Energy Efficiency Indicators

Feedbacks from Odyssee and MURE

Outline

1. Why energy efficiency indicators?
2. Introduction to ODYSSEE indicators in Europe
3. How ODYSSEE is used to adjust EE policies?
4. Conclusions

Energy efficiency indicators : a necessary tool to assess the progress achieved

- Monitoring on a yearly basis the results achieved in terms of energy savings becomes now a necessity for many governments and institutions
  - To check that the country is on track compared to its targets (“distance to target”)
  - To justify the public budget spent
  - To conform to reporting requirements of the parliament or other institutions (e.g. EU Commission for EU member countries)

- These indicators can be also used :
  - To understand why the targets are not met so as to identify corrective measures
  - To compare/benchmark the countries progress and performance with respect to energy efficiency performances and assess potential for improvement
  - Finally to assess the long term potential for energy efficiency improvement so as to see what new measures could be implemented

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The ODYSSEE-MURE project

- Project supported by a special programme of the European Commission called EIE, Energy Intelligent Europe
- Project coordinated by ADEME, the French Energy Environment and Efficiency Agency
- Project started more than 10 years ago
- 33 partners from 28 countries, mainly national energy efficiency agencies (or their representatives)
- Technical coordination:
  - Enerdata, with ECN on indicators
  - Fraunhofer with ISIS and ECN on policies

The ODYSSEE-MURE network

ADEME

Fraunhofer Gesellschaft

Enerdata

ECN

AUSTRIAN ENERGY AGENCY

NL Agency
Ministry of Economic Affairs

CYPRUS INSTITUTE OF ENERGY

IDAE Instituto para la Diversificación y Ahorro de la Energía

ENERGI STYRELSEN

ECONOTEC CONSULTANTS

ΚΑΠΕ CRES

seai SUSTAINABLE ENERGY AUTHORITY OF IRELAND

ENEA

ICEMENERG eficiență energetică

Motiva

IFE Institutt for energiteknikk

ADENE AGÊNCIA PARA A ENERGIA

KAPE

AEA Energy & Environment
From the AEA group

Swedish Energy Agency

ENVIROS

"Jožef Stefan" Institute

EA

LIAA

MRA

AEE EEA

enova

ENERGIA KÖZPONT ENERGY CENTRE

ANRE Autoritatea Națională de Reglementare în domeniul Energiei

rdata

GUS

FEI

KREDEX

EIHP

The ODYSSEE-MURE project

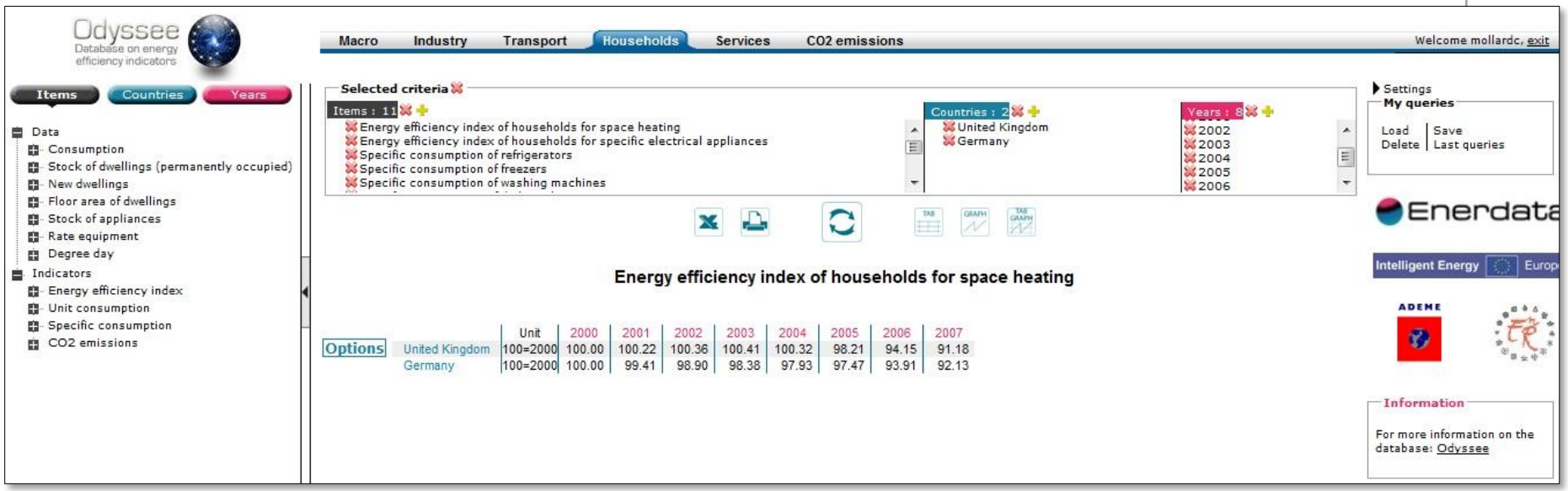
- Main objectives :
  - Evaluate and compare energy efficiency progress by sector for EU countries and for the EU as a whole, and relate the progress to the observed trend in energy consumption;
  - Evaluate energy efficiency policy measures in the EU countries

- Project relying on two data bases
  - The MURE database on energy efficiency measures: all policy measures implemented by sector, and their impact evaluation whenever available (methods, results): www.mure2.com
  - The ODYSSEE data base on energy efficiency indicators : energy consumption, and their drivers, energy efficiency and CO2 indicators at macro or sectoral levels : www.odyssee-indicators.org

- Coverage: all EU-27 countries, Norway and Croatia

ODYSSEE data base in brief (1/3)

- Data base covering:
  - Energy consumption data by sector and end-use and their drivers (about 1000 data series, of which 600 main data series)
  - Energy efficiency and CO2 indicators at macro or sectoral levels (about 180 indicators).
  - Period covered over 1990-2009
- Available on internet (www.odyssee-indicators.org) (restricted access)



ODYSSEE data base (3/3): data mapper

- Objective: a more user friendly query of key indicators in **free access**
- Presently 25 key indicators that can be consulted in terms of :
  - Absolute value in 2008 with a ranking of the 10 lowest values (or 10 highest) (to shift to 2009 when all countries well updated)
  - Trend 2000-2008 (2009 from mid-october)
  - A graph benchmarking any country with the EU average

- Large dissemination (4 000 users)

sectors

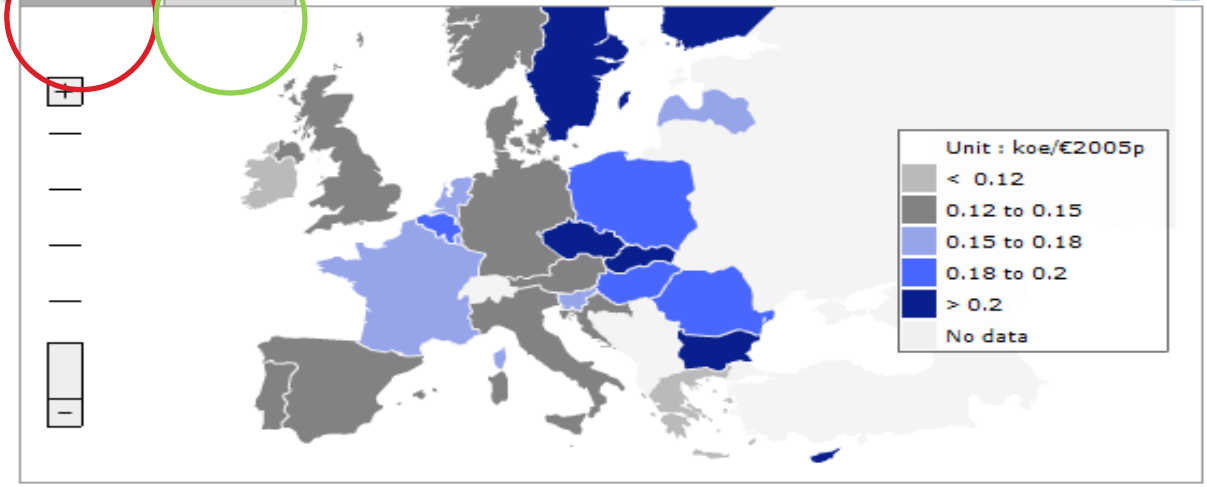
- Macro
  - Primary intensity
  - Final intensity
- Industry
- Transport
- Households
- Services

absolute

Total energy consumption per unit of GDP (at ppp)

Year : 2008

Level | Trend



- Ranking

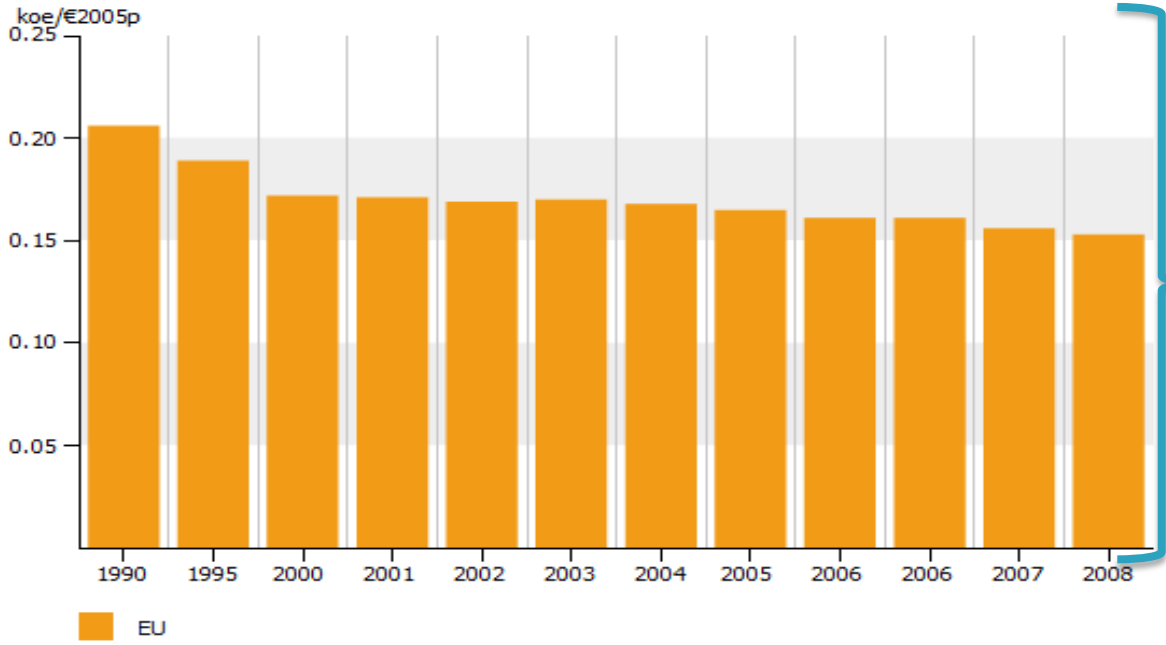
Ranking 2008
Unit koe/€2005p

Top ten | **Bottom ten**

Country	Value
Ireland	0.1140
Greece	0.1160
Italy	0.1290
UK	0.1290
Spain	0.1310
Denmark	0.1310
Austria	0.1360
Germany	0.1450
Croatia	0.1450
Norway	0.1460

- Glossary
- Units

EU



benchmarking

Classification of ODYSSEE indicators split in 9 different types

Type	Level
1. Energy intensities	by sector & sub sector
2. Adjusted intensities	final and industry
3. Specific energy consumption	by sub sector & end-use
4. Benchmarked specific energy consumption	steel, cement, paper, heating
5. Energy efficiency indices (ODEX)	final and by sector
6. Energy savings	final, by sector and sub sectors
7. Indicators of diffusion	by sector
8. CO_2 intensities	by sector & sub sector
9. Specific CO2 emissions	by sub sector & end-use

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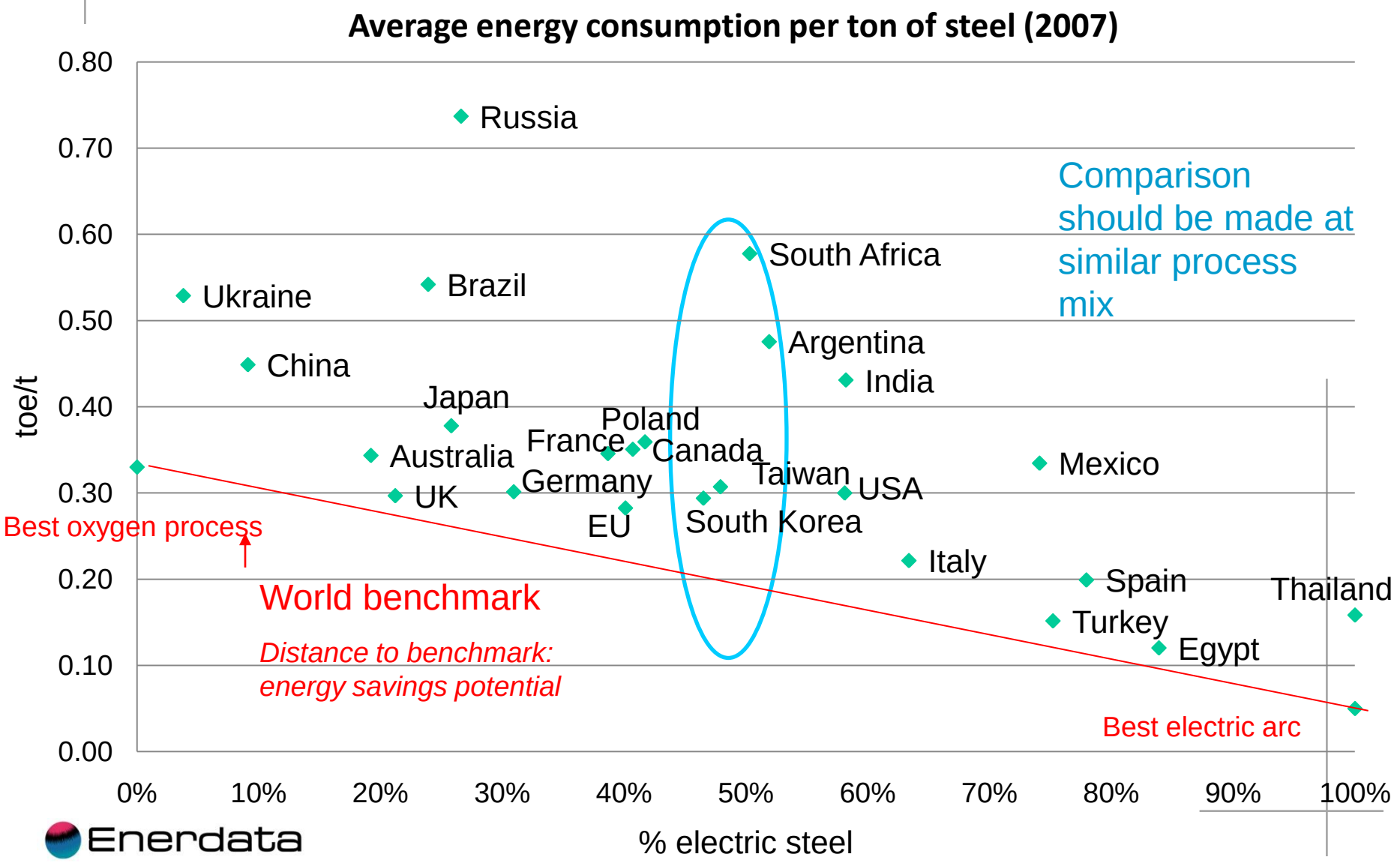
Enerdata

Benchmark of the specific consumption: case of steel



Enerdata

Indicators: a tool for decision and policy adjustements

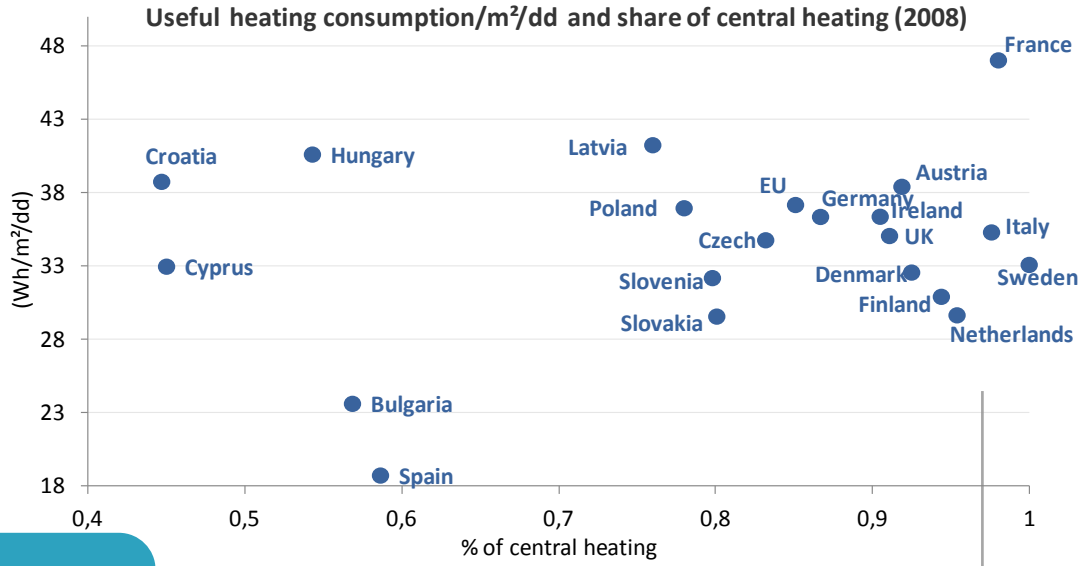
Establishment of EE indicators for each countries of a zone

Evaluation of the distance to the World or Region Benchmark

Thorough diagnosis of the gap causes

Policy adjustments

Illustration



- **Study:** Explanatory factors of the lower energy efficiency performance of France for space heating compared to European benchmarks

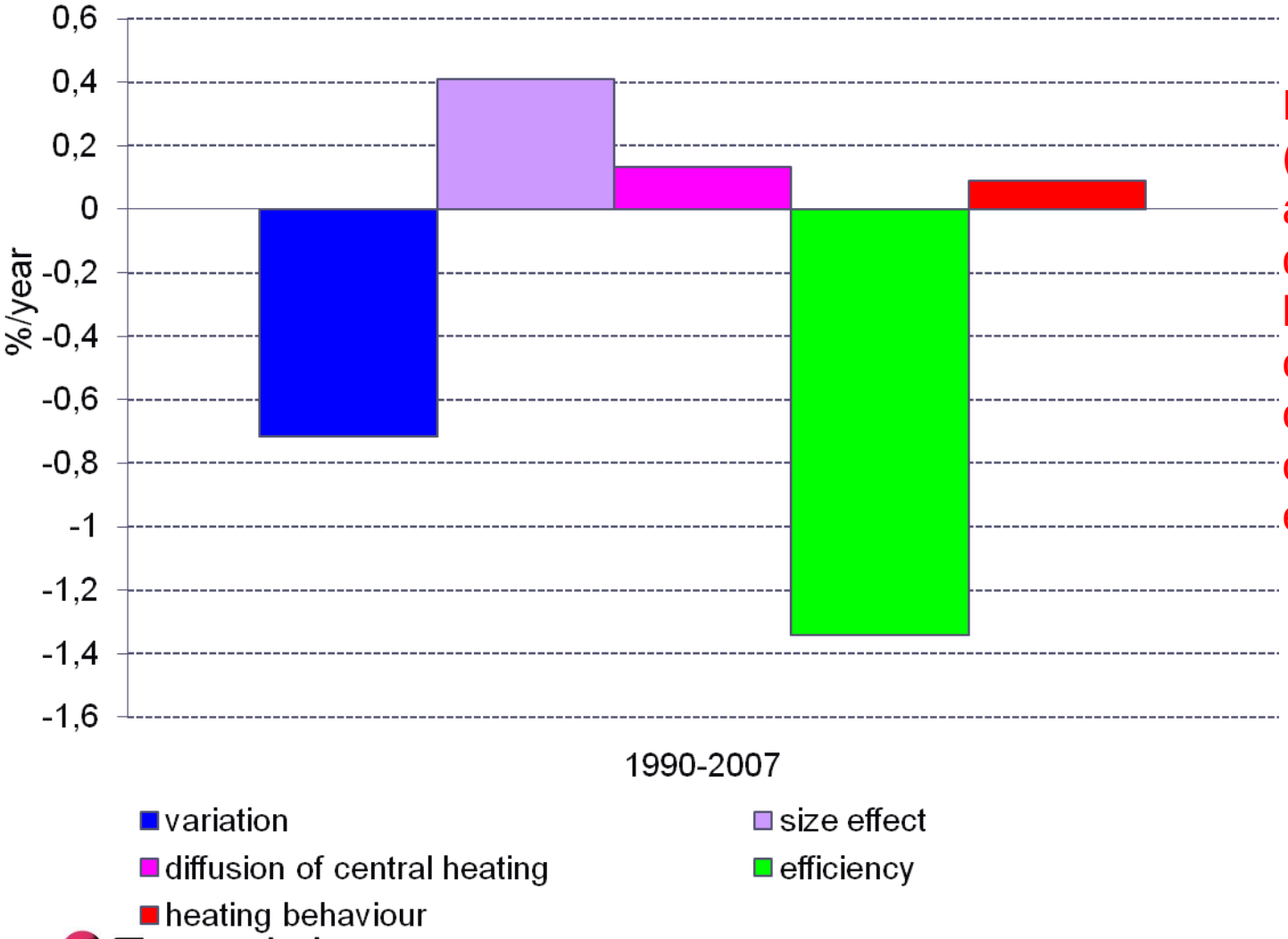
- Reinforce standards on existing buildings
- Support to the penetration of efficient boilers

Enerdata

Selection criteria of indicators by sector or end-use

- Depends on :
  - the policies to evaluate (e.g. in transport modal shift or improvement with vehicles);
  - Depending on the definition used and the targeted policies, a different indicator may be considered to measure energy savings; (e.g. for cars toe/passenger-km, toe/car; l/100 km, l/kg);
  - the definition of energy efficiency (economic efficiency versus technical efficiency) ;
  - the availability of data: alternative indicators to the “best” indicators are often necessary to cope with possible data gaps;
- Interpretation is enriched by comparing several indicators to show for instance the impact on energy consumption of factors not linked to energy efficiency (e.g. lifestyles, behaviors , structural changes in industry, modal shift);

Drivers of the variation in heating consumption per dwelling in the EU27



Larger dwellings (+0.4 m2/year on average) and diffusion of central heating in the south of Europe, have offset the equivalent of 80% of the energy efficiency gains

Enerdata

All indicators at normal climate

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Conclusion: indicators and policies: extension of the European experience to other countries and regions(3)

- Policy makers need data and indicators to monitor the impact of their actions, to prepare new policy measures and to assess long– term energy savings potentials

- Data needed are not just merely the usual energy statistics from the energy balance but more detailed data by end-use
- Implementation of the ODYSSEE approach to other countries:
  - in the Mediterranean region: Algeria, Tunisia and Turkey (coordinated by ADEME with the support of Enerdata.
  - Start of an indicator project in Mercosur countries in September 2011 (project coordinated by UN-CEPAL/ECLAC)
  - Provision of energy efficiency indicators and data base for about 80 countries by Enerdata to WEC, World Energy Council http://www.wec-indicators.enerdata.eu/

- Thank you

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- http://www.odyssee-indicators.org
http://www.MURE2.com