ENERGIG Swedish pilot energy efficiency network program - establishing innovative services and products for improved industrial energy efficiency



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Patrik Thollander University of Gävle



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University of Region Gävleborg





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<u>Background</u>

- Research on barriers, drivers, energy audits, energy management and energy efficiency networks
- Swedish pilot project on energy efficiency networks utilizing a database for measures and energy audit software







What barriers are reduced thanks to energy efficiency networks? Some examples

- Information asymmetries and imperfections
- Lack of time
- Hidden cost, e.g. time to search for information
- Risk (thanks to energy experts and hearing of examples from other companies)
- Type of information, personal vivid information is always more effective







What driving forces are important in energy efficiency networks Some examples

- Companies achieve support to deploy all energy management success factors
- Support to establish important driving forces that companies rank high BUT do not have time to deploy
- Continuity and long-term view of company's EE work



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Swedish pilot energy efficiency network program - establishing innovative services and products for improved industrial energy efficiency

- Seven networks
- Model based on Swedish research and LEEN
- 55 participating industrial companies
- Using ICT, software and database
- Creating a regional energy end-use and energy efficiency measure database



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Key logics

Project termination

- Compile and disseminate results, experiences and benefits
- Next step: terminate or continue, same or developed format?

Quality control and improvement

- Increased competence of energy auditors, e.g. training and certification
- Review and ongoing evaluation enables learning and improvement

Actual network operations

- Site-visits, meetings and educational activities
- Energy audit support, e.g. software, database
- Action plans developed by SMEs
- Implementation and follow-up of measures
- Networks may be expanded with additional SMEs

Collaboration between SMEs in networks lasting up to three years

Formulate network strategy and objectives

 How to establish energy awareness and drive for continuous improvement in network and SMEs? Deemed impact, e.g. energy and cost savings, in networks and SMEs

Marketing and communication

 Plan for communication and identifying channels for recruitment of SMEs Prepare necessary information material

Set framework and terms for participation

- Decide about intended participants and collaborators (e.g. service providers)
- Set the timeframe, SMEs per network, size of fees or support
- •Letter of intent or other means for consent

Detail the content, tools and change mechanisms

- Adapt to management systems, energy audit tools and manuals
- Set milestones for meetings and progress
- Decide on methods for monitoring and evaluation on network and SME level



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Tools adopted in Swedish regional industrial energy efficiency network - Energy audit software

		Fuels		Annual Energy Demand %
Supplied energy Year	2017	Oil	504 MWh/year	Annual Energy Demand 78
Object	EMTF	Diesel	50 MWh/year	
Service area	m²	LPG	40 MWh/year	
Production hours	h/year	Natural gas	MWh/year	1200-000
Power	1200 MWh/year	Wood pellets	MWh/year	Bensin
Subscribed demand	400 kW	Wood chips/bark	10 MWh/year	Wood chips/bank
Fuels	644.00 MWh/year	Bensin	40 MWh/year	Natural gas
District heating use	456 MWh/year			Wood
Tap hot water use	1000 m ³ /year			pelets El. er
Total annual supply	2300.00 MWh/year			Diesel
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Tools adopted in Swedish regional ndustrial energy efficiency network -Industrial energy efficiency measure database +8000 real measures, 3 TWh/year of savings

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- More than 90 % energy efficiency improvements in support processes
- In general 16 % energy efficiency improvements







- Time-consuming to get industrial SMEs onboard, same experience in other countries (up to one year and one man week per company)
- For national network, difficulty getting experienced network coodinator



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• Major potential to scale-up to other EUregions



