



# **International activities on end-use data collection**

## **The ADEME's experience of ADEME**

EEUEEDM initiative

Uncovering role of digitalisation for energy efficiency indicators

IEA; Paris, 21-22nd November 2019

Dr Didier Bosseboeuf (ADEME, France)

- ▶ **1. An European experience : ODYSSEE-MURE**
- 2. A Latin American experience : BIEE-ROSE**
- 3. A Mediterranean experience : Meet-med**
- 4. Conclusions**

# The EU experience ODYSSEE data base in brief

- End-use data collection **funded by EC** since 25 years
- **Interactive web Data base covering:**
  - ✓ Energy consumption data by sector and end-use and their drivers (about 1000 data series, of which 600 main data series)
    - ➔ Half energy consumption data and half non energy data
    - ➔ Importance given in the consistency between the definition and coverage of the energy consumption categories and drivers
  - ✓ Energy efficiency and CO2 indicators at macro or sectoral levels (about 180 indicators). Indicators on **fuel poverty and sufficiency** under development
- **Period covered:** 1990-2017 (from 1980 for most EU-15 countries);
- **33 countries**, EU average, a network of 150 experts mainly from Energy efficiency agencies
- **Updated** each year
- **Coupled** by an energy efficiency policy data base (MURE)
- **60 workshops** for exchange of methodologies and results
- **Costumers:** DGTREN, JRC, EEA, IEA, WEC, OLADE etc.
  
- Available on internet ([www.odyssee-indicators.org](http://www.odyssee-indicators.org)) with a password



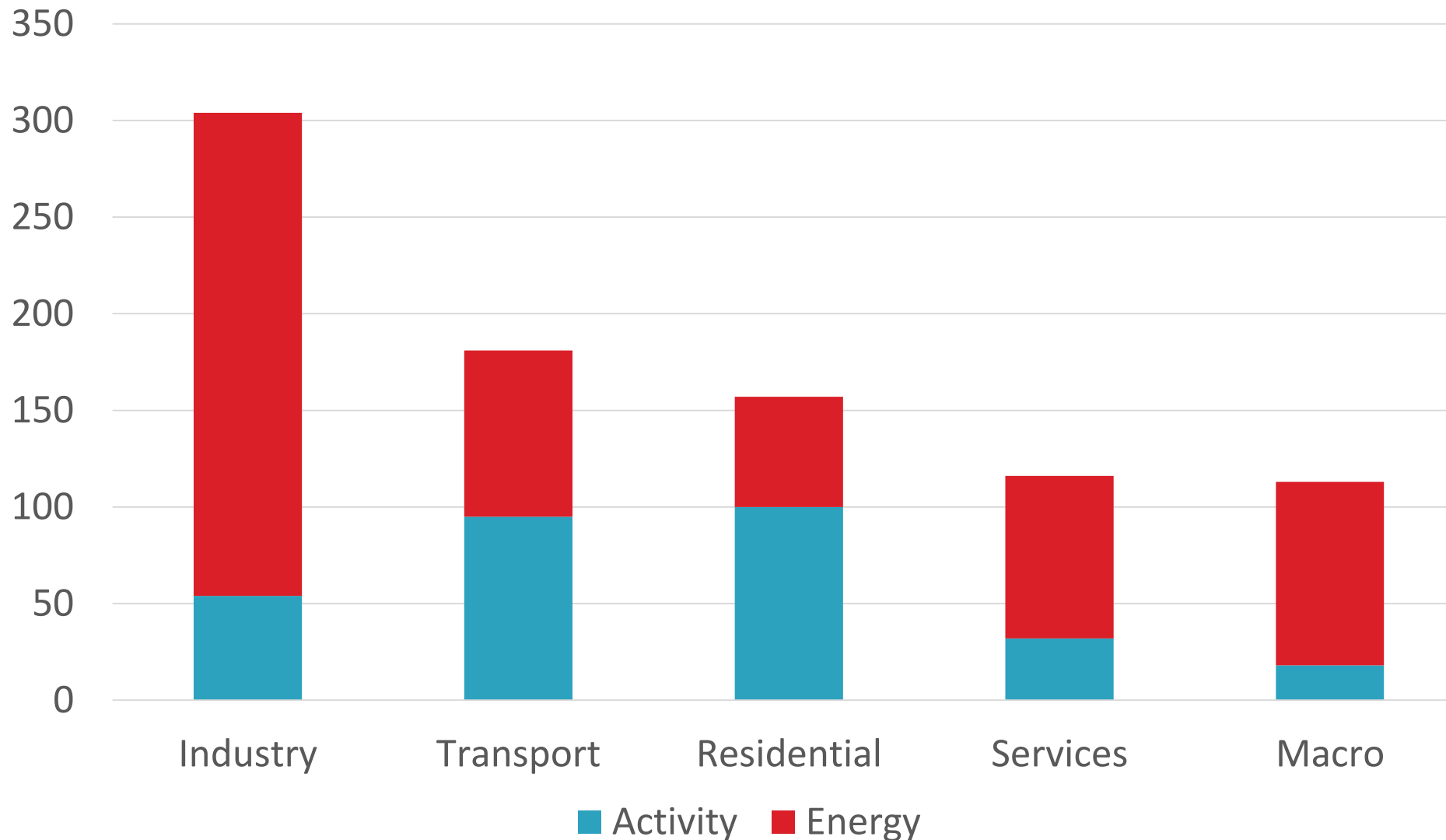
# EE indicators what are they? The example of ODYSSEE

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	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 <sub>2</sub> intensities	by sector & sub sector
9. Specific CO <sub>2</sub> emissions	by sub sector & end-use
10. Fuel poverty	households
11. Sufficiency	by sub sector & end-use
12. Short term indicators	



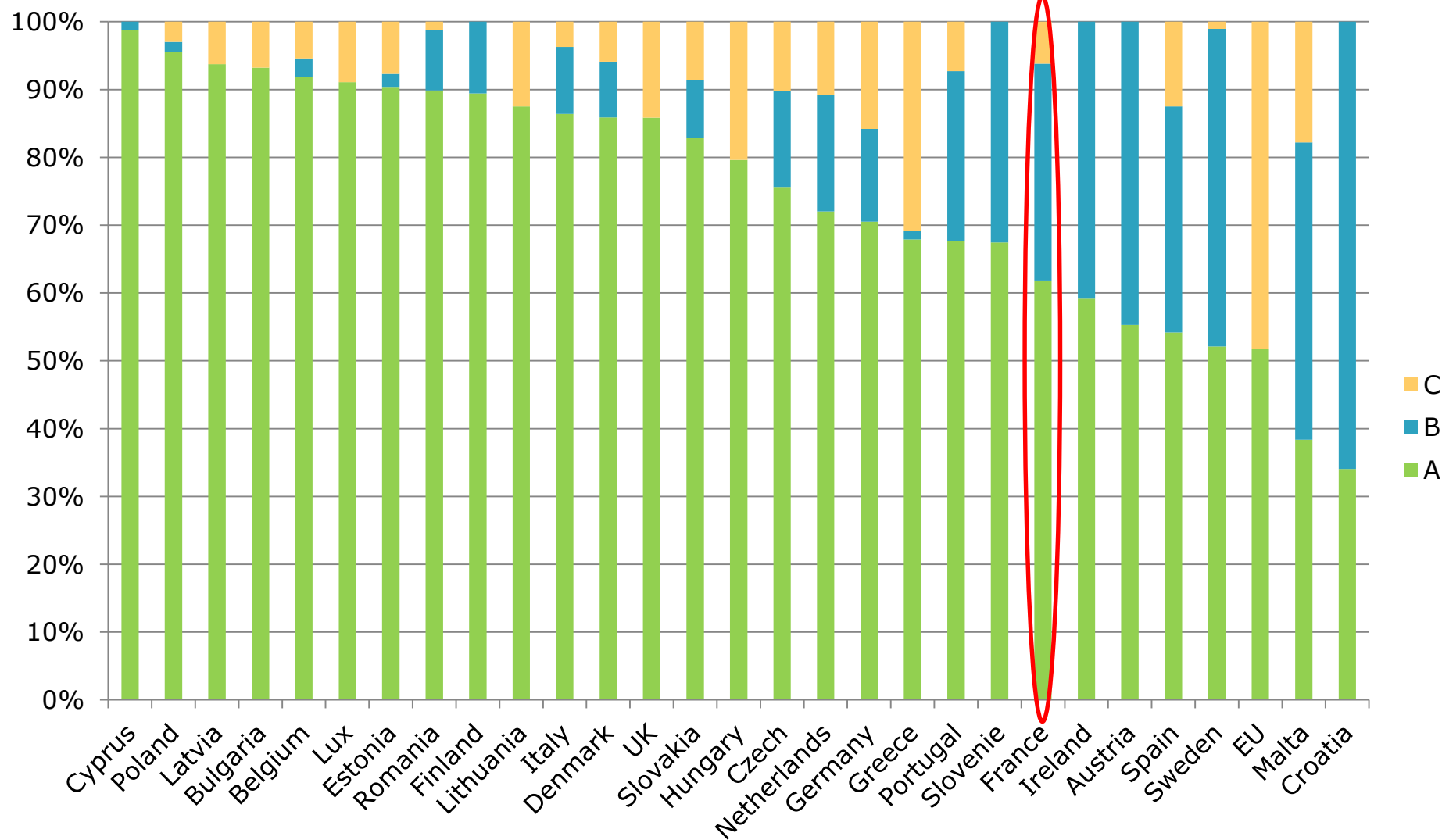
# ODYSSEE database:

Aroud 900 datasets by country,  
of which 65% energy related, 35% on activity





# Distribution of data sources in ODYSSEE\*: Half countries with over 80% official statistics



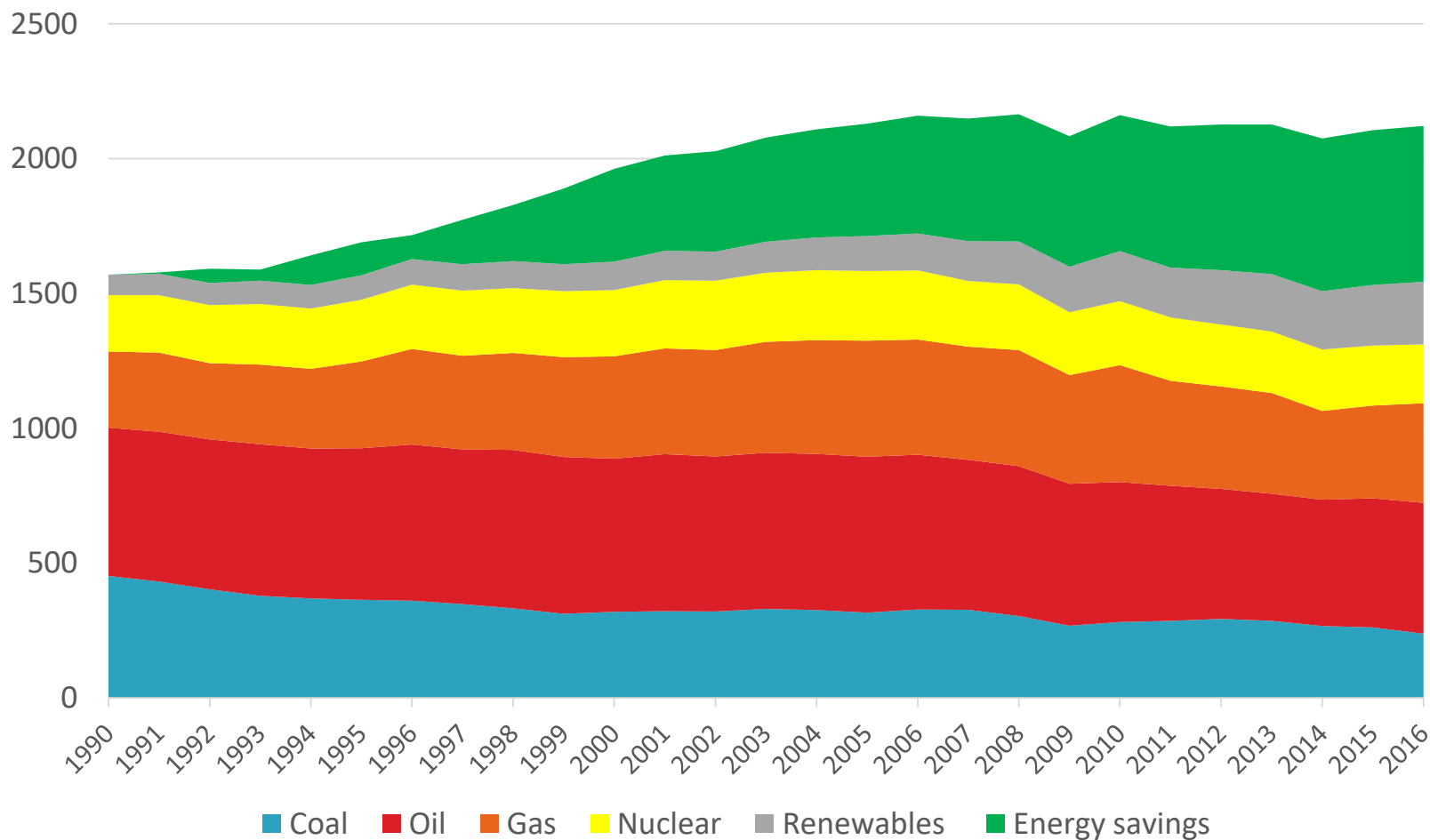
**A:** Official statistics   **B:** Surveys/ modelling estimates   **C:** Estimations made by national teams

\*Results based on a selection of 100 datasets (December 2015)



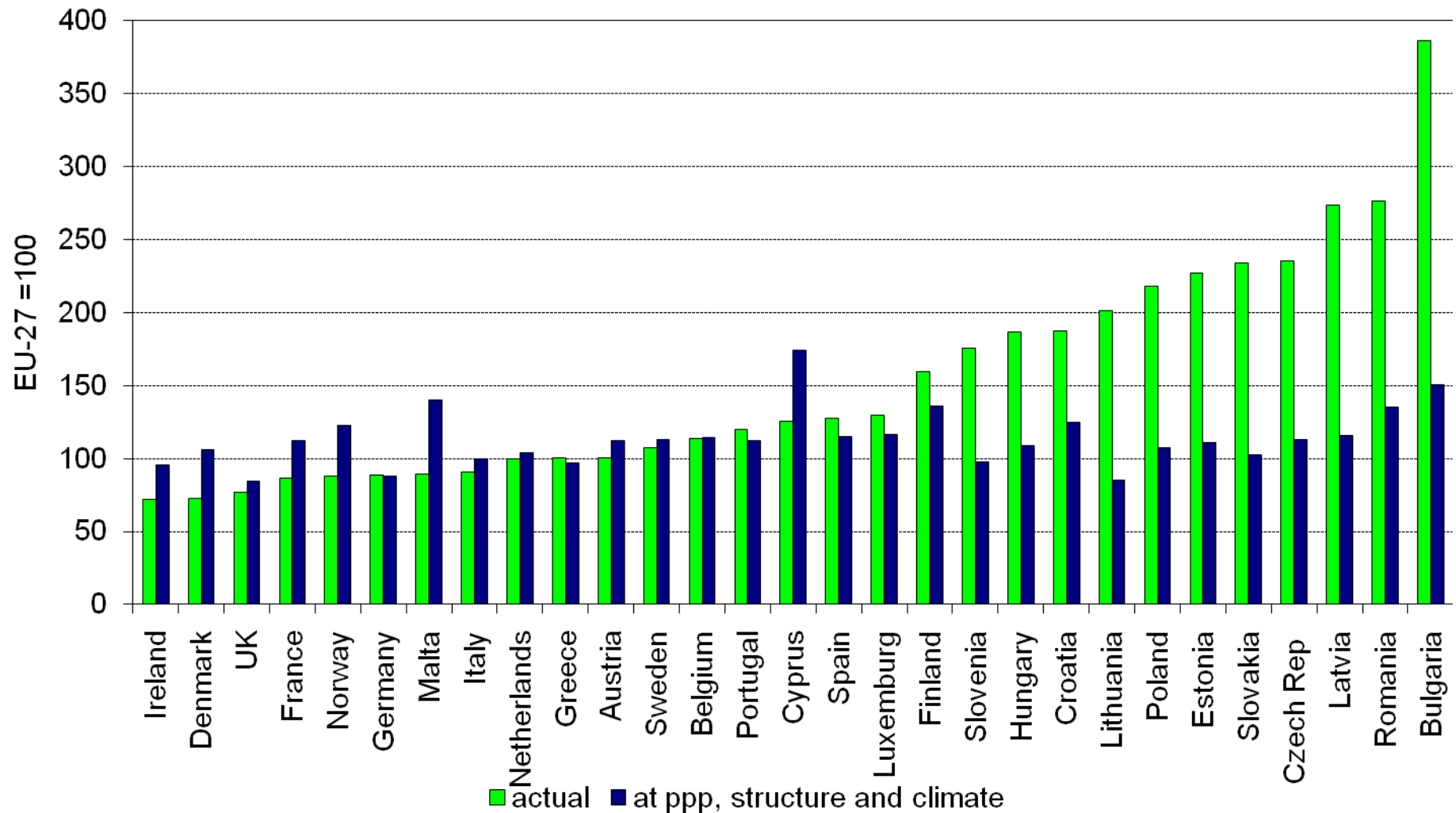
# Energy savings first fuel over a 25 year period (EU)

Primary energy consumption by fuel and energy savings (EU, Mtoe)



# Adjusted energy intensities: examples

Final energy intensities adjusted for differences in prices (ppp), climate and industry & economic structures narrow difference between countries

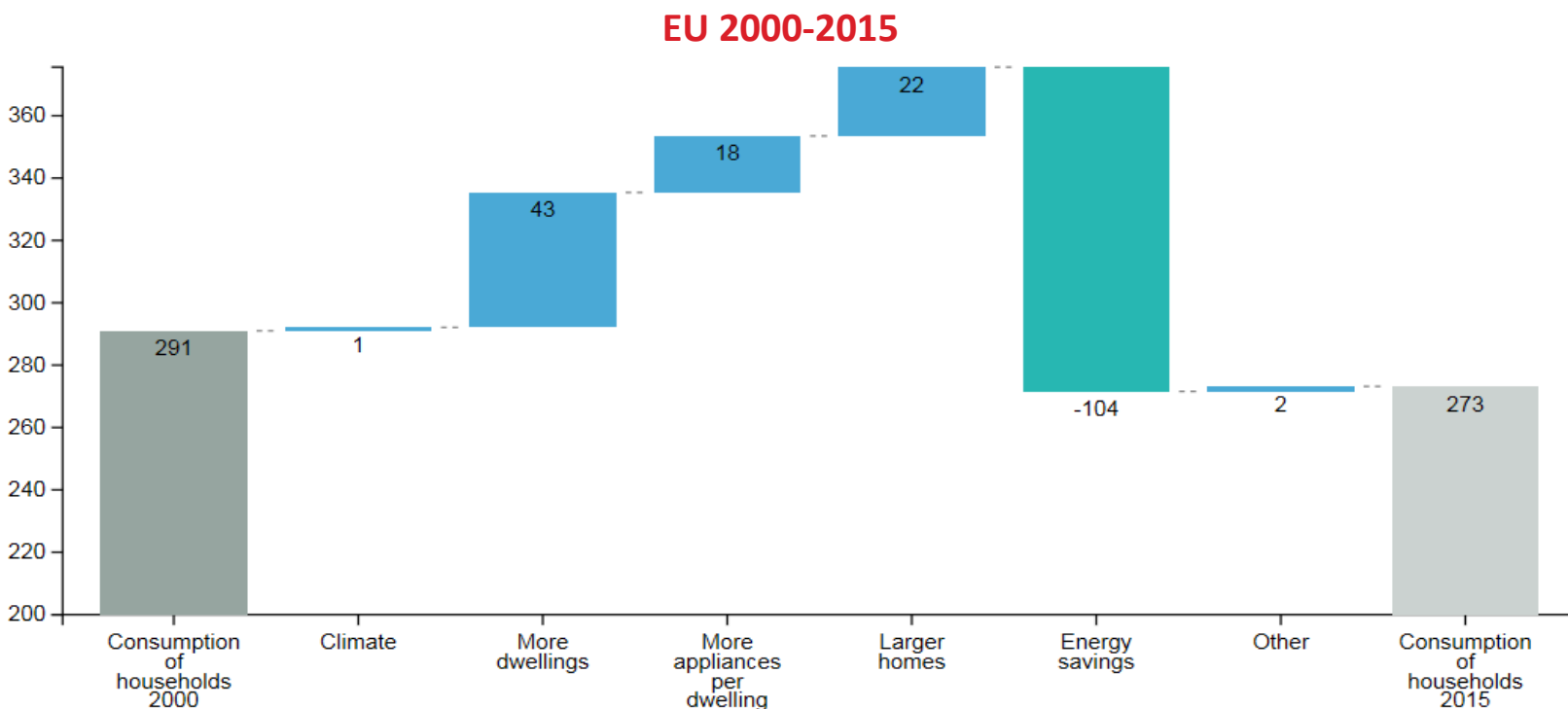






# Decomposition of the variation of the energy consumption of households (EU, 2000-15)

- Two factors contributed to increase the household consumption since 2000:
  - Increasing number of dwellings (43 Mtoe);
  - Growing comfort due to the increase in the number of household appliances and dwelling size (18 and 22 Mtoe, respectively).
- Energy savings (technical) lowered consumption by 104 Mtoe (~7 Mtoe/yr).
- Other effects or behavioural effect are mainly due to the combined effect of price increases and of the economic recession

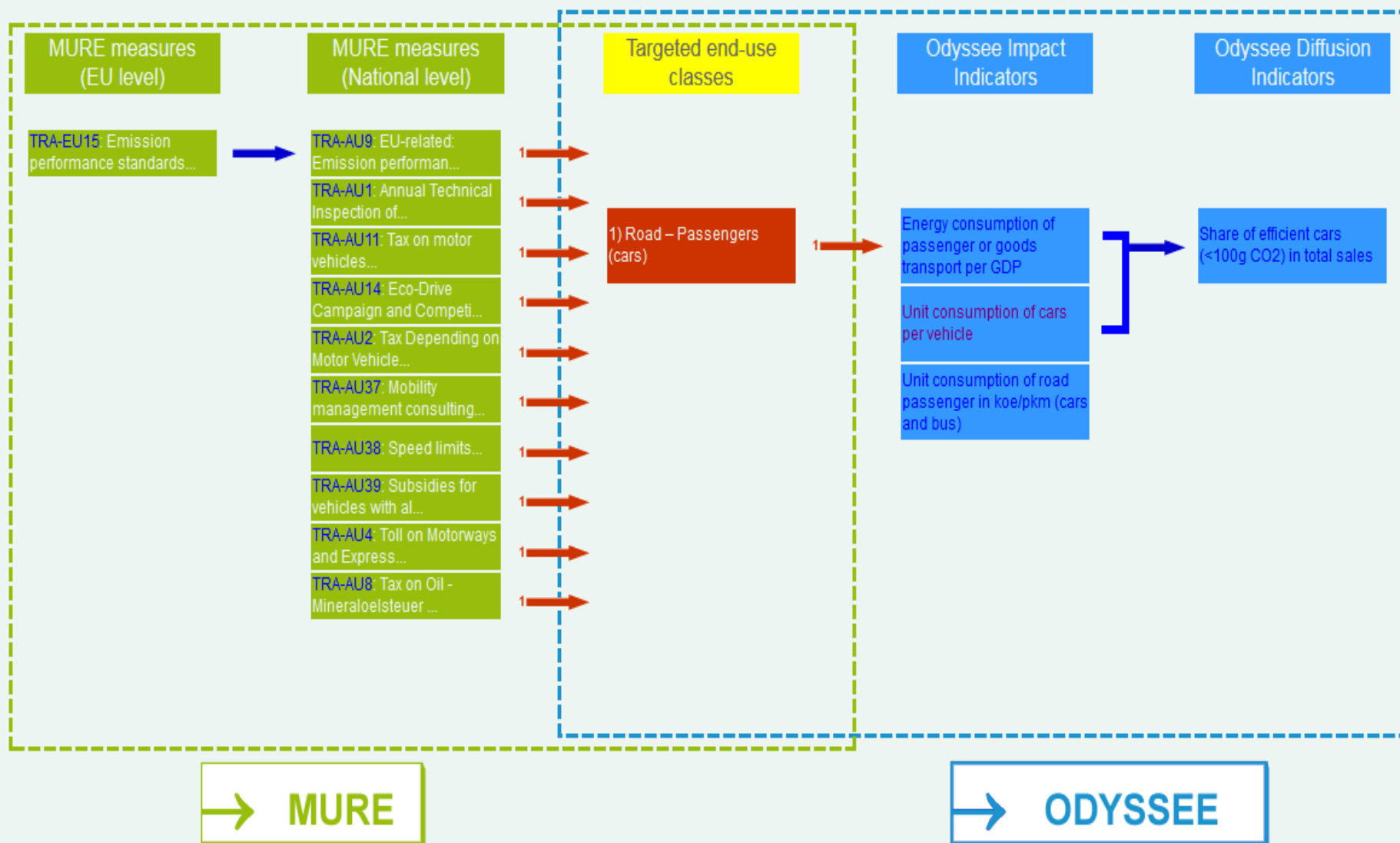




# The relationship with indicators and policies

## Case of Austria for cars from the ODYSSEE-MURE

### Policy Mapper - Transport - Austria



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- End-use data collection **funded by UN-CEPAL, ADEME, AFD, GIZ** since 2011
- **BIEE Interactive web Data base and regional data mapper covering:**
  - ✓ Energy consumption data by sector and end-use and their drivers (about 700 data series)
    - ➔ 70 Energy efficiency indicators (macro or sectoral levels)
- **Period covered: 1990-2015 20 countries of which 4 Caribbean's**
- **Updated :** several times
- **Be coupled** by an energy efficiency policy data base
- **10 workshops** for exchange of methodologies and results and now 12 trainings on capacity building on ODS7
- **Extended** to Access of energy and renewables

# BIEE achievements

- 20 national templates on energy efficiency data collection generally updated to 2015
- **National Data bases** : exist for Argentina, Mexico, Uruguay and Salvador <http://biece-cepal-database.enerdata.eu/sayee/>
- **Regional Data mappers** ( LACs & Carabean) and data bases
- 15 national reports, a regional report
- Some experience of institutionalisation

**Expéditeur:** María Pía Zanetti

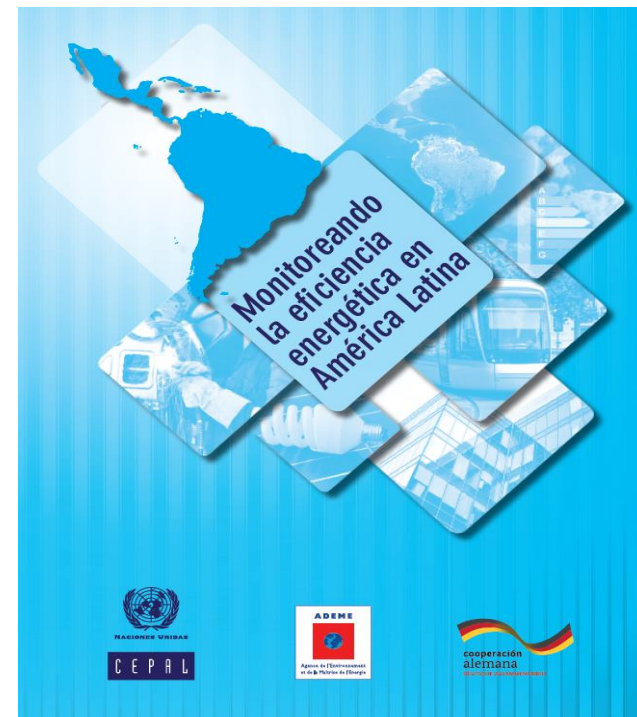
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**Date:** 7 décembre 2018

**Objet: BIEE online**

Hola Muchas gracias por la version finale de la base de datos online.

Te cuento que incluimos el BIEE en el [IV Plan Nacional de Gobierno Abierto](#) así que ahora si o si vamos a tener que publicarlo porque el Ministerio lo asumió como compromiso



# BIEE-ROSE Project : the Interactive tool on line



BIEE - Base de Indicadores de Eficiencia Energética

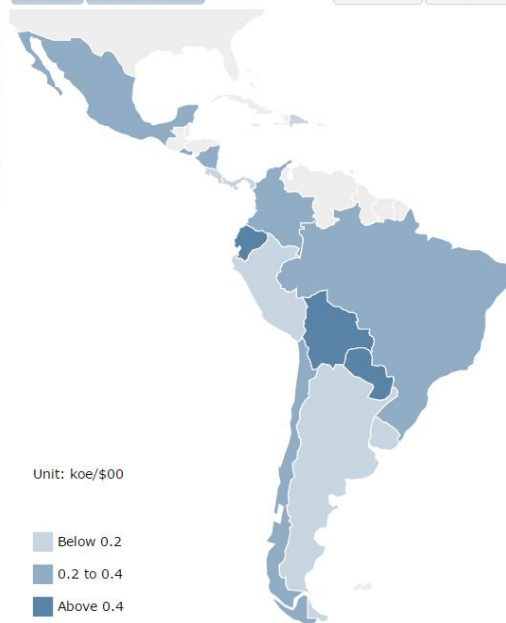


- Global indicators
- Power sector
- Industry
- Transport
- Households
- Services
- Agriculture

## Primary energy intensity at exchange rate

2012 2000/2012

Map Excel



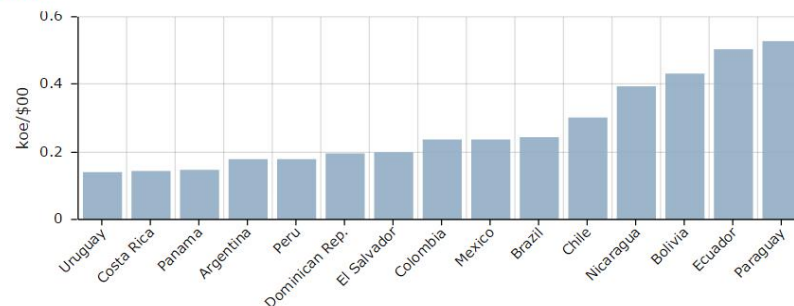
Unit: koe/\$00

Below 0.2  
0.2 to 0.4  
Above 0.4

Source BIEE

## Primary energy intensities in \$ at exchange rates vary significantly among countries

2012 \*



The primary energy intensity in US\$ is the ratio between the total energy consumption of a country and its Gross Domestic Product (GDP) measured at 2000 prices and exchange rates. It measures the total amount of energy necessary to generate one unit of GDP. Uruguay, Panama and Costa Rica have the lowest energy intensities. Bolivia Ecuador and Paraguay, countries that are larger producers and transformers of energy, require four times more energy to generate one unit of GDP than Uruguay, as Paraguay that is a large user of biomass with a low efficiency. However intensities at purchasing power parities are more relevant for comparisons.

Advanced indicators

\* Last year available depending on countries.

# ROSE/BIEE contribution to monitor ODS 7.3

## The BIEE policies monitoring tool

- Main objective: **visualize** the **link** between existing **measures** (PaMs, ie **P**olicy and **M**easures) and selected energy efficiency indicators, that should be impacted by the PaMs, as a way to assess the impact of PaMs



### Query by policies and measures

- ▶ Residential
- ▶ Service
- ▶ Industry

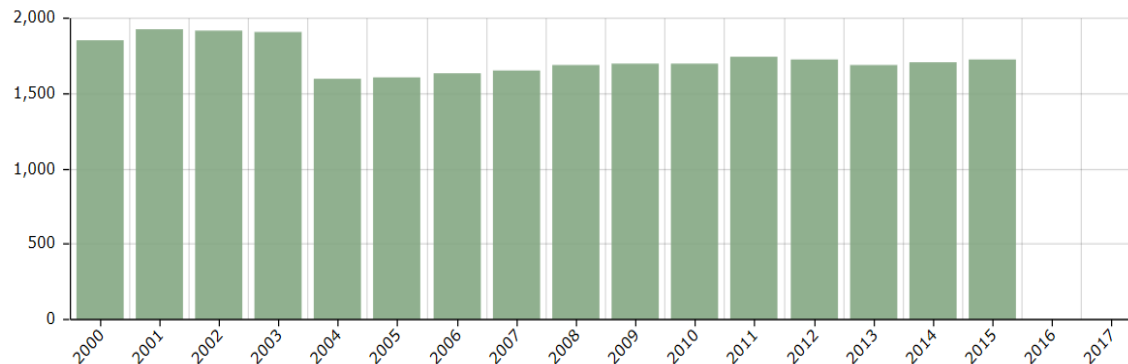
### Query by indicators

- ▶ Residential
- ▶ Service
- ▶ Industry

### Unit consumption of electricity of households at normal climate (kWh/dw)

Source : SIE SENER, INEGI

*Click on the tooltips to view the description of the measurement.*



1994 - 2017: NOMS-Appliance Energy Efficiency Standards

2002 - 2017: Tarifa Domestica de Alto Consumo

Number of data series	Activity data			Energy related data			Total		
	Total series to be completed	Data available in 2016	Data available in 2018	Total series to be completed	Data available in 2016	Data available in 2018	Total series to be completed	Data available in 2016	Data available in 2018
Macro	17	15	17	81	65	81	98	80	98
Energy sector	0	0	0	47	28	47	47	28	47
Industry	67	51	64	197	73	113	264	124	177
Transport	87	39	81	61	43	57	148	82	138
Households	155	27	143	123	10	120	278	37	263
Services	28	0	24	49	21	27	77	21	51
Agriculture	7	4	4	8	2	3	15	6	7
Total	361	136	333	566	242	448	927	378	781



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# The mediteranean experience

## The MEETMED indproject

- End-use data collection supported by **ADEME & the EU**
- **Data** collection performed **by national energy efficiency agencies of the MEDENER network** (for Algeria, Lebanon, Morocco and Tunisia + Northern Mediterranean countries (to be extended to Egypt, Jordania and Palestine)
- **National EEU data collection** Energy consumption data by sector and end-use and their drivers (about 700 data series)
  - ➔ 70 Energy efficiency indicators (macro or sectoral levels)
- **Period covered:** 1990-2017
- **Updated :** several times
- **3 workshops** for exchange of methodologies and results and now 12 trainings on capacity building on ODS7
- **Extended** Renewables indicators
- Future NDC's, Indicators and policies tool etc.)

La méthodologie indicateurs a été mise en oeuvre avec succès auprès du réseau Medener

**1. Nombre et longueur temporelles des séries collectées pour obtenir les indicateurs**

**2. Nombre d'indicateurs obtenus**

**3. Taux de couverture par secteur et usages.**

Country	Macro-economic data (GDP, VA etc;)	Energy consumption data	Industry	Households	Services	Transport
Algeria	100%	100%	100%	95% (b)	98%	100%
Morocco	100% (a)	90%	100%	95%	100%	95%
Tunisia	100%	100%	100%	95%	98%	90% (c)
Lebanon	100%	100%	98%	98%	98%	100%



## Conclusion: indicators and policies :

- 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.
- TD methods are broadly implemented (more than 70 countries) and consensus exists on methodologies (ie ODYSSEE; IEA; JRC; UN-ECLAC etc.). Differences comes from about the satus of the data (public vs expert data) and the level of desagregation. **ISO 500047** will discuss and display all the methodological issues.
- Because fair benchmarks rely on adjustment, this is still an area of discussion but experience do exist (ODYSSEE-MURE scoreboard; ACEEE scoreboard).
- Data needed are not just merely the usual energy statistics from the energy balance but **more detailed data by end-use**
- Strategies have to be defined to collect such data ... In a permanent way, by imposing reporting requirements to utilities, equipment manufacturers , utilities  
→ exchange of international experience is very useful in that matter

## Conclusion: indicators and policies:

- Greater use of indicators by policy makers increases the **quality** and **quantity** of data and indicators;
- Indicators need to be permanently **adapted** to meet policy requirements (e.g. in EU countries the increasing use of biomass and power production of households);
- **Indicators should be easy to understand** by policy makers...
  - This does not mean that they should be too simple, but that
  - Communication is important
- Indicators should be **well updated** to be useful for policy makers
  - This is somehow contradictory with the use of detailed indicators, that require detailed data produced with some delays, but means that

**Many arguments to develop end-use data collection do exist. It is mainly a matter of voluntarism. International cooperation can contribute to the development of end-use data for metrics**