Monitoring of Energy Demand Trends and Energy Efficiency in the EU
Kick-off Meeting
Cork, October 11-12 2007

Updating and expansion of indicators (WP2)

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Updating and expansion of indicators (ODYSSEE)

- Objective of this work package is to provide a set of energy efficiency/ CO2 indicators
- Organisation of activities in 4 tasks:
  - ✓ Task 2.1: Updating of the indicator database
  - ✓ Task 2.2: Development of new indicators
  - ✓ Task 2.3: Expansion of national indicators and data
  - ✓ Task 2.4: Indicators for the EU as a whole

Updating of the indicator database (Task 2.1)

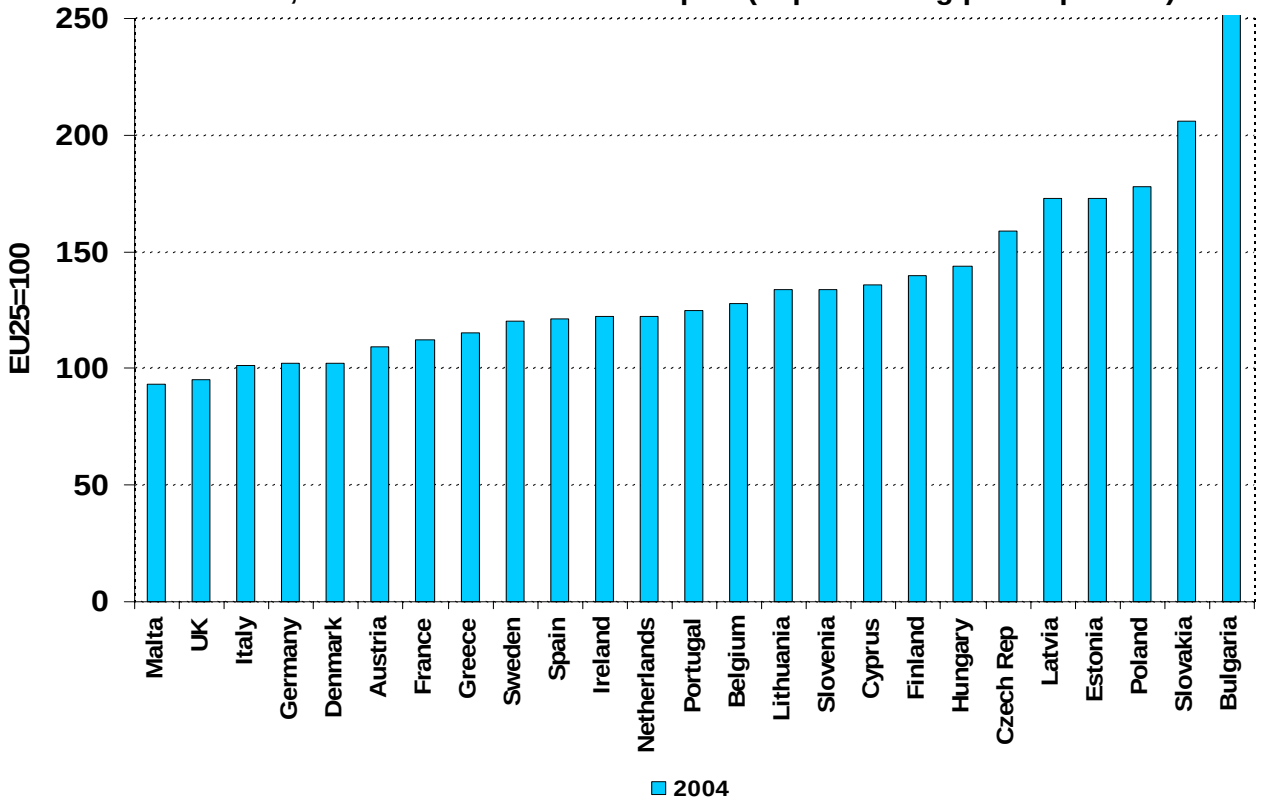
- Two main **updating**:
  - ✓ First updating by end of 2007 to have all data up to 2005 and aggregate data up to 2006 (present updating 2004)
  - ✓ Second updating at the end of 2008 (indicators up to year 2006/2007).
- **Consistency and quality** of data and indicators
  - ✓ Preparation of formal reports of "data comments" to the teams to point out:
    - Data problems
    - Reasons why some indicators are missing
    - Insufficient updating to recent years
- ✓ Data for non European OECD countries (Canada, USA, Japan, Australia, New Zealand)
  - ✓ Processed and integrated in an harmonised way in ODYSSEE database
  - ✓ Data provided by IEA, in exchange of a supply to IEA of data for EU countries

Odyssee indicators (Task 2.1)

- Energy/ CO_2 intensities, that relate the energy used in the economy or a sector to macro-economic variables (GDP, value added, …)
- Unit consumption and emission, that relate the energy consumption to physical indicators (unit consumption per ton of steel, per car,or per dwelling)
- Specific consumption of vehicles, of refrigerators, …;
- Adjusted intensities to allow the comparison of indicators (adjustments for differences in climate, general price level with power purchasing parities, fuel mix, industry and economic structure…);

Adjusted final energy intensities

Final energy intensities adjusted to EU average climate, economic/ industry structures, and international air transport (at purchasing power parities)

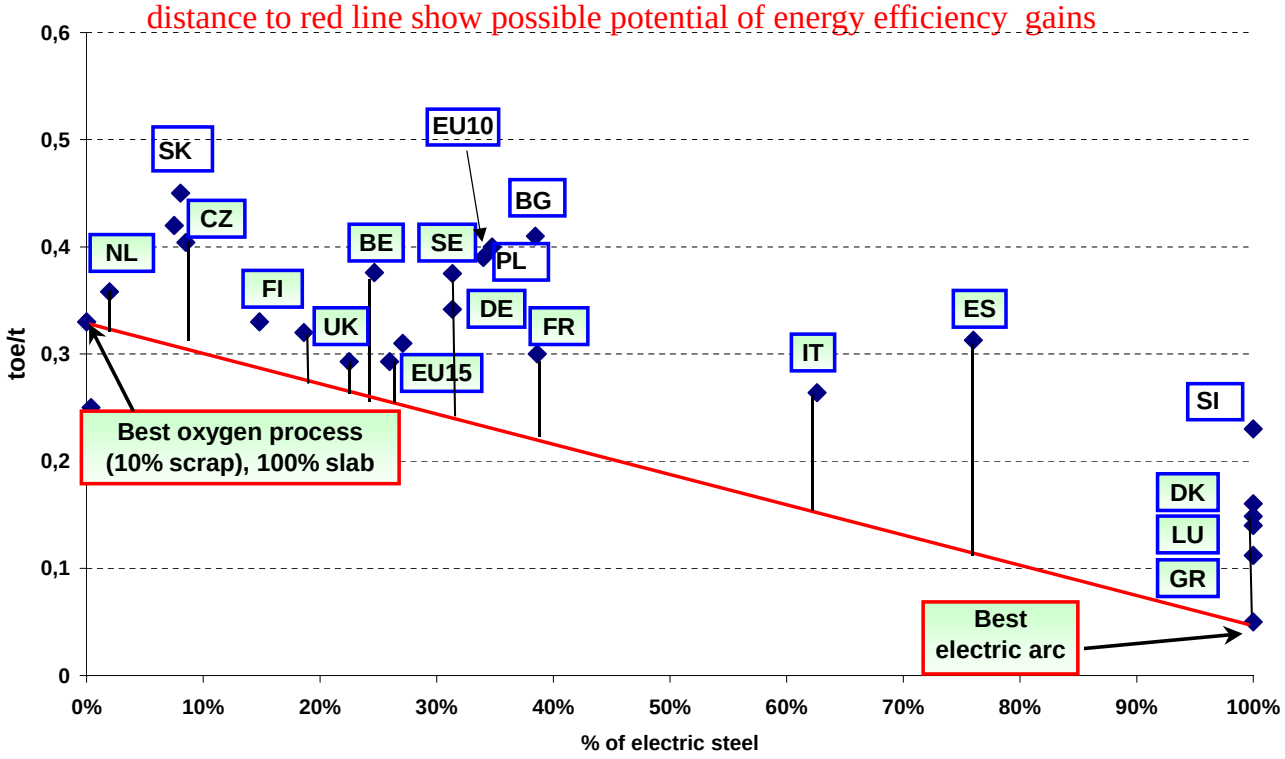


Odyssee indicators (cont'd)

- Benchmark unit consumption to compare each country with reference values (best country values within the EU, best 3 values, best plant, most efficient buildings)
- Energy efficiency indices (ODEX indicators) /energy savings by sector and for the whole economy
- Indicators of diffusion : market penetration of energy efficient technologies (e.g. number of efficient lamps sold, % of label A or A++ in new sales of electrical appliance), of energy efficient practices (eg % of passenger transport by public modes; % of transport of goods by rail), or of end-use renewables (eg solar water heaters,% of biofuels)

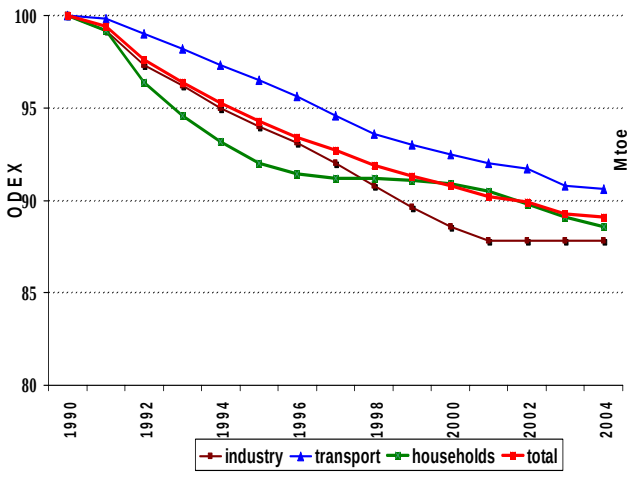
Benchmark of unit consumption for steel

Difference in specific consumption partly explained by differences in process mix; distance to red line show possible potential of energy efficiency gains

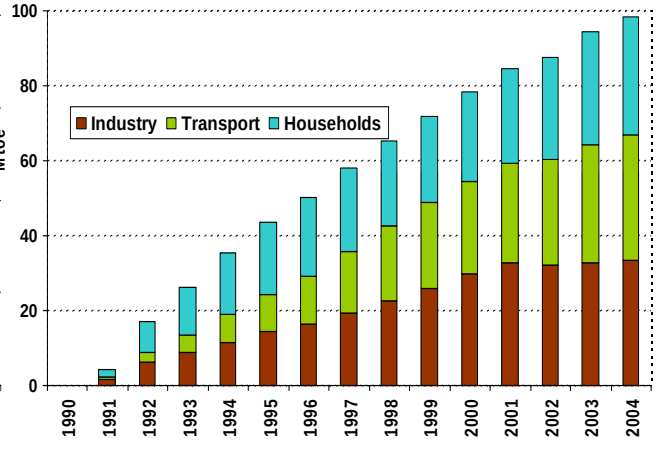


Energy efficiency index and energy savings (ODEX)

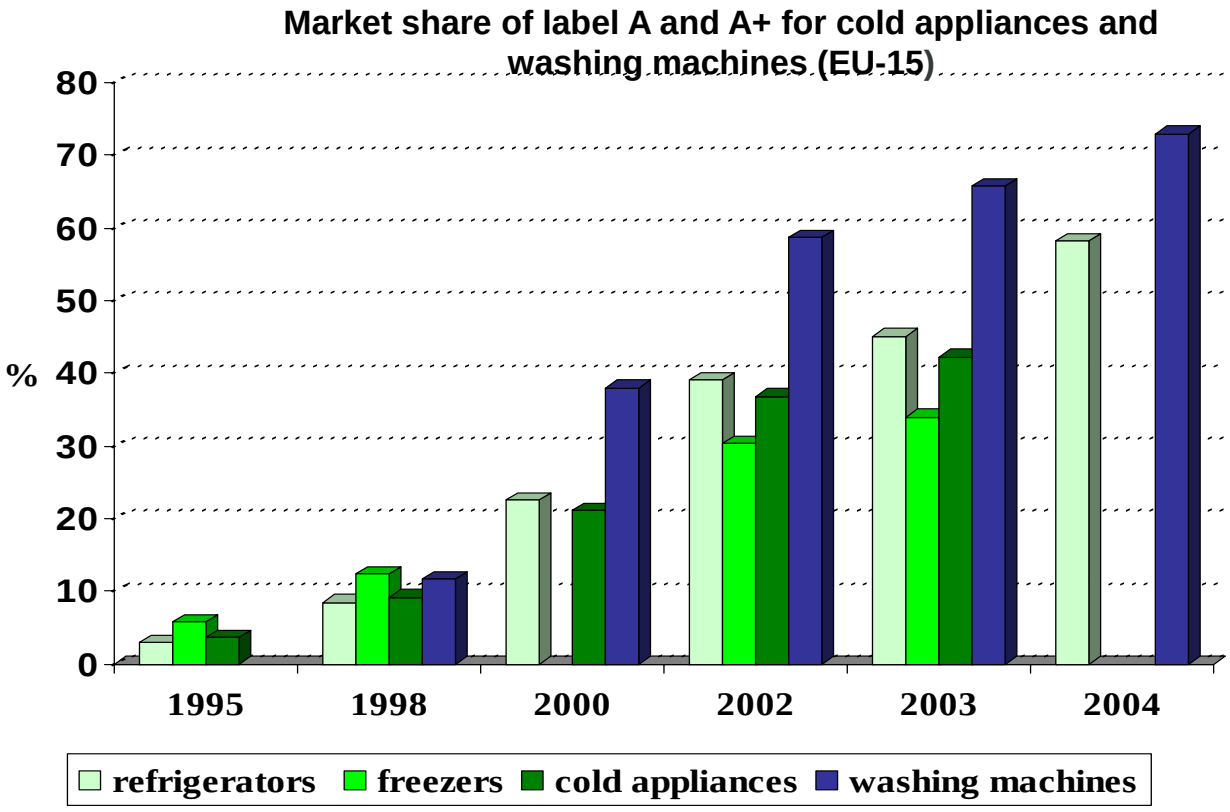
Energy efficiency index (ODEX) for final consumers (EU-15)



Energy savings (EU-15)



Indicators of diffusion



Development of new indicators and improvement of existing indicators (Task 2.2)

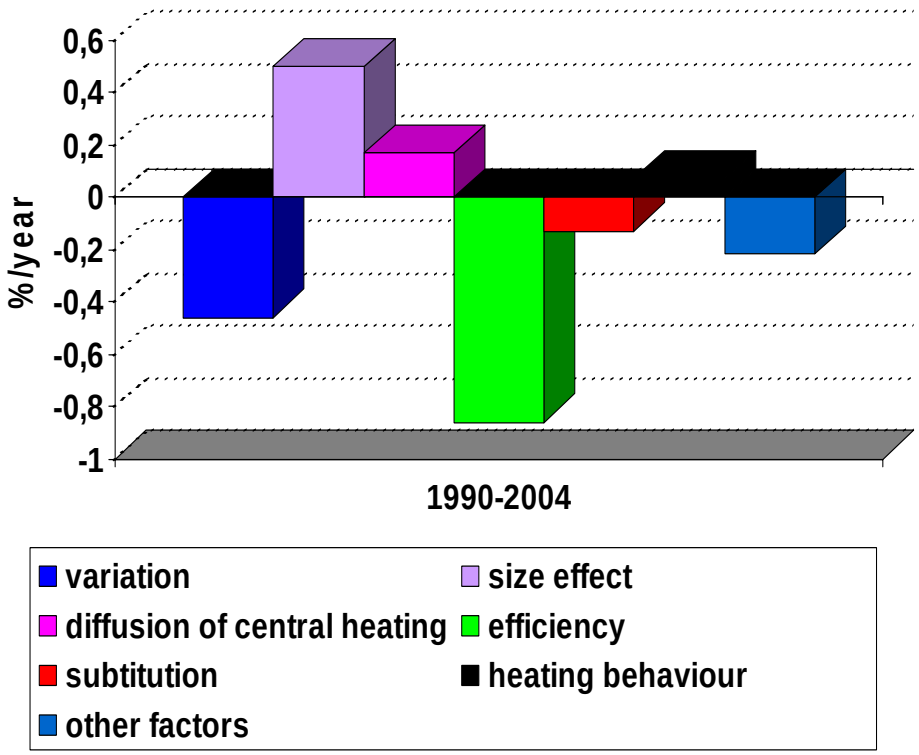
- Improvement of the Odyssee indicators
- Introduction of "decomposition" of unit consumption and energy consumption by sector and end-use
- Indicators to measure the contribution of RUE/REN to the Lisbon targets
- Indicators on IT appliances)

Development of new indicators and improvement of existing indicators (Task 2.2) (cont'd)

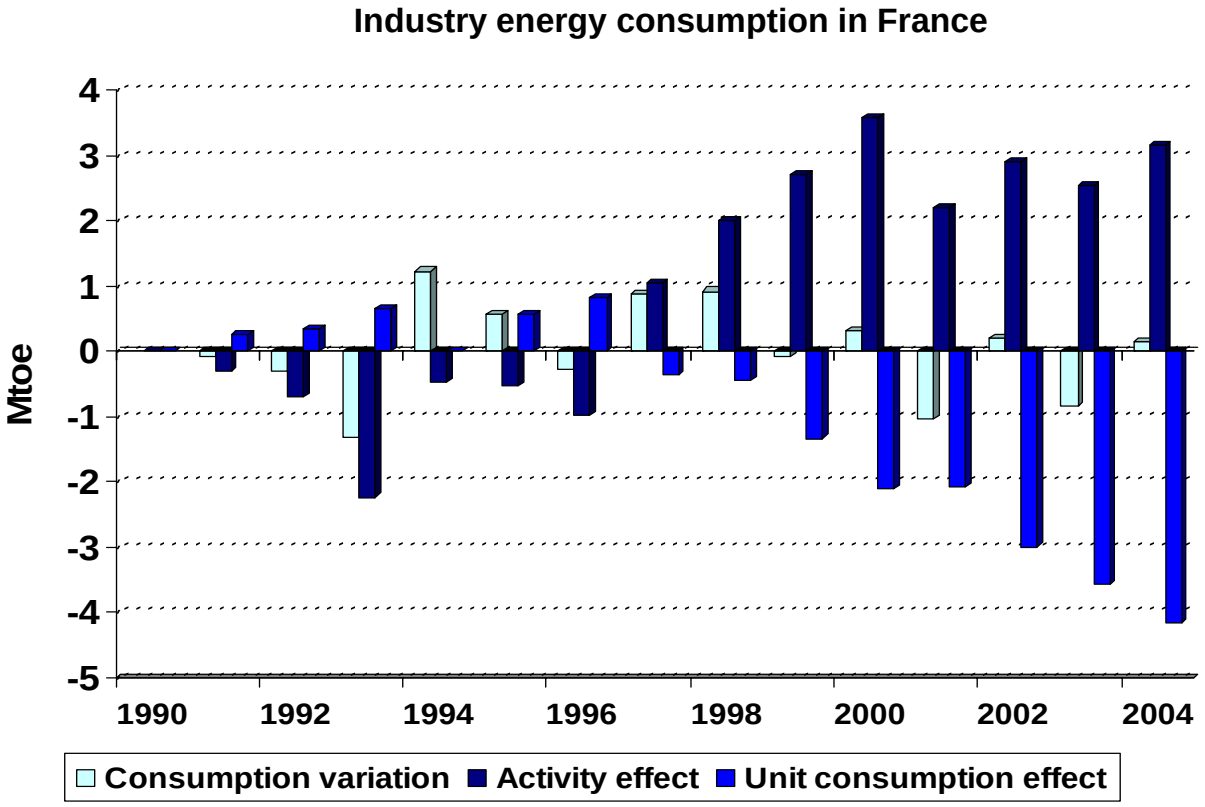
- Improvement of the Odyssee indicators
  - ✓ Expansion of ODEX to electrical appliances in household and services
  - ✓ Calculation of ESD-ODEX and energy savings for the sectors covered by the ESD, i.e. excluding energy intensive industries covered by the ETS➔ data problem.
- Introduction of a systematic "decomposition" of unit consumption for all sectors, between:
  - ✓ Indicators of energy efficiency gains (ODEX) and
  - ✓ "other factors" not linked to energy efficiency (e.g. lifestyles, behaviors , structural changes, modal shift)
- Introduction of a decomposition" of the energy consumption by sector and end-use, between:
  - ✓ what is due to change in unit consumption and
  - ✓ what is due to changes in levels of activity (more cars, more dwellings, or higher economic activity

Example of decomposition of unit consumption

Drivers of the variation in heating consumption per dwelling in the EU-15



Example of decomposition of energy consumption variation



Expansion of national indicators and data (Task 2.3)

- Objective: improvement of the data availability for countries with limited data with a specific focus on the breakdown of the households energy consumption by end-use and road transport consumption by vehicle ➔ Ireland the example to follow
- Important issue as this hinders a good assessment of energy efficiency/savings an the use of harmonised method among countries
- 9 countries have allocated in their work programme some time to carry out these tasks(Cyprus, Belgium, Estonia, Hungary, Italy, Malta, Poland, Romania and Sweden). They may develop their own method or benefit from assistance from Enerdata
- First activity will be on household sector with results to be presented at the next meeting devoted on buildings.

Expansion of national indicators and data (Task 2.3)

- Many countries still with important data dap

	AT	BE	CY	CZ	DE	DK	EE	EL	ES	FI	FR	HU	IE	IT	LT	LU	LV	MT	NL	PL	PT	SE	SI	SK	UK
Households																									
Space heating, water heating, cooking																									
Electrical appliances and lighting																									
Electricity cons. by electrical appliance																									
Lighting																									

Transport	AT	BE	CY	CZ	DE	DK	EE	EL	ES	FI	FR	HU	IE	IT	LT	LU	LV	MT	NL	PL	PT	SE	SI	SK	UK
Cars																									
Motorcycles																									
Trucks																									
Buses																									
Rail																									
Boats, inland																									

Services	AT	BE	CY	CZ	DE	DK	EE	EL	ES	FI	FR	HU	IE	IT	LT	LU	LV	MT	NL	PL	PT	SE	SI	SK	UK
Space Heating																									
Cooling																									
Ventilation																									
Water heating																									
Office equipment																									
Lighting																									

Improvement of the data availability for countries with limited data: case of households

- For countries who want to develop their own methodologies Enerdata will compile information from countries having such data on the methodologies used in a document to be circulated and included on the web site (some of it already presented in earlier workshops)

- For countries who need assistance Enerdata will propose an allocation method (split by end-use) and help each country to implement it

- Additional sheets will be introduced in the data sheet to carry out these estimates in a transparent way, with linkage to the main data sheet

Improvement of the data availability for countries with limited data : case of households

- Estimate of breakdown by main end-use : heating, cooking, hot water and others using fuel allocation method as it is simple and not costly
  - ✓ Allocation shares for each fuel can be based on existing survey ,even quite old (e.g Eurostat survey), from allocation provided to Eurostat for climatic corrections and from allocation for similar countries
  - ✓ Allocation shares to be defined for each fuel at normal climate
  - ✓ Allocation of consumption to be calculated for each fuel, first at normal climate, then at real climate of the year

- Estimate of electricity breakdown by appliance type on the basis of appliance stock, unit consumption, annual sales, market share of labels A, B…(use of results of Remodece project)

Calculation of indicators for the EU-27 (Task 2.4)

- ENERDATA will also process and integrate into the database the data available at EUROSTAT (energy consumption by sector and aggregate macro-economic data, mainly) to cover the EU-27.

- ENERDATA will provide additional more detailed indicators for the EU as a whole, that are calculated as a weighted average of indicators on the sample of countries for which they exist (e.g. specific consumption of cars, energy use per m^2, specific consumption per ton of cement).