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AUSTRIAN ENERGY AGENCY



Austrian Energy Agency

The Austrian BESS pilot communication approach and lessons learned

www.bess-project.info

Petra Lackner

-
- The BESS project
 - Criteria for choosing sectors for benchmarking and implementing energy management
 - Confidentiality of data
 - Added value for pilot companies
 - Lessons learned
 - Example Austrian pilot phase and follow-up activities

Objectives of the BESS Project

- BESS – **B**enchmarking and **E**nergy Management **S**chemes for **S**mall and Medium Enterprises

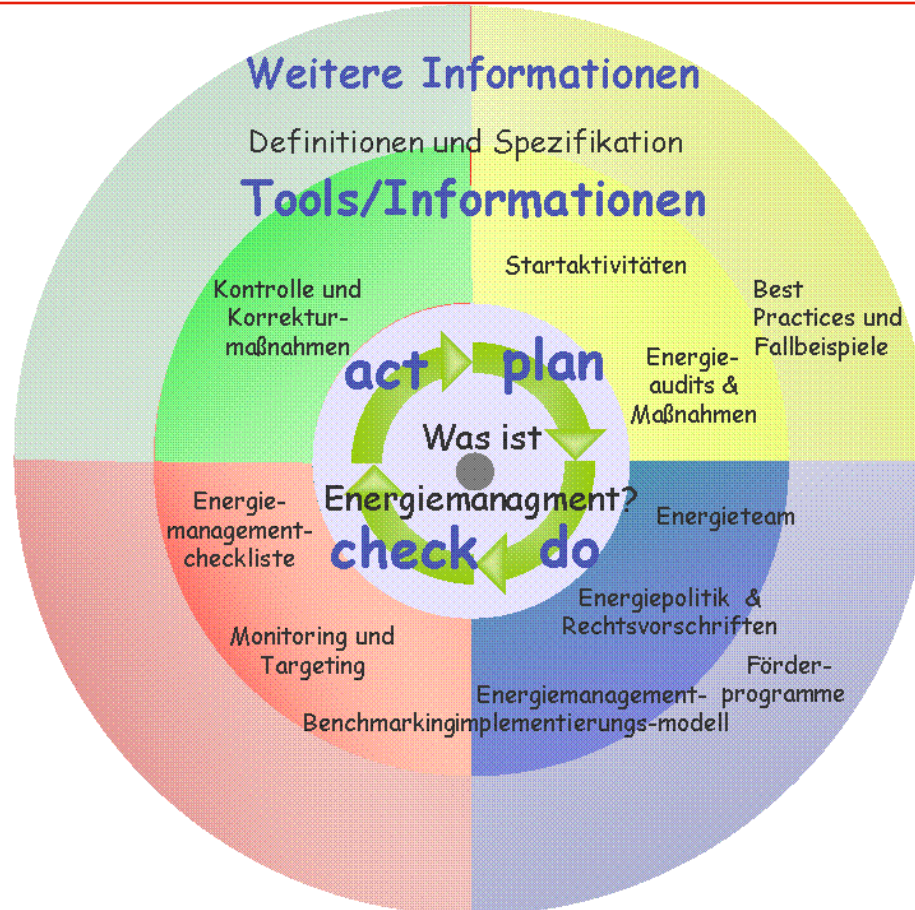
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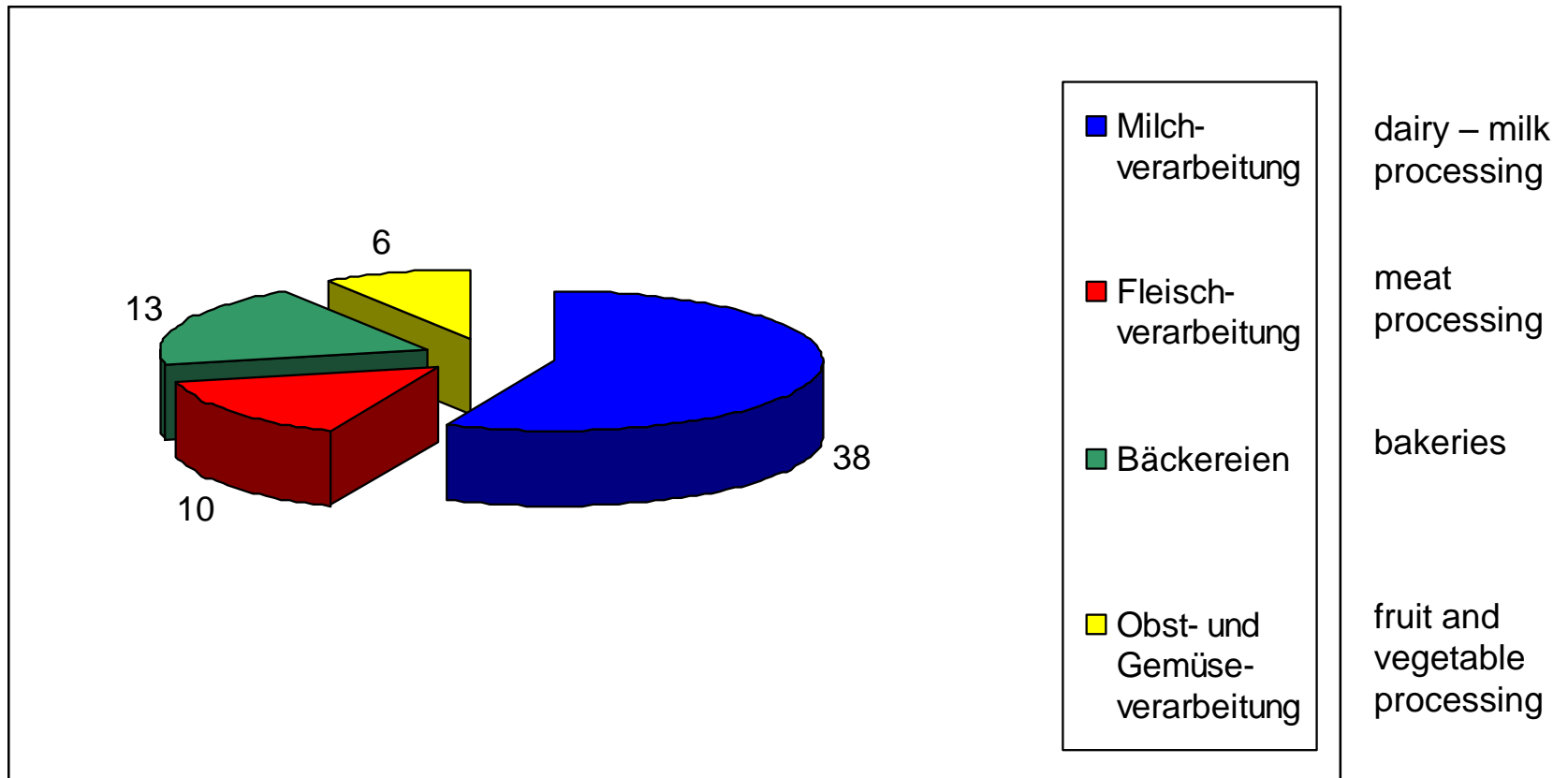
- Development of supportive tools to implement energy management into companies of the food & drink sector
- Development of an international energy benchmarking scheme
- Testing of support package within pilot companies.

E-Learning - PDCA cycle

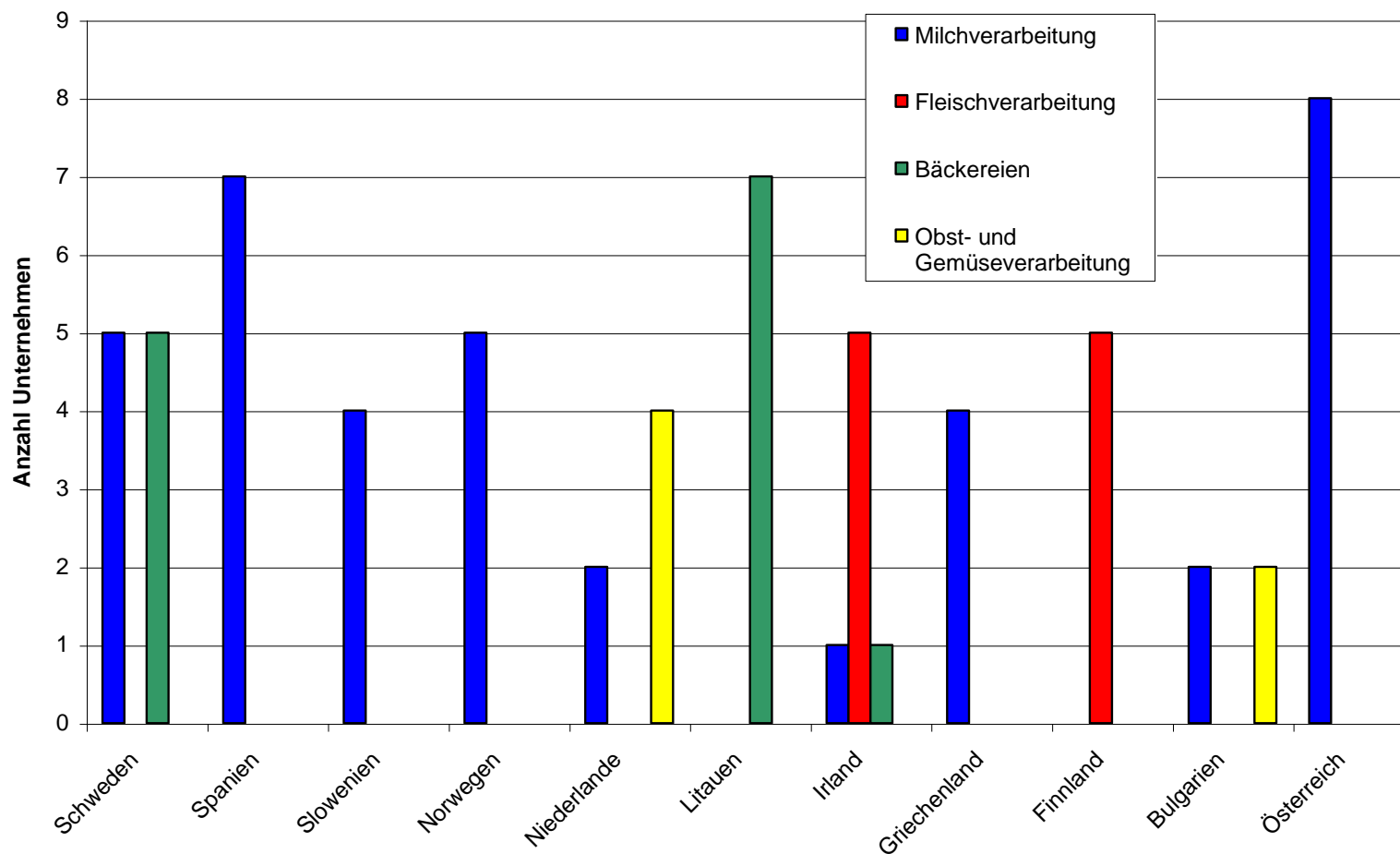
www.energymanagement.at



Pilot Companies



Pilot companies in 11 countries



Criteria for choosing sectors

Look for:

- sectors which are already active or at least interested in the field of energy efficiency
- sectors which are well organised within sector associations (or similar organisations)
- existing or planned focus on sectors in national projects
- completed national projects with sectoral focus
- sectors which have a certain number of SMEs in your country

Confidentiality of data

- set up a “confidentiality note” which is signed by the top management
- this note guarantees that sensible data will only be used within your company
- explain that our benchmarks show only the specific energy consumption which does not allow to draw conclusions on a specific company
- point out the advantage of benchmarking

Added value for pilot companies

-
- Benchmarking shows a company how they are doing in comparison to others from their sector
 - An energy management systems guarantees that a company is “dealing with energy” in a consequent way which leads to energy savings
 - Pilots will get support with implementing energy management
 - In the end of the pilot phase they will have a list of measures that lead to energy and therefore cost savings
 - best practice cases offer a positive publicity for the pilots

Lessons learned

- contact to associations is helpful for dissemination, recruiting and benchmarking BUT personal contact to the companies is even more important
- make sure you address the right persons in the company: in most companies there is already a person who is very interested in energy efficiency – find this person
- organise a workshop with the companies and present them the “added value” they will get from the energy efficiency project

Lessons learned II

- try to connect national projects or activities with the pilot actions of ExBESS to ensure follow-up activities
- work with national energy consultants: e.g. offer the pilot companies audits
- the E-Learning scheme offers additional information, BUT SMEs do not use it to implement energy management by their own

Suggestion to organise the pilot phase

organise the all pilot actions in several workshops which take place e.g. every two or three month; in this way:

- you can lead the SMEs through the implementation process
- you get immediate feed-back on tools and e-learning
- you build up a valuable contact-basis with the SMEs and you can invite different persons – depending on the topic of the actual WS (involve important decision makers ...)
- you are able to involve and inform branch associations, policy makers, chambers etc.; that gives you time to convince them of the opportunities of EM and BM in general (maybe a nationala programm will be the result of this ...)
- you can invite and involve energy consultants with different experience (depending on where you need most help to support SMEs)
- ExBESS gives you the opportunity to show how SMEs can be supported in improving their energy consumption and saving costs!

Example: Austrian pilot phase Dairy Sector

In Austria there are two dairy associations:

- chamber of commerce food association
 - comments communication papers and executive reports for BESS
 - signed letter of interest for BESS
 - future partner for extending Benchmarking to other sectors
- cooperative association: most Austrian dairies are members of this association
 - supported recruiting procedure
 - informs pilot companies and other dairies about BESS

Recruiting process

- Meeting with dairy association: general information about BESS and presenting the planned schedule of Workshop
- Association suggested that we should offer already some figures and information at the workshop which the dairies can use and work with (otherwise they would not be interested any more)
- Association forwarded Communication paper II to their members: 3 explained ad once their interest; others joined after some phone calls and more information from AEA
- NOTE: First step was “getting the dairies to the workshop” (without any commitments for them! Second step was to convince them at the workshop of the advantages to be a pilot.

Pilot kick-off workshop I

Preparation

- Telephone contact with all pilot companies
 - “data collection form” for first important information:
 - contact data, number of staff, operation hours
 - production capacity and output of different products
 - energy and water consumption
 - already existing energy management systems or energy consumption data collection etc.
- workshop date was too early as the pilot phase started half a year later and most tools like the business case did not exist at this time (but this was not planned)

Pilot kick-off workshop II

9 participants and 4 lecturers

- 7 participants from dairies
- 1 participant from dairy association
- 1 participant from food association
- 2 lecturers from consultant (subcontractor for pilots)
- 2 lecturers from AEA (BESS / MotorChallengeProgramm)

- The Workshop took place in the premises of AEA

Pilot kick-off workshop III

- Associations suggested that AEA and ÖEKV should sign a “data protection document”
- Representative of cooperative association was not convinced of benchmarking; he thought that would not be interesting for dairies
- Pilots were disappointed, that Germany is not part of the Benchmarking (competitors)
- Pilots wanted to know the number of hours they will have to spend for implementation process (!)

Pilot kick-off workshop IV

-
- Pilots would like to find out energy saving potentials as fast as possible
 - Pilots were very interested in additional support by national and European projects
 - Pilots are very interested in benchmarking but do not feel that it is easy to find a common benchmark for dairies in different countries because of the different product mix
 - Pilots asked for the costs of participating; e.g. “who will pay the consultant?”





Pilot phase – first actions before visits

- data collection for business case and benchmarking
- filling out energy management checklist
- preparation of graphs with first benchmark results
- preparation of result of energy management checklist with suggestions for first energy management implementation activities
- preparation of the agenda for visit together with the pilot company (draft agenda from us)
- list of data and information needed from pilot company for visit

Pilot phase – visiting all dairies

-
- usually half day visit from AEA and consultant with responsible persons from top management, technical department, controlling and production
 - presenting first results of business case and first analysis of benchmarks
 - presenting energy management specification and suggest first steps
 - discuss benchmarks and product categories
 - present “first check tool“ of national programme
 - visit production site

Necessary input from companies

- energy consumption
- production output according product classes
- average annual boiler efficiency (%)
- results of energy management checklist

optional

- capacity utilization (e.g. in case of a plant breakdown)
- basic energy consumption (energy used independently of the production volume like lighting, PCs, heating etc.)
- heating degree days

Data Collection Form for BM




AUSTRIAN ENERGY AGENCY

www.bess-project.info		Milchverarbeitende Industrie						Austria	
NACE-code:	15.51						Country code:	38	
Unternehmen:							GUID:		
Adresse:							Telefon:		
							E-Mail:		
							Kontakt:		
PRODCOM_ID	ENERGIEEINSATZ	Einheit	2004	Kessel WG (%)	2005	Kessel WG (%)	2006	Kessel WG (%)	Zusatzinformation
40.11.00.00	Strom (ohne Elektrokessel)	MJ	30.000.000	100%	30.000.000	100%		100%	(Zeile 1 und 2 = Gesamtstromverbrauch)
40.11.60.00	Strom (Elektrokessel)	MJ		100%		100%		100%	
23.20.15.00	Heizöl Extraleicht	MJ		100%		100%		100%	
23.20.16.00	Heizöl Leicht	MJ		100%		100%		100%	
23.20.17.00	Heizöl Schwer	MJ		100%		100%		100%	
40.22.10.00	Erdgas	MJ	47.000.000	85%	47.000.000	85%		100%	
23.20.20.00	Flüssiggas (Propan, Butan)	MJ		100%		100%		100%	
10.10.00.00	Kohle	MJ		100%		100%		100%	
20.10.40.00	Biomasse	MJ		100%		100%		100%	
40.30.10.00	Fremdbezug Wärme	MJ		100%		100%		100%	
	Weitere Energieverbräuche	MJ		100%		100%		100%	Erklärung:
GESAMTENERGIEVERBRAUCH			MJ	77.000.000	100%	77.000.000	100%	0	100%
NETTO ENERGIEVERBRAUCH			MJ	69.950.000	91%	69.950.000	91%	0	#DIV/0!
PRODUKTION		Äquivalenzfaktoren	Einheit	2004	2005	2006	Zusatzinformationen		
01.21.2 + 01.22.2	Verarbeitete Rohmilch	0,000	Liter	84.000.000		84.000.000			
15.51.10.00	Süßmilchprodukte	0,209	Liter	30.000.000		6.000.000			
15.51.52.AA	Sauermilchprodukte	0,657	Liter	1.900.000					
15.51.52.BB	Becherprodukte	0,966	Liter	13.000.000					
15.51.40.50	Hartkäse	1,925	kg	190.000					
15.51.40.30	Braunkäse	3,663	kg	0					
15.51.40.00	Andere Käsesorten	2,854	kg	2.700.000		16.000.000			
15.51.53.00	Kasein	1,952	kg	0					
15.51.20.00	Getrocknete Produkte	3,812	kg	0					
15.51.30.00	Butter / Butterschmalz	0,800	kg	380.000					
15.51.51.00	Konserven	0,787	kg	1.500.000					
15.51.00.SS	Versandmilch	0,076	Liter	8.800.000					
15.32.00.00	Säfte, Eistee, Dressings etc.	0,209	Liter						
ANGEPASSTE PRODUKTION				30.301.150		46.918.000		0	
NICHT ANGEPASSTE PRODUKTION (Rohmilch)				84.000.000		84.000.000		0	
WEITERES		Unit	2004	2005	2006	Zusatzinformationen			
Heizgradtage		HGT	3093	3017	3119				
Heizungsabhängiger Anteil		%	1%	1%	0%				
Kapazitätsauslastung		%	100%	100%	100%				
Grundenergieverbrauch		%	5%	5%	0%				
Qualitative Bewertung des Energiemanagements		Unit	2004	2005	2006				
A: Basisinformationen		Punkte		2	100%			0%	
B: Umsetzung und Durchführung		Punkte		8	47%			0%	

- data collection once a year
- energy consumption
- production
- production capacity
- level of energy management

Input: Energy Consumption

		DAIRY INDUSTRY						0	
NACE-code:	15.51						Country code:		
Company:							GUID:		
Adress:							Phone:		
							e-mail:		
							Contact.:		
PRODCOM_ID	PURCHASED ENERGY	Unit	2003	Boiler eff. (%)	2004	Boiler eff. (%)	2005	Boiler eff. (%)	Extra information
40.11.00.00	Electricity (firm power)	MJ	30.000	100%	32.000	100%	29.000	100%	(Line 1 and 2 are total elec.-used)
40.11.60.00	Electricity used by el.boiler	MJ		98%		100%		100%	
23.20.15.00	Light fuel oil	MJ		100%		100%		100%	
23.20.16.00	Middle distillates	MJ		100%		100%		100%	
23.20.17.00	Heavy fuel oils	MJ		100%		100%		100%	
40.22.10.00	Natural gas	MJ	47.000	87%	44.000	87%	42.000	87%	
23.20.20.00	LPG (Propane, butane)	MJ		100%		100%		100%	
10.10.00.00	Coal	MJ		100%		100%		100%	
20.10.40.00	Bio energy	MJ		100%		100%		100%	
40.30.10.00	District heat etc.	MJ		100%		100%		100%	
	Other energy	MJ		100%		100%		100%	Specify:
	TOTAL ENERGY	MJ	77.000	100%	76.000	100%	71.000	100%	
	NET ENERGY CONSUMPTION	MJ	70.890	92%	70.280	92%	65.540	92%	

Input: production

	PRODUCTION	Normalization factor	Unit	2003		2004
01.21.2 + 01.22.2	Processed milk	0,000	litre	84.000.000		84.000.000
15.51.10.00	Sweet milk products	0,209	litre	30.000.000		6.000.000
15.51.52.AA	Sour milk products	0,657	litre	1.900.000		
15.51.52.BB	Cup products	0,966	litre	13.000.000		
15.51.40.50	Hard cheese	1,925	kg	190.000		
15.51.40.30	Brown cheese	3,663	kg	0		
15.51.40.00	Other cheeses	2,854	kg	2.700.000		16.000.000
15.51.53.00	Casein	1,952	kg	0		
15.51.20.00	Dried products	3,812	kg	0		
15.51.30.00	Butter /butter oil	0,800	kg	380.000		
15.51.51.00	Preserves	0,787	kg	1.500.000		
15.51.00.SS	Supplemental milk delivered	0,076	litre	8.800.000		
15.32.00.00	Juice	0,209	litre			
	NORMALIZED PRODUCTION			30.301.150		46.918.000
	UNADJUSTED PRODUCTION (RAW MATERIAL)			84.000.000		84.000.000


 same amount of rawmilk processed
 but different products – with
 normalisation factor BM possible

Output: Benchmark Results



BESS | European Energy Benchmarking

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Einleitung

Spezifischer Energieverbrauch

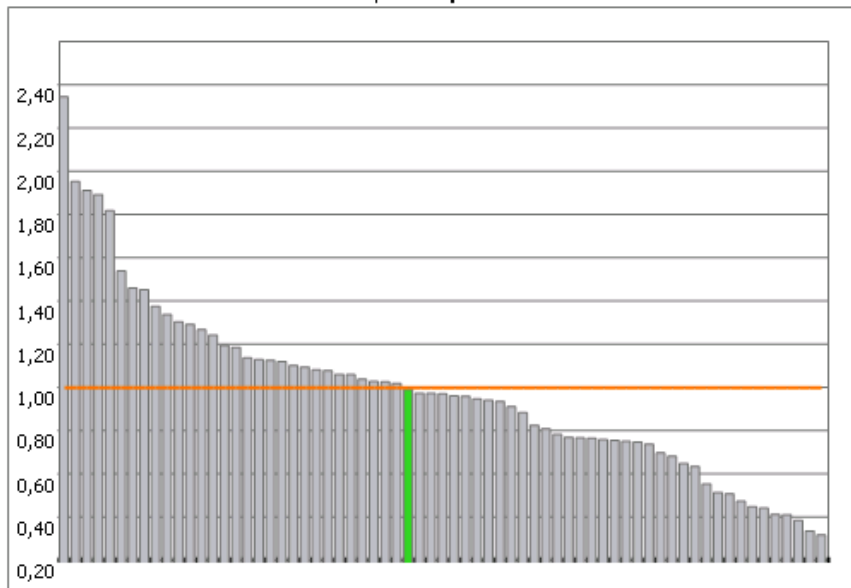
% Verbesserung

Historische Entwicklung

Qualitätskennzahl

Wählen Sie das Benchmarking-Jahr

kWh/milk equivalents



- Ihr Unternehmen: 0,99
- Andere Unternehmen des Sektors. Bester Wert: 0,32
- Arithmetischer Durchschnittswert: 1

Industriesektor: **Dairy industry**

Am Benchmark beteiligte Länder

- Netherlands Ireland
- Greece Spain
- Norway Sweden
- Finland Austria
- Lithuania Bulgaria
- Slovenia

Energieeinheit

- kJ
- kWh

Anpassungsfaktoren

- Produktionsmix mit Äquivalenzfaktoren
- Kesselwirkungsgrad
- Kapazitätsauslastung
- Klimatische Anpassung

Aktualisierung Benchmark

Output:
specific energy consumption (SEC)
of total sector with
normalization
factors



BESS | European Energy Benchmarking

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Einleitung

Spezifischer Energieverbrauch

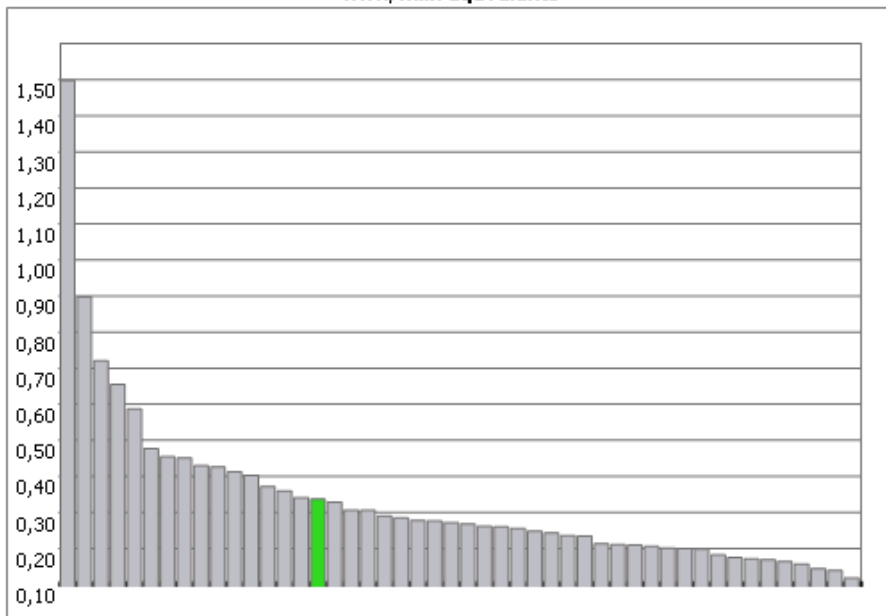
% Verbesserung

Historische Entwicklung

Qualitätskennzahl

Wählen Sie das Benchmarking-Jahr

kWh/milk equivalents



Industriesektor: **Dairy industry**

Am Benchmark beteiligte Länder

- Netherlands Ireland
- Greece Spain
- Norway Sweden
- Finland Austria
- Lithuania Bulgaria
- Slovenia

Energieeinheit

- kJ
- kWh

Anpassungsfaktoren

- Produktionsmix mit Äquivalenzfaktoren
- Kesselwirkungsgrad
- Kapazitätsauslastung
- Klimatische Anpassung

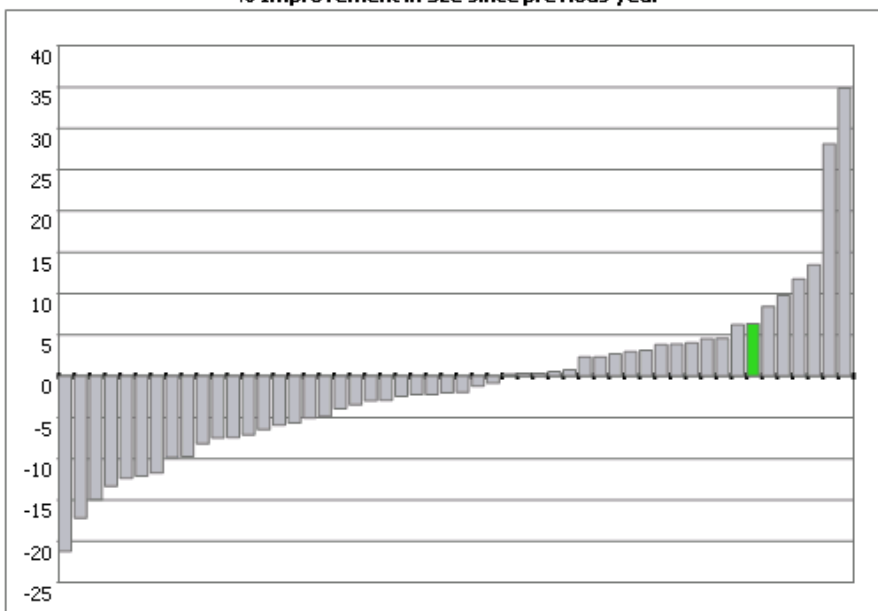
Aktualisierung Benchmark

Output:
specific energy consumption (SEC)
of total sector
without
normalization
factors



Wählen Sie das Benchmarking-Jahr

% Improvement in SEC since previous year



Ihr Unternehmen: 6,36%

Andere Unternehmen des Sektors. Bester Wert: 34,86%

Industriesektor: **Dairy industry**

Am Benchmark beteiligte Länder

- Netherlands Ireland
- Greece Spain
- Norway Sweden
- Finland Austria
- Lithuania Bulgaria
- Slovenia

Energieeinheit

- kJ
- kWh

Anpassungsfaktoren

- Produktionsmix mit Äquivalenzfaktoren
- Kesselwirkungsgrad
- Kapazitätsauslastung
- Klimatische Anpassung

Aktualisierung Benchmark

Output:
Improvement of SEC of total sector with normalization factors



BESS | European Energy Benchmarking

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Einleitung

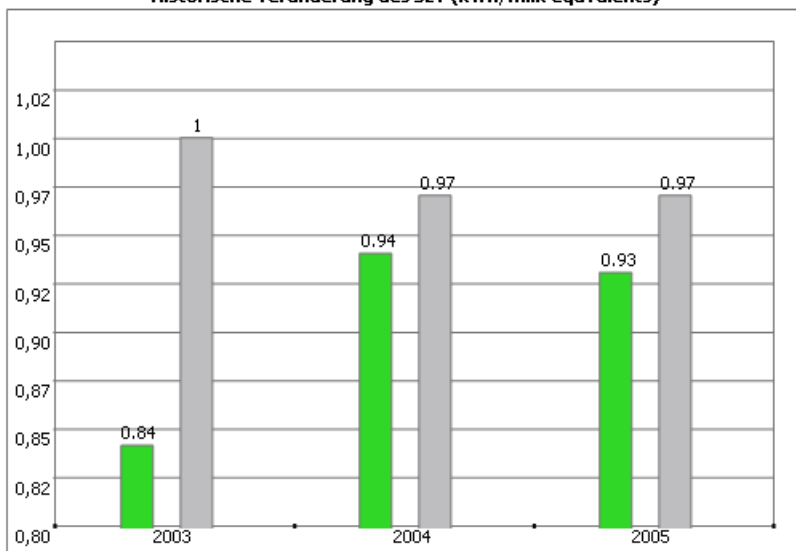
Spezifischer Energieverbrauch

% Verbesserung

Historische Entwicklung

Qualitätskennzahl

Historische Veränderung des SEV (kWh/milk equivalents)



Ihr Unternehmen:
 Andere Unternehmen des Sektors (gewichteter Durchschnitt)

Industriesektor: Dairy industry

Am Benchmark beteiligte Länder

- Netherlands
- Ireland
- Greece
- Spain
- Norway
- Sweden
- Finland
- Austria
- Lithuania
- Bulgaria
- Slovenia

Energieeinheit

- kJ
- kWh

Anpassungsfaktoren

- Produktionsmix mit Äquivalenzfaktoren
- Kesselwirkungsgrad
- Kapazitätsauslastung
- Klimatische Anpassung

Aktualisierung Benchmark

Zurück zu Zusammenfassung

Output:
Change of own SEC
of the last 3 years
in comparison to
the sector average



BESS | European Energy Benchmarking

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Introduction

Specific Energy Consumption

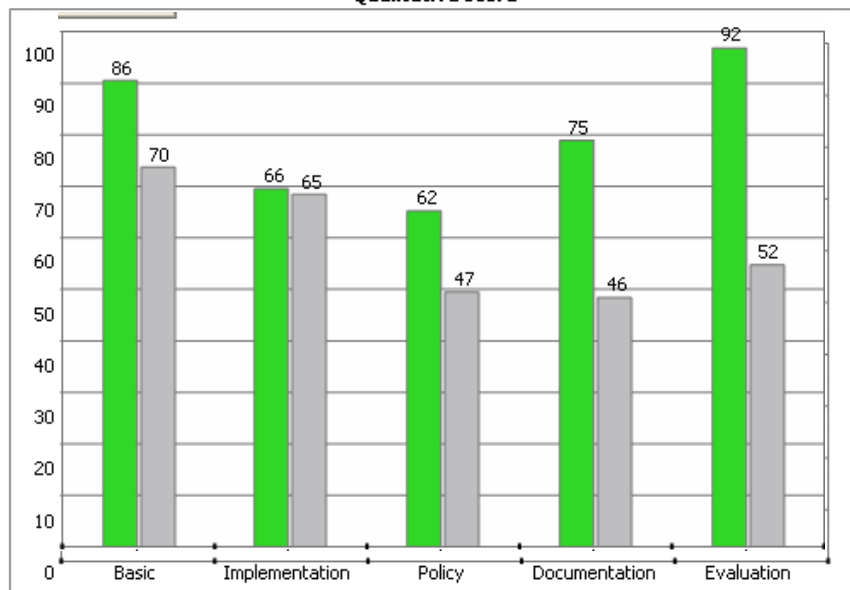
% Improvement

Historical progress

Qualitative score

Select year for benchmarking

Qualitative score



■ Your company
■ Industry

Industry **Dairy industry**

Countries included in benchmark

- Netherlands Ireland
- Greece Spain
- Norway Sweden
- Finland Austria
- Lithuania Bulgaria
- Slovenia

Energy report unit:

- kJ
- kWh

Adjustment factors

- Production mix with equivalents
- Boiler efficiency
- Utilization of capacity
- Climatic corrigitons

Update benchmark

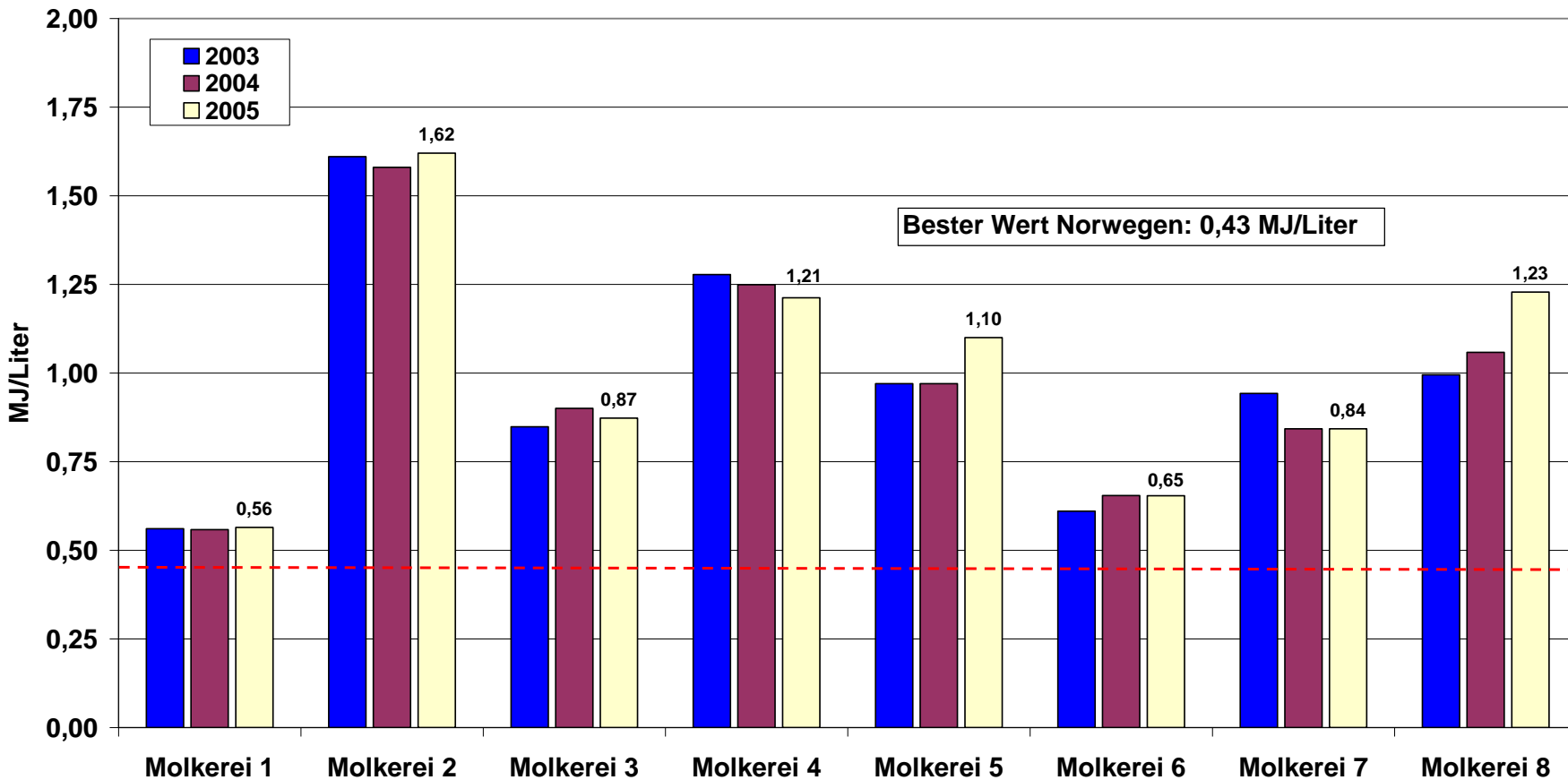
Output:
**quality of energy
 management
 result of the
 energy
 management
 checklist**

Overview key figures Austrian dairies

	Einheit	von	bis
Verarbeitete Rohmilch	[Mio. Liter / Jahr]	30	189
Gesamtenergieverbrauch	[GWh / Jahr]	37	132
Anteil Strom am Gesamtenergieverbrauch	[Prozent]	15	41
Spezifischer Energieverbrauch	[MJ / Liter Rohmilch]	0,56	1,62
Spezifischer Energieverbrauch - angepasst	[MJ / Milchäquivalent]	1,48	5,54
Energiekosten pro 1000 Liter Rohmilch	[Euro / 1000 Liter]	2,4	23
Energieverbrauch pro Umsatz	[kWh / Euro]	0,3	1,1
Energiekosten pro Umsatz	[Prozent]	0,9	3

Specific energy consumption without normalization factors

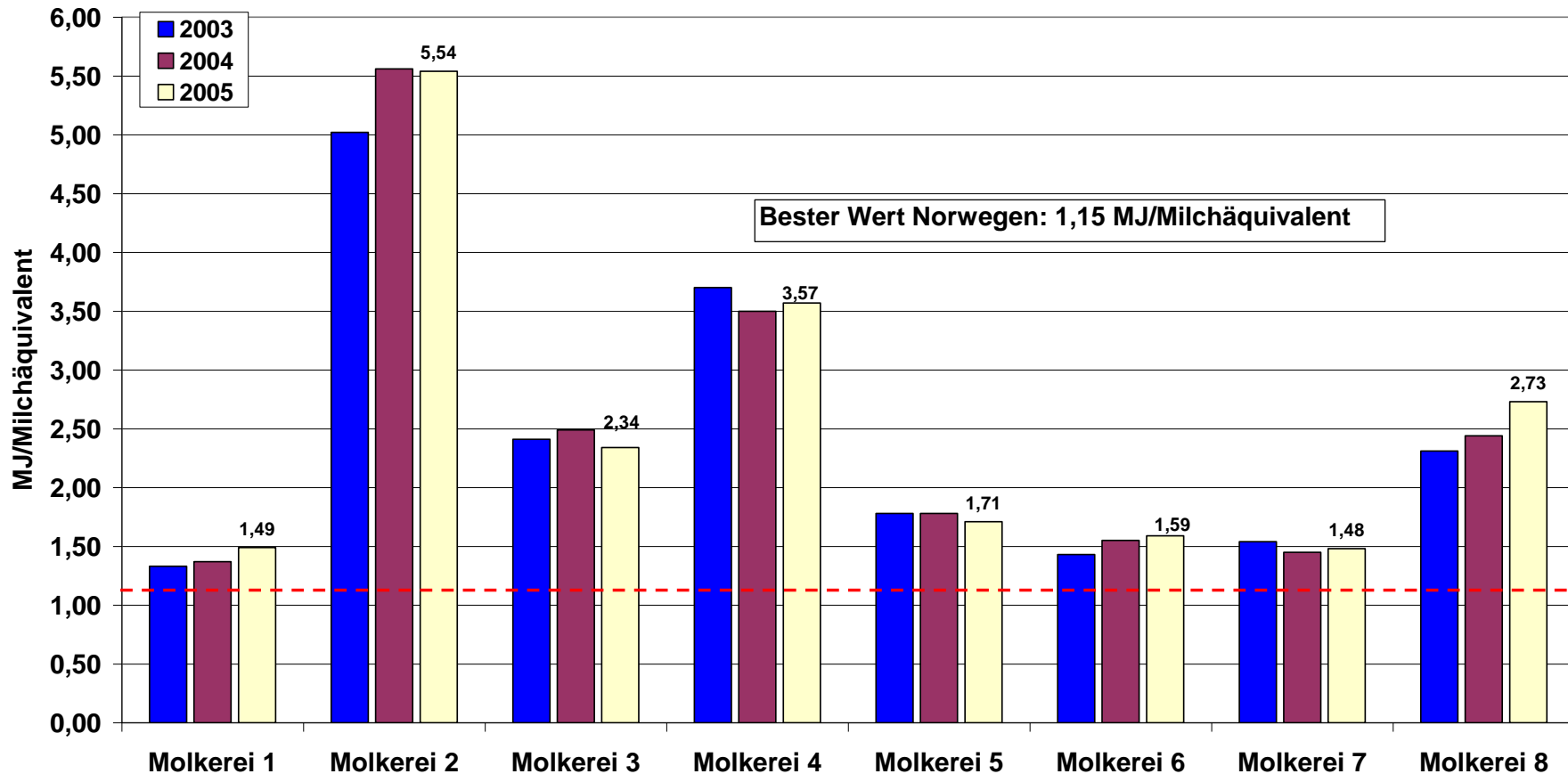
Spezifischer Gesamtenergieverbrauch, nicht angepasste Produktion
(Österreichische Molkereien)



Quelle: Österreichische Energieagentur

Specific energy consumption with normalization factors

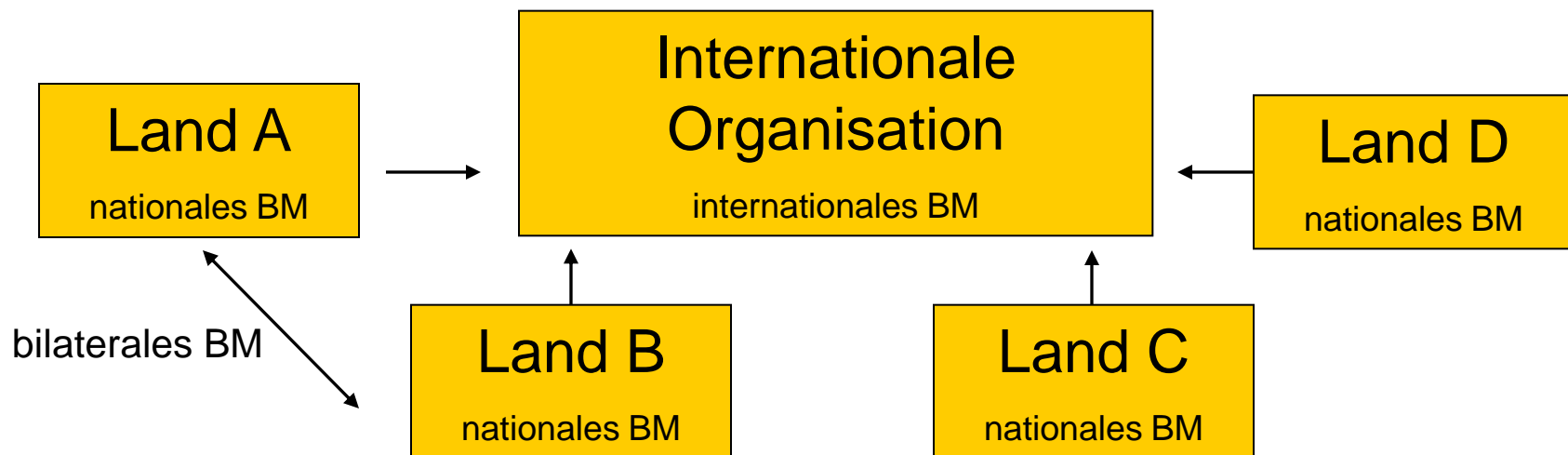
Spezifischer Gesamtenergieverbrauch, angepasste Produktion
(Österreichische Molkereien)

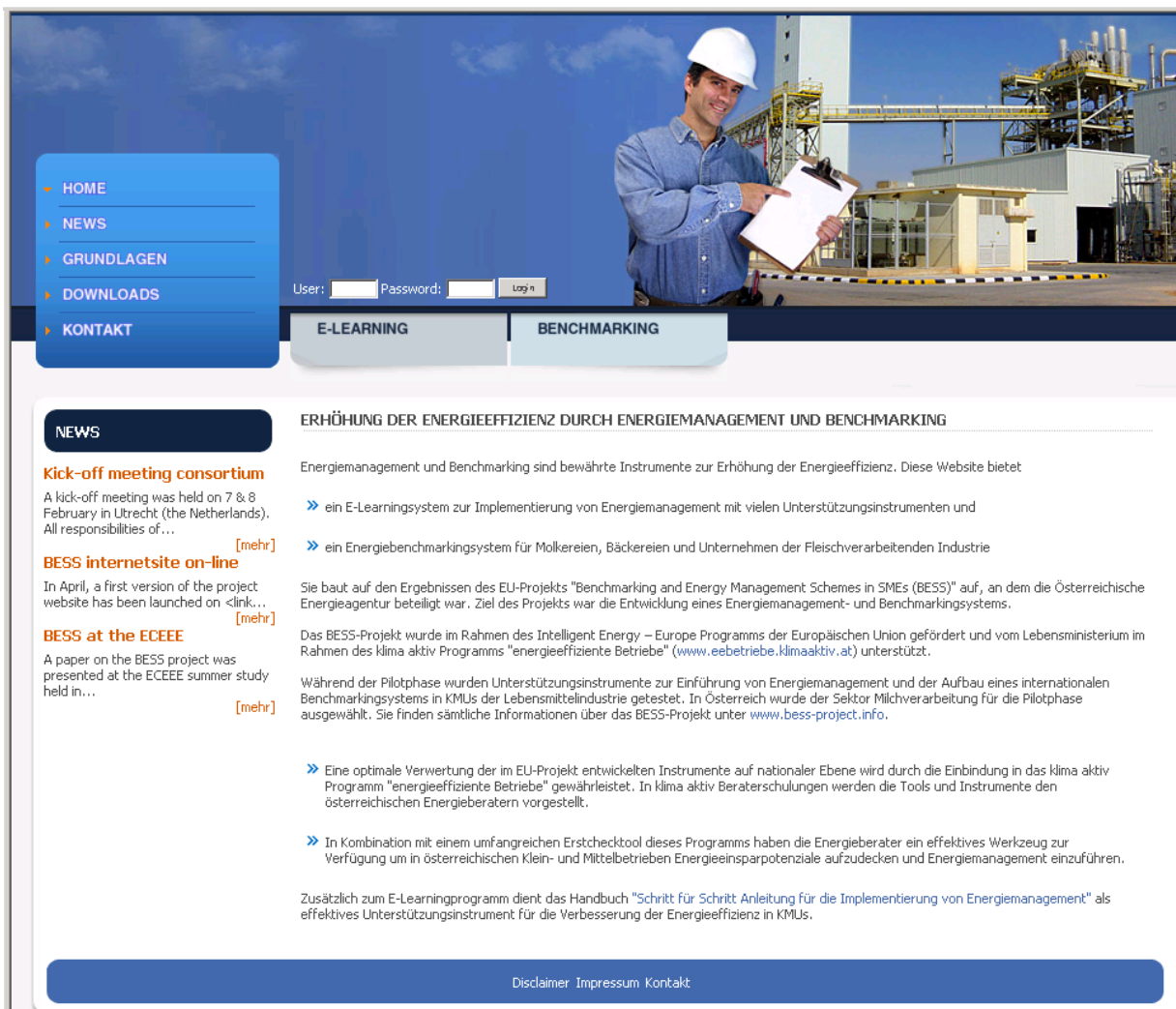


Quelle: Österreichische Energieagentur

Follow-up activities in Austria I

- set-up of national website with BESS E-Learning and national benchmarking system with possibility to connect it with international system again (import national data ...)





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User: Password:

E-LEARNING BENCHMARKING

NEWS

Kick-off meeting consortium
 A kick-off meeting was held on 7 & 8 February in Utrecht (the Netherlands). All responsibilities of ... [\[mehr\]](#)

BESS internetsite on-line
 In April, a first version of the project website has been launched on <link... [\[mehr\]](#)

BESS at the ECEEE
 A paper on the BESS project was presented at the ECEEE summer study held in... [\[mehr\]](#)

ERHÖHUNG DER ENERGIEEFFIZIENZ DURCH ENERGIEMANAGEMENT UND BENCHMARKING

Energiemanagement und Benchmarking sind bewährte Instrumente zur Erhöhung der Energieeffizienz. Diese Website bietet

- » ein E-Learningsystem zur Implementierung von Energiemanagement mit vielen Unterstützungsinstrumenten und
- » ein Energiebenchmarksystem für Molkereien, Bäckereien und Unternehmen der Fleischverarbeitenden Industrie

Sie baut auf den Ergebnissen des EU-Projekts "Benchmarking and Energy Management Schemes in SMEs (BESS)" auf, an dem die Österreichische Energieagentur beteiligt war. Ziel des Projekts war die Entwicklung eines Energiemanagement- und Benchmarksystems.

Das BESS-Projekt wurde im Rahmen des Intelligent Energy – Europe Programms der Europäischen Union gefördert und vom Lebensministerium im Rahmen des klima aktiv Programms "energieeffiziente Betriebe" (www.eebetriebe.klimaaktiv.at) unterstützt.

Während der Pilotphase wurden Unterstützungsinstrumente zur Einführung von Energiemanagement und der Aufbau eines internationalen Benchmarksystems in KMUs der Lebensmittelindustrie getestet. In Österreich wurde der Sektor Milchverarbeitung für die Pilotphase ausgewählt. Sie finden sämtliche Informationen über das BESS-Projekt unter www.bess-project.info.

- » Eine optimale Verwertung der im EU-Projekt entwickelten Instrumente auf nationaler Ebene wird durch die Einbindung in das klima aktiv Programm "energieeffiziente Betriebe" gewährleistet. In klima aktiv Beraterschulungen werden die Tools und Instrumente den österreichischen Energieberatern vorgestellt.
- » In Kombination mit einem umfangreichen Erstchecktool dieses Programms haben die Energieberater ein effektives Werkzeug zur Verfügung um in österreichischen Klein- und Mittelbetrieben Energieeinsparpotenziale aufzudecken und Energiemanagement einzuführen.

Zusätzlich zum E-Learningprogramm dient das Handbuch "Schritt für Schritt Anleitung für die Implementierung von Energiemanagement" als effektives Unterstützungsinstrument für die Verbesserung der Energieeffizienz in KMUs.

Disclaimer Impressum Kontakt

online in
January 2008

Follow-up activities in Austria II

- implementation of BESS tools and benchmarking in national climate programme „klima:aktiv – energy efficient enterprises“ (www.eebetriebe.klimaaktiv.at)
- Training of energy consultants with BESS tools
- Expanding benchmarking system: dairies, meat production and bakeries, and sawmills
- new IEE-Project ENGINE will use BESS tools – also in training courses

Conclusions

- **With BESS tools and instruments energy efficiency of industrial SMEs can be improved!**
- **Offer the whole package in small pieces!**
- **The pilots have to know from the beginning on what they will get out of the project AND that it makes sense to continue after the pilot phase! (that also means, they do not have to make everything in one year!! – don't scare them)**
- **Involve national players like chamber of commerce, consultants and training institutions (also schools !) from the very beginning!**
- **YOU lead the process and YOU have in mind where the pilots should go ... BUT you do not need to make it on your own!**