

Optimising compressed air improves safety, sparks new line of business

Introduction

PeG's priority is to produce sustainable, high-precision mechanical components for its customers while ensuring a high level of safety. They also constantly seek opportunities to reduce operating costs.

The compressed air system (CAS) represents a robust and flexible technology that ensures correct operation of the production machines even when leaks and pressure drops occur. The mean failure probability of the production is under 2%.

However, an CAS audit revealed two significant problems. The existing configuration compromised safety because it was hard to access (e.g., for leakage repairs), and the high pressure and noise levels risked staff injuries. The audit also revealed significant cost savings opportunities.



“The most valuable take-away is that compressed air impacts competitiveness in many ways – from safety to comfort to productivity to cost savings.”

Giangiacomo Mussa, PeG

Company overview

Firm name

Perardi e Gresino (PeG)

Location

Via del Maglio, 1/A, 10083 Favria TO

Sector

Precision machining company

Size (turnover)

105, 39 mln €

Customers

CNH Industrial, Tata Daewoo, FCA, IMO, IVECO, FPT, SFH, Maserati, Volvo, Hyundai, TurkTraktor, Comer Industries, Komatsu, Deutz, Raywin, Steyr Motors, Liebherr.

Value proposition

Supplying high precision mechanical components for industrial usage

Project impacts on operations

Safety

- Most blowing applications used to clean surfaces operated under high pressure, risking employee safety and causing eye injuries. Reducing pressure levels and integrating efficient blowers would create safer working conditions.
- New installation would improve access of CAS for maintenance, reduce risk of injuries.

Working conditions

- *Indoor noise:* A noise audit showed that compressed air systems exceeded acceptable noise levels (92dB continuous work, up to 113 dB for peak). Safe threshold levels are 8h= 80dB(A) (EC Directive 2003/10/EC. New energy saving measures ensures operation below 80dB.
- *Outdoor noise:* The factory is located in a town and the compressor room is outdoors. Increasing production levels result in excessive noise levels that puts company at risk of having to relocate. New energy saving measures ensures operation below 80dB.

Production quality

- The condition monitoring system reduces idling of the machines, while maintaining consistency in production.

Time

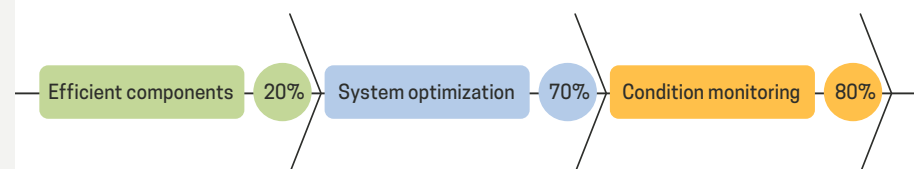
- New condition monitoring system detects problems faster, improves response time for repairs, and reduces equipment downtime.

Project summary

- **Sector:** Industrial, automotive, precision machining
- **Energy carrier impacted:** Electricity
- **Energy services impacted:** Compressed air system (CAS)
- **Scope:** Optimisation and upgrades to CAS
- **Accepted/implemented?** Yes. In progress.

Energy insights – 80% system-level cost savings

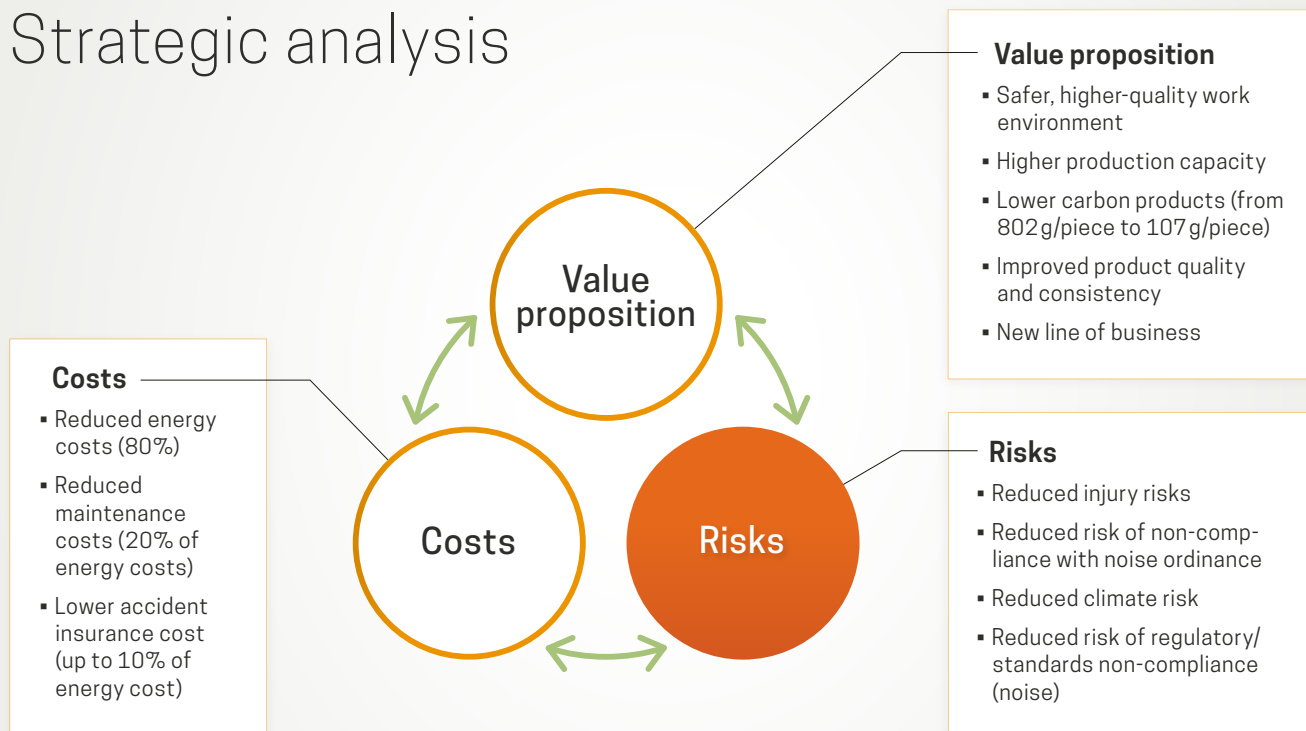
Project phases – 80% cumulative system-level savings



The energy audit identified significant improvement measures as follows:

- Right-sizing components on production machines,
- Optimise the distribution line to reduce pressure drops,
- Reduce compressed air demand by optimising compressor room,
- Integrate condition monitoring system.

Strategic analysis



“We realized so many benefits from the project that we are investing in a whole new line of business – to help our customers and industry optimize their compressed air systems!”

GiangiacoM Mussa, PeG

Financial analysis

Note: The multiple benefits quantified in the financial analysis include: Energy savings, Maintenance cost savings (20% of energy savings), Accident insurance cost reduction (10% of energy savings)

	All benefits	Energy-only benefits
CAPEX	Not disclosed	Not disclosed
Simple payback	1,4 years	1,9 years

Lessons learned

Main challenge?

The main challenge was how to install a new line without stopping production. We overcame it by creating a parallel new line during full operation.

What were the key take-aways?

Compressed air has an important impact on multiple aspects of competitiveness – from safety to comfort to productivity to significant cost savings.

Does the company plan to change its investment behaviour?

We are so impressed by the project and potential that together with partners we are investing in and launching a new line of business to help others optimise CAS!

Contact information

PeG

GiangiacoM Mussa:
giangiacoM.mussa@perardiegresino.com

Compressed air service partners

CAS Optimisation software:
Direktin – Elvira Rakova, CEO
Elvira.rakova@direktin.com

CAS re-design/installation:
SAFEN, Matteo Martinelli, CEO
martinelli@safen.it



Implementation status

- Energy audit
- Detailed CAS audit
- Test installation – measures installed on one production line
- Full installation on other production lines and conditioning monitoring system planned for 2021.

We extend special thanks

to Elvira Rakova, CEO of Direktin
(www.direktin.com)
and to Livio De Chicchis of FIRE
(www.fire-italia.org).

This case study would not have been possible without their input, analysis and generous support