

Energy policies for industrial SMEs

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Policy evidence on SMEs and energy efficiency



- Resource related barriers – e.g. **lack of time, skills and finance** – are major impediments for the green transition of SMEs.
- **Energy audit policy programs** is the most common policy instrument which supports energy efficiency.
- Most energy efficiency policy programs target the **support processes** such as ventilation, lighting, compressed air etc., whereas evidence on production-process decarbonisation measures **still needs to be developed**.
- Policies programs for SMEs in the industrial sector show much **higher cost-effectiveness** than for service sector SMEs
- Do not always think only in terms of environmental sustainability, think also in terms of **economic sustainability, e.g. if a major SME sector face global** competition, state-of-the-art energy policy programs can serve to keep jobs within the EU.



Some numbers regarding SMEs and energy efficiency

- The potential for improved energy efficiency in Europe is 25%. Globally, we don't know (since data is lacking).
- SME deployment shows around 5 % energy efficiency improvements from energy audit policy programs
- Learning networks lead to about double deployment rates, i.e. an additional 5 %, but learning networks also entails higher cost per saved kWh.
- It may be difficult to deploy energy audit programs for the masses of SMEs. Try and use facilitators, e.g. regional actors
- Regulatory policies have proven effective for medium-sized enterprises, but less so for small enterprises, based on policy evidence, e.g. from the Japanese Energy conservation law.

Question: 1 How do we reach higher deployment levels for our SME policy program?



Don't forget energy management when designing energy efficiency policies

Policy programs focusing on both technology deployment and energy management, e.g. energy efficiency (learning) networks, energy management system certification (ISO 50001 & 50005), law for energy management certification.

Policy programs focusing on technology deployment, e.g. energy audits investment subsidies etc.

Figure can be found here:
https://www.researchgate.net/publication/235217547_Extending_the_energy_efficiency_gap

Energy policies for SMEs – results from the IEA

Energy Efficiency from SMEs

1. Energy Conservation Law/LTA/VA (incl. Ener. Man system)
(only for medium-sized and energy-intensive enterprises)
1. Energy audit programs for industrial SMEs, preferably but not necessarily located regionally or locally
2. Energy networks (preferably locally or regionally anchored)
3. Investment subsidies mainly for investments in production-related technologies
4. Benchmarking
5. Sector guidelines

Question 2: How develop energy management related policy components for SMEs?

Direct industrial energy policies in Sweden, 2014-2024

- The Swedish Environmental Code, 1998-
- *The programme for improving energy efficiency in energy-intensive industries (PFE) 2005-2014*
- Energy efficiency networks, 2015-2020
- *The Swedish energy audit programme 2010-2019*
- The law of mandatory energy audits for large companies, 2014-2025
- (Energy and carbon taxes)

The *Swedish Environmental Code*

- The *Swedish Environmental Code* came into force in 1998 and addresses, among other activities, energy efficiency as a key aspect
- One issue is that best available technology (BAT) should be used, taking the additional cost in relation to the benefits into consideration
- Energy efficiency requirements have recently gained increased attention when the environmental permits for companies are being processed.
- It should be noted that even though legal grounds exist, this instrument is quite slow and has only recently begun to be practiced.
- Challenge 1: Most SMEs are either C or U-classified, meaning they provide less harm to the environment than A- or B-classified companies (heavy polluters) so they are not prioritized
- Challenge 2: The overall energy efficiency competence among public officers to undertake formal evaluations of SME energy efficiency is low
- *Question 3: How do we capacity build public officers for enhanced law enforcement of energy efficiency among SMEs?*

The law of mandatory energy audits for large companies, 2014-



The Swedish Energy Agency November 24th, 2014 established provisions of the law on energy audits of large companies. The regulations apply from December 5, 2014.



First reporting of energy audits first quarter 2017.



Reporting of energy audits every fourth year.



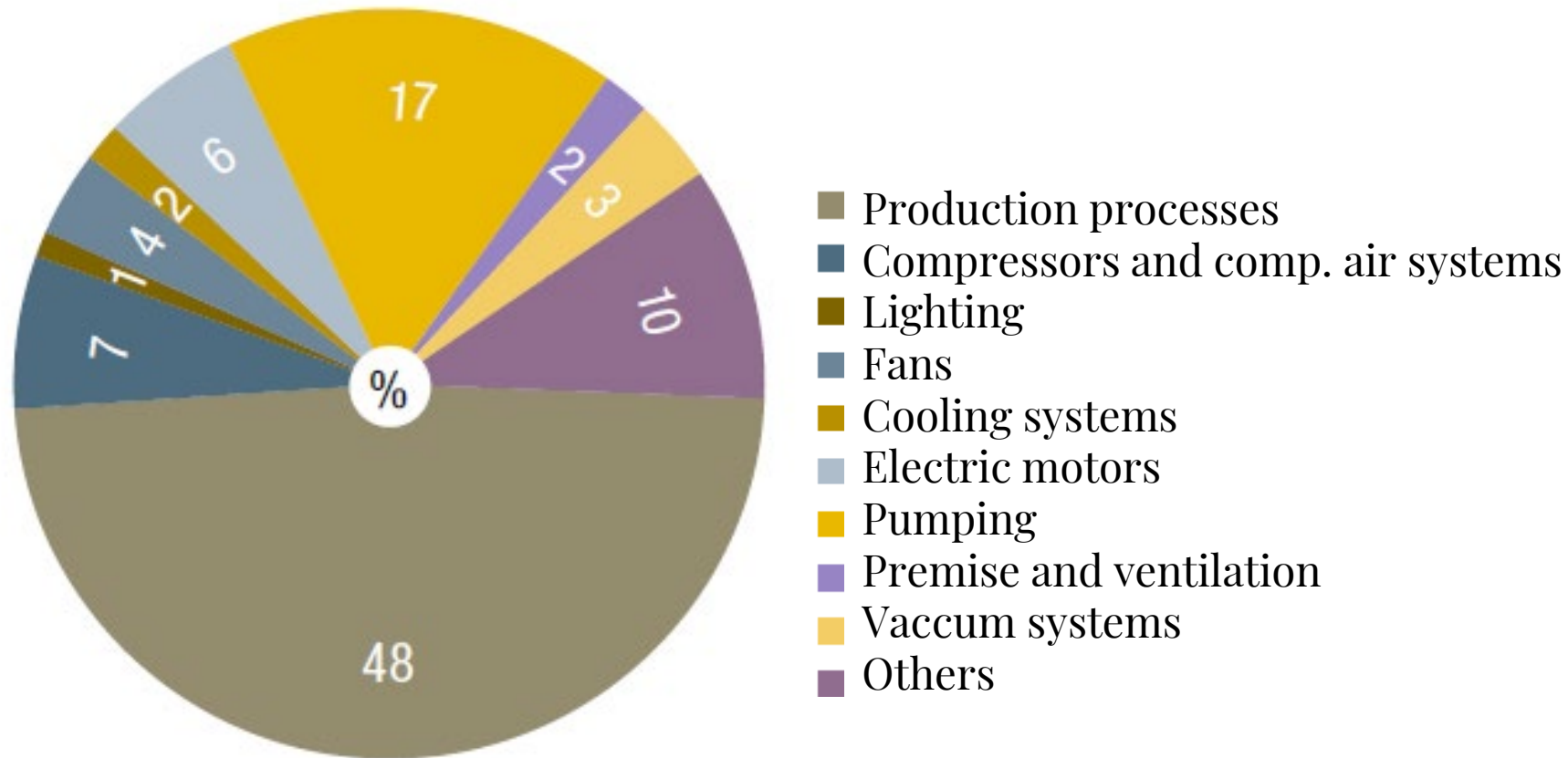
Large companies have: more than 249 persons and which have an annual turnover not exceeding €50 million, and/or an annual balance sheet total not exceeding €43 million



Demands audit of certified energy auditor, in line with EN16247-5

The programme for improving energy efficiency in energy-intensive industries (PFE)¹

Savings of implemented measures per process type in percent (%)



¹ Swedish Energy Agency (2011)

The Swedish energy audit programme



Launched in April of 2010.



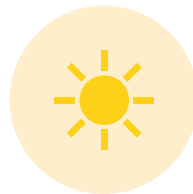
Applied up until 2019.



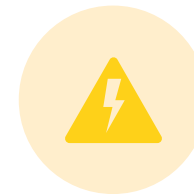
50% of the cost of an energy audit subsidized.



Companies that use more than 500 MWh/years allowed support.



Years 2010–2014, 760 subsidized energy audits.



New period 2015–2019 for companies with 300 MWh/years or more of annual energy use.

Energy efficiency measures, Swedish energy audit programme



Energy efficiency networks, 2015-2020



Aggregated target for the network.



Content largely based on the needs of the participants.



Sharing of experiences.

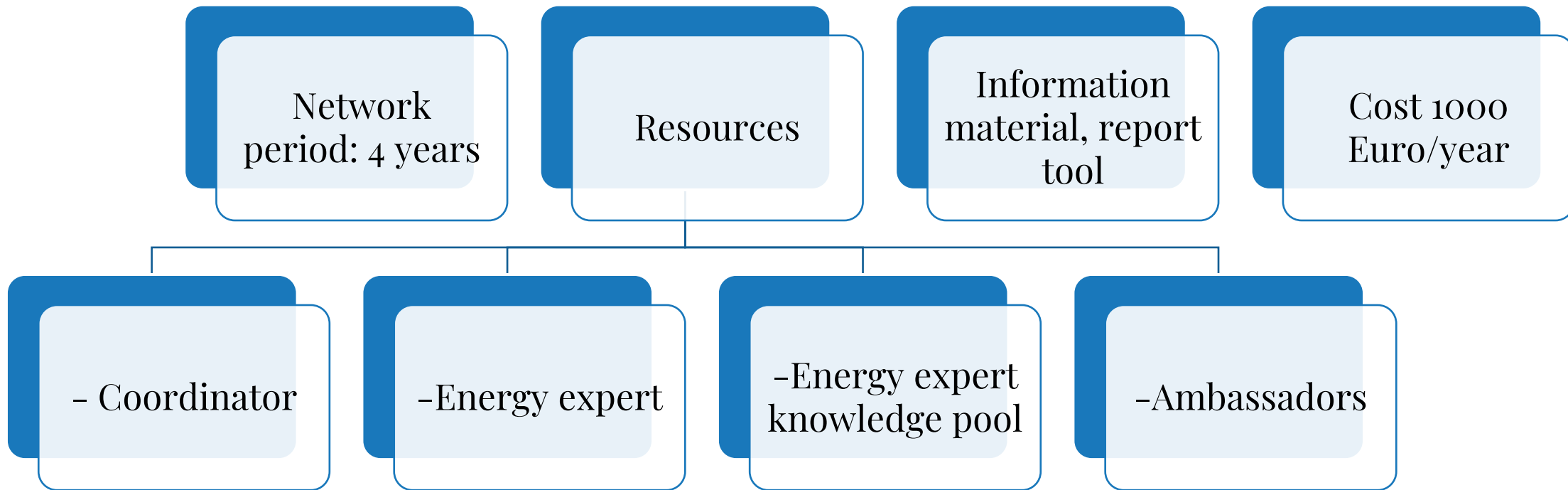


Rotating meetings at the sites of the participants.



Threshold, 1 GWh/year in annual energy use.

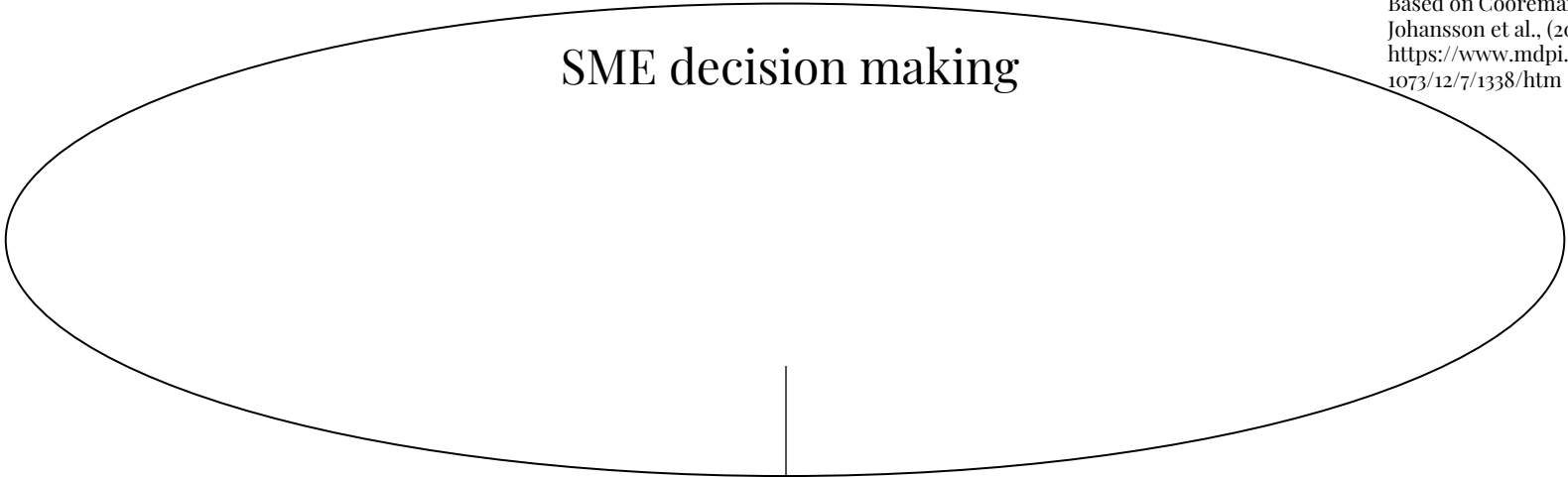
Networks..some facts..



- *Energy efficiency networks double the impact of energy efficiency compared with energy audits.*
- *Challenge, energy efficiency measures are mostly related to support processes.*
- *Question 4: How do we reach more energy efficiency improvement measures from production processes in policy programs for SMEs?*

Model for the future?

Based on Cooremans 2012. In
Johansson et al., (2019):
<https://www.mdpi.com/1996-1073/12/7/1338/htm>



Based on Bleyl et al., 2013. (Nolden et al., 2017 refers to this as intermediaries).



- Energy auditors/consultants etc.
- Energy efficiency networks etc.
- Financial institutions/trade associations/Focal companies?



Question 5: How do we capacity build facilitators for a successful decarbonization of industrial SMEs?









One way forward beyond the policy paradigm, supply chain energy management

- **Scope 3 focusing on sustainable supply chains**, a means for large companies (and preferably banks or joining forces together) creating their own *supply chain energy management program*.
- **Suppliers** are often SMEs
 - Gains for large companies, cutting their overall supply chain energy costs. Improving their GRI-performance etc., becoming more resilient
 - Gains for banks, more customers and reduced risk as large (focal) company is lowering the risk
 - Overall gain, improved decarbonization for industry, including both large companies and their SME suppliers

Question 6: Could supply chain energy management be a key means to make energy efficiency strategic among SMEs?

Ex. <https://publications.jrc.ec.europa.eu/repository/>

...Epilogue

-  **Start simple**, e.g. energy audit policy programs.
-  Second, **consider investment subsidy programs** for technology investments
-  Use **international standards** where applicable, e.g. ISO 50005, EN 16247-5
-  **Take policy advice** from more mature stakeholders, e.g. the **OECD**
-  Know that learning also applies to **policy officers**. **First generation policy** may not be perfect
-  Don't forget to include **energy** management if applicable in the policy mix, e.g. for **energy intensive SMEs**
-  Don't forget **the facilitators** and to capacity build them
-  **Learning networks** is a **second-generation** key policy for SMEs, e.g. German networks

Thank you for listening!

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