

“klima:aktiv energieeffiziente betriebe” (climate:active energy efficient companies) – the Austrian climate change program for industry



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Overview

- We and our philosophy of energy efficiency
- The programme background (Konstantin Kulterer from AEA)
- The k:a eeb Pro-Tools
- The EUROpean Energy Manager (EUREM)
- Consequences





sattler energie consulting - energy efficiency with heart and intellect!

We are a product independent service provider

Our target is to reach a trusting cooperation with our customers and to lead them to the topic of an economic energy consumption.

Therefore our team offers complete solutions in all questions of energy!



Motor Challenge Award Winner
– Endorser 2007!



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our experience...

- energy consulting in industry since 15 years
 - stand for well-based concepts
 - special measurements as USP
 - working all over austria → permanent cooperation with all the regional managers
 - Long history of cooperation with austrian energy agency
 - EBPI – breweries study
 - Motor Challenge Programme
- AEA invited us to cooperation for k:a eeb



„If you sit in a bathtub,



... where the hot water runs out
permanently,



... what do you really need?



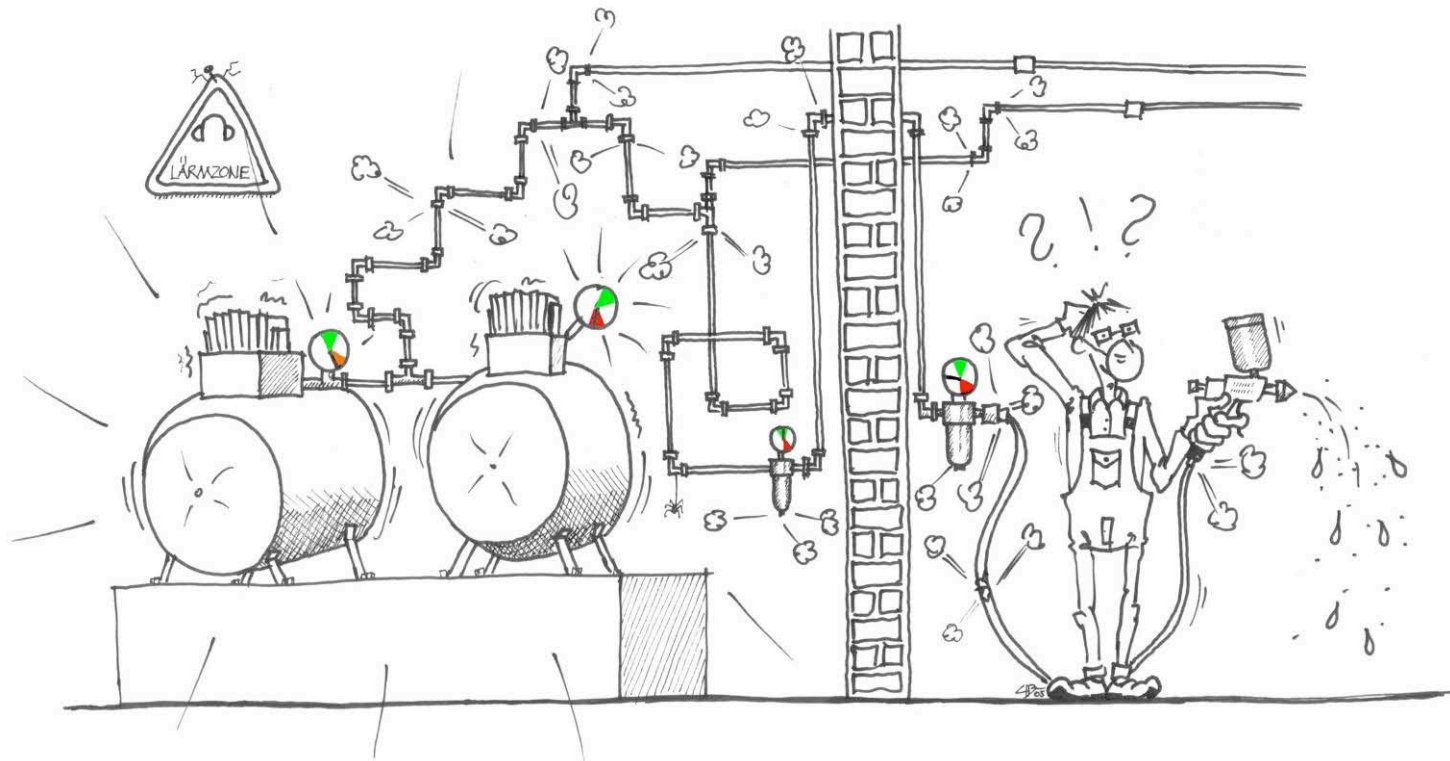
... a bigger water boiler ?



... or a convenient plug ?



Reality is even worse....



klima:aktiv Programme - Austria

- In 2004, the Ministry of agriculture, forestry, environment and water launched its klima:aktiv action programme for active climate protection.



- target-oriented implementation of the **Austrian Climate Strategy**
- Target: breakthrough in the use of climate-friendly **technologies and services** for **increased energy-efficiency and of renewable energy sources**



Klima:aktiv 25 programmes

“Renewable energy”, “mobility” and “communities” as well as “building- and energy efficiency” with the subprograms:

- “bundesgebäudecontracting” – support of the modernisation of federal buildings
- “ecofacility” – supports the renovation of private service centres
- “energieeffiziente betriebe” – is designed to help companies to optimise their energy consumption
- “energieeffiziente geräte” – supports to buy energy-efficient machines and tools
- „klima:aktiv haus” – the program supports ecological and energy-efficient new buildings
- “klima:aktiv leben” – is the program for energy saving in households
- “www.topprodukte.at” – an internet side for energy efficient equipment
- “wohnmodern” – supports modernisation of large living complexes

klima:aktiv energyefficient companies

- among others (e.g. construction and living, mobility, renewables) a **program for increasing energy efficiency in companies** started end of 2005
- the first focus in the energy - efficient companies module will be on “**electric motor systems**” in companies (focus chosen because of the experiences of the **MCP Pilotstudy**)
- Target: Electricity Savings of **60 GWh** (45.000 t CO₂) for 2006

MCP in klima:aktiv Programme - Austria

- **WP 1: target oriented marketing activities (Info-tools)**
 - **Best Practice Examples** (10 **MCP** energy-audits)
 - **Direct mailing** to energymanagers with news and special information
 - **MCP** as special European „award“
 - Marketing activities organized in **cooperation with regions** (e.g. **special events** organized with chamber of commerce, trade associations, regional programmes)

MCP in klima:aktiv Programme - Austria

- **WP 2: Supporting tools (Pro-Tools) for consultants**
 - Development of **consulting tools** for general energy audits (2 days), financial tools for supporting energy saving measures
 - Tools for detailed audits (3 or more days); pumps, fans, drives, compressed air (incl. **MCP methodology**)
 - **Trainings and support** for the consultants within the regional programmes (at the moment 8 out of 9 regions)

klima:aktiv Programme - Austria

- **WP 3: Direct marketdevelopment**
 - Search, aquiring of and support for **klima:aktive partners**
 - **partners**
 - ✎ **A) Programme partner:** company offering energy efficiency services or technologies; e.g. **Atlas Copco**, Danfoss, energy utilities
 - B) Project partner:** Industrial company realizing energy efficiency measures (e.g. improvement of compressed air systems: **Opel**, cement works, paper mills)

klima:aktiv Programme - Austria

- **WP 4: Financial Support for Technologies**
 - Cooperation with Research- and Education Institutions for evaluation of new technologies
 - Identification of appropriate **supporting mechanisms**

WP 5: Coordination, Monitoring

- **Coordination** of all relevant stakeholders (ministry, regions, chamber of commerce, trade associations)
- **Database** for monitoring energy saving projects



The energy consultant's job: making energy visible !

- Show the people what happens with energy in their company (use, abuse, waste)
- Detailed analysis/measurement of energy consumption
- Discuss what we both see
- To bring our experience to the companies
 - give advice/technical input
 - finding solutions together
 - Influence the behaviour



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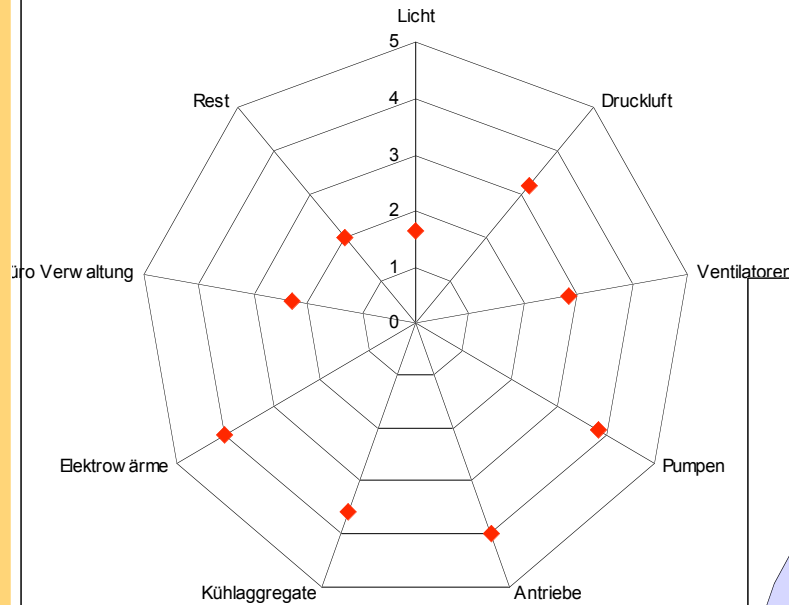
➔ k:a eeb Pro-Tools shall fulfill this needs!

k:a eeb Pro-Tools assessment checklist

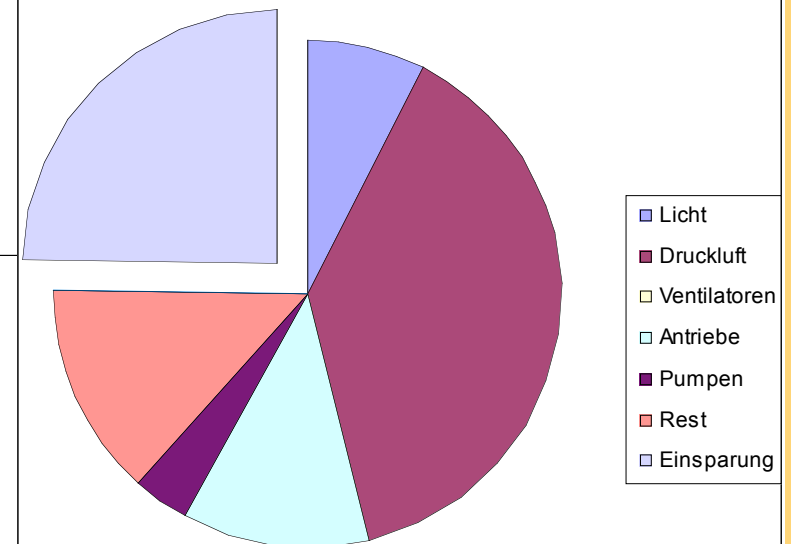
list of compressors (fixed)						
compressor	demand		idling		Quantity delivered [m ³ /min]	pressure niveau [bar]
	time [h/a]	power [kW]	time [h/a]	power [kW]		
Kaeser I	1000	40	500	20	7	
Kaeser II	3000	55	2000	30	9	
idling to total				possible saving potentia l	specific energy for deliveri ng [kWh/m ³]	energy [kWh]
time proportion		demand proportion				
	0,333	0,200		20%	0,1190	50.000
	0,400	0,267		27%	0,1389	225.000
				0%		0
Summe						275.000

k:a eeb Pro-Tools Visualisation of results

Need for Optimization



Consumption after Optimization

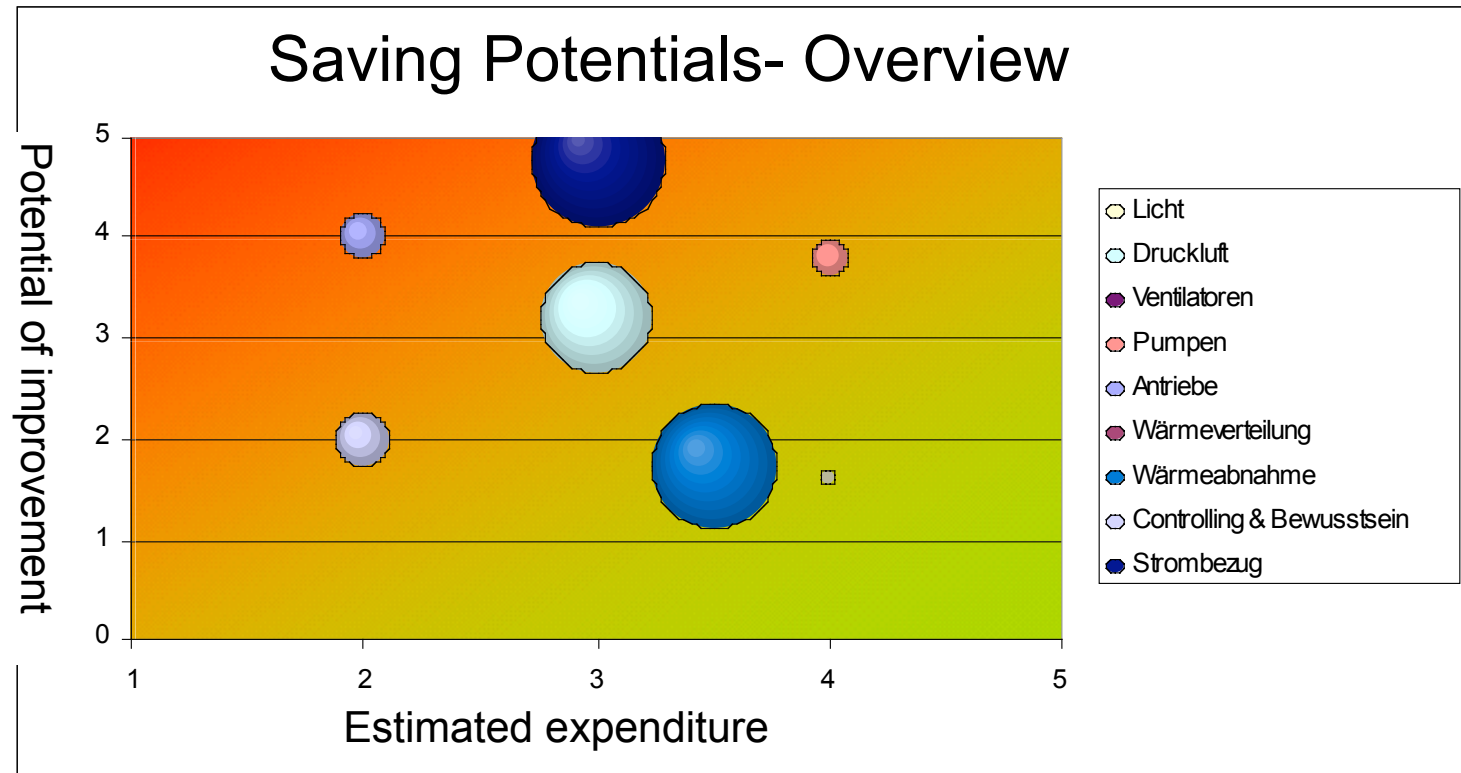


K: a eeb Protocols mathematical model of demand

		Actual condition	Actual demand on energy [kWh]	Potential [%]	Savings [kWh]	Energy demand new [kWh]
2.1	Lightning	1,6	47.180	5	2.198	44.982
2.2	Pressured Air	3,2	327.381	28	92.875	234.506
2.3	Ventilation	2,8	0	9	0	0
2.4	Pumps	3,8	33.000	33	10.822	22.178
2.5	Electrical drives	4,0	87.500	18	15.750	71.750
2.6	Cooling unit	3,6	137.250	14	19.781	117.469
2.7	Electrical Heat	4,0	33.000	18	5.940	27.060
2.8	Office & Administration	2,3	5.460	4	193	5.267
	Rest	2,0	84.229	3	2.106	82.123
	Total		755.000	20	149.665	605.335

k:a eeb protocols

Overview about savings



Next/additional steps

- Feedback workshops with consultants
- Redesign and extending of k:a eeb Pro-Tools
- Going into details of consulting process (e.g. compressed air systems, heat recovery,...)
- National benchmarking Website based on BESS-Project
- Etc.

Parallel Action

EUROpean Energy Manager

Workshopseries

- Experts for each subject
- Approved tools
- Sharing of experience
- Practical (home)work after each Workshop (analysis with checklist)



Project-Work (in the company)

- Optimizing of energy consumption
- Identifying of energy- and cost-savings as well as CO₂
- Tutor/Coach from Experts-team
- If necessary: external expert/consultant for more support



Written examination

Final Project Presentation

- in front of an experts team

Potentials and realized savings



	Energieeinsparung pro Jahr [MWh]	Kosteneinsparung pro Jahr [EUR]	Einsparung CO ₂ -Äquivalente pro Jahr [t]	Investitionskosten [EUR]	Durchschnitt Amortisation [Jahre]
EUREM I	26.082	1.153.751	15.019	3.496.713	2,9
EUREM II	90.290	3.463.865	21.034	27.626.455	4,3
EUREM III	53.292	2.086.287	12.823	10.724.340	4,4
Gesamt	169.664	6.703.903	48.875	41.847.508	3,9

Tab. 1: Saving Potentials – EUREM I-III (Basis: 76 Projekts)

	Energieeinsparung pro Jahr [MWh]	Kosteneinsparung pro Jahr [EUR]	Einsparung CO ₂ -Äquivalente pro Jahr [t]	Investitionskosten [EUR]	Durchschnittliche Amortisation [Jahre]
Realisiert (n=32)	23.231	1.396.729	16.787	5.428.751	3,1
In Umsetzung (errechnetes Potenzial, n=16)	69.123	2.445.440	15.775	19.059.842	4,1
Zu erwartende Summen	92.355	3.842.168	32.562	24.488.593	3,5

Tab. 2: Result of realized projects and projects just in realization

Consequences

- In Austria actual high energy costs as well as invest subsidies are great incentives to think about EE measures
- Climate change is an additional argument
- Many of the already planned measures to optimize production also lead to better energy efficiency
- There´s a great interest of companies on a specific range of services in EE
- Support up to the approval of subsidies has a great impact on the fact, whether measures are realized or not
- The designated results give hope that we are on the right way, but there is still a long way to go...

..thank you for your attention

...and keep on looking for a convenient plug!



k



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klima:aktiv



www.energie-consulting.a

Al

TuDu! Energ!e Sem!nar Kabarett

Influencing user behaviour in Industry



Mario Bottazzi und Heinz Hofbauer
die SemiNarren



TuDu ...do it yourself, don't wait for the others ...!