HOW CAN ENERGY AUDITS AND ENERGY MANAGEMENT BE PROMOTED AMONGST SMES? A REVIEW OF POLICY INSTRUMENTS IN THE EU-28 AND BEYOND

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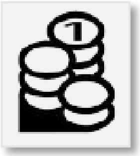
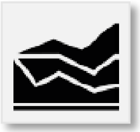
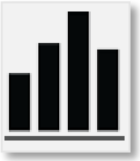
Background



Improving energy efficiency increases profitability and competitiveness of SMEs



Considerable un-tapped potential for cost effective energy savings due to barriers to energy efficiency

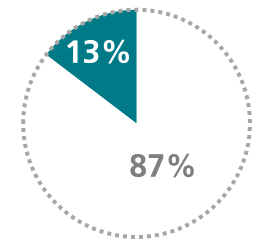


Energy audits and energy management systems are important concepts for partially overcoming such barriers

Many countries have established different national policy instruments to address these concepts

High relevance of SMEs in the EU-28

22,000,000 companies[1]



13% of total energy demand[2]

Particularities for SMEs regarding the implementation of energy efficiency measures:

1) Limited expertise on energy-related matters
2) Stronger restrictions on the availability of budget for energy-related activities or other investment priorities
3) Energy demand and energy costs lower than in large companies with similar products
4) Centralised decision-making processes allow quicker implementation of energy efficiency measures

[1] EC 2015; based on employee criterion, [2] IEA 2015

Methodological approach

Data collection process between May and September 2015

1 Structured review of existing data

- Literature study as well as review of official documents
  - Institutional websites
  - Databases
  - Legal documents (e.g. EED, Guidance Notes addressing Article 8 EED, national laws transposing Article 8 EED, etc.)
  - Other official documents (e.g. NEEAPs, national guidance documents, etc.)

2 Semi-structured interviews

- 30 semi-structured interviews with stakeholders from different institutions, thereof
  - 15 interviews with national ministries
  - 5 interviews with national public authorities
  - 4 with energy agencies
  - 6 with other institutions (e.g. research institutes)

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Results

- A total of 65 instruments have been identified, thereof
  - 50 instruments in the EU-28 and
  - 15 instruments across a selected group of non-EU countries*
- Analysis distinguishes between the following types:
  - Regulatory instruments
  - Financial instruments
  - Voluntary agreements
  - Information instruments

	Country	Name of the instrument	SME	Non-SME	Comment
REGULATORY INSTRUMENTS	**Energy Audits**				
	Bulgaria	Mandatory energy audit	(•)	•	(•): Possible inclusion of SMEs due to energy threshold
	Croatia	Mandatory energy audit (sec. legislation not yet in force)	(•)	•	(•): Possible inclusion of SMEs due to lower financial threshold
	Czech Republic	Mandatory energy audit	(•)	•	(•): Possibly inclusion of SMEs due to energy threshold
	Ireland	Mandatory energy audit	(•)	•	(•): Possible inclusion of SMEs due to energy threshold
	Italy	Mandatory energy audit	(•)	•	(•): Possible inclusion of SMEs due to energy threshold
	Luxembourg	Mandatory energy audits for energy-intensive companies	•	•	Non-EED regulation
	Portugal	Mandatory energy audit	(•)	•	(•): Possible inclusion of SMEs due to energy threshold
	Romania	Mandatory energy audit	(•)	•	(•): Possible inclusion of SMEs due to energy threshold
	Slovenia	Mandatory energy audit (sec. legislation not yet in force)	(•)	•	(•): Possible inclusion of SMEs due to lower financial threshold
	China	Top-10,000 programme	•	•	Inclusion based on energy demand
	Australia	Energy audits (as part of Emission Trading System)	•	•	-
	India	Mandatory energy audits for energy-intensive companies	•	•	Obligation for nine energy-intensive sectors to conduct audits
	Energy Management Systems				
	Romania	Mandatory energy manager	•	•	-
	China	Top-10,000 programme	•	•	Inclusion based on energy demand
	Japan	Mandatory energy management	(•)	•	(•): Possible inclusion of SMEs due to energy threshold
	Turkey	Mandatory energy manager and energy management unit	•	•	Energy consumption above 1,000 toe (companies) respectively 50 ktoe per year (industrial plants)
VOLUNTARY AGREEMENTS	**Energy Audits**				
	Bulgaria	Industrial Energy Efficiency Targets (IEET)	•	•	-
	Finland	Voluntary Energy Efficiency Agreement	•	•	-
	Malta	(Programme from MHRA)	(•)	(•)	(•): Programme currently under preparation
	Netherlands	Long Term Agreements (LTA3 or MJA)/Long Term Agreement energy efficiency ETS companies (MEE)	•	•	-
	Switzerland	Voluntary target agreements	•	•	-
	Energy Management Systems				
	Denmark	Voluntary agreement	•	•	-
	Finland	Voluntary Energy Efficiency Agreement	•	•	-
	Luxembourg	Voluntary agreement on industrial energy efficiency	•	•	-
	United Kingdom	Climate Change Agreements	•	•	-
	South Africa	Voluntary agreements	•	•	-
FINANCIAL INSTRUMENTS	**Energy Audits**				
	Austria	Regional programs	•	•	-
	Bulgaria	Energy Efficiency and Green Economy Programme	•	-	-
	Croatia	Subsidies for energy audits in SME	•	-	-
	Denmark	Energy saving obligation targeted at energy companies	•	•	-
	Denmark	'VE til proces' scheme (RE for production process)	•	-	-
	France	Energy efficiency support for SMEs	•	-	-
	Germany	SME Energy Consulting Program	•	-	-
	Germany	Eco tax cap for manufacturing industry	•	•	-
	Germany	Special equalization scheme	•	•	-
	Germany	BAFA support programme for cross-cutting technologies	•	•	-
	Italy	(Call for co-funding of Regional programs)	(•)		(•): Call for selecting and co-funding of programs open
	Luxembourg	Funding scheme for energy audits in energy-intensive companies	•	•	-
	Malta	Malta Enterprise Scheme	•	-	-
	Malta	ERDF Scheme	(•)	(•)	(•): Currently suspended, new scheme under preparation
	Poland	Energy/electricity supply audit of an enterprise	(•)	•	(•): Companies with an energy consumption > 20 GWh/year
	Portugal	Refund of energy audit costs	•	•	-
	Slovakia	SlovSEFF III program	•	•	-
	Sweden	Energy audit vouchers	•	-	-
	Switzerland	Canton de Vaud audit program	•	•	-
	Japan	Free Energy Audit	•	-	-
	Energy Management Systems				
	Austria	Regional programs	•	•	-
	France	Energy efficiency support for SMEs	•	-	-
	Germany	Eco tax cap for manufacturing industry	•	•	
	Germany	Special equalization scheme	•	•	
	Germany	BAFA support programme for energy management systems	•	•	-
	Malta	Malta Enterprise Scheme	•	-	-
	Malta	ERDF Scheme	(•)	(•)	(•): Currently suspended, new scheme under preparation
	Spain	Program for Energy Efficiency in SMEs and Large Companies in the Industrial Sector	•	•	-
	Sweden	Support scheme for energy efficiency investments	•	-	-
	Sweden	(Program for energy efficiency in energy intensive industries)	(•)	(•)	(•): Programme discontinued; last companies still in the cycle
	Sweden	Support scheme for energy efficiency investments	•	-	-
	Norway	Funding for introducing energy management	(•)	•	(•): Possible inclusion of SMEs due to energy threshold
	Canada	ecoENERGY Efficiency for Industry program	•	•	
INFORMATION INSTRUMENTS	**Energy Audits**				
	BE: Flanders	Self-scan for SME	•	-	-
	Germany	Energy efficiency networks	•	•	-
	United States	Industrial Assessment Centers (IACs)	•	-	-
	Energy Management Systems				
	BE: Flanders	SME portfolio	•	-	-
	Denmark	Energy management light	•	-	-
	Sweden	Energy management system light	•	-	-
	Switzerland	KMU Model	•	-	-
	United States	Better buildings, better plants programme	•	•	-
	United States	Energy Star for Industry Program	•	•	-
	United States	Superior Energy Performance	•	•	-

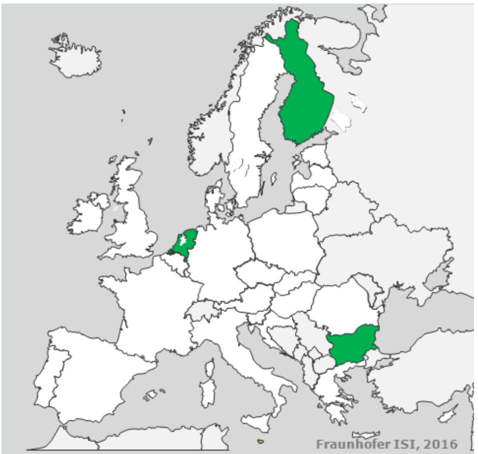
* Australia, Brazil, Canada, China, India, Japan, Norway, South Africa, Switzerland, Turkey, and USA

Results
Regulatory instruments

Energy audits	Energy management systems
EU-28 Member States: ▪ **Additional energy threshold in the definition for large enterprises (Art. 8 EED):** Bulgaria, Czech Republic, Ireland, Italy, Portugal and Romania ▪ **Lower financial thresholds in the definition for large enterprises (Art. 8 EED):** Croatia and Slovenia	**EU-28 Member States:** None
Beyond EU-28: ▪ **Energy audits related to the Emission Trading System:** Australia ▪ **Top-10,000 programme:** China ▪ **Obligatory energy audits for nine energy-intensive sectors:** India	**Beyond EU-28:** ▪ **Mandatory energy management for companies with an energy consumption of ≥ 1,500 toe:** Japan ▪ **Obligation to nominate an energy manager for companies with energy consumption > 1,000 toe:** Turkey

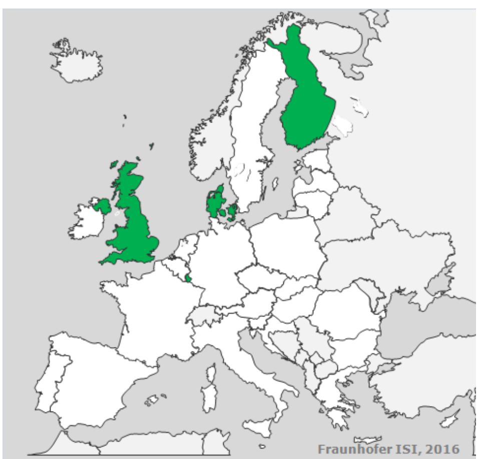
Results
Voluntary agreements

Energy audits*



- **Companies obliged to implement profitable energy efficiency measures:** Bulgaria
- **Voluntary implementation of energy efficiency measures:** Netherlands
- **Agreement on energy efficiency target:** Switzerland

Energy management**



- **Participating companies obliged to establish energy efficiency action plans and to implement profitable energy efficiency measures/achieve specific target:** Denmark, Finland, Luxembourg, United Kingdom
- **Voluntary implementation of energy efficiency measures:** South Africa

*Bulgaria, Finland, Netherlands ** Denmark, Finland, Luxembourg, United Kingdom

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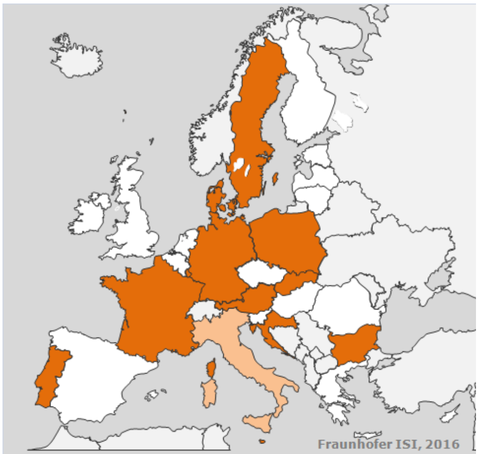
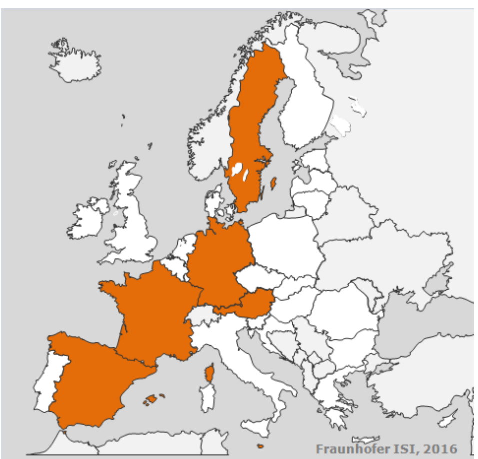
Results
Financial instruments

Energy audits*



- **Direct funding:** Austria, Bulgaria, Croatia, Denmark, France, Germany, Italy**, Luxembourg, Malta, Poland, Portugal, Slovakia, Sweden
- **Indirect funding based on tax redemptions:** Germany, Switzerland

Energy management***



- **Direct funding :** Austria, France, Germany, Malta, Spain, Sweden, Norway and Canada
- **Indirect funding based on tax redemptions:** Germany

* Austria, Bulgaria, Croatia, Denmark, France, Germany, Italy, Luxembourg, Malta, Poland, Portugal, Slovakia, Sweden, Switzerland **Call for funding open at the time of the study, *** Austria, France, Germany, Malta, Spain, Sweden

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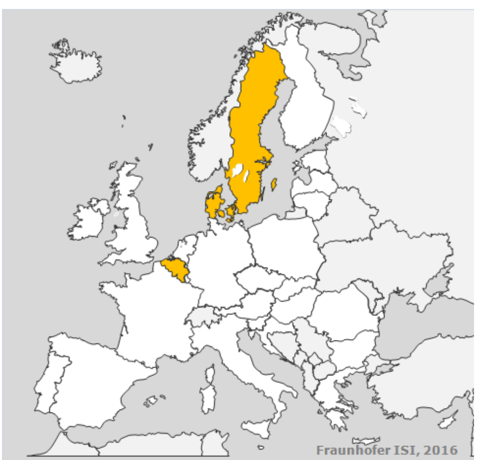
Results
Information instruments

Energy audits*

- **Energy efficiency networks :** Germany
- **Energy scans for SMEs:** Belgium
- **Energy audits free of charge:** Japan
- **Free of charge energy assessments:** United States

Energy management**



- **SME portfolio for environmental and energy advice:** Belgium
- **Energy Management System Light:** Denmark, Sweden

*Flanders (BE), Germany, ** Flanders (BE), Denmark, Sweden

Results
Comparison of instruments for SMEs

1 Regulatory instruments

- Instruments often related to requirements for large companies resulting from Article 8 EED
- Regulatory instruments raise awareness and shift priorities
- However, instruments revoke flexibility and risk that companies may focus on compliance

2 Voluntary agreements

- Majority of countries uses VAs in connection with tax redemptions or direct financial incentives
- VAs enhance trust and leave flexibility to companies
- However, high transaction costs (administration & monitoring) may arise; free-rider effects also possible*

3 Financial instruments

- Especially for SMEs suitable to overcome financial barriers
- However, free-rider effects may arise
- Subsidies may have strong market implications

4 Information instruments

- Information instruments help to transfer knowledge and reduce transaction costs
- However, often soft in their nature and thus, do not necessarily lead to energy savings
- Nevertheless, instruments very suitable as one element in policy mix to increase knowledge

* if VA is combined with financial incentives

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Conclusion

- Countries rely on different types of policy instruments, most of them focus on providing financial incentives
- No single type of instrument as a stand-alone approach seems to be appropriate
- Rather the specific type of instrument, its design and implementation strongly depend on the individual framework conditions in the respective country
- Suitable instruments should continuously raise awareness in SMEs and ensure sufficient and easy access to information on national programmes
- Further research is needed evaluating the impact of instruments and considering also interdependencies between the different approaches taken

Thank you for your attention!

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The list of instruments presented is partially based on the results of a study entitled

'A Study on Energy Efficiency in Enterprises: Energy Audits and Energy Management Systems. Report on the fulfilment of obligations upon large enterprises, the encouragement of small- and medium-sized companies and on good-practice' (Hirzel et al. 2016)

funded by the European Commission. The responsibility for the information and interpretation presented solely lies with the authors.

For further information on the entire study conducted by Ricardo Energy & Environment , DNV GL and Fraunhofer ISI please refer to

www.energy-audits-and-management.eu

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