Energy efficiency networks – A group energy management system as a business model?

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Gefördert durch:
Bundesministerium für Umwelt, Naturschutz, Bau und Reaktorsicherheit
aufgrund eines Beschlusses des Deutschen Bundestages
NATIONALE KLIMASCHUTZ INITIATIVE

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Obstacles and unused supporting factors

- lack of knowledge and insufficient market survey of energy managers, particularly in SMCs, consulting engineers, architects, installers, bankers
- high transaction cost of the energy manager (for searching solutions, tendering, decision making, installation)
- 80% of companies use only risk measures (payback period), but not profitability indicators (e.g. internal interest rate) for their decisions
- technology producers or whole sale often pursue their own interests opposing the possible innovation steps of efficient solutions

Unused supporting factors:

- motivation of staff and the energy manager by acknowledgement

Energy Efficiency Networks simultaneously address several obstacles and unused supporting factors

How do the networks operate with 10 to 15 local companies ?

- energy audit, a list of measures, regular exchange of experiences, external experts
- mutual acknowledgement, motivation of staff, several years network target, yearly monitoring of the company's and network's target

Results :

- doubling of efficiency progress (2%/a) compared to average of industry
- average: 180.000 €/a energy cost saving per site and 10 to 20 €/t CO2 profits

Application so far:

- CH: 90 networks; 50% of industrial CO2-emissions
- D: 120 networks, more to come
- A: 6 networks (operated by utilities)
- B: 1 network
- S: 40 networks planned

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EEN - An energy management system, operating in a group context

Elements of the Learning Energy Efficiency Network Management System:

- about 70 useful ideas & tools for the network operator, the moderator, and the consulting engineer (regarding acquisition of participants, contracts, audits, target setting, meetings, yearly monitoring, financing, public relations),

- 100 energy efficient measures can be calculated by means of 15 calculation tools

The core of the network's success:

the group interaction among 10 to 15 energy managers

- 4 times per year a daily meeting over at least 3 - 4 years
- well prepared, moderated and recorded by the moderator
- including a site visit of the inviting participant, a presentation by an expert on pre-decided efficiency topic (technology or organisational measure)

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The initiative 500 energy efficiency networks by the German government and industrial associations

› Convincing results of 30 pilot efficiency networks with 366 participants (2008 to 2013) :
  - 65 Mill. € yearly energy cost savings, induced by investments of almost 200 Mill. €;
  - more than 400 Mill. € profits; 360,000 tonnes less yearly CO2-emissions.

› December 2014, Berlin: voluntary agreement between Government and 20 industrial associations: 500 networks by the end of 2020:
  - expected benefits: 75 PJ less primary energy; 5 Mill. tonnes CO2-emission reduction
  - 80 networks started operating until August 2016
› - interplay between obligatory energy audit and network generation in 2015 likely: reduced interest of companies and consulting engineers in network generation

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The role of policy boundaries

- The CO_2 law in Switzerland, 1999 (revision 2011):
  exemption since 2008 from the high CO_2 surcharge (presently 84,- CHF per tonne), when companies join an energy efficiency network and agree to a binding CO2-target agreement *(financial incentive, on clear performance standard)* .

- In Austria, the energy efficiency law, 2014 :
  the law demands that the utilities and other energy suppliers have to prove a yearly 0.6 % efficiency improvement of their customers *(fines in case of non-compliance)*

- In Germany, 2014 - the initiative until 2020:
  the voluntary agreement of generating 500 efficiency networks *(minimum performance standard, no incentives or sanctions)*

Energy efficiency networks as a business model?

- Operating energy efficiency networks – (very) low margins, however: lots of benefits:
  - operator learns about participants' needs and how they decide internally on energy efficient solutions
  - the operator can offer additional energy services such as consulting, contracting, commissioning, training, and others
  - the operator or consulting engineer can transfer good practice to other customers outside the energy efficiency network
- Operating efficiency networks as business models have been observed in Germany in different institutional settings:
  (large) utilities, applied research institutes, industrial associations

Conclusions

- Energy efficiency networks operated as learning networks by the continuous exchange of experiences among 10 to 15 energy managers: ⇨ *a lively form of a group EMS*

- The results are convincing:
  - more than doubling the progress of yearly energy efficiency (> 2%/a)
  - highly profitable solutions (average internal rate of return: 30%)
  - EENs support policies of Energiewende and climate protection by reducing energy and mitigation cost

- EENs can be a low margin business case, and attractive as cost neutral acquisition in connection with:
  - further services: consulting, contracting, financing, commissioning, training

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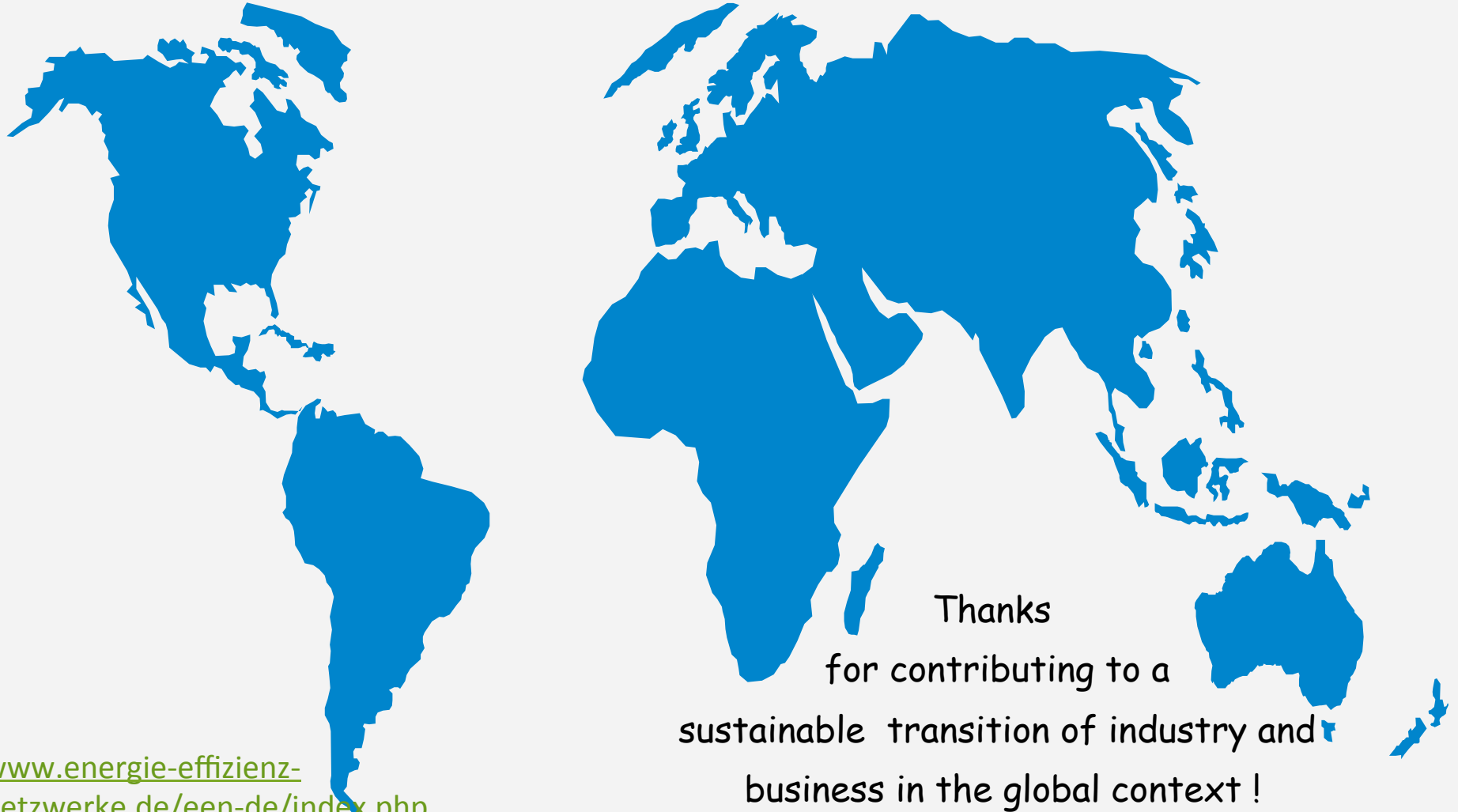
EENs – an instrument of industry for industry and a business case



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