The importance of end-use data for monitoring energy efficiency

Energy End-Use Data and Energy Efficiency Metrics initiative
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End use data what are they?

Design and monitoring policies require data beyond the energy balance

- **We do not need energy per se but to fulfil social needs**
  - *Eating/cooking, health/sanitary hot water, products production (process mix in industry), commuting, increasing comfort at home -space heating, cooling-*

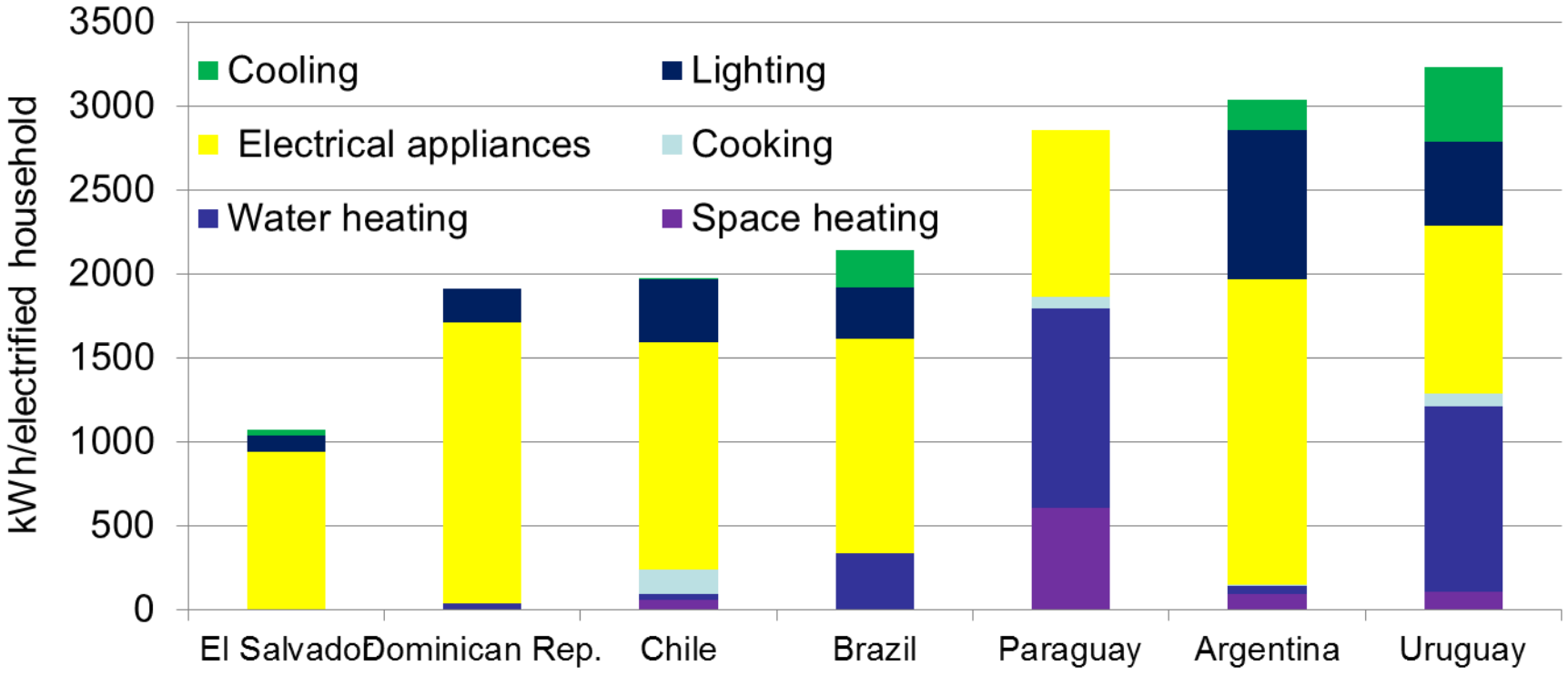
  → Detailed information on end uses (energy, equipment, P&M)

- **Classical energy balance does not provide sufficiently detailed end use data**

  → Detailed end-use surveys at consumers' level

  - *Consumption in industry by branches, processes and products*
  - *Consumption in buildings by end-uses and building characteristics*
  - *Consumption of transport by modes and vehicle types*

Energy end-use data
First attempt in latin American countries on housing (2013)

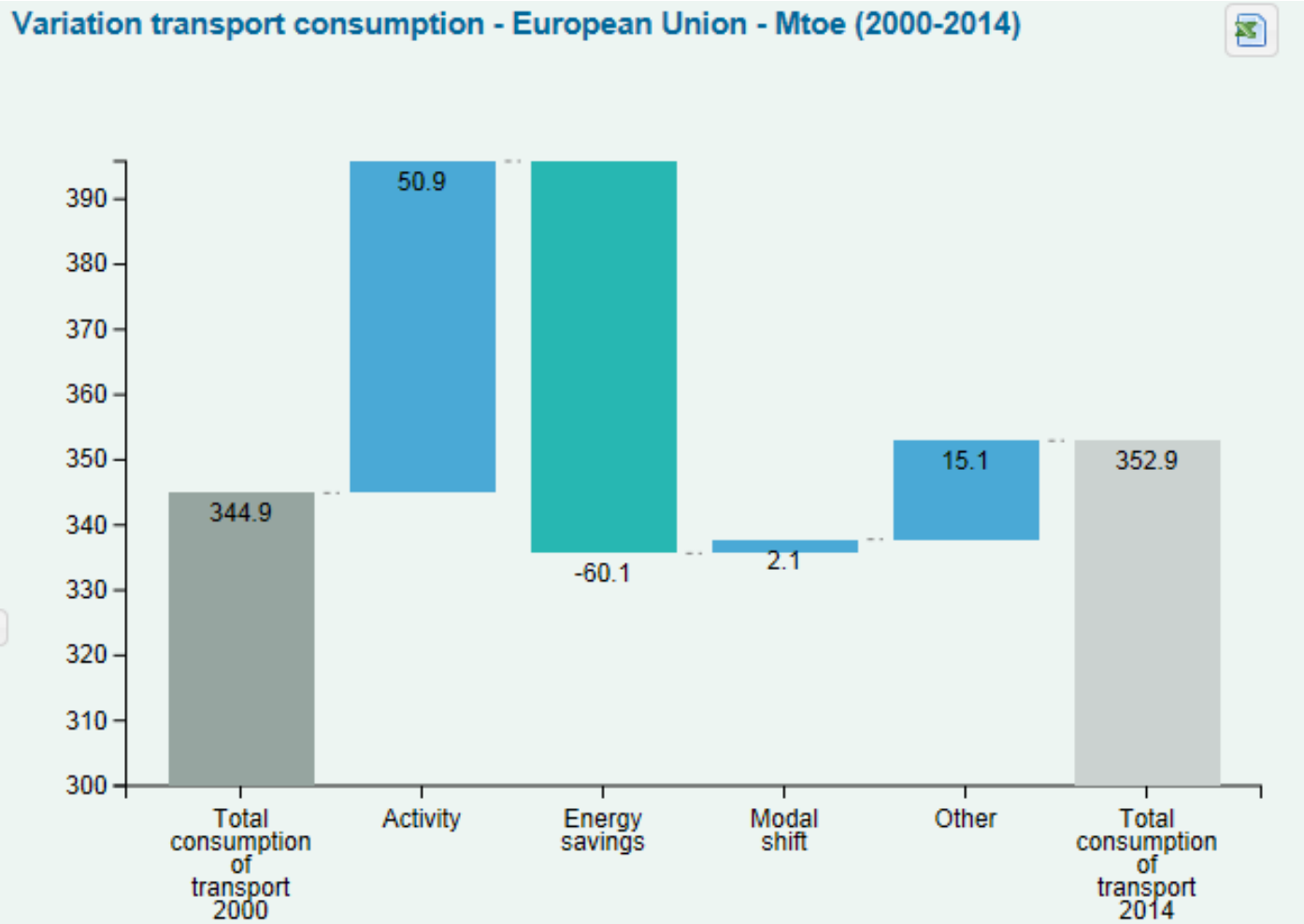


Source ADEME /Cepal BIEE

End-uses data for Who, for What?

Decisions makers and local authorities	Target setting, target tracking, NEEAP and territories Action plan policy design, policy implementation, efficiency of public budget spending, reporting and transparency to parliament or national and international organisations (INDC's & P&Ms)
Policy Implementers	Market shares, energy saving potential, policies evaluation, MRV, comparison of performances, reporting, forecasting
Utilities	Market share (% of distric heating), energy consuming equipment
Equipment manufacturers	Market shares, diffusion of energy using equipment (% of heat pump, of condensing boiler),
Other businesses (Insurance, bank, intensive industries)	Projects evaluation, reporting and benchmark
Researches and analysts	Drivers of energy demand and energy efficiency
Others (NGOs, Consummer associations, Media)	General information

Decomposition analysis to analyse trends



French NEEAP : a mandatory Energy Saving calculation using Energy Efficiency Indicators (Ex transport)

CODE ESD	Energy efficiency indicators	Indicator units	2007-2008 savings (ktoe)	2007-2009 savings (ktoe)
P8	Energy consumption of car per passenger km	toe/pkm	67	167
A1 FOR P8	Energy consumption of car	l/100km	-4	116
P9	Energy consumption of trucks and light vehicles per ton-km	toe/tkm	-107	-1368
A2 FOR P9	Energy consumption of trucks and light vehicles per vehicle	toe/veh	831	1763
P10	Energy consumption of passenger rail transport	toe/pkm	-1	-46
P11	Energy consumption of rail transport per gross ton-km	toe/tkbr	-6	-170
P12	Share of public transport in total passenger transport	%	153	132
P13	Share of rail, water transport in total freight transport	%	26	-75
	Total 2 with preferred indicators		**250**	**630**

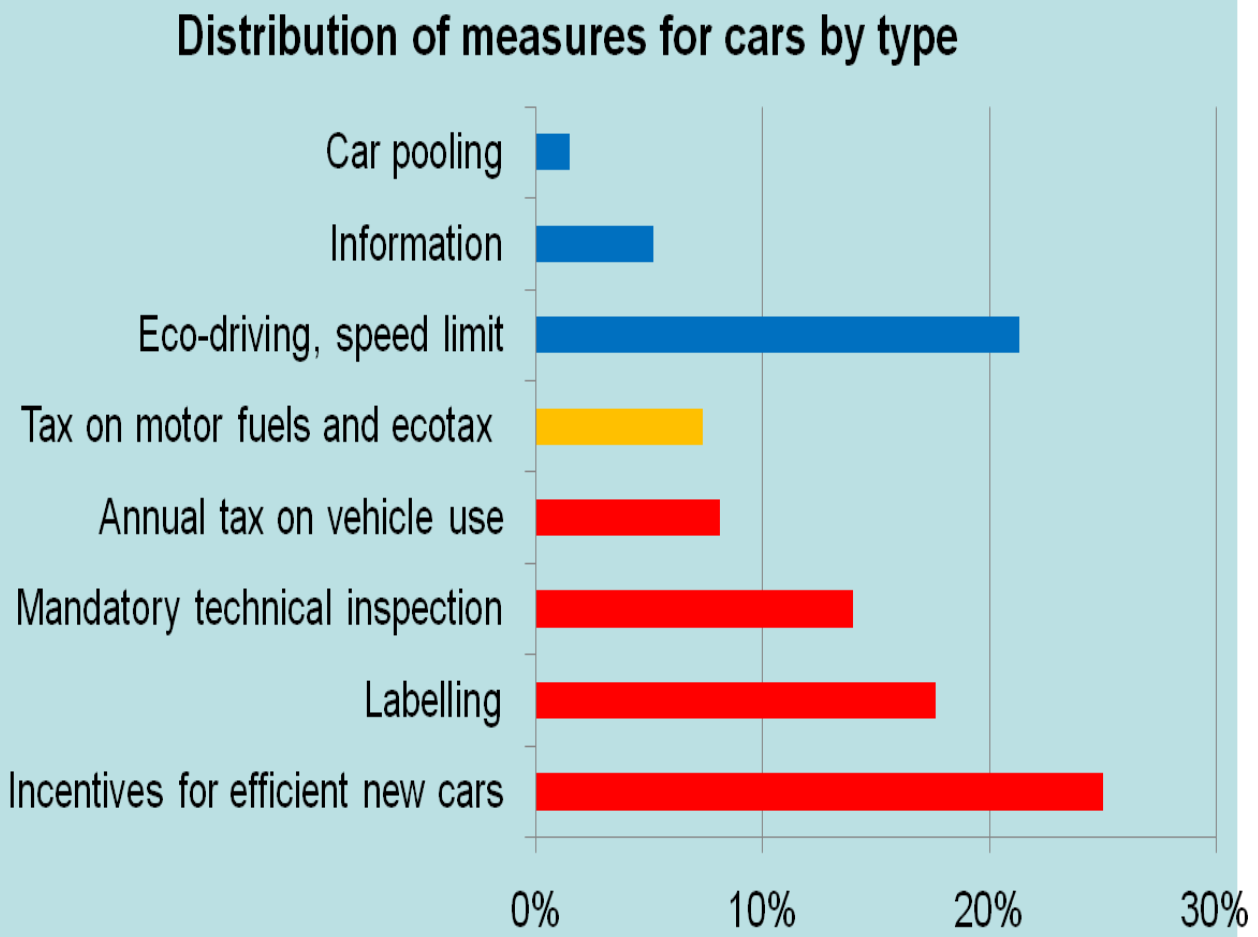
Policies are usually focused on specific end-uses

Indicators

l/100 km (overall fleet stock)

Goe/pkm

l/100km (new cars)



How ? Example : France

CENTRE D'ÉTUDES ET DE RECHERCHES ÉCONOMIQUES SUR L'ÉNERGIE

- **Organisation financed by ADEME and utilities : CEREN**
  (Centre for economic studies and research on energy)

- **Detailed surveys on the residential, industry and services sectors**
  - ***Surveys on heated areas and consumptions by sub-sector, energy source and end-use for the services sector***
  - ***Surveys combined with national statistics allowing to get consumptions in real and « normal » climate, by housing type, energy source and by end-use in the residential sector***
  - ***Surveys allowing to get consumptions by sub-sector, by energy source, by end-use in the industry sector***

Residential data system

Base de données d'enquêtes

Panels « ménages »
3000 ménages /an

Maisons FOD depuis 1973
Maisons/Appartements
- Electricité depuis 1985
- Elect-Bois depuis 2000
- Gaz depuis 1984
- Gaz-bois depuis 2008

Pompe à chaleur en maison depuis 2002

Panels « chaufferies » : 150 chauf./an
15000 logts
- Gaz depuis 1989
- FOD depuis 1989

Panels «installateurs» :
500 installateurs./an depuis 1984

Étude «Suivi du Parc et des Consommations»

PARC | **C.U.** | **PARC x CU ➔ Bilan des consommations**

Par énergie
- Electricité
- Gaz
- Fioul
- GPL
- Bois
- Autres

Par usage
- Chauffage
- Eau chaude
- Cuisson
- Elect. spécifique

Par équipement
- Chauf Cent. Ind.
- Chauf Cent. Col.
- PAC,
- Chaud. avec ECS

Thank you for your attention

http://www.odyssee-mure.eu/ for EE indicators and policies in Europe

Outputs example

CONSOMMATIONS FINALES DES RESIDENCES PRINCIPALES EN 2013 SELON LA DATE DE CONSTRUCTION (CLIMAT NORMAL)

TYPE de logement	DATE de construction	Nombre de logements (milliers)	Surface en Millions de m²	Consommations toutes énergies, tous usages (TWh d'énergie finale) Totales	*dont Gaz*	*dont Électricité*	*dont Fuel*	*dont Autres*
Appartements	Avant 1975	7 035	466	90.7	47.2	24.2	6.0	13.4
	1975-1998	3 263	213	34.0	12.4	15.5	1.5	4.7
	1999 et après	1 864	124	17.6	6.4	9.2	0.2	1.8
	TOTAL	12 162	803	142.3	65.9	48.9	7.6	19.9
Maisons	Avant 1975	8 098	869	171.2	51.1	45.1	34.5	40.4
	1975-1998	5 014	578	96.3	18.0	37.8	11.2	29.3
	1999 et après	2 785	324	51.1	11.1	22.5	2.5	15.1
	TOTAL	15 897	1 771	318.6	80.1	105.4	48.2	84.8

Information used to calibrate a modelling tool allowing to assess the impact of incentives on retroffiting works