CLIMATE CHANGE POLICY MEASURES IN INDUSTRY

The example of Germany

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National Action Plan Energy Efficiency

- Not to be confused with the National Energy Efficiency Action Plan (NEEAP)!

- Several measures adressing industry:
  - 500 Energy Efficiency Networks
  - Implementation of Article 8 EED
  - Support of waste heat utilization
  - Funding schemes for energy efficiency measures
  - Funding schemes for energy audits

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Acceptance of the ISO 50001 standard in Germany

- ISO carries our every year a survey on the penetration of the different standards:
- ISO 50001 has increasingly large acceptance in German companies, especially also due to the legal requirements but still much less in other economies.
- In 2012 1,115 companies were certified in Germany (35 in France, 15 in Japan, 120 in Spain, 85 in Denmark, 3 in the US, 1 in Mexico).

Standard	Number of certificates in 2012	Number of certificates in 2011	Evolution	Evolution in %
ISO 9001	1 101 272	1 079 647	21 625	2 %
ISO 14001	285 844	261 957	23 887	9 %
ISO 50001	1 981	459	1 522	332 %
ISO 27001	19 577	17 355	2 222	13 %
ISO 22000	23 231	19 351	3 880	20 %
ISO/TS 16949	50 071	47 512	2 559	5 %
ISO 13485	22 237	19 849	2 388	12 %
TOTAL	**1 504 213**	**1 446 130**	**58 083**	**4 %**

Sources:
http://www.iso.org/iso/home/standards/certification/iso-survey.htm?certificate=ISO%2050001&countrycode=DE
and http://www.iso.org/iso/iso_survey_executive-summary.pdf

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Tax exemptions energy-intensive industries Germany

Source: Arepo Consult, 20. März 2012
http://www.rosalux.de/fileadmin/rls_uploads/pdfs/Studien/RLS-Studie_Energieintensive_Industrie.pdf

Mill. Euro	2010	2011	2012*	2013
Energy/Electricity tax („Ecotax“)	5,740	4,730	5,110	n.a.
CHP Subsidies	40	4	20	n.a.
Renewables subsidies („EEG“)	1,125	2,080	2,315	2,500 to 3,500
Free CO_2 certificates (ETS)	1,643	1,408	1,408	n.a.
Compensation CO2 allowance price in electricity	-	-	-	500
Reduction/exemption grid charge	43	n.a.	319	n.a.
§19 charge (only electricity storage)			12	n.a.
Total exemptions/reductions	**8,591**	**8,223**	**9,185**	**n.a.**

	Exemption volume (million Euro/year)	Number of exemptions (energy tax)	Number of exemptions (electricity tax)
„Peak exemptions“ energy/electricitx tax (§ 55 EnergieStG, § 10 StromStG)	2,180	9,500	20,500
Exemptions from energy/electricity taxes for certain processes (aluminium…) (§ 51 EnergieStG, § 9a StromStG)	1,335	3,400	1,300
Generall energy/electricity exemptions for manufacturing sector (§ 54 EnergieStG, § 9b StromStG)	1,170	17,500	34,000

Source: Drucksache 17/14489 – 2 – Deutscher Bundestag – 17. Wahlperiode

Tax/EEG charge reduction in exchange for Energy Management and Energy Savings (1)

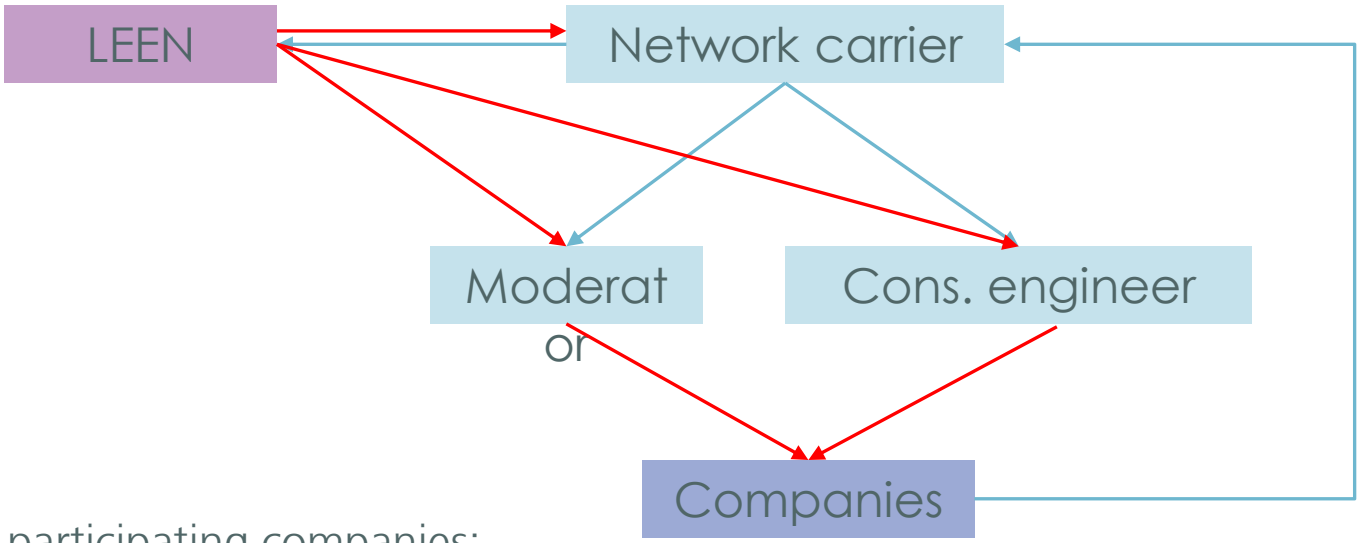
- 9 November 2012: Update of the energy/electricity taxation:
  - EU Commission required a „counter value“ for tax reductions/exemptions for German industry which have reached nearly 10 Billion Euro in 2012.
  - Also: the German government has to reach the targets of the „Energiewende“ (Transformation of the Energy System). This requires the contribution from all sectors, including from industry.
- Hence, a link between tax reductions/exemptions and the introduction of EMS/the realisation of energy savings.
  - Introduction of EMS according ISO 50001 or registered environmental management according EMAS
  - SMEs can also introduce alternative systems to reduce compliance effort. Those have to fulfill the Norm DIN EN 16247-1 on Energy Audits or the criteria of Annex 2 of the ordinance to the Energy and Electricity Laws: Ordinance on Systems to improve energy efficiency in connection with reduction/exemptions from energy and electricity taxes in special cases = Verordnung über Systeme zur Verbesserung der Energieeffizienz im Zusammenhang mit der Entlastung von der Energie- und Stromsteuer in Sonderfällen (Spitzenausgleich-Effizienzsystemverordnung - SpaEfV)“.

Tax/EEG charge reduction in exchange for Energy Managment and Energy Savings (2)

- Transition period 2013/2014: proof that the introduction of such a system has started
- **Starting 2015 the manufacturing industry has to reach 1.3% annual energy savings, to be verified by an external verifier for the sector as a whole**. If the target is not reached, the tax exemption/reductions will be reduced or totally abolished.

- For the most energy intensive industries (companies with electricity cost share of 16/17% in gross value added (2015/2016) and an electricity consumption of at least 5 Gigawatt hours per year) the certification according DIN EN ISO 50001 or an EMAS-registration is a **prerequisit for the reduction of the charge from the promotion of renewable energy sources on electricity „EEG-Umlage“)**
  - Privileged companies pay 15% of the EEG charge of at present 6.3 centEuro/kWh. Total sum to be paid is limited to 4% or 0,5% of the gross value added of the company.
  - For the first GWh the EEG charge has to be fully paid and for the further kWh at least 0,1 CentEuro. This shall assure a minimum contribution of the privileged companies.
  - Transition up to 2019: EEG charge shall not more than double from year to year.
  - For companies below 5 GWh „alternative System“ according to Spitzenausgleich-Effizienzsystemverordnung - SpaEfV required (§ 3 SpaEfV).

Learning Energy Efficiency Networks to promote EMS



- 10-15 participating companies:
  - Energy cost > 500.000 €/a
  - Willingness for an active exchange of information in regular meetings and to save energy
  - Support by the Company Management
- Network coordinator who initiates a network (can be energy supply company,…)
- Moderator taking care of the permanent network management (LEEN-certified)
- Energy advisor/consulting engineer (LEEN-certified)
- LEEN Standard for Networks compliant to ISO 50001

Money flow

Service & deliverance of LEEN MS

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Learning Energy Efficiency Networks according to the LEEN-Standard

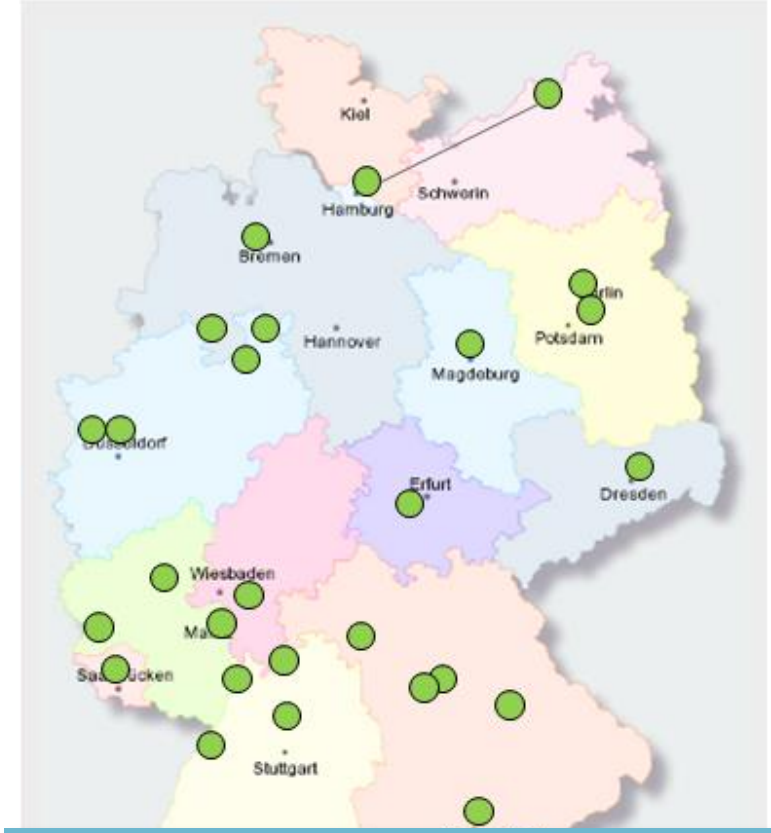
The LEEN GmbH develops presently a product family around the existing LEEN Network concept:

- LEEN-classic: The „classic“ Network acording the LEEN-Standard for companies/installations with energy cost larger 500,000 €/a
- LEEN-compact: The compact Network with leaner procedures according to the LEEN-Standard for companies/installations with energy cost between 200,000 and 500,000 €/a

=> Companies in LEEN-Networks double energy efficiency progress compared to the average of the german manufacturing sector (2% progress per year instead of 1% per year)

- LEEN-communal: The Network according to the LEEN-Standard for small and medium-sized municipalities with energy cost between 500,000 und 10 million €/a

„30 Pilot-Networks“



The 30 Networks represent

- Total energy cost of around 1 Billion €/a
- Energy consumption >15 million MWh/a
- CO_2 emissions > 5 million tonnes/a

Further Networks run by the regional electricity supplier ENBW

Networks running in China by State Grid Corporation of China, Japan, Austria…

Networks will be an essential element of the German „Energiewende“ (Transformation of the Energy System)

- Barilla (Lebensmittel)
- Bayer Health Care (Pharma)
- BSH (Konsumgüter)
- Evobus (Automotive, Daimler)
- Evonik (Pharma & Kunststoffe)
- Hilti (Maschinenbau)
- Liebherr (Maschinenbau)
- L'Oréal (Kosmetik)
- Michelin (Automotive)
- Procter&Gamble (Konsumgüter)
- Royal Greenland (Lebensmittel)
- Stora Enso (Papier)
- Weidmüller (Maschinenbau)
- Fiducia (IT-Dienstleister)
- ….

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Realized measures: reached savings

Evaluated monitoring reports		
Companies	No	108
Measures	No	1.330
Total energy saved	**GWh**	**322**
Electricity	GWh	90
Natural gas	GWh	170
Gasoline	GWh	23
District heat	GWh	3
Others	GWh	36

Extrapolation for 366 companies[1]		
Companies	No	366
Measures	No	3.700
Total energy saved	**GWh**	**1.125**
Electricity	GWh	315
Natural gas	GWh	595
Gasoline	GWh	80
District heat	GWh	10
Others	GWh	125

1) No of participating companies in the 30 pilot-network project

Total energy consumption of 366 companies: 16,700 GWh
Average operational time of networks: 3 years
Average **yearly** efficiency increase: 2,2%/a

Source: participating companies in the 30 pilot-network project

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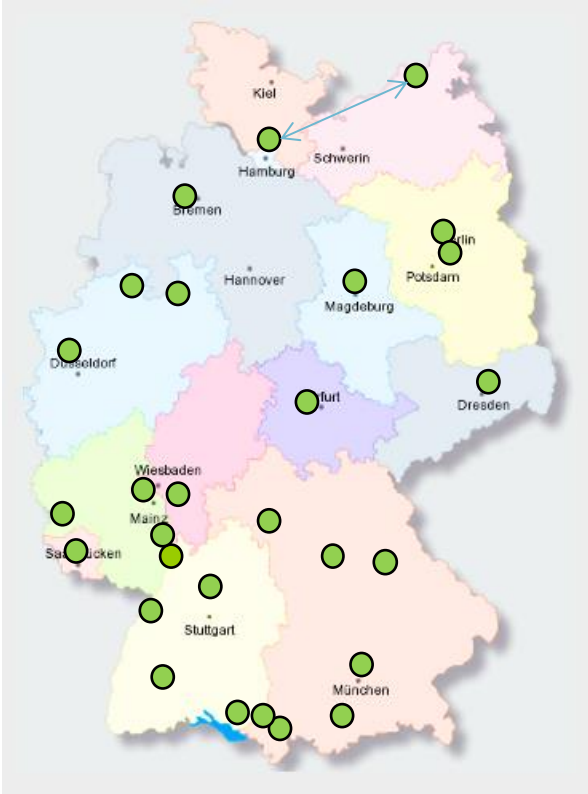
Energy Savings in some selected Networks

Ravensburg:	12.7%	(after 5 years)
Franken-Oberpfalz:	8.7%	(after 4 years)
Süd-West:	7.6%	(after 3 years)
Hanse:	7.5%	(after 3 years)
Heilbronn-Franken:	6.9%	(after 3 years)
Karlsruhe	6.1%	(after 3 years)



www.30pilot-netzwerke.de

Source: LEEN GmbH / EnBW Sales GmbH

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Selection of participating companies

- Barilla (Lebensmittel)
- Bayer Health Care (Pharma)
- BSH (Konsumgüter)
- Evobus (Automotive, Daimler)
- Evonik (Pharma & Kunststoffe)
- Hilti (Maschinenbau)
- Liebherr (Maschinenbau)
- L'Oréal (Kosmetik)
- Michelin (Automotive)
- Procter&Gamble (Konsumgüter)
- Royal Greenland (Lebensmittel)
- Stora Enso (Papier)
- Weidmüller (Maschinenbau)
- Fiducia (IT-Dienstleister)

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Conclusion of one participant

"Energy efficiency ? – we have always done that already…

… after running the network we noticed: energy efficiency! – we have never done it like THAT!"

Promotion of Energy Audits in the KfW „Special Fund for Small and Medium-Sized Enterprises“

- Sonderfonds Energieeffizienz (KfW)- promotes **Initial and Detailed Energy Audits**.
- Initiative of the BMWi (Ministry for Economy) and the KfW-Bank Group for Small and Medium-sized Enterprises.
- Special Fund is fed from the income of the Emission Trading Scheme + State Budget
- **General Criteria:**
  - Advisor needs to be listed with KfW.
  - Advisor needs to be certified as energy efficiency advisor.
  - The project should only contain advisory eelements that can be subsidized.
  - The project should not yet have started.
  - The KfW should have agreed on the advise.
- **Initial/detailed advise**
  - 2/10 advisory days (max. 800 Euro/day). Subsidy is 80/60% of the agreed daily rate (max. 640/480 Euro/day).
  - Advise within 8 weeks/8 months after agreement by KfW on advisory subsidy.
  - Only one subsidy per installation.
- Evaluation by Fraunhofer ISI

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Guidelines for the Promotion of Energy Management Systems

Guidelines of 6 August 2013: promote EMS **in companies that are not concerned by the tax reduction schemes for the energy-intensive companies**


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BAnz AT 06.08.2013 B1
Seite 1 von 7

Bundesministerium
für Wirtschaft und Technologie

Richtlinie
für die Förderung von Energiemanagementsystemen

- First certification of EMS according to ISO 50001 (max. 80% of cost, up to 8,000 €, accredited certifier)
- Certification of energy controlling according to the BAFA-Methodology with maximum (max. 80% of cost, up to 1,500 €, average annual energy cost below 200,000 €).
  - Management determines responsible for energy controlling in the organisation
  - Metering and analysis of all energy carriers used
  - Determination and analysis of all energy-using plants and appliances
  - Evaluation of energy efficiency potentials
  - Integration of results in company strategy and monitoring
- Purchase of metering technology for EMS (max. 20% of cost, up to 8,000 €)
- Purchase of Software for EMS once for a company (max. 20% of cost, up to 4,000 €)
- Total sum limited to 20,000 € in 36 months

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Mandatory energy audits in the Directive for Energy Efficiency 2012/27/EU from 2012 (Art. 8)

- For **SMEs, households and all smaller final customers**, EU Member States (MS) must promote the availability of high quality, cost-effective energy audits.
- For **large enterprises**, MS **must ensure** that they carry out energy audits of their buildings and installations at regular intervals not exceeding four years, starting 5 December 2015 at the latest.
- **Penalties for non-compliance** with the obligations on large enterprises to carry out energy audits
- **Certification and quality assurance:** Article 16 of the EED requires MSs to ensure the availability of certification, accreditation and/or qualification schemes by 31 December 2014 for providers of energy audits and for energy managers and, if necessary, to establish suitable training programmes for them.
- Annex VI sets out a number of **quality criteria for the energy audits**.
- **Deadlines**
  - Transposition the energy audit obligations for both SMEs and large enterprises, by **5 June 2014**.
  - **31 December 2014:** certification and accreditation schemes (or their equivalent) for energy audits are in place
  - **5 December 2015, and at least every four years from the date of the previous energy audit:** National legislation is in place to ensure that enterprises (excluding SMEs) are subject to energy audits, implemented and supervised by public authorities

Transposition of EED Art. 8 in Germany

- Non-SMEs are obliged to carry out Energy Audits according EN 16247.
- The audits have to be carried out by 5 December 2015 and to be repeated every 4 years.
- Alternatively also certified EMS according ISO 50001 or Environmentals management Systems according EMAS are recognized.
- Requirements on the qualification of energy auditors
- Control of a selection of audits by BAFA (office responsible for the audits)
- Sanctions possible for non-compliance
- Comprises also companies beyond the producing sector (commerce, banks, tourism, assurances, private hospitals…)

Energy Audits promoted by energy suppliers in the frame of the Directive for Energy Efficiency from 2012

Motivation for energy suppliers: Find new business opportunities or loose definitely market shares… !!

https://www.enbw.com/geschaeftskunden/industriekunden/dienstleistungen/energieloesungen-fuer-kmu/enbw-loesungspaket-energieaudit-2014-2015/index.html

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Conclusions: Driving Forces for Industrial Energy Efficiency in Germany

- Introduction of Energy Management Standard ISO 50001
- Interconnection with other instruments:
  - Tax reductions/exemptions
  - Exemptions from renewables charge
- Regulation for large energy-intensive companies
- Incentives for companies not concerned by such exemptions
- Voluntary schemes (Learning Networks for Energy Efficiency) for medium-sized companies, as well as small companies (more simplified approaches)
- EMS as new business fields for energy suppliers

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