less attention than electricity, water, or gas management. High consumption combined with substantial inefficiencies means even modest improvements can deliver meaningful cost and emissions reductions. Our measurement-based survey of 30 systems revealed surprising inefficiencies that justify targeted assessment before purchasing additional capacity or accepting high operating costs as inevitable.

Publication context: This article reflects its publication date. Market prices, program rules, reporting duties and deadlines may have changed. Confirm current official guidance before making a decision.

Compressed air systems are integral to various industrial processes, yet A2EP's research indicates that they can consume approximately 16% of a typical manufacturing site's electricity. Alarming, 80% to 90% of this energy is often wasted due to factors like leaks, overproduction, and outdated equipment.

On May 20, 2025, the Australian Alliance for Energy Productivity (A2EP) hosted a pivotal webinar titled "Unlocking Compressed Air Efficiency for Serious Energy Savings ." This session illuminated the substantial energy-saving potential within compressed air systems, which, despite their ubiquity in manufacturing, often operate with significant inefficiencies.

[listen to the full webinar discussion here](#)

Insights from Industry Experts

The webinar featured insights from leading professionals:

Satinder Sahni , Group Senior Manager - Utilities at Asahi Beverages, shared strategies on how Asahi significantly reduced compressed air costs by minimizing air consumption in their processes.

Murray Nottle , an air systems engineer from the Carnot Group, discussed the utilization of 'Power vs Flow' curves as a diagnostic tool to identify and prioritize areas for efficiency improvements.

Craig Morgan , Group Sales Director at Northmore Gordon , presented findings from a measurement-based survey of 30 compressed air systems, revealing surprising inefficiencies and offering guidance on assessing system performance.

A Call to Action for Energy Managers

This webinar serves as a valuable resource for energy managers, engineers, and industry professionals aiming to enhance operational efficiency, reduce costs, and lower emissions. By addressing the often-overlooked inefficiencies in compressed air systems. Want to increase your industrial energy savings? Contact Craig Morgan at Northmore Gordon today!

Procurement context

Check the current market date, contract term, meter and load data, instrument ownership and retirement evidence before making a purchasing or public claim.

Related guidance

Energy services

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Read the original article for the source publication and its full context.

How much of a typical manufacturing site's electricity can compressed air systems consume, and why is this significant?

According to A2EP's research, compressed air systems can consume approximately 16% of a typical manufacturing site's electricity. This is significant because compressed air is often called the fourth utility in manufacturing, yet receives less attention than electricity, water, or gas management. High consumption combined with substantial inefficiencies means even modest improvements can deliver meaningful cost and emissions reductions. Our measurement-based survey of 30 systems revealed surprising inefficiencies that justify targeted assessment before purchasing additional capacity or accepting high operating costs as inevitable.

What percentage of energy in compressed air systems is wasted, and what causes these losses?

The article states that 80% to 90% of energy used in compressed air systems is often wasted. Government guidance identifies unnecessary uses, leaks, idling, and pressure settings as key investigation areas. Leakage through undetected holes in distribution piping represents continuous energy loss even during shutdown. Unnecessary demand occurs when compressed air is used for tasks that don't require it. Idling happens when compressors run without productive output. Pressure set too high forces compressors to work harder than critical users actually need. We can help identify which factors apply to a specific site through measurement and systematic assessment.

What is the 'Power vs Flow' diagnostic approach, and how does it help identify compressed air inefficiencies?

The 'Power vs Flow' curve approach, discussed by Murray Nottle of the Carnot Group at the A2EP webinar, is a diagnostic tool that plots the electrical power consumed against the actual air flow delivered by a compressed air system. This method reveals how efficiently a compressor operates across different production conditions and load ranges. By comparing actual performance to theoretical efficiency, operators can identify where the system wastes energy and prioritize improvements. Our compressed air assessment service uses operating scenarios, measured evidence, and commissioning briefs to help sites compare options and avoid double-counting savings when multiple changes are proposed.

What approach did Asahi Beverages use to reduce compressed air costs, and what can other manufacturers learn?

Satinder Sahni from Asahi Beverages shared strategies for significantly reducing compressed air costs by minimizing air consumption in their processes. This demonstrates that demand reduction—eliminating or minimizing unnecessary compressed air consumption while maintaining required operational standards—is often the first and most cost-effective step. Rather than immediately upgrading compressors or adding capacity, the approach focuses on understanding which tasks truly need compressed air and at what pressure and quality. Our framework recommends assessing the

required service first, investigating demand before considering equipment changes, and comparing options using a common basis to avoid overestimating combined savings.

What did Northmore Gordon's measurement-based survey of compressed air systems reveal about inefficiencies?

Craig Morgan, Group Sales Director at Northmore Gordon, presented findings from a measurement-based survey of 30 compressed air systems at the A2EP webinar, revealing surprising inefficiencies across diverse manufacturing operations. While the article does not specify every finding, this survey directly informed guidance that government sources and our knowledge library provide: that actual system performance often differs significantly from expectations, leak surveys provide evidence different from power profiles, and combining multiple forms of evidence gives a more complete picture than any single measurement. The survey supports our recommendation to collect energy and operating information to understand systems under different conditions rather than assuming a single intervention will solve all problems.

Before deciding to buy additional compressor capacity, what assessment should a manufacturer conduct?

Before purchasing additional capacity, manufacturers should begin with the required service: which tasks need compressed air, at what pressure and quality, and during which operating periods. A compressor purchase should follow this assessment rather than define it. We recommend recording compressor capacities and controls, production shifts, required pressure at critical users, and available energy/pressure data. A leak survey and power profile answer different questions; combine evidence rather than assuming one describes the entire system. Proposed changes—reducing unnecessary demand, repairing leaks, adjusting sequencing or pressure, or replacing equipment—should be compared against the actual demand remaining after other feasible changes to avoid overestimating combined savings.

How should manufacturers distinguish between different types of compressed air improvements when building a business case?

When comparing options, manufacturers should evaluate each separately using a common basis. For example, leak repair effectiveness should be shown under comparable operating conditions; pressure adjustment requires understanding what the critical user actually needs; sequencing changes require assessing how the compressor group responds across its operating range; and equipment replacement should be assessed against the demand expected after other feasible changes are made. This prevents double-counting, where two measures affecting the same load are added together without accounting for their interaction. Our commissioning brief framework asks operators to specify the boundary and assumptions used for each estimate, sequence any changes, and plan to confirm performance after implementation to clarify which improvement contributed to the result.

What role does measurement and verification play in confirming compressed air system improvements?

Measurement and verification establishes the actual effect of compressed air improvements under agreed conditions. A simple before-and-after comparison of electricity bills is insufficient because changes in production, operating hours, weather, or prices can mask or exaggerate efficiency gains. M&V requires defining a project boundary, establishing representative baseline conditions, specifying measurement instruments and intervals, recording what was actually installed and commissioned, and calculating savings using consistent operating variables. For compressed air projects, this might involve metering the compressor before and after leak repair or sequencing changes, adjusting for production volume changes, and documenting other site changes during implementation. We provide M&V services to help manufacturers verify that proposed savings are actually achieved.

How can a manufacturer prioritize compressed air efficiency improvements when multiple issues are identified?

A prioritized opportunity register should identify each improvement with its boundary, estimated energy effect, assumptions, implementation dependencies, evidence quality, and next decision. Energy savings should be kept separate from tariff savings or maintenance benefits. Distinguish measures that can stand alone from those that alter the economics of later projects. For compressed air systems, demand reduction typically should be assessed first, followed by leak repair, then controls or sequencing optimization, before considering pressure adjustment or compressor replacement. This sequence reflects both engineering logic and cost-effectiveness. We help manufacturers build a sequence that reflects production planning, maintenance windows, and the cost of interruption, while avoiding the common mistake of treating every identified opportunity as equally investment-ready.