

Energy awareness services for households - European good practice

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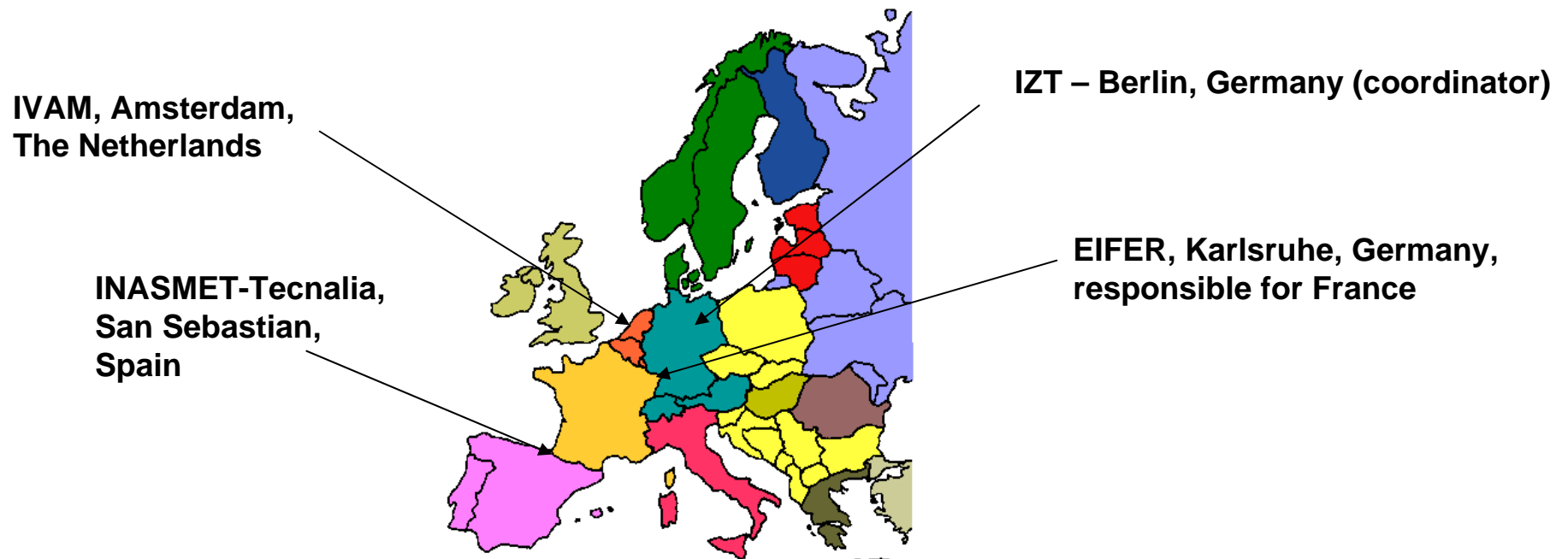
Agenda



- 1. Overview**
- 2. Context et objectives**
- 3. Methodology**
- 4. A selection of good practice**
- 5. Conclusions**

(1) Overview

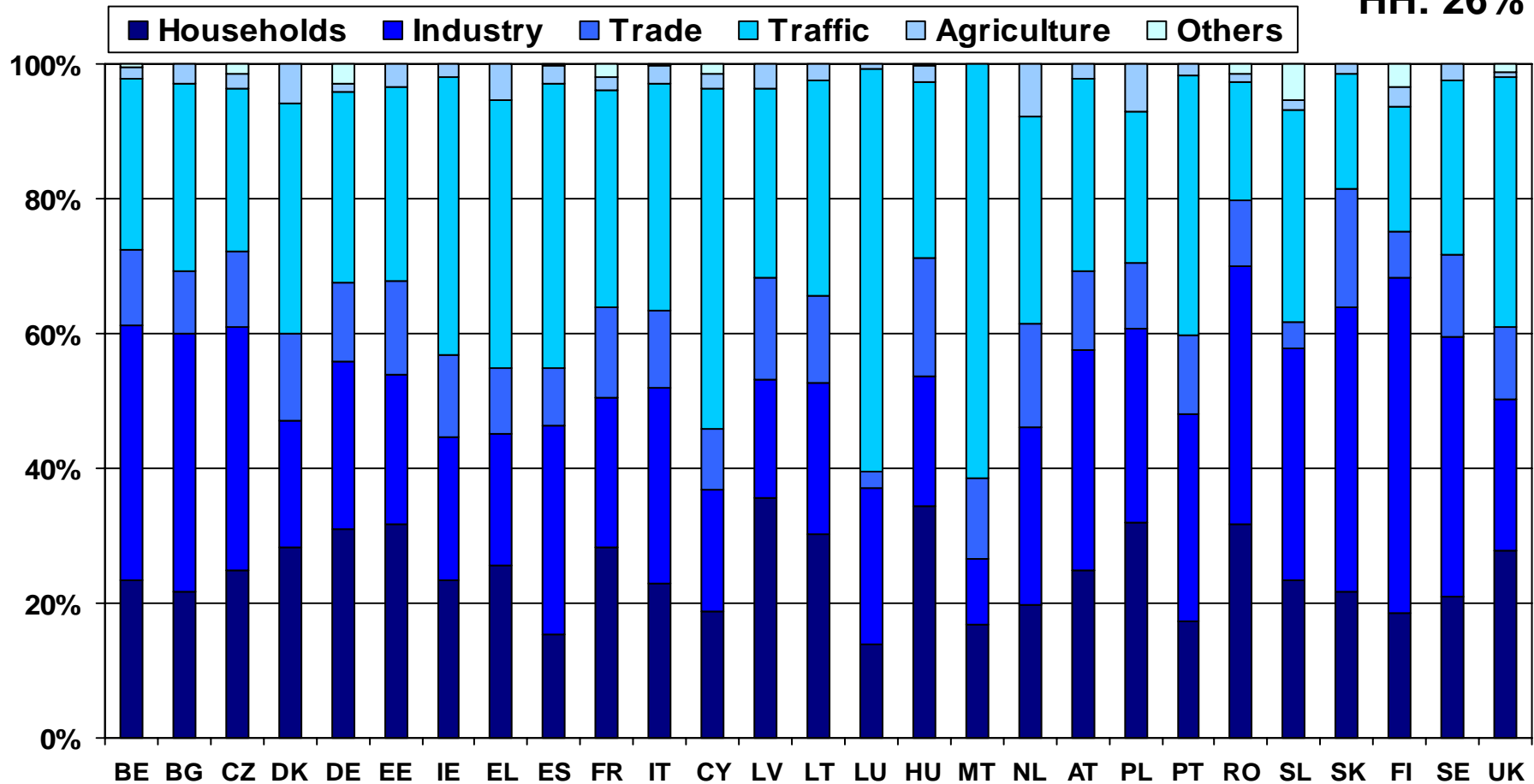
- ▶ Run time: 30 months: December 2007- May 2010
- ▶ European project co-funded by the IEE-programme
- ▶ Four partners and four target countries



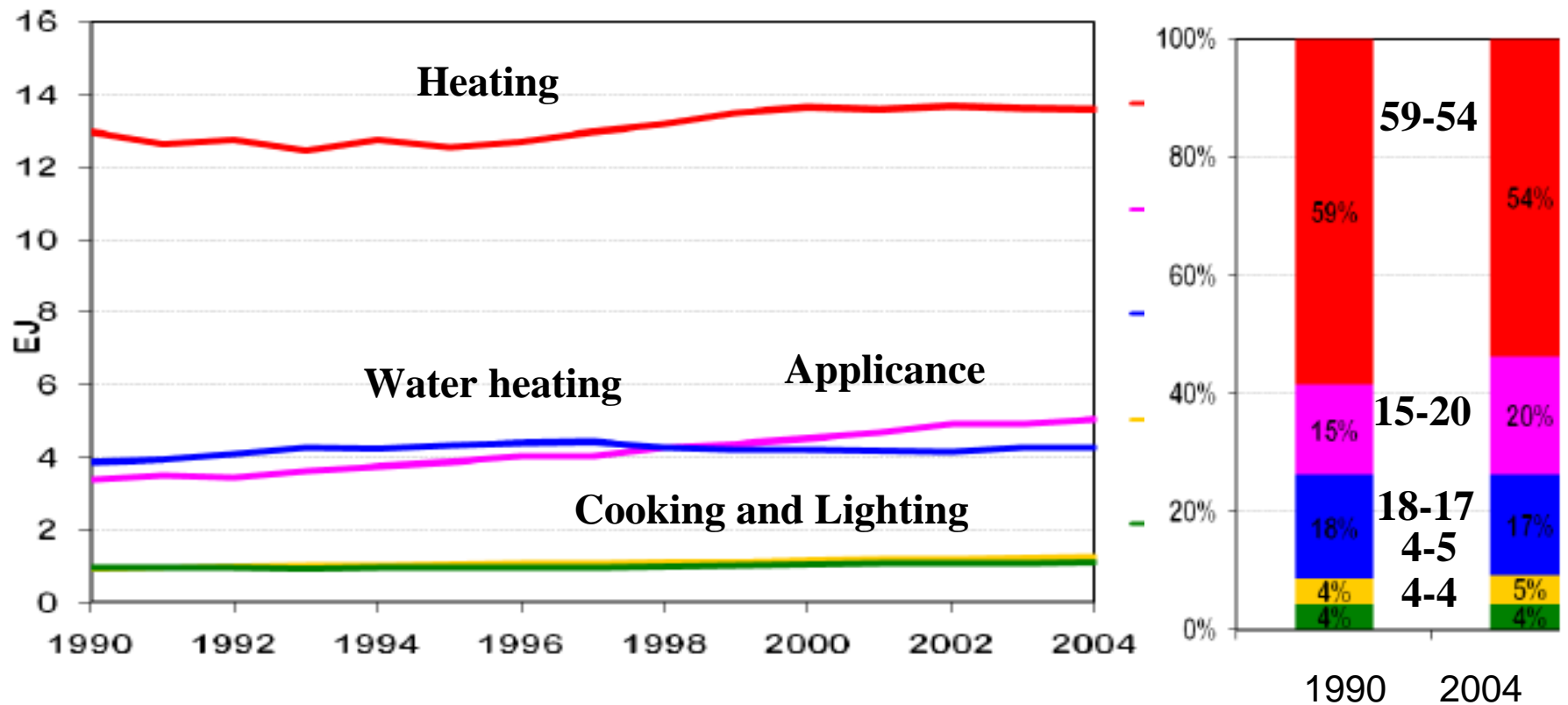
(2) Context and objectives: Energy consumption by sectors (2006)

Source: Eurostat (n.d.): Environment and Energy. Online: energy – energy statistics

HH: 26%



(2) Context and objectives: Developments in subdivision of energy consumption



----- Heating
 ----- Appliances
 ----- Water heating
 ----- Lighting
 ----- Cooking

Quelle: IEA 2008

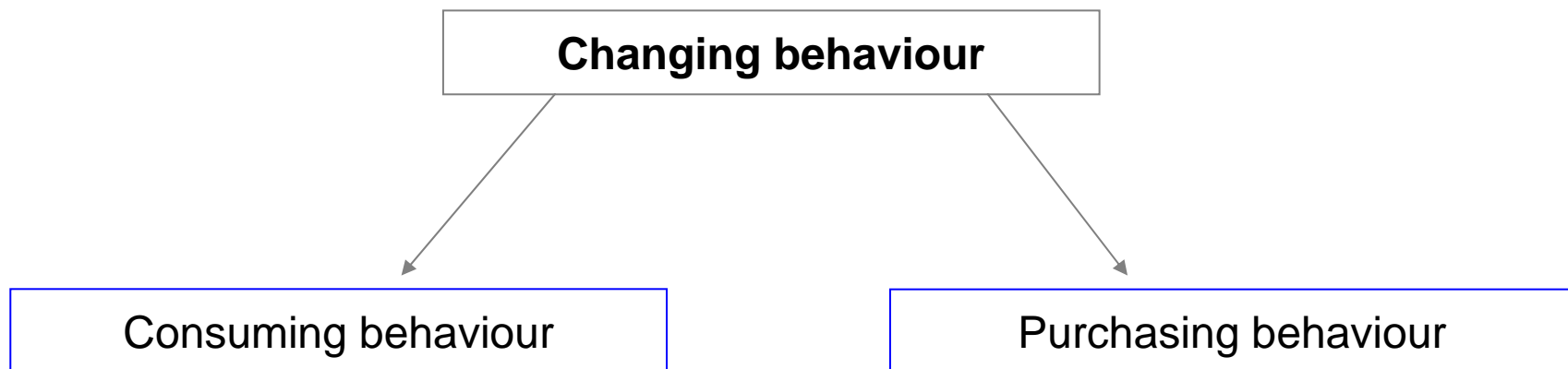
(2) Context et objectives



- ▶ Households account for around 26% of total energy consumption in Europe (not counting mobility)
 - ✓ A huge energy saving potential;
 - ✓ a considerable part of the energy might be saved merely by changing habits – without losing comfort!

(2) Context et objectives

- ▶ BewareE is about compiling, evaluating, disseminating and implementing **energy awareness services** in the residential sector
- ▶ **Definition:** *“A household energy awareness service is any type of action or tool targeted to residents which emphasises the user role in terms of energy savings, and supports residents in adopting more sustainable behaviours. These behavioural changes include both purchasing behaviour and the use of all existing domestic devices in the household.”*



(3) Methodology



Phase 1: Selection of good practices

- **Compiling 136 energy awareness services** coming from almost all EU countries (by phone and internet)
- **Quantitative selection** of good practice examples according to
 - energy saving potential [0-1; 1-10; >10%]
 - Initial costs per household [>1000; 100 -1000; < 100€]
 - Target group acceptance [low; medium; high]
 - Potential market size [<10; 10-50; >50%]
 - Degree of development [idea; pilot; mature]
- **Qualitative selection** according to
 - Degree of innovativeness
 - Interest for certain regions in Europe

Selection tool

D14c (2) Notice- Selection TOOL.xls

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	Criteria for Good Practise						Criteria for Best Practise						
	households/housing companies	behavioural changes	in and around the house	mainly service and less products	Include into List of 100 E-Service Yes or no? (threshold 3 out of 4 yes)		Residents acceptance	Potential market size [%]	Energy reduction potential [%] (Max. 50% presumed)	Initial costs [€ per household/year] (max 10.000 euro presumed)	Development stage		
2													
3	[y/n]	[y/n]	[y/n]	[y/n]			[1/2/3]	[1/2/3]	[1/2/3]	[1/2/3]	[1/2/3]		
4	y	y	y	n	Yes		1	2	3	1	1		
5	If yes, make short description												
14	= Input field												
15	= Result						average pers	E-services pro	EU policy pers	E-service prov	households and housing organis		
							all equal	Market potential = A*B	Energy saving potential in market = A*B*C	cost per % E-saving in market = D/(100*A*B*C)	cost per % ERP = D/(100*C)	Possible Best Practice Yes or No? (threshold: 1 out of 5)	
16													
17							Threshold	8,7	21%	9%	€ 42,00	€ 9,00	
18							RESULT	8,0	2%	0,5%	€ 111	€ 1,7	yes
19							Over threshold?	No	No	No	No	Yes	
20													
21													

Sheet1 Sheet2 Sheet3

Ready Sum=0 SCRL CAPS NUM



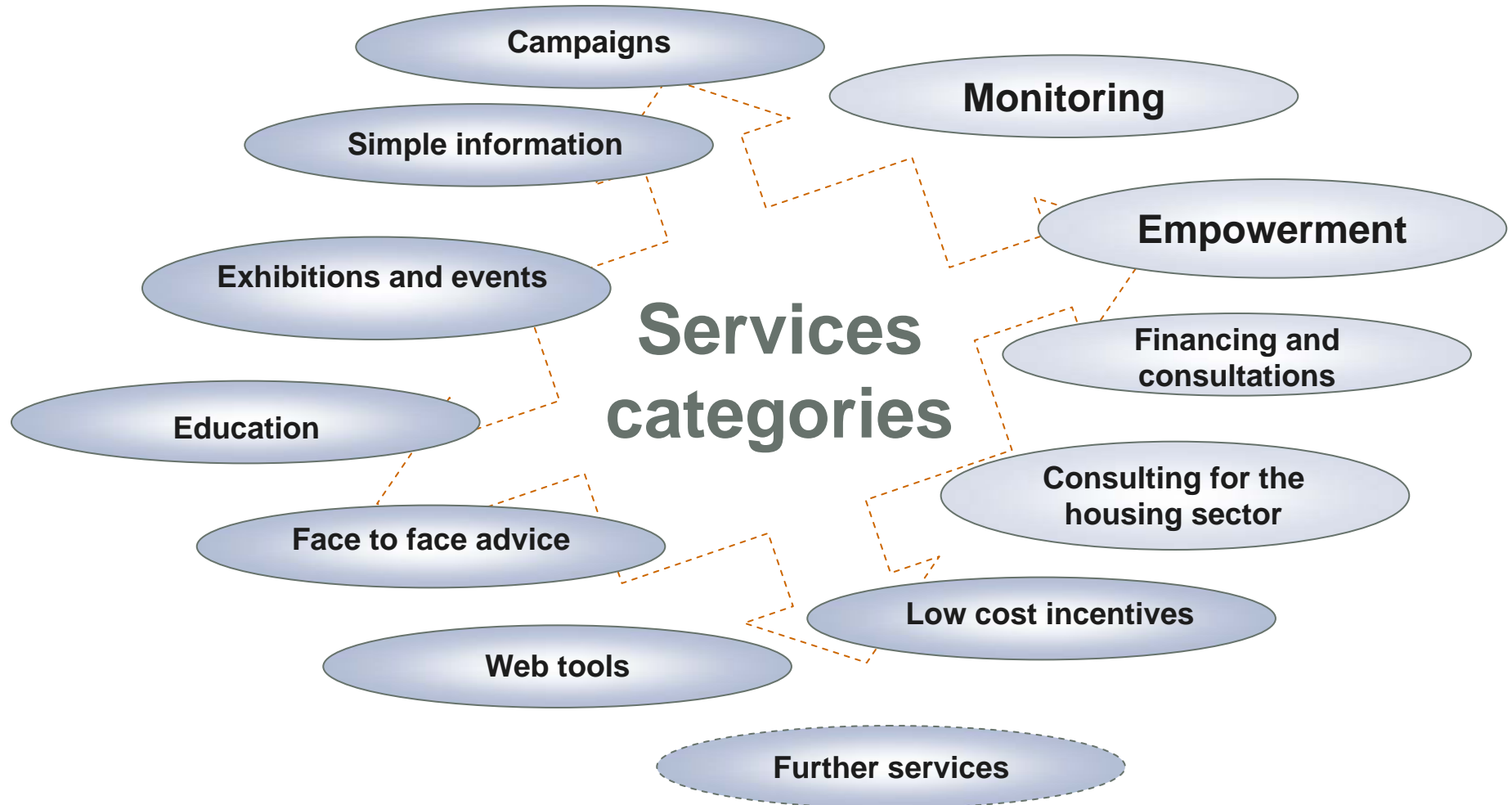
Phase 2: Implementation and dissemination

- ➔ Discussing the **transfer and implementation** of selected services with national housing associations and companies as well as other relevant actors
- ➔ Conceiving a **manual**
- ➔ **Communication task:** newsletters, articles, presentations



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(4) A selection of good practice



Energy monitoring service Feed-Back / Displays



- ▶ **Energy monitoring:** help households to get an idea of their energy consumption and related costs. i.e.: Direct feedback in real time about energy consumption.
- ▶ These services imply in most cases the use of **smart metering** which allows good visualization of energy consumption and feedback about energy saving options.
- ▶ **Collaboration** between **service suppliers:** energy companies, energy or environmental agencies, housing companies, Administration, NGOs, technology companies, etc.
- ▶ Studies show **savings from 4 to 12%** (electricity).
- ▶ **Important drivers:** transparency / training of residents, technology. Most of them need Internet.
- ▶ **Other complementary services:** consumption comparison, individual advise (letters, internet, face to face), low cost incentives (low energy bulbs), information campaigns, events, etc.

Energy monitoring service Displaying Energy consumption (D)



- ▶ Social housing company „**Volkswohnung GmbH – Karlsruhe**“; project save@workforhomes
- ▶ Refurbishment of buildings, making them fulfil low-energy standards.
- ▶ Equipping buildings with electronically thermostats, sensors, and consume indicators (displays).
- ▶ Displaying of daily energy consumption using smileys (depending on comparison with other apartments).
- ▶ Users with displays used 7% less energy than users without displays.



Energy monitoring service Internet Platform for Controlling Consumption (F)

- ▶ **Internet platform for controlling energy consumption** (social housing company Moulins Habitat, software company Vizelia and EDF)
- ▶ In the framework of EU project **Save@workforhomes**.
- ▶ Apartments were equipped with sensors to transmit consumption data to Moulins Habitat
 - **Moulins Habitat** assesses the performance of its buildings, effects of rehabilitation works and detect possible leaks.
 - **Tenants** have access to their consumption data in real time. This display indicates if consumption is excessive. It is possible to compare it with former consumption to check behavioural changes and control the energy budget.

<http://tf1.lci.fr/infos/jt/0,,4089637,00-comment-se-chauffer-plus-intelligemment-.html>



Empowerment Services



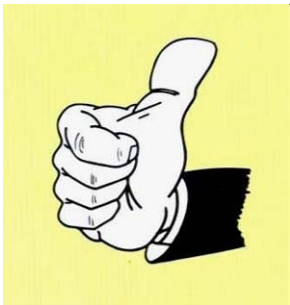
- ▶ **Objective: Making residents skilled actors** in the detection of energy wasting, in the conception and in the implementation of energy saving measures
- ▶ **Idea:** Giving people a feeling of agency is likely to lead to “discursive consciousness”, creating a sustainable impact on behaviors
- ▶ **Hard to get reliable data that can be generalised**, but very successful examples (5-10% savings)
- ▶ **Examples**
 - ... involving residents in monitoring and decision making,
 - ... training them to help themselves or their neighbours

Empowerment: Residents' advisory board (D)



The social housing company **WGB Marzahn** established a residents' advisory board that:

- ▶ checks the evolution of costs and energy consumption
- ▶ suggests and co-decides measures for further energy saving measures
- ▶ shares its findings with other tenants.



Very low cost but positive effects on the company's corporate image.

Closer relation between company and residents

Residents are actors instead of just receiving information.

Risk:

Protection of data privacy

Empowerment: Local Tenants energy network (UK)



Stroud District Council
Severn Wye Energy Agency
Powergen, fuel supplier



- **What:** creation of a local tenant energy network; training of “energy champions” to give advise to neighbours;
- “kick off”: distribution of 35000 energy saving light bulbs (funded by Powergen) and other goodies (advice sheets...) at drop in points
- **Idea:** information coming from the housing provider may not be trusted as much as from someone residents know.
- **Pros:** low cost, high acceptance; resident involvement

Low cost incentives: Energy box (NL)



Housing company Woonplaats



An Energy Box with **low cost products** such as energy saving bulbs, stand-by killers, draught strips is offered to households



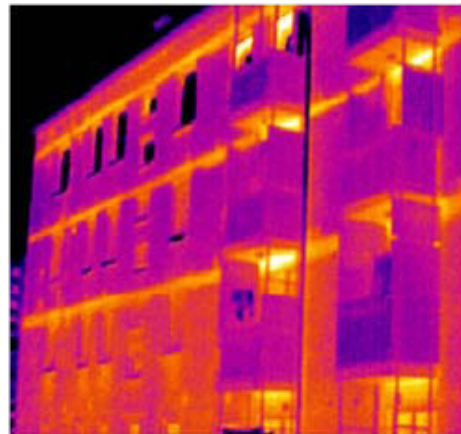
At the moment of refurbishment measures residents are expected to be more open to changes. Thus the energy box addresses peoples' minds **to complement** the ongoing technical works



Energy reduction rather low, but nice low cost tool to direct peoples' attention to energy efficiency



Consulting for the housing sector: JEKO-In company's online benchmarking (SL)



Measured energy consumption

season 98/99:	230 kWh/m ²
year 2005:	150 kWh/m ²
year 2006:	139 kWh/m ²

Normalized energy consumption (reference DD 20/12 KO Jesenice)

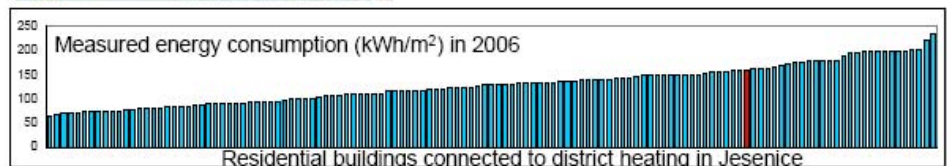
season 98/99:	250 kWh/m ²
year 2005:	163 kWh/m ²
year 2006:	159 kWh/m ²

Calculated energy demand for heating

214 kWh/m²

Jeko In – a public district heating company

- **Objective:** push building owners and managers to carry out energy efficiency renovation projects
- Information on the energy consumption status, recommended measures and estimation of investment for 40 high consuming buildings. Annual evolution and energy performance certificates
- Graphically presented using Google map tool
- + transparency;
- - pay back time (up to 3 years)



Face to face advice: chimney sweepers as energy ambassadors (A)

Who

- ▶ Ministry for Agriculture and Environment
- ▶ National Austrian Energy Agency
- ▶ Industrial partners



Measures

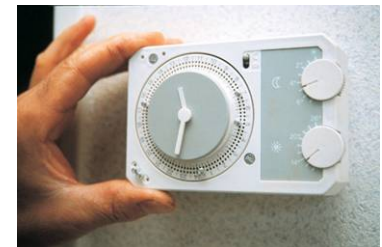
- ▶ Chimney sweepers advice residents on
 - ✓ heating systems and efficient use
 - ✓ replacing old heating installations by efficient ones;
 - ✓ thermal insulation and replacement of windows
- ▶ Other similar examples: boiler inspectors in Italy,

Findings

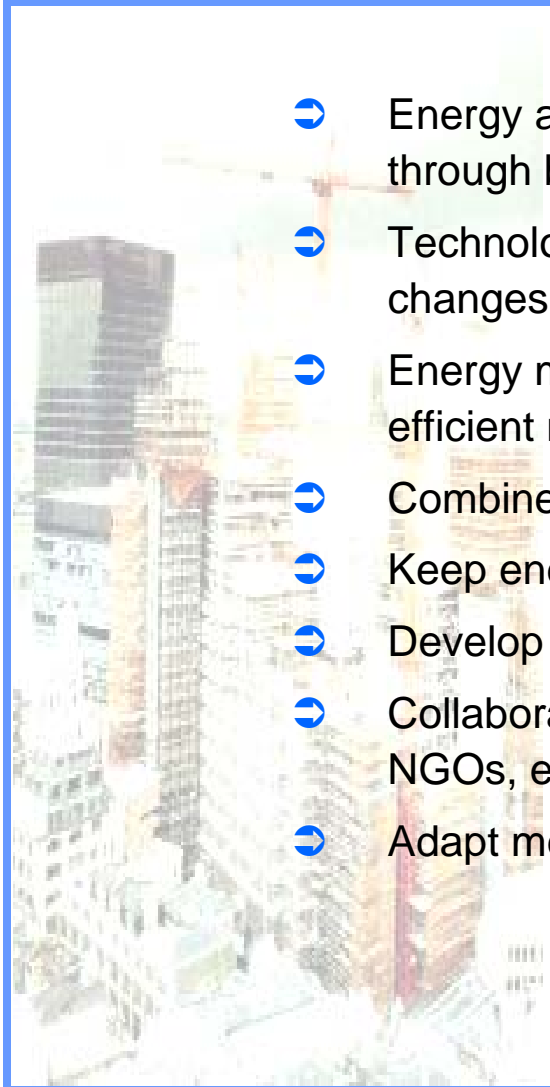
- ++ Chimney sweepers appear neutral without commercial interest
- ++ Chimney sweepers visit most of the homes

Face to face advice: Energy ambassadors for low income households (F)

- ▶ NGO Prioriterre-Conseil Général de Haute-Savoie
- ▶ In the context of growing “**fuel poverty**”, NGO Prioriterre proposed its Energy Ambassadors service to the district authority “Conseil Général de Haute-Savoie”.
- ▶ **Energy ambassadors** help low income families to save money and energy by the following actions:
 - ✓ Training on energy and housing is offered to social workers.
 - ✓ Telephone service for social workers and volunteers, who are in contact with people at risk of poverty rate.
 - ✓ A written manual (the “ant guide”) was developed and distributed among targeting social workers and volunteers.
 - ✓ Home visits are offered to families.



Conclusions

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- ➔ Energy awareness services help to reduce energy consumption in buildings through behavioural changes (up to 10%)
 - ➔ Technology is needed in some cases to reduce energy consumption but changes of human behaviours are essential.
 - ➔ Energy monitoring and empowerment of residents seem to be the most efficient measures
 - ➔ Combine different measures
 - ➔ Keep energy efficiency on the agenda, not only punctual measures
 - ➔ Develop creative measures that make energy efficiency attractive
 - ➔ Collaboration between organizations: housing companies, Administration, NGOs, energy companies, energy and environmental agencies, etc.
 - ➔ Adapt measures to target groups

Thanks for your attention!



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→ More information:
www.izt.de/bewaree