

Barriers to, drivers for and non-energy benefits for industrial energy efficiency improvement measures in compressed air systems

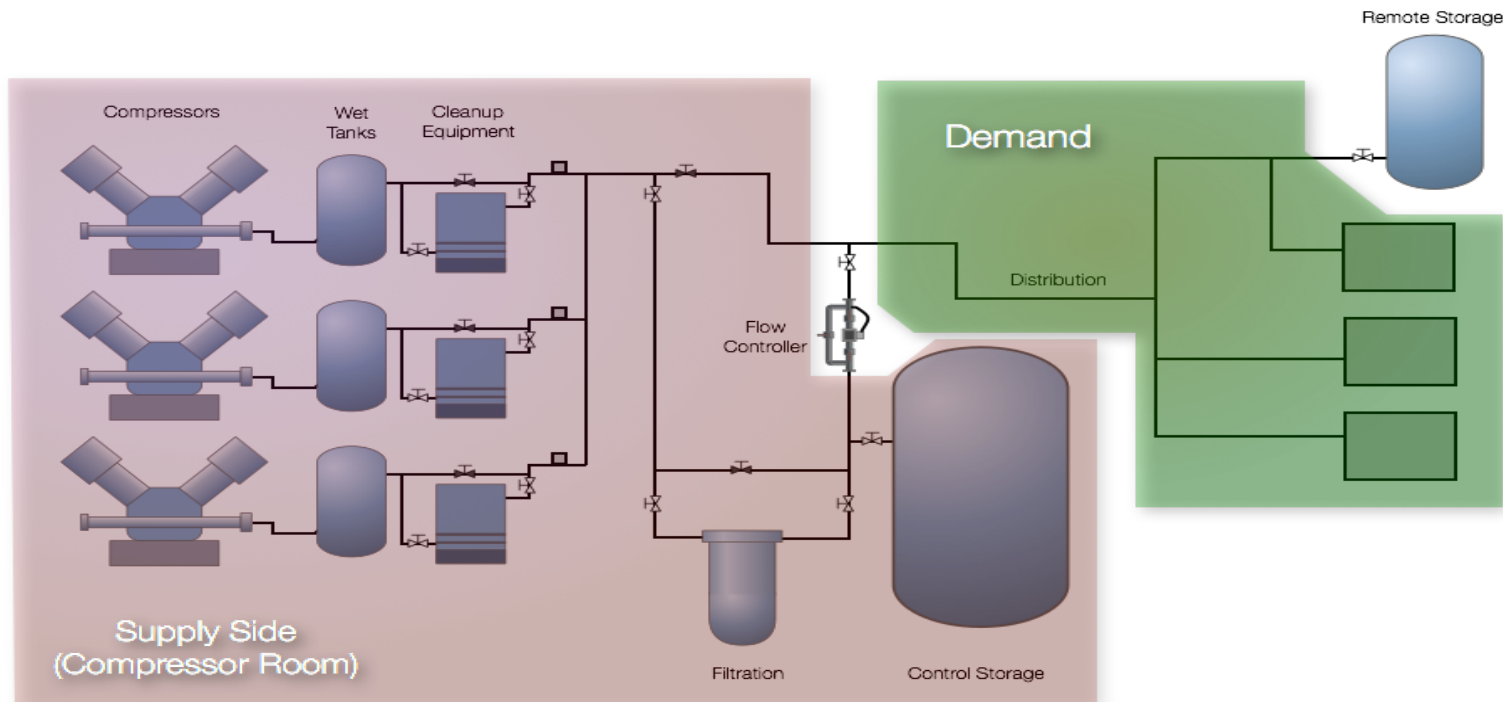
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Aim

“To study barriers to, drivers for and non-energy benefits of energy efficiency improvement measures in compressed air systems.”

- What are the main barriers to improved energy efficiency in compressed air systems?
- What are the main drivers for improved energy efficiency in compressed air systems?
- What are the major non-energy benefits of energy efficiency improvements measures in compressed air systems?

The compressed air system



Energy efficiency measures in compressed air systems

- Supply-side measures
 - e.g. new compressor, compressor operation, environmental control (intake and operational conditions), system ancillary equipment (driers, filters, drains etc.), installation of new equipment
- Demand-side measures
 - e.g. sealing leaks, decrease artificial demand/inappropriate use, peak demand management, pressure minimisation inefficiencies in distribution

(Neale and Kamp, 2010)

Non-energy benefits

- Additional effects of energy efficiency improvement measures beyond the energy savings
- Observable at various levels and in various parts in a company
- Examples: reduced operation and maintenance, improved work environment, improved productivity, reduced waste and emissions....etc
- Quantification of the benefits offers financial opportunities

Barriers to and drivers for improved energy efficiency

- Barriers used in the study emanate from Sorrell et al. (2000)'s review, e.g. information imperfections and asymmetries.
- Drivers derived from various scientific papers (e.g. Cagno and Trianni (2013), and included e.g. long-term energy strategy, people with real ambition.

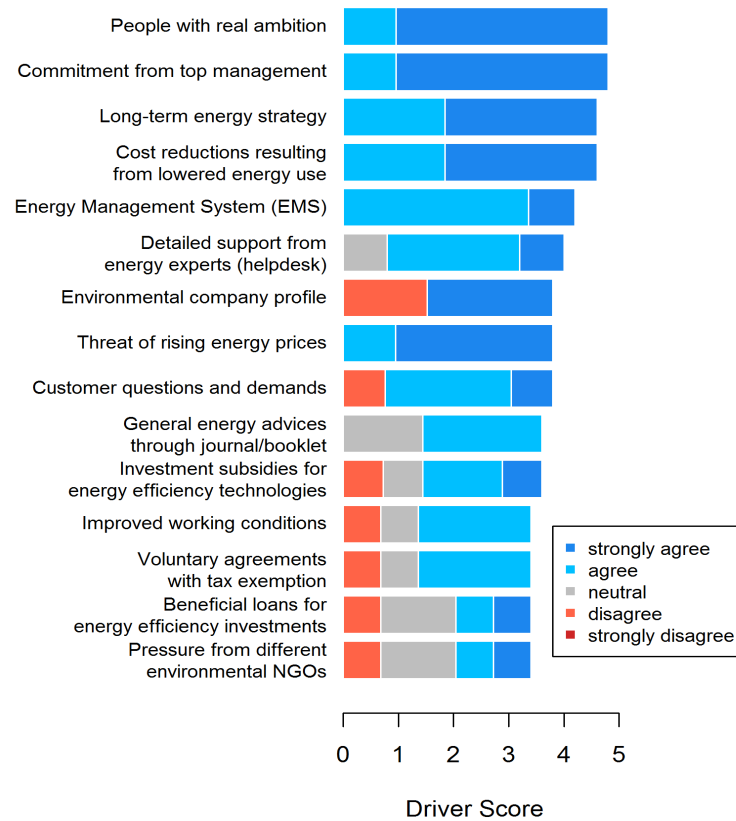
Method

- Interviews
 - Barriers and drivers
 - Energy managers at global industrial manufacturing companies
 - Independent energy audit experts for compressed air systems
 - Questionnaire
 - Non-energy benefits
 - Independent energy audit experts for compressed air systems
 - Independent energy audit experts for compressed air systems
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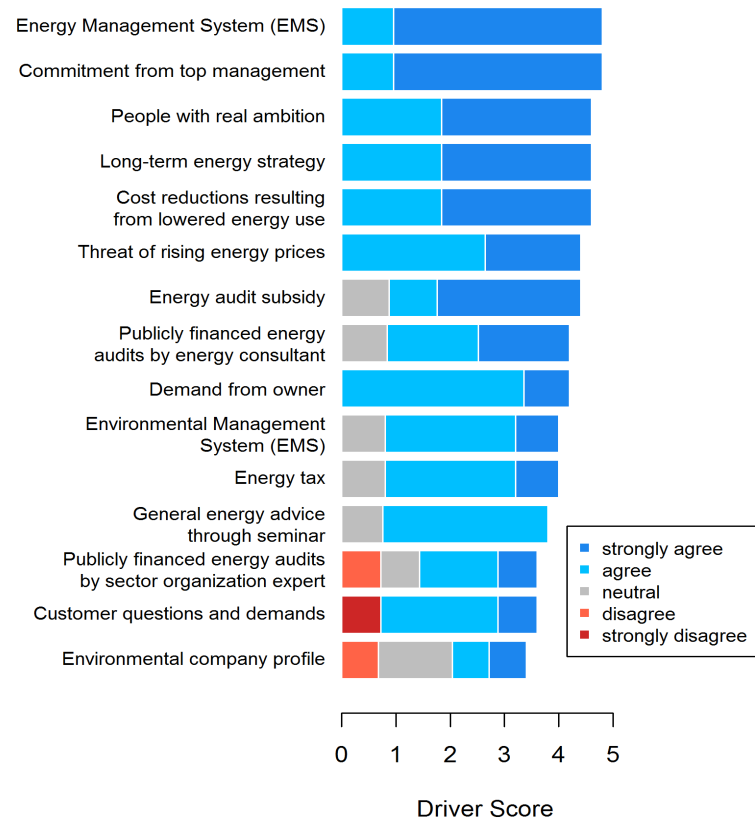
Results

Drivers

Energy managers

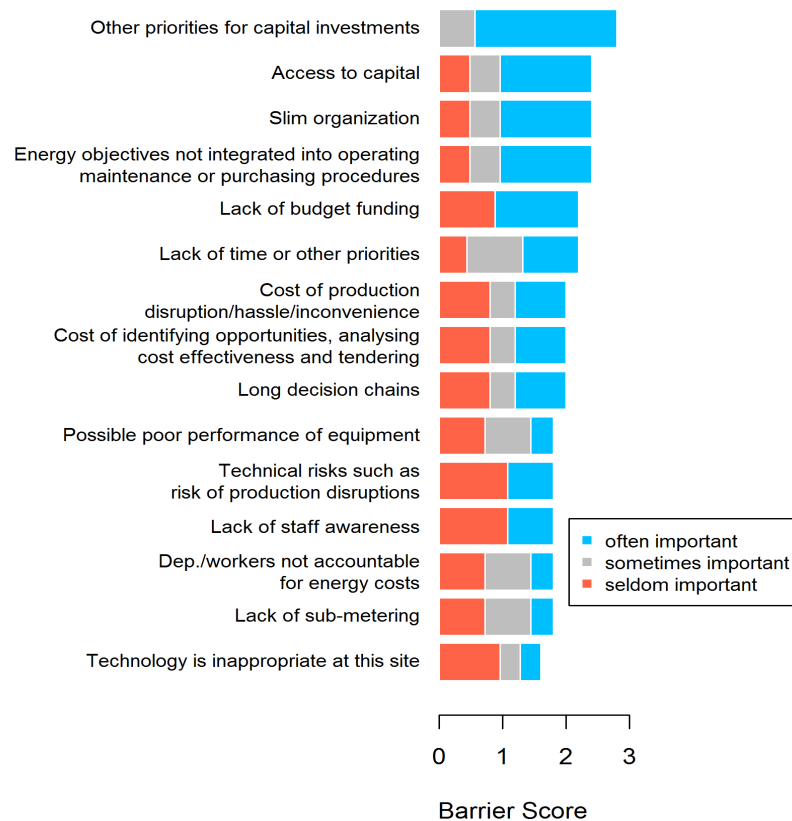


Experts

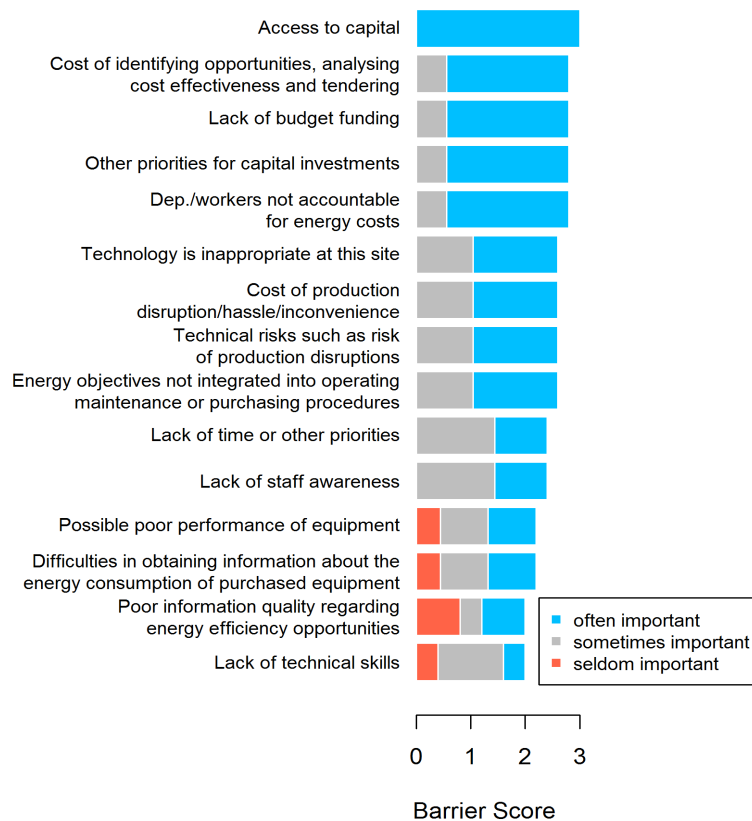


Barriers

Energy managers

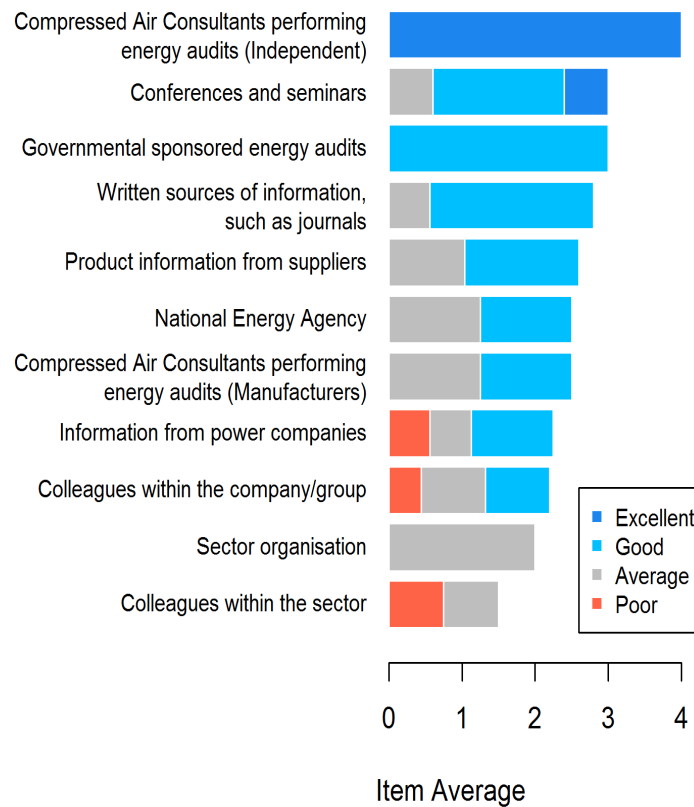


Experts

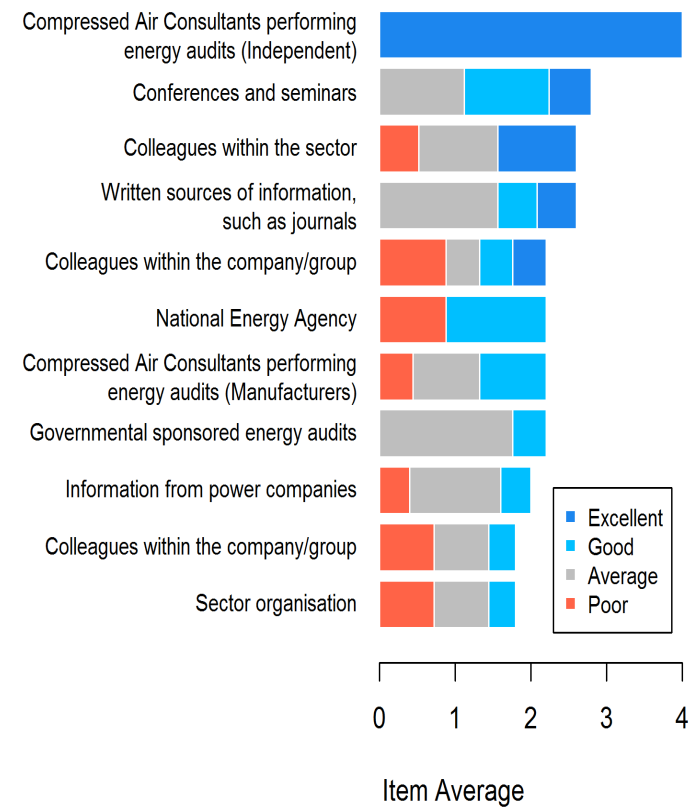


Sources of information for energy savings in CASs

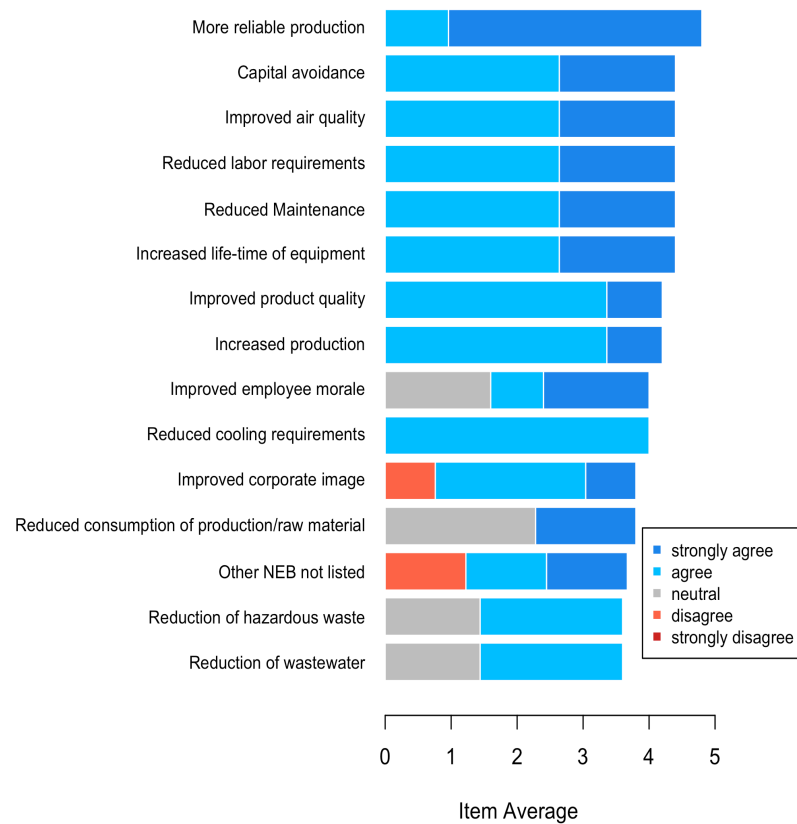
Energy managers



Experts



Non-energy benefits after implementation



Concluding remarks

- The role of drivers. Show similarities to other studies
- The role of information. Independent, energy audit consultant
- Overcoming barriers by organizational improvements. Routines also a major drivers
- Supply-side vs demand-side measures
- The role of non-energy benefits in relation to drivers for and barriers to energy efficiency improvement measures in compressed air systems
- Limitations in research design, further research is suggested

Thanks for listening

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