Improving policies through energy efficiency indicators

V energy efficiency dialogue in Latin America and the Caribbean
Lima, Peru

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2. **The ADEME's Experience on Energy Efficiency monitoring**
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Energy efficiency indicators : A necessary tool to assess the progress achieved ?

- Monitoring 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")*
  - *For a better efficiency of public budget spent (which measure works which does'nt)*
  - *For reporting requirements to the parliament or other institutions*
  - *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 which new measures could be implemented ➔ indicators are the main input variables of the end-use models to be used for such assessments*

Example : will France meet its Energy Saving Directive target?

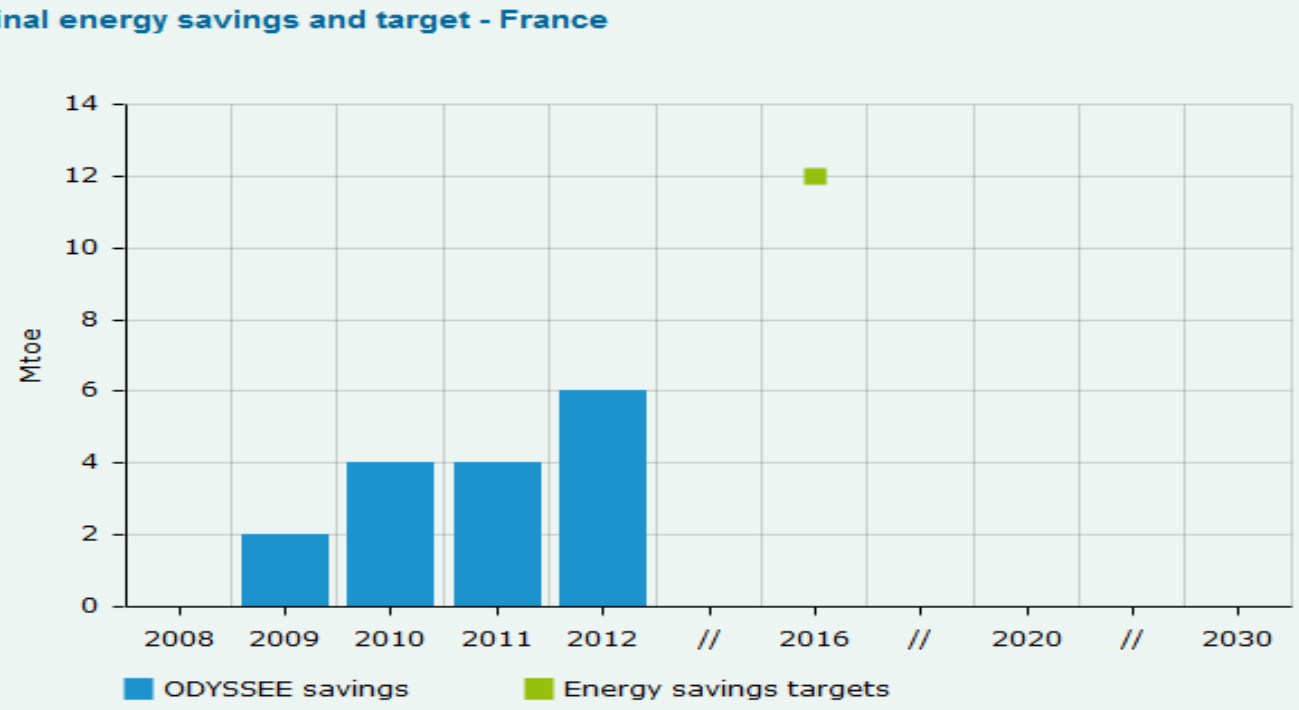
Country:

France

Sector:

Final savings

NEEAP Savings



ODYSSEE savings: Energy savings to measure the amount of energy saved through energy efficiency improvements (cumulative savings since 2008). In ODYSSEE, energy savings are derived from ODEX, an indicator that measures the energy efficiency progress by main sector (industry, transport, households) and for the whole economy (all final consumers). In transport, savings from international air are included. In industry, savings are calculated on 12 branches). More information about ODEX.

Energy savings targets: Indicative energy savings target for the Member States for the period between the beginning of 2008 and the end of 2016.

EE indicators are successfully implemented at national and international levels

- **World level :**
  - ***WEC/ADEME : World and by region and countries (30 indicators)*** ***http://wec-indicators.enerdata.eu/***
  - ***IPEEC/IPEEI (G20)*** ***http://g20-energy-efficiency.enerdata.net/***
  - ***IEA : OECD Countries*** ***http://www.iea.org***
- **Regional level**
  - ***European Commission :ODYSSEE : 29 european countries + EU 27 (200 Indicators)*** ***http://www.odyssee-mure.eu/***
  - ***OLADE Latin America (energy intensities)***
  - ***CEPAL Latin America (BIEE project)*** ***http://www.cepal.org/drni/biee/***
  - ***MEDENER/Plan Bleu (Mediterranean countries)*** ***http://medener-indicateurs.net/uk/*** ***and*** ***http://www.planbleu.org/***

Evaluation of policies impact : Bottom-up and Top-down approach

- **Evaluation of each individual measure impact and evaluation of cumulated impacts (Bottom-up) : Some issues are difficult to be assessed (overlapping, double accounting, free riders, multiplying effect, rebound effect etc.). This evaluation maybe costly and is not conceive for a dynamic monitoring**

- **Evaluation of energy efficiency trends for each use through indicators and aggregation at global level (Top-down). It provides the full picture of energy efficiency and it is representative at national scale. However allocation between each of policies and market forces is rather difficult.**

EE Indicators vs Policies : a complex relationship

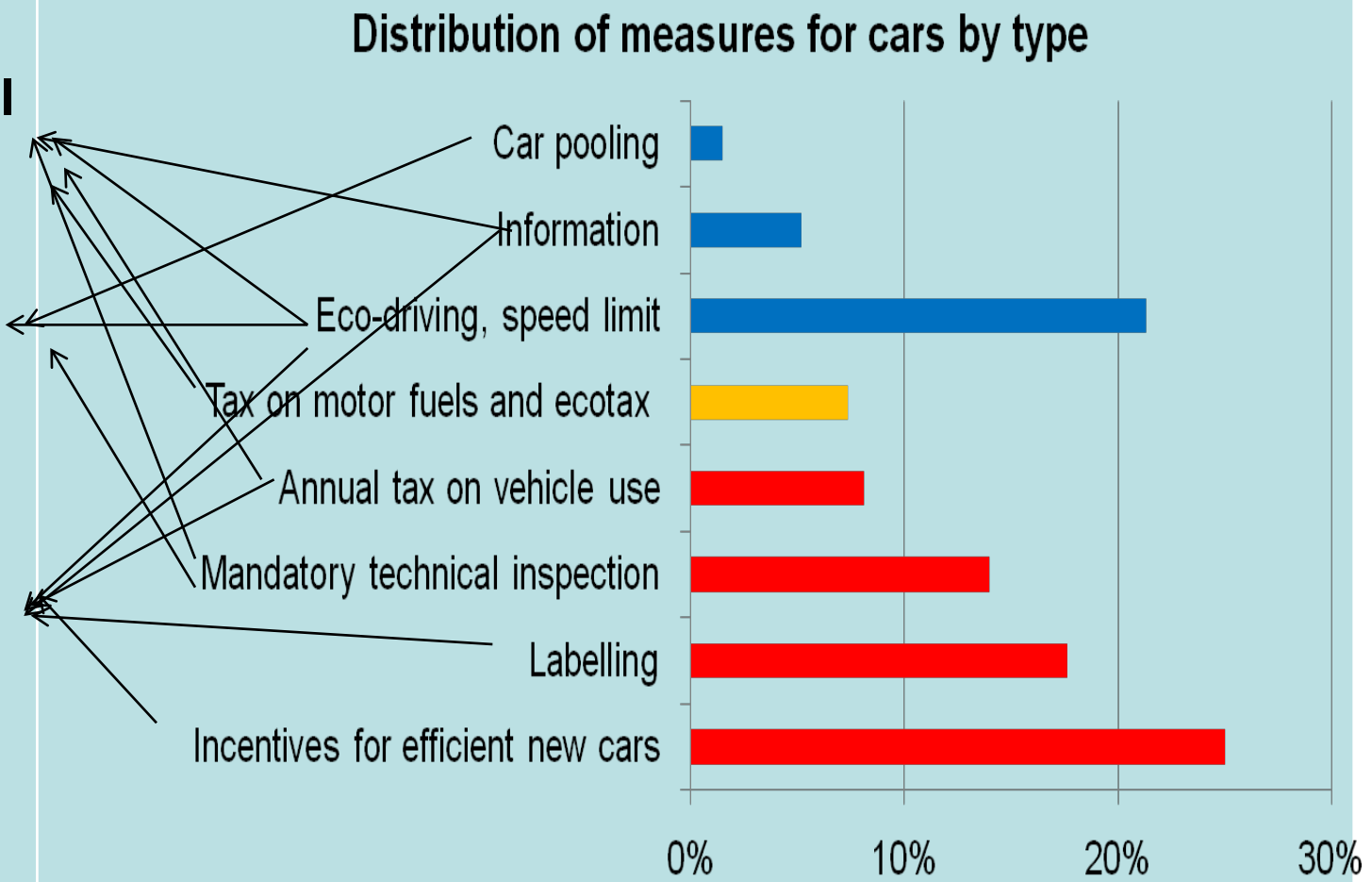
Indicators are usually linked to several policies or measures
Other drivers impact indicators (prices, autonomous progress)

Indicators

l/100 km (overall fleet stock)

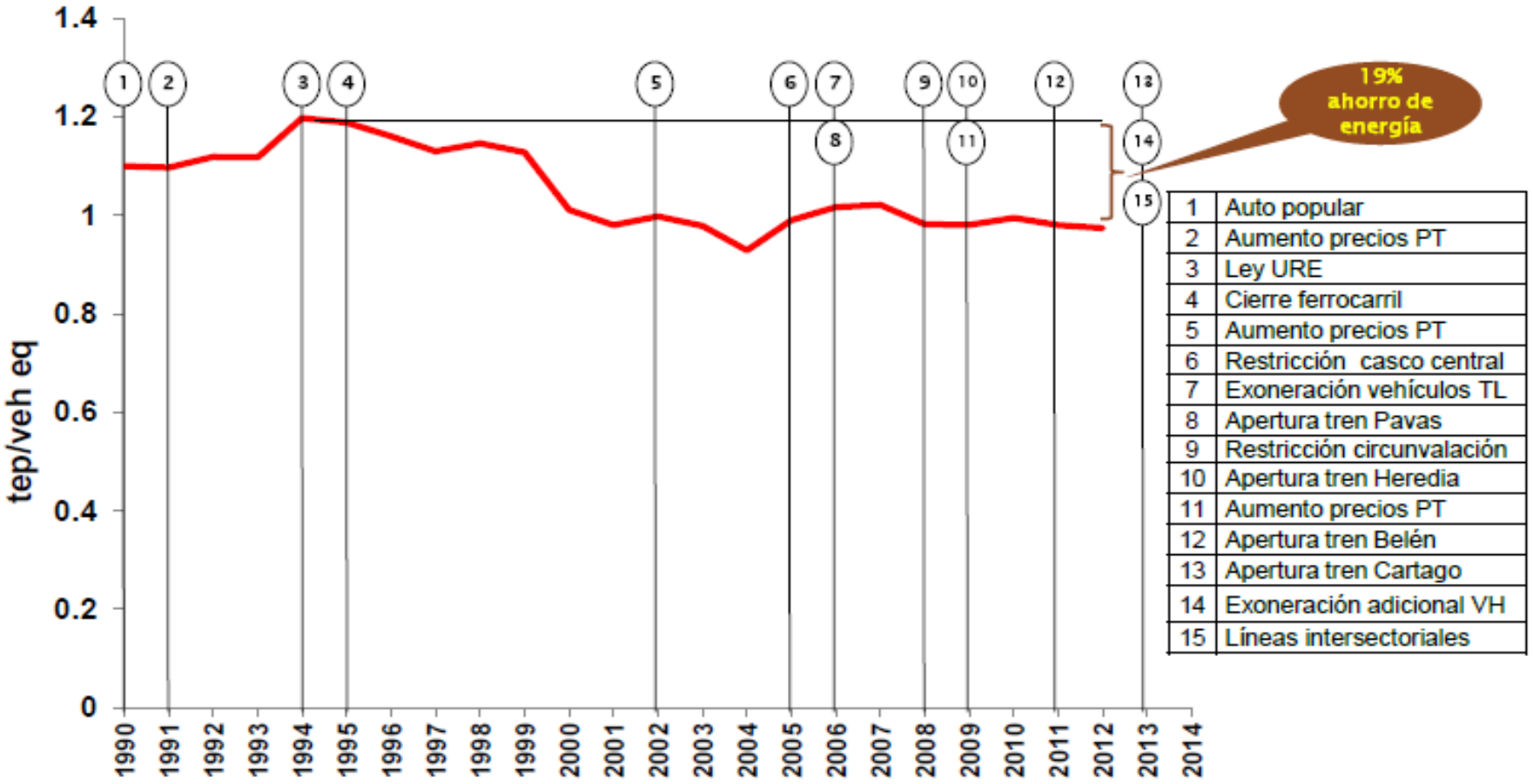
Goe/pkm

l/100km (new cars)



Indicators use for policy monitoring

Specific consumption of road transport per car equivalent and related policies: Costa Rica (Source BIEE project)



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- Public Agency

➢ Under the joint authority of the Ministries of:

- Ecology, Sustainable Development and Energy
- Higher Education and Research

➢ A State - ADEME contract 2009-2012 with:

Four ways of action: Acquire knowledge, Convince & Mobilize, Advise, Help for realizing

Five areas of activity:

Waste management,

Polluted soils and wasteland,

Energy & Climate,

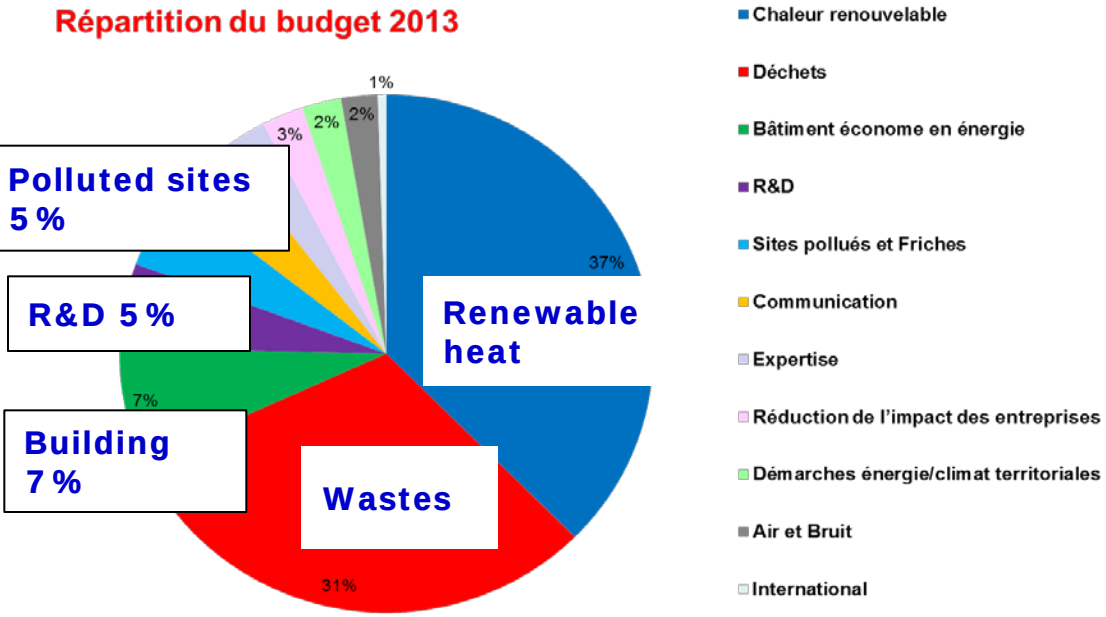
Air pollution & Noise,

Cross-disciplinary approach (sustainable production & consumption, Sustainable cities & regions, International)

ADEME means

Annual budget (2014) : 590 M€
(Investment for the Future not included)

Pluri-annual budget for Investments for the Future : 3 000 M€

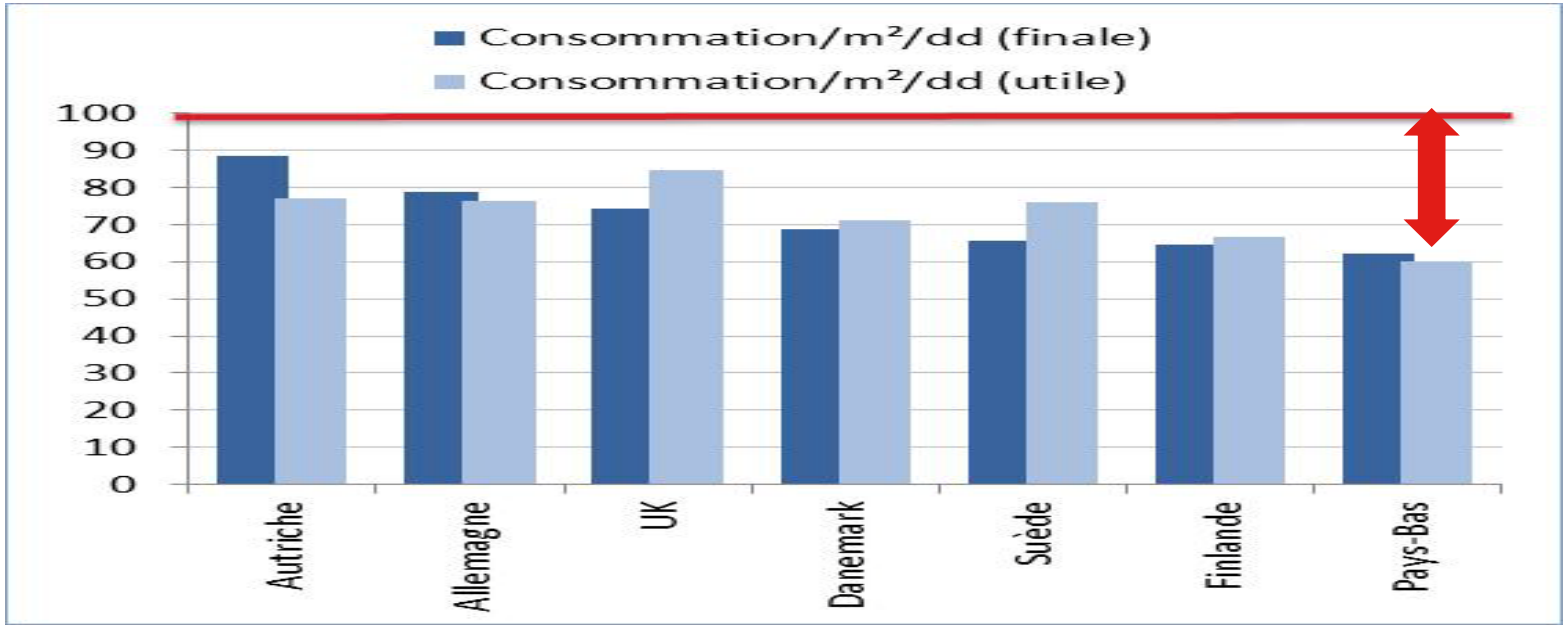


- **Renewable energy**
- **Energy efficiency in buildings**
- **Storage**
- **Smart grids**
- **Circular economy (waste…)**
- **Transport (automobiles, railway, ships)**

Staff : 950 persons in headquarters (Paris, Angers, Sophia Antipolis) and regional directions

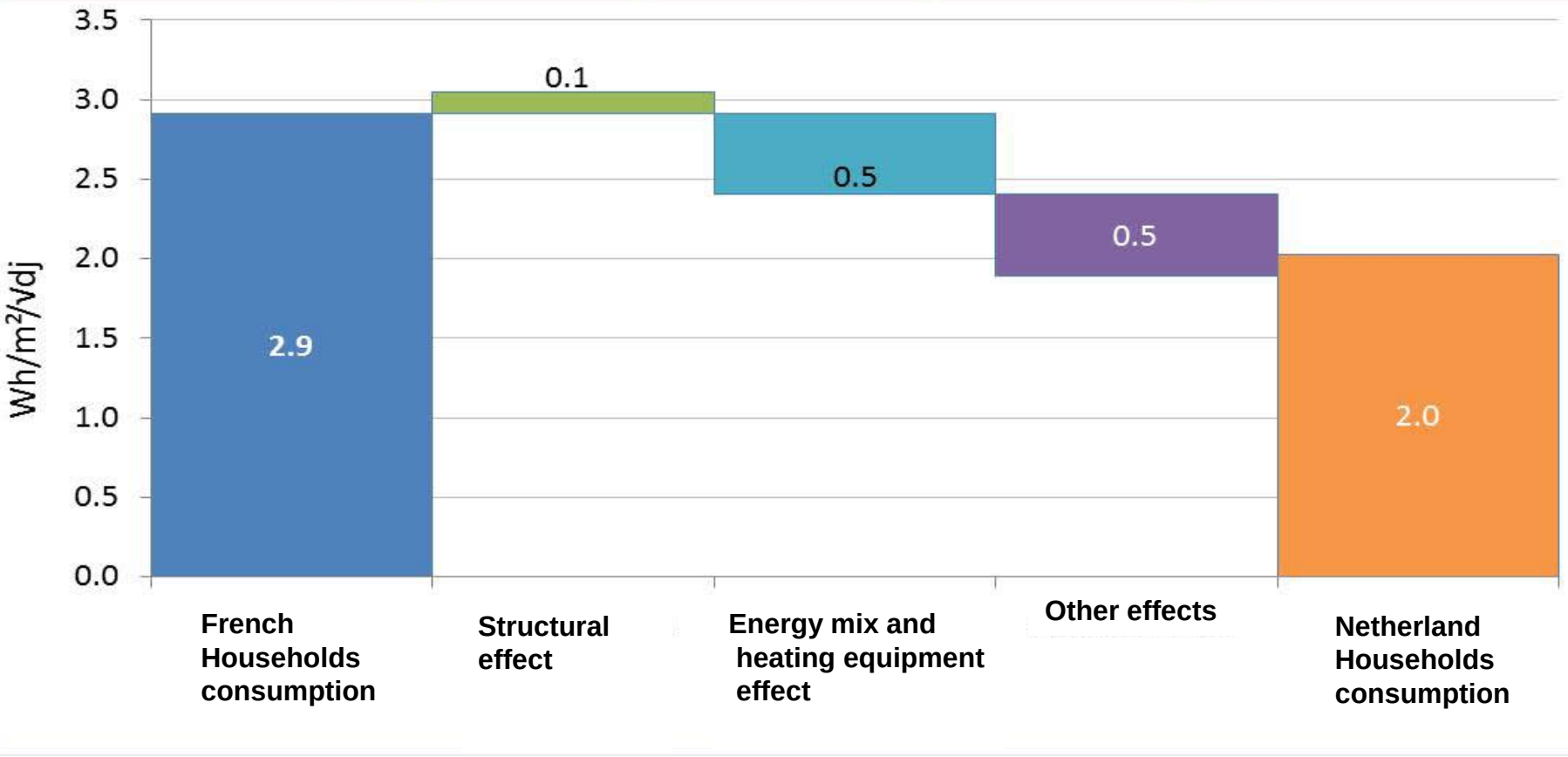
Recent use of EE indicators at ADEME

- Assessment of energy savings for the European energy efficiency target for France (NEEAP3 for the EE directive). (ADEME with ministry).
- Benchmark between France and the best practice in Europe for space heating (DK and NL) and recommendation for policies
- Benchmark between France and Germany on electrical appliances



Impact of policies evaluation through indicators

Analysis of energy consumption for dwelling discrepancies between France and Netherland



Source: Enerdata

EEI methodology is now standardized
ISO 257 on energy saving calculation

World Standard activities chaired by China, France, Netherlands and UK

1. **Definition of a methodological framework applicable to calculation and reporting on energy savings: (France)**
2. **General calculation methods on energy efficiency and savings for countries, regions or cities (top down and bottom-up): (Netherlands).**
3. **General technical rules for measurement calculation and verification of energy savings of projects: leader China (Chinese National Institute of Standardization) and (Standardization Administration of China (SAC)**
4. **General technical rules for measurement calculation and verification of energy savings of companies: leader UK**

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What is IPEEC ?

Members account for over 75% of world GDP and energy use

IPEEC is an intergovernmental autonomous entity

It was established in 2009 at the G8 summit in Italy

It reports to G20 Summit, Clean Energy Ministerial & others

IPEEC : a high level international forum on energy efficiency

- Provides **global leadership** on energy efficiency by identifying and facilitating government implementation of policies and programs that yield high energy-efficiency gains.
- Aims to **promote information exchange** on best practices & **facilitate initiatives** to improve energy efficiency.
- Formally established in 2009 at the **G8 summit in L'Aquila**, Italy, and resulting from successive meetings of the G8 + 6 economies.
- 11 working groups of wich **IPEEI** (Improving energy efficiency policies through indicators) on energy efficiency indicators

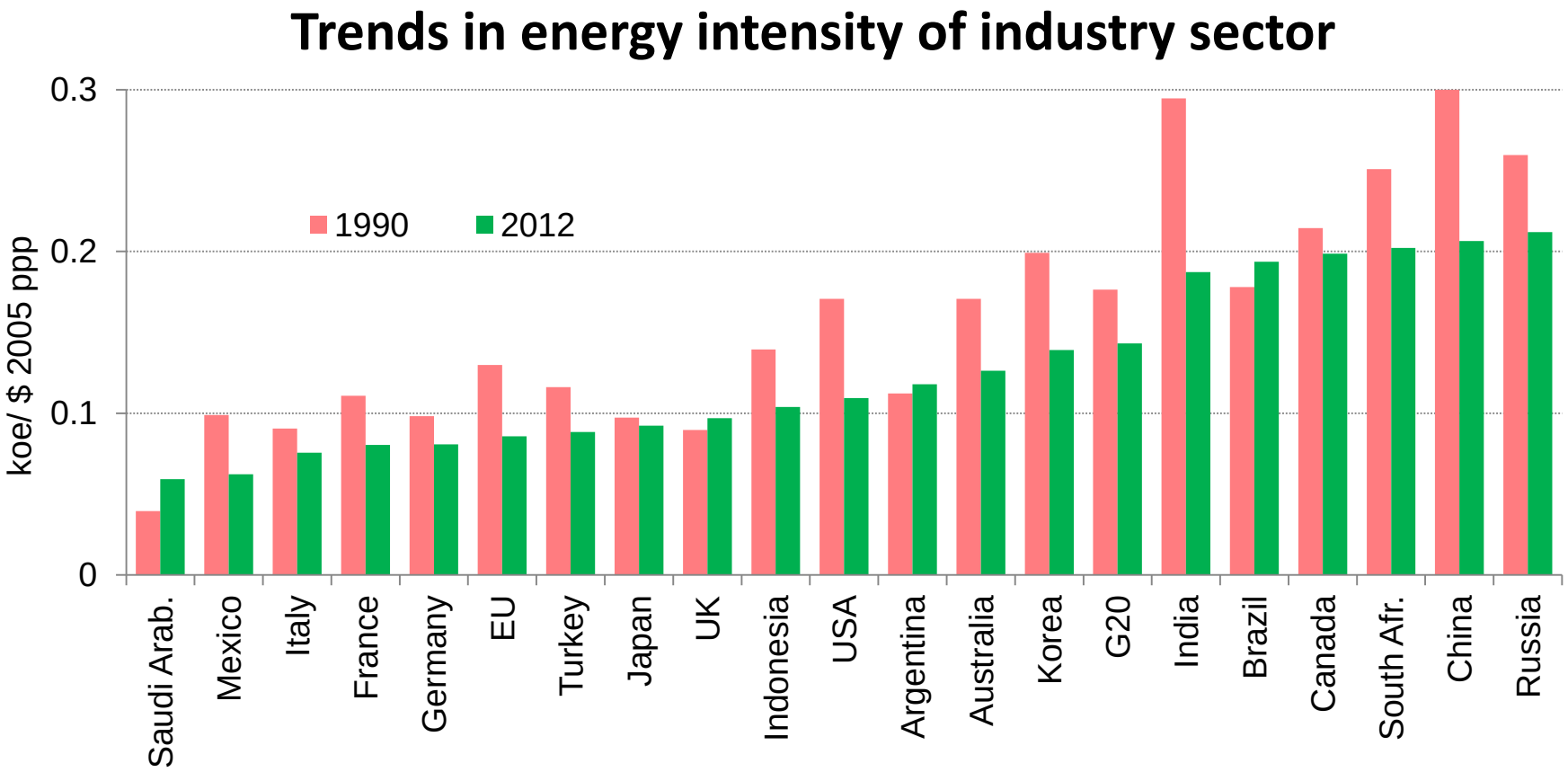
Improving Policies through Energy Efficiency Indicators (IPEEI initiative) : The 4 main tasks

1. Exhaustive cross country comparison on recent energy efficiency trends of G20 countries, based on a centralized data collection system (30 EEI);
2. Extensive in-country or regional trainings on energy efficiency indicators for G20/IPEEC countries, with possible attendance for all countries;
3. EEI methodologies implementation for IPEEC countries and associated , based on voluntary basis and through a decentralized data collection system (UN-ECLAC-BEEI project);
4. Monitoring and evaluation of national energy efficiency strategies through indicators.

Energy efficiency indicators analysis : example of industry at world level

Since 1990, the general trend in industry is towards a decrease in the energy required per unit of value added (-1%/y for G20 as a whole).

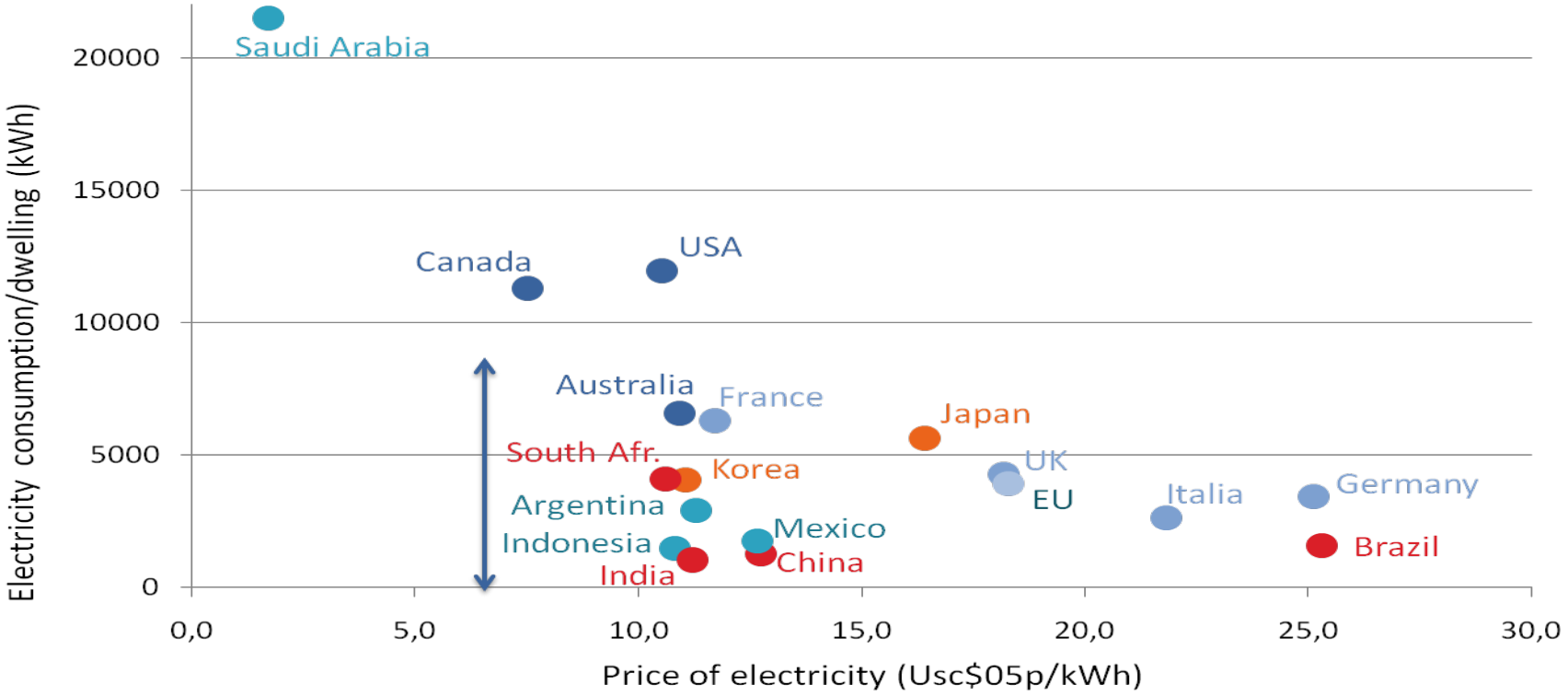
These energy intensity levels are converging because of the globalisation of industrial activities.



EEI analysis : example of electricity consumption of households

The higher the prices, the lower the electricity consumption per dwelling but large range of electricity consumption per dwelling for a quite similar level of prices

Electricity consumption by electrified household and prices of electricity (2010)



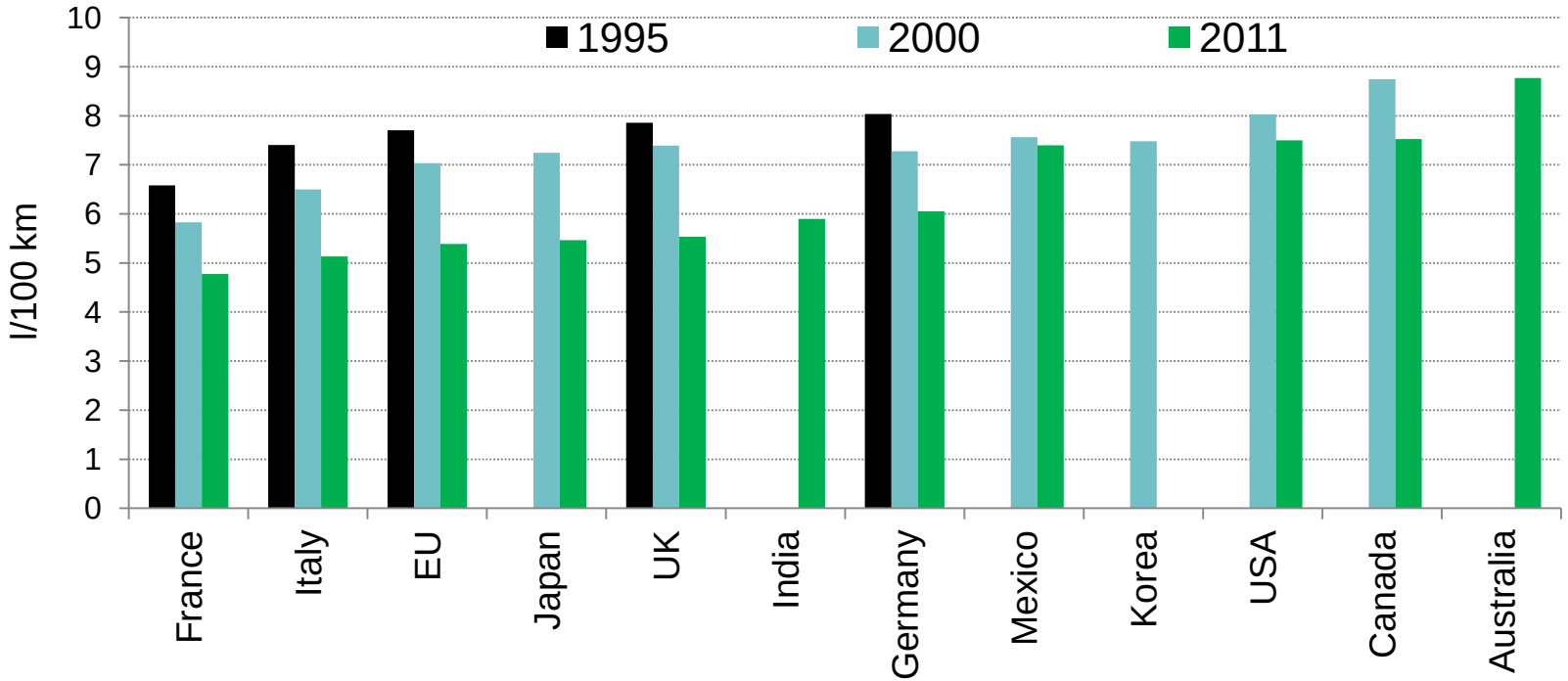
EEI analysis : example of motor fuel consumption of new cars

Decrease of the specific consumption of new cars by about 20% in EU and Japan due to the agreement between the cars manufacturers (ACEA, JAMA, KAMA) and the European Commission for the EU and the top-runner program in Japan.

10% progress in North America due to the CAFE standards

12% improvement for China since 2002 (14% for South Korea since 2003)

Specific consumption of new cars



BIEE Project: Objectives

- Develop a monitoring system to assess policies and programs on EE in the participating countries
- Promote the regional comparability (at the aggregate as well as the sectoral levels)
- Encourage capacity building on EE indicators
- Motivate the maturity in the implementation of EE policies and programs based on monitoring, measure and standardization

BIEE main features

- **Co-financed by UN-ECLAC and ADEME (France)**
- **Duration:** Phase 1 from Jan. 2012 to March 2014; Phase 2 from April 2014 up to Dec. 2015
- **18 LAC participating Countries**
- **7 workshops organised**
- **Management**: Technical coordination Committee (ECLAC – ADEME), OLADE observer
- **Operative structure**: Technical Coordination Committee (ECLAC-ADEME), National teams
- **Deliverables**: database on EE indicators, Regional data mapper, web site, national reports (6)
- Web site : BIEE http://www.cepal.org/drni/biee/

BIEE Project 2011-2013: Current activities

1. **Capacity Building Workshops** (presentation of the indicators' template, data compilation process, estimations and calculations, selection of indicators and National Reports)
2. **Data collection process** (based on available information)
3. **Report the achievements** of the policies and programs on EE
4. **Implementation of the regional database**
5. **Reporting** including analysis and trends comparison
6. **Website** (regional network of officers and experts)
7. **Technical Study Tour in Europe:** GIZ + ADEME + WEC + IEA meetings

The UN-CEPAL/IPEEC/ADEME data mapper
Example : electricity consumption per electrified household

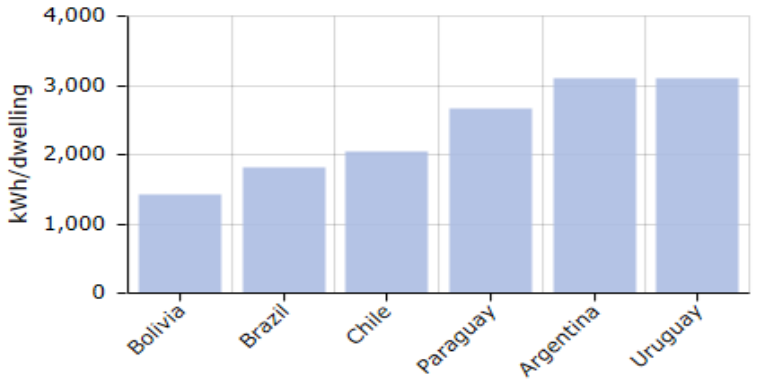
BIEE - *Base de Indicadores de Eficiencia Energética*

- Global indicators
- Power sector
- Industry
- Transport
- **Households**
  - Electrification rate
  - **Energy use per household**
    - Total
    - Electricity
    - **Electrified households**
  - **Energy consumption by end-uses**
    - Space heating
    - Cooking
    - Air conditioning
  - Dwelling with solar water heaters
- Services
- Agriculture

Enerdata

Electricity consumption per electrified households

2010 | 2000/2010 | Map | Excel



BIEE Project 2014-2015 :
Facilitating the dialogo in the perspective of COP21

- **Extension of the BEEI countries coverage**
- **Updating of existing EEI**
- **Capacity building on :**

  Development of new indicators

  Monitoring of NEEAP through indicators

  Interpretation of energy efficiency trends

- **Reporting on national energy efficiency trends and on regional trends (benchmarking)**
- **Dissemination of results**

  Interactive internet regional datamapper

  Workshops and EE latin american dialogo

  COP 21?

- **Implementation of a regional EE policies data base**

Thank you for your attention
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www. odyssee-indicators.org; for EE indicators in Europe

www. MURE2.com, for policies in Europe

www. worldenergy.org for indicators and policies at world level