Learning Energy Efficiency Networks

Learning Energy Efficiency Networks Saving potentials, realization and dissemination

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Content

- Overview on structure of learning energy efficiency networks
- Acceptance of the network idea & advantages
- Identified measures (energy review)
- Realized measures (monitoring)



How it works



Leening energy efficiency Networks

Organizational structure



Money flow
Service & deliverance of LEEN MS



General acceptance of the network idea

- 80% rated the benefits of network participation at least as "rather high" in comparison to the effort required for participation
- More than 60% indicated that contacts gained were used outside the network meetings
- 90% rated the topics discussed in the meetings and site inspections at least as good
- The measures identified during the energy review phase fully met the expectations of 80% of the companies
- More than 60% stated that the network enhanced the attention paid to energy efficiency by company management



Advantages of the network approach

- A complete assessment of the saving potentials in crosscutting technologies and several processtechnologies
- An economic evaluation of the saving potentials (IRR, Payback Period and Net Present Value)
- Exchange of experiences (an information network as a know-how-pool)
- Commitment of the management
- Higher acceptance of the energy manager
- Up to date information on new technologies (presented by engineering experts)
- Topics of the meetings are chosen by the participants
- Evaluation of realized measures by a yearly monitoring
- A four year energy manager training



Identified measures

Overview		
Evaluated reports	366	
Total number of measures	7,030	
thereof quantitatively evaluated measures	6,030	
thereof profitable measures (where IRR is greater than 12%)	3,580	
Ø IRR of all profitable measures	31%	
Ø static payback period of all profitable measures	3.2	
Ø investment per measure [EUR]	55,700	
Ø values per company/site (all profitable measures realized; IRR>12%)		
Ø energy savings [MWh/year]	2,670	
Ø CO ₂ emission reduction [t/year]	940	
Ø number of quantitatively evaluated measures	19	
thereof classified as profitable	10	
Ø total additional investment [EUR]	580,000	
Ø reduction of energy costs [EUR/year]	180,000	



Identified measures: evaluation by technological area

	Venti-	Lighting	Com-	Elec-	Air con-
	lation		pressed	trical	ditioning
			air	devices	
Number of profitable	270	429	490	513	122
measures (IRR > 12%)					
Ø investment (operating	67,000	24,000	17,000	36,500	22,000
life: 25 years ¹) [EUR]					
Ø energy savings	370	77	145	175	120
[MWh/year]					
Ø reduction of	07	20	10	51	30
CO ₂ emissions [t/year]	87 29	43	54	30	
Ø internal rate of return	33.5%	23.9%	45.7%	40.2%	23.7%
(IRR)					
Ø static payback	3.0	4.2	2.2	2.5	4.2
period [years]					

1) Taking into account reinvestments, if the operating life is shorter than 25 years.



Identified measures: investment volumes (profitable measures only)





Realized measures: reached savings

The figures on this slide are preliminary!

Evaluated monitoring reports			
Companies	No	89	
Measures	No	891	
Total energy saved	GWh	272	
Electricity	GWh	68	
Natural gas	GWh	112	
Gasoline	GWh	23	
District heat	GWh	6	
Others	GWh	63	

Extrapolation for 366 companies				
Companies	No	366		
Measures	No	3.700		
Total energy saved	GWh	1.120		
Electricity	GWh	280		
Natural gas	GWh	460		
Gasoline	GWh	95		
District heat	GWh	25		
Others	GWh	260		

Total energy consumption of 366 companies:1Average operational time of networks:Average yearly efficiency increase:

16,000 GWh 3 years 2,3%/a



Realized measures: profitability, energy savings and CO₂ emission reductions (NW Karlsruhe)

Category	Value
number of measures	107
Ø investment [EUR]	20,700
Ø energy cost savings [EUR/year]	6,750
Ø internal rate of return (IRR)	33.0%
Ø static payback period [years]	3.0
Ø energy savings [MWh/year]	98.5
Ø reduction of CO ₂ emissions [t/year]	25.6



Questions & answers

(probably)

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