

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



**Peter Sattler et al.**  
**sattler energie consulting GmbH, Austria**  
**Eceee summer study**  
**Colle sur Loup – 8.6.2007**

# 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!**



AUSTRIAN ENERGY AGENCY





# our experience...

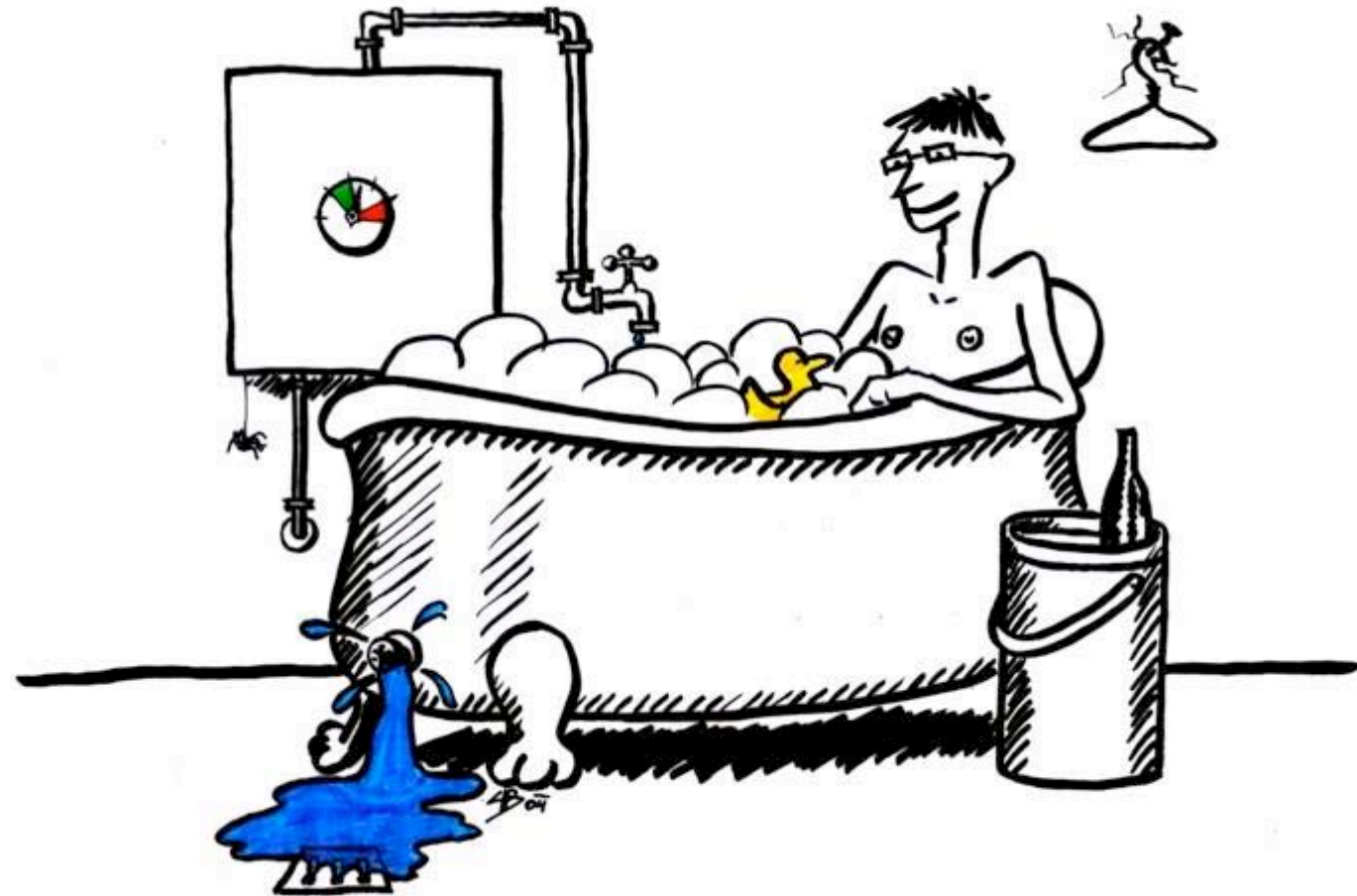
- energy consulting in industry since 15 years
  - stand for well-based concepts
  - special measurements as USP
  - working all over austria → permanent cooperation with all the regional managers
  - Long history of cooperation with austrian energy agency
    - EBPI – breweries study
    - Motor Challenge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



„If you sit in a bathtumb, ....



... where the hot water runs out  
permanently, ....



... what do you really need?



... a bigger water boiler ?

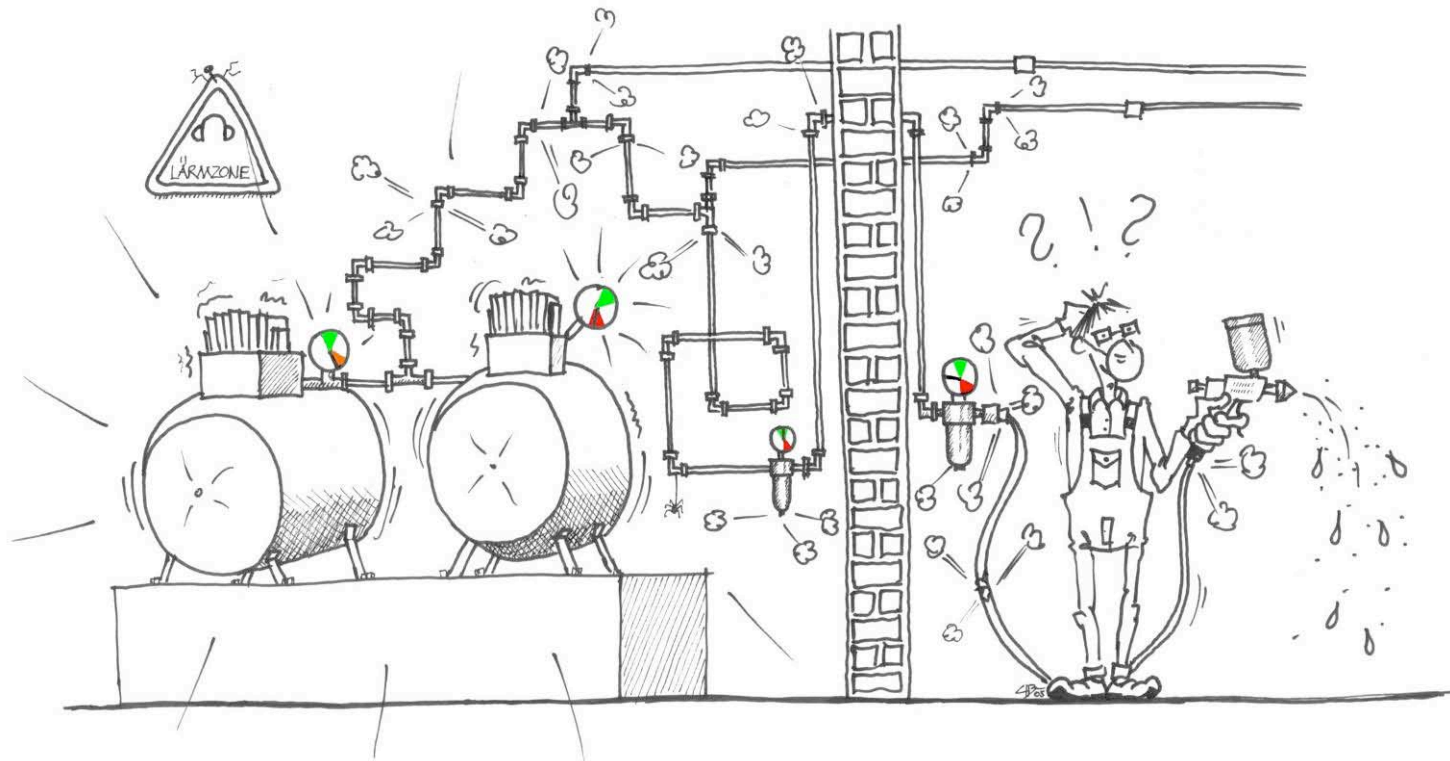




... or a convenient plug ?



# 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 CO<sub>2</sub>) 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, acquiring 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



AUSTRIAN ENERGY AGENCY

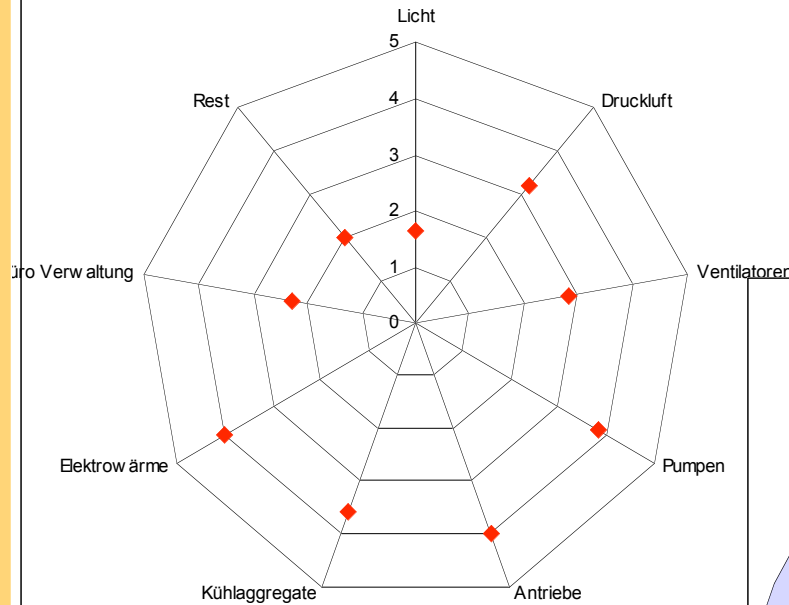
➔ k:a eeb Pro-Tools shall fulfill this needs!

# k:a eeb Pro-Tools assessment checklist

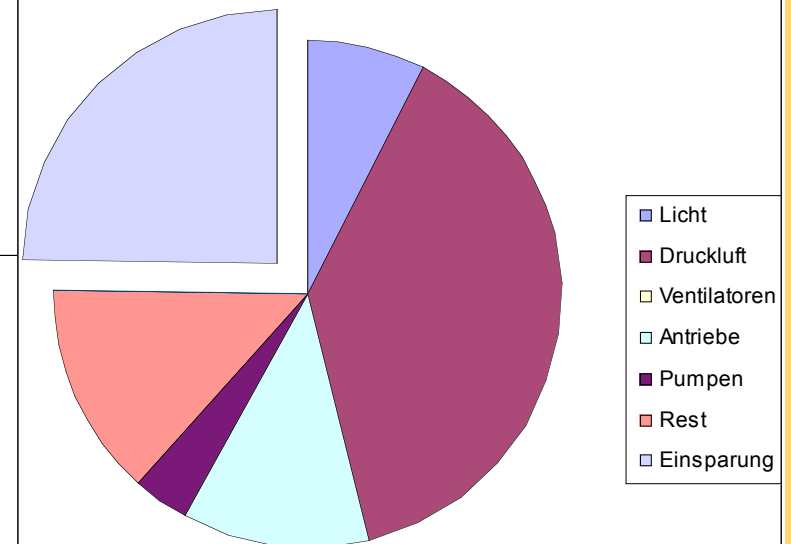
list of compressors (fixed)						
compressor	demand		idling		Quantity delivered [m <sup>3</sup> /min]	pressure niveau [bar]
	time [h/a]	power [kW]	time [h/a]	power [kW]		
Kaeser I	1000	40	500	20	7	
Kaeser II	3000	55	2000	30	9	
idling to total				possible saving potentia l	specific energy for deliveri ng [kWh/m <sup>3</sup> ]	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
<b>Summe</b>						<b>275.000</b>

# k:a eeb Pro-Tools Visualisation of results

## Need for Optimization



## Consumption after Optimization

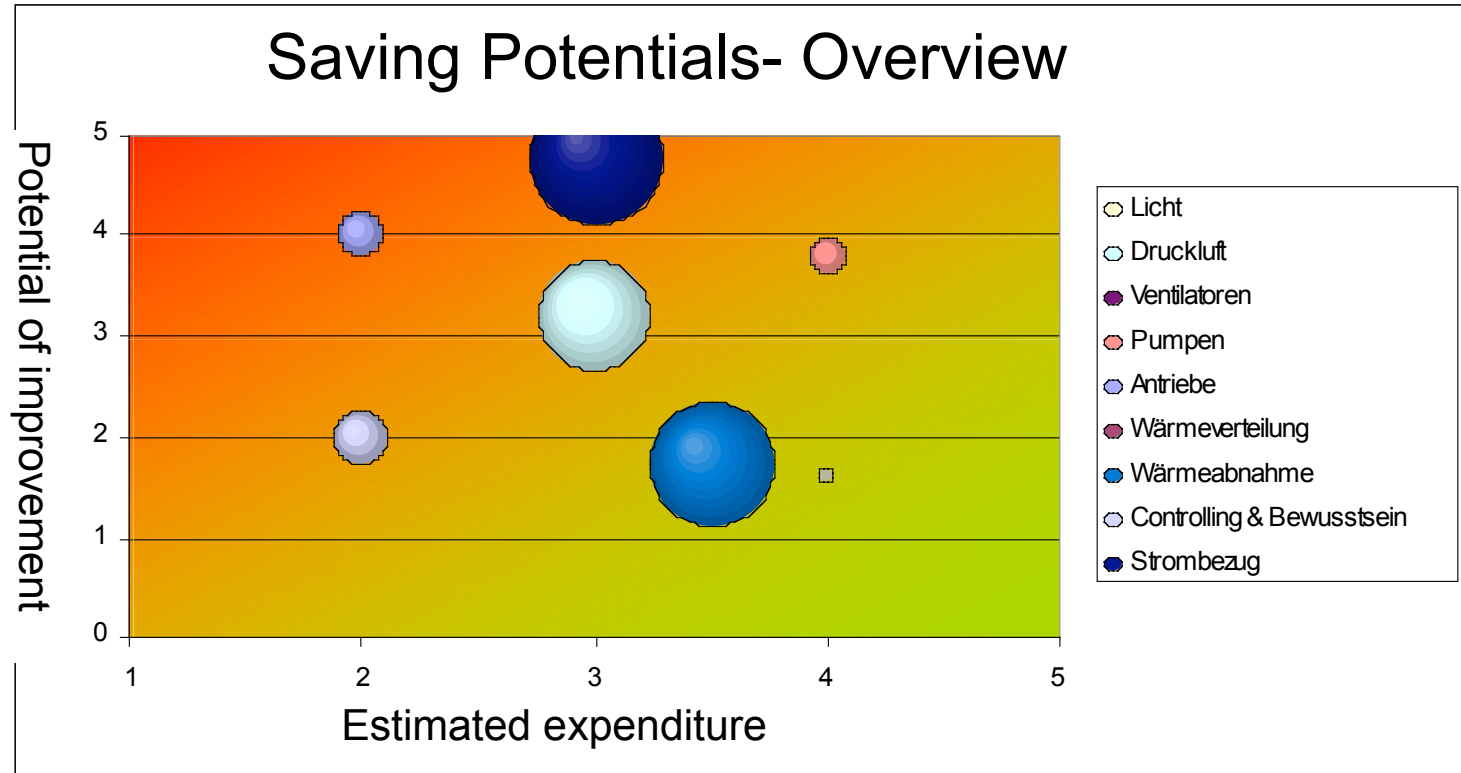


# K: a eeb Protocols mathematical model of demand

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

# 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 CO<sub>2</sub>
- 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 <sub>2</sub> -Äquivalente pro Jahr [t]	Investitionskosten [EUR]	Durchschnitt Amortisation [Jahre]
<b>EUREM I</b>	26.082	1.153.751	15.019	3.496.713	2,9
<b>EUREM II</b>	90.290	3.463.865	21.034	27.626.455	4,3
<b>EUREM III</b>	53.292	2.086.287	12.823	10.724.340	4,4
<b>Gesamt</b>	<b>169.664</b>	<b>6.703.903</b>	<b>48.875</b>	<b>41.847.508</b>	<b>3,9</b>

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

	Energieeinsparung pro Jahr [MWh]	Kosteneinsparung pro Jahr [EUR]	Einsparung CO <sub>2</sub> -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
<b>Zu erwartende Summen</b>	<b>92.355</b>	<b>3.842.168</b>	<b>32.562</b>	<b>24.488.593</b>	<b>3,5</b>

**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



AUSTRIAN ENERGY AGENCY

klima:aktiv



[www.energie-consulting.a](http://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 ...!