

# **ENERGY EFFICIENCY INDICATORS**

**IEA Data Training Workshop in South Africa  
11-13 October 2010**

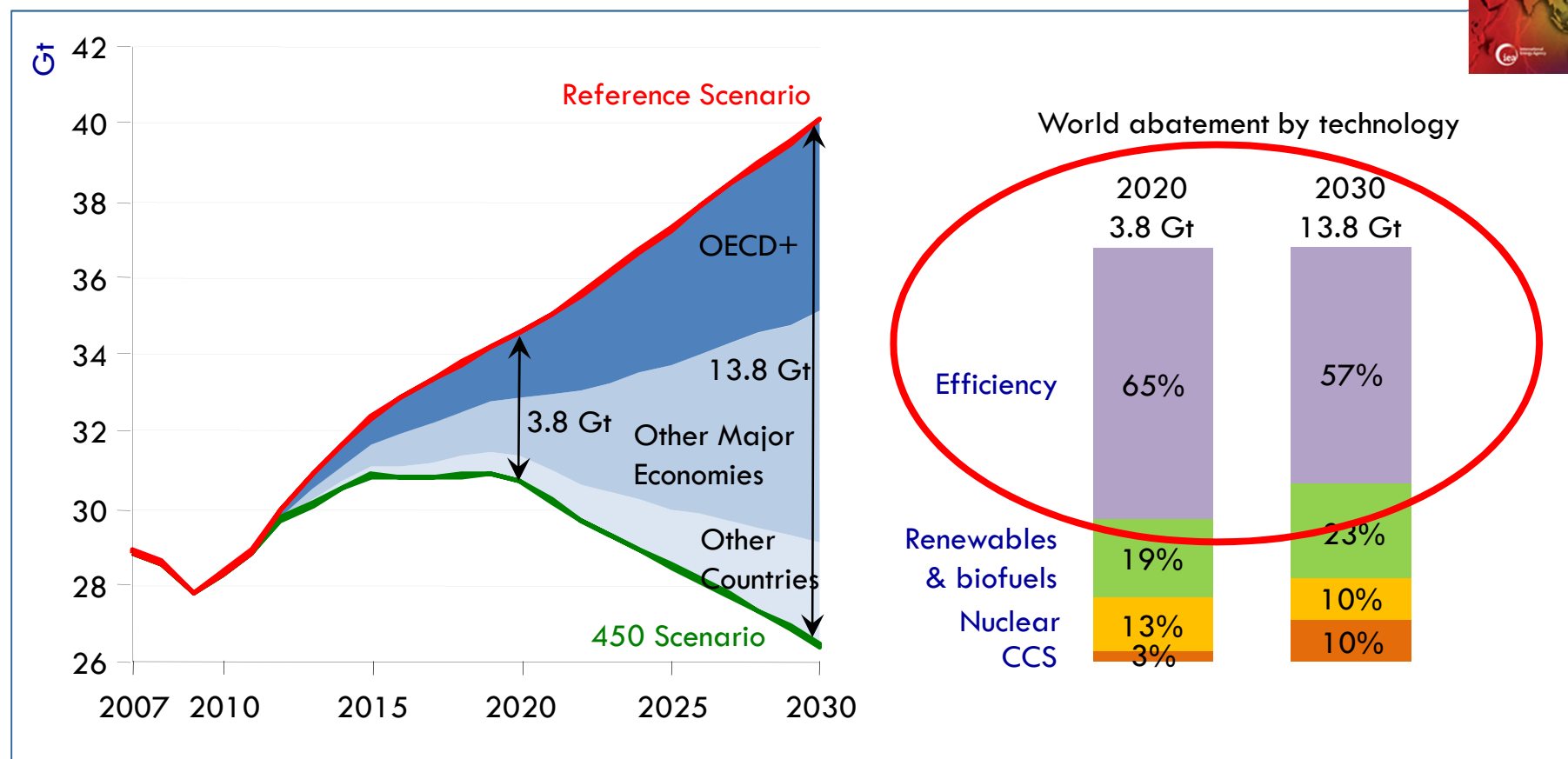
**Jean-Yves Garnier  
Energy Statistics Division**



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# **Why such a high interest in efficiency**

- **Saving energy in all sectors:**
  - **Residential**
  - **Transports**
  - **Industry**
  - **Services**
  - **Electricity generation**
- **Increasing exports - reducing imports**
- **Increasing domestic (and global) energy security**
- **Strengthening RD&D**
- **Creating jobs**
- **Reducing green house gas (mainly CO<sub>2</sub>) emissions**



➔ **More than 50% of the reduction of CO<sub>2</sub> emissions should come from energy efficiency**



- **China**      **Reduce CO<sub>2</sub> intensity of the economy by 40-45% between 2005 and 2020**
  - **India**      **Reduce CO<sub>2</sub> intensity of the economy by 20% between 2005 and 2020**
  - **The European Union: the 20-20-20 programme by 2020**
    - **Contribution of energy efficiency to reduce the energy consumption by 20%**
  - **Russia:**      **Reduce the energy intensity of GDP of the**
- els.

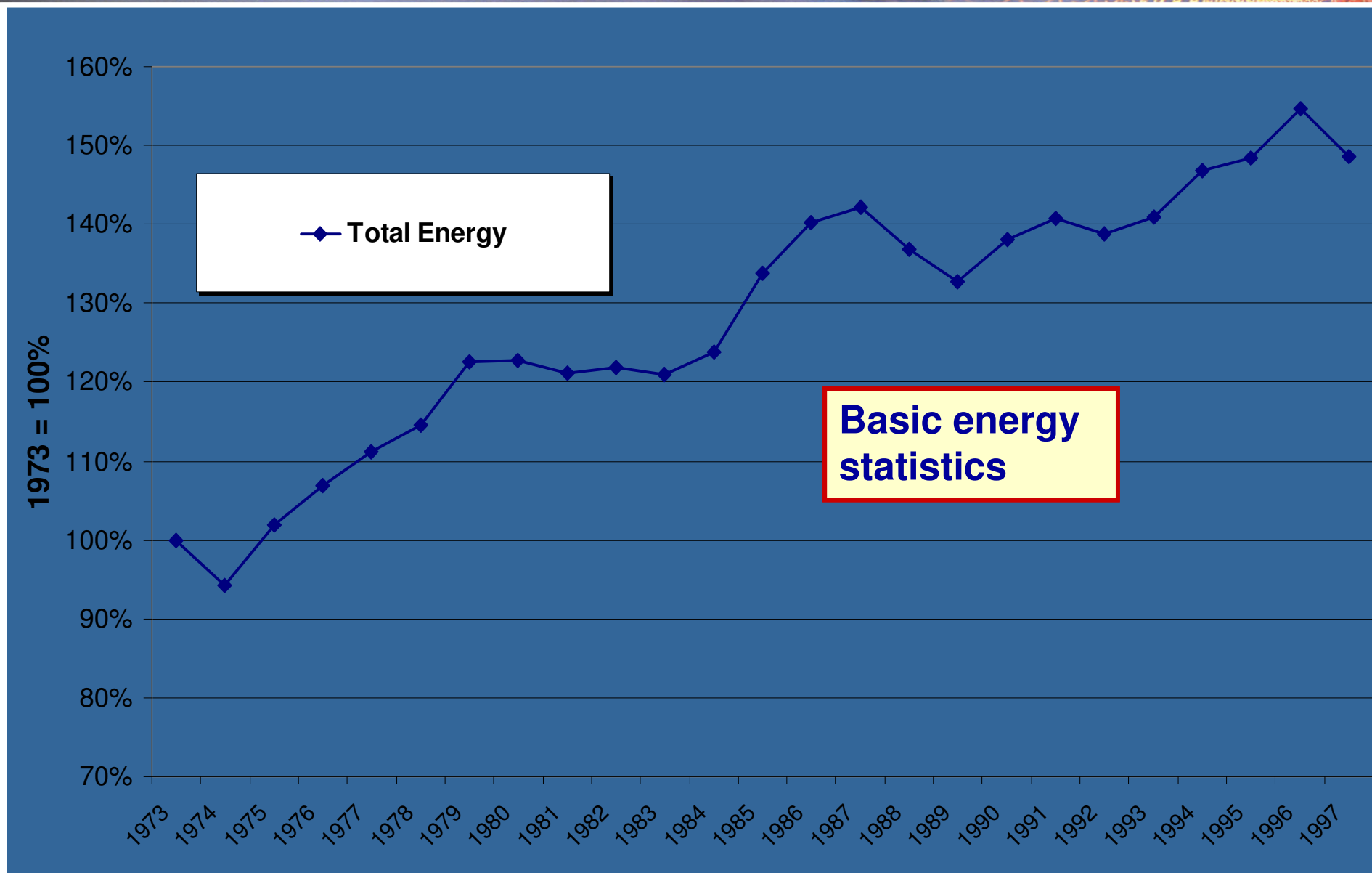
**How to verify if countries meet their targets?**

Identify priorities for energy efficiency policies

**Assess progresses and failures of policies**

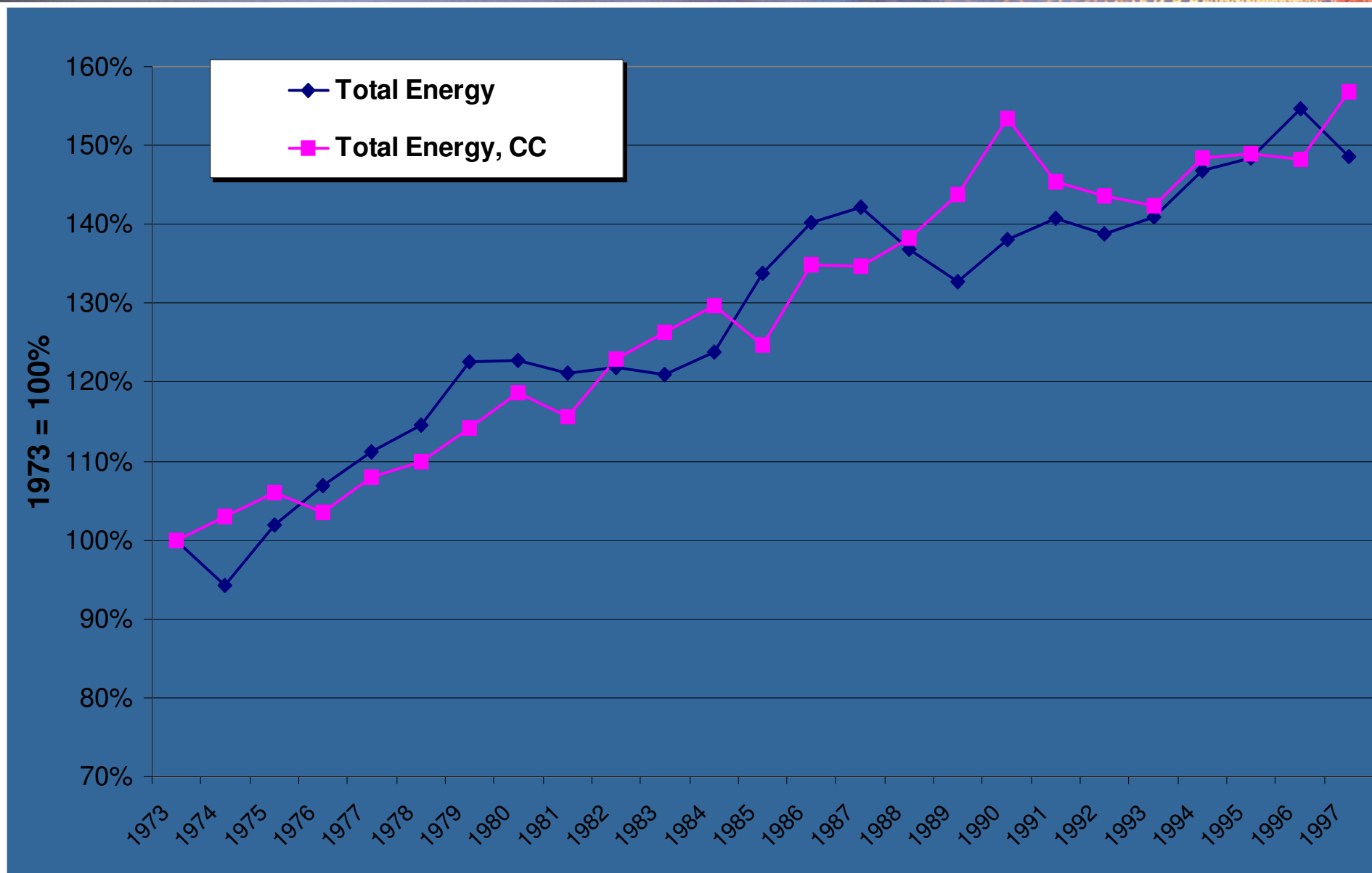


# Why Go Beyond Aggregate Energy Consumption Data?



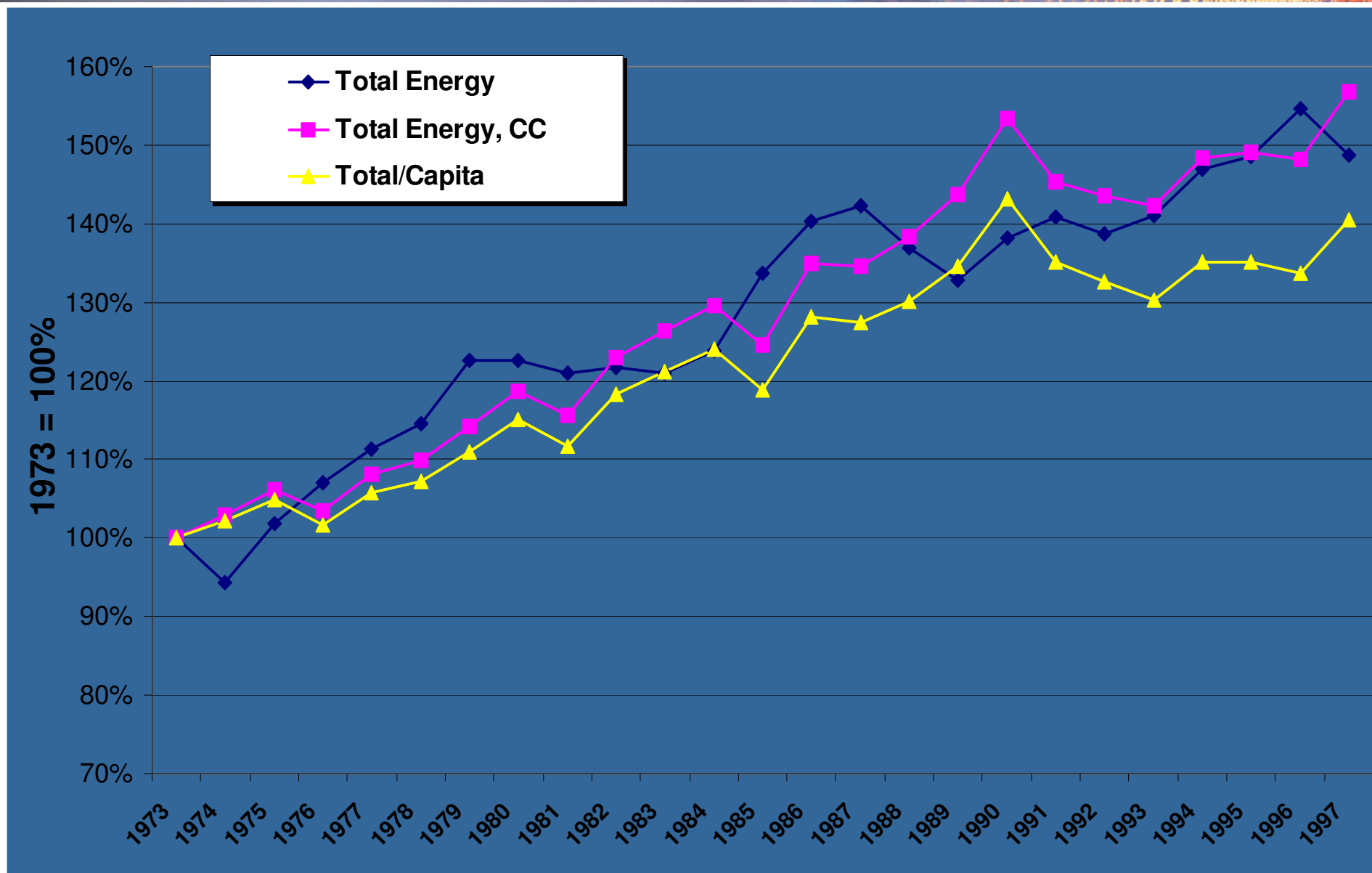
**Example of Canada's Residential Sector**

# Why Go Beyond Aggregate Energy Consumption Data?



Example of Canada's Residential Sector

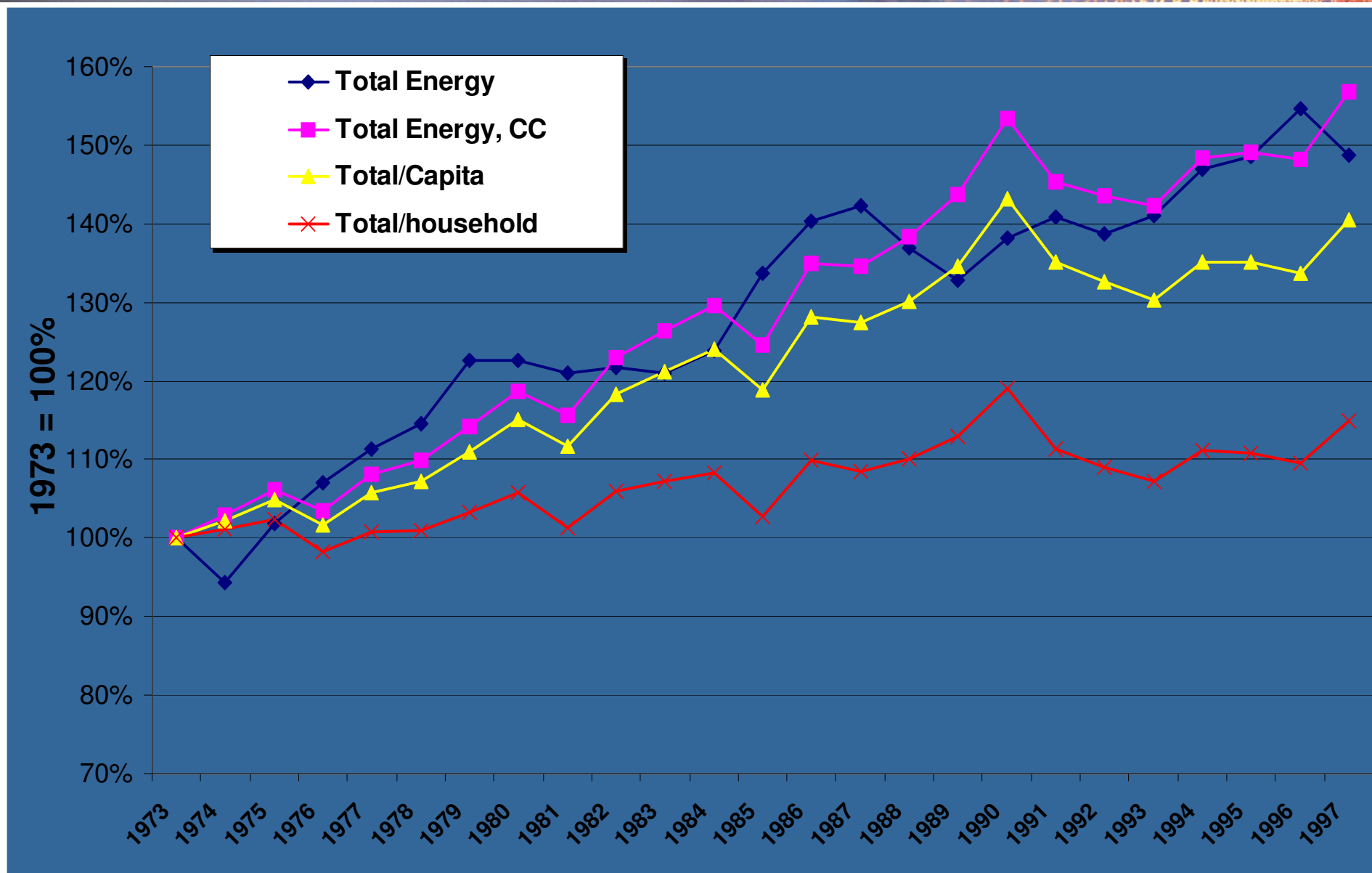
# Why Go Beyond Aggregate Energy Consumption Data?



Example of Canada's Residential Sector

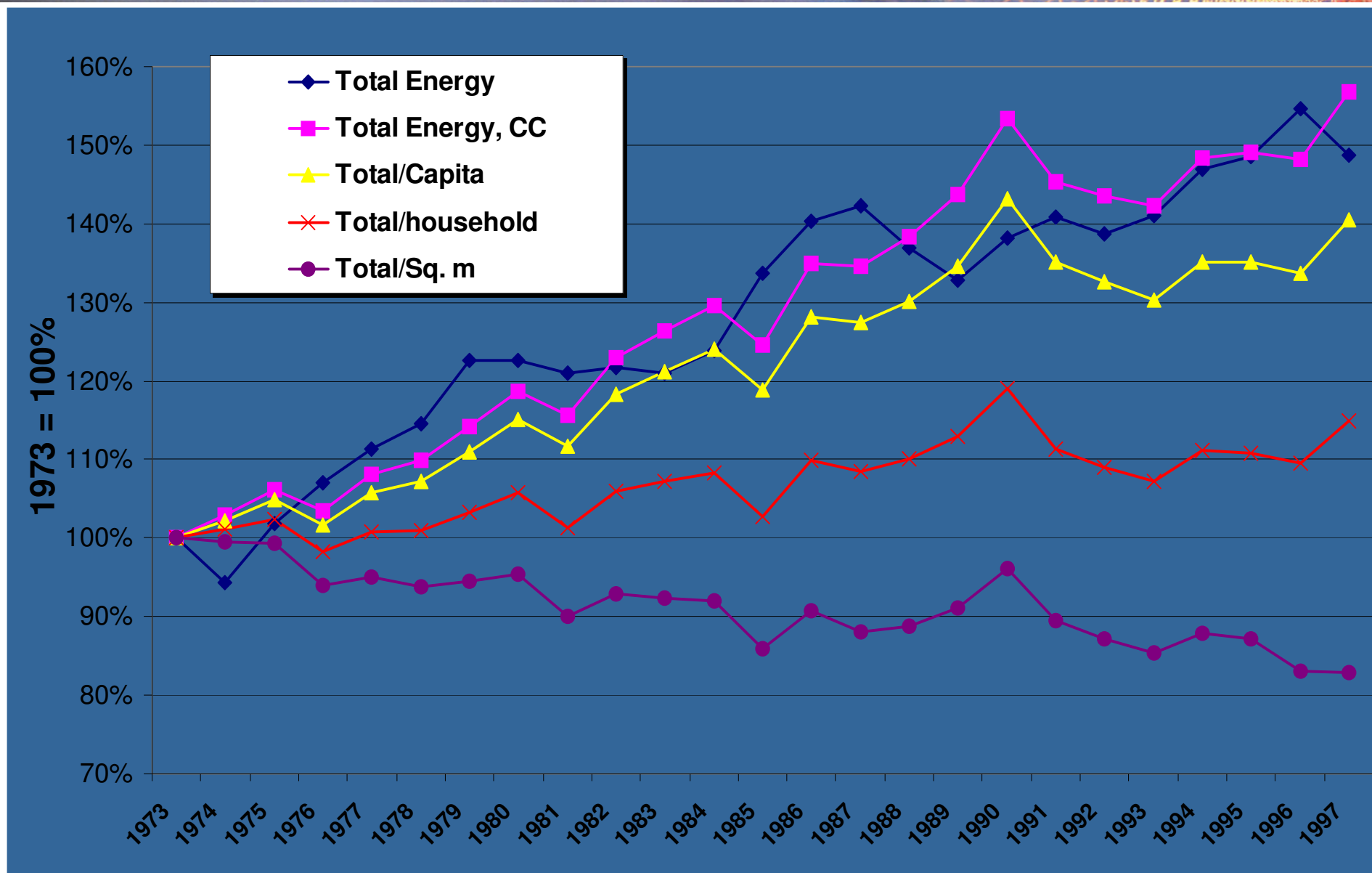


# Why Go Beyond Aggregate Energy Consumption Data?



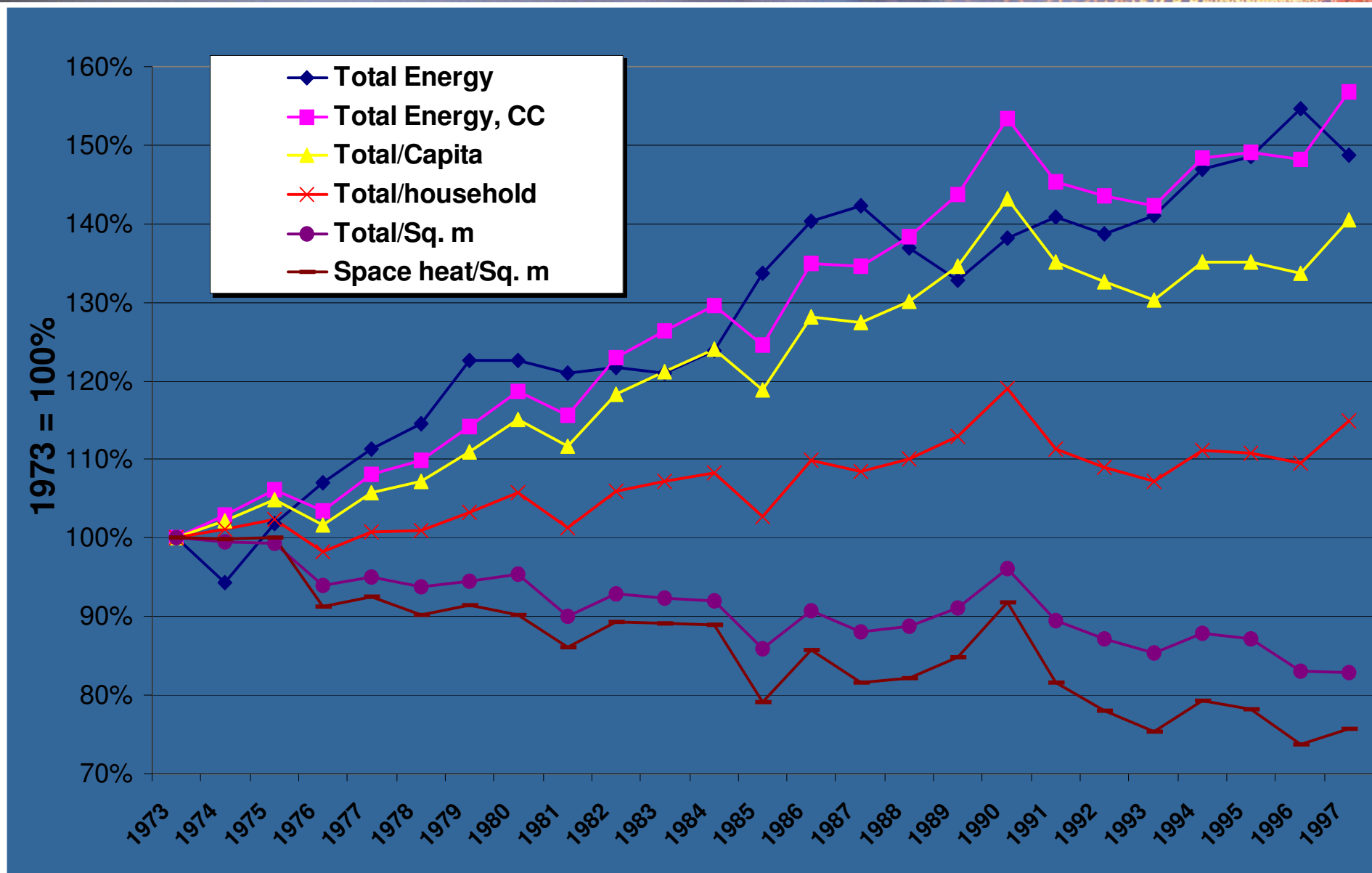
Example of Canada's Residential Sector

# Why Go Beyond Aggregate Energy Consumption Data?



Example of Canada's Residential Sector

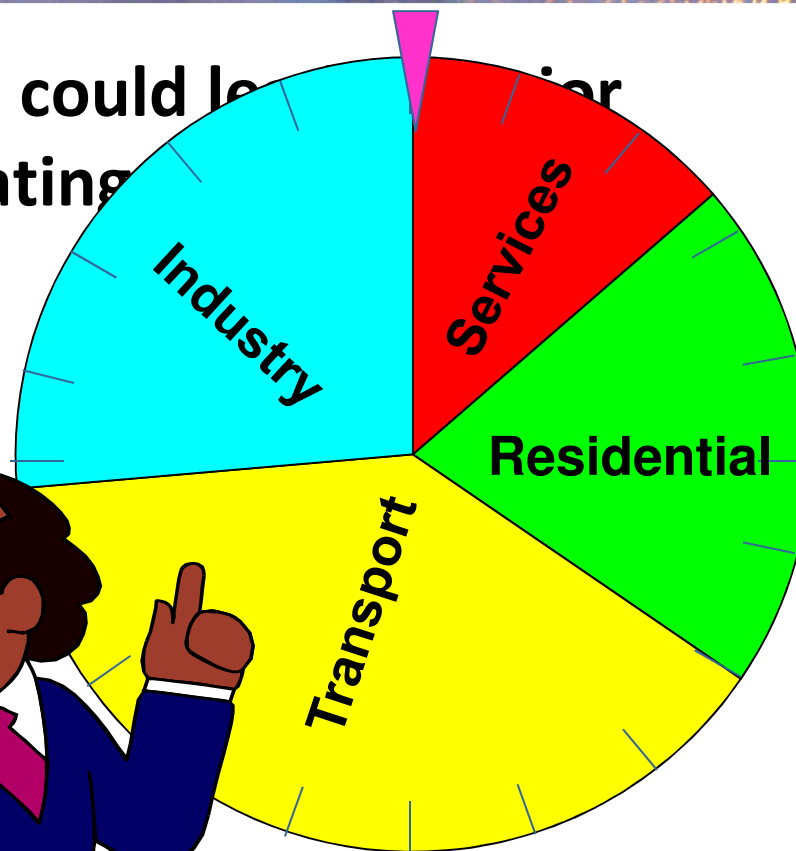
# Why Go Beyond Aggregate Energy Consumption Data?



Example of Canada's Residential Sector



# Lack of proper indicators could lead to uncertainties for formulating



And the 1<sup>st</sup> priority is...

**Industry!**

And the last priority is...

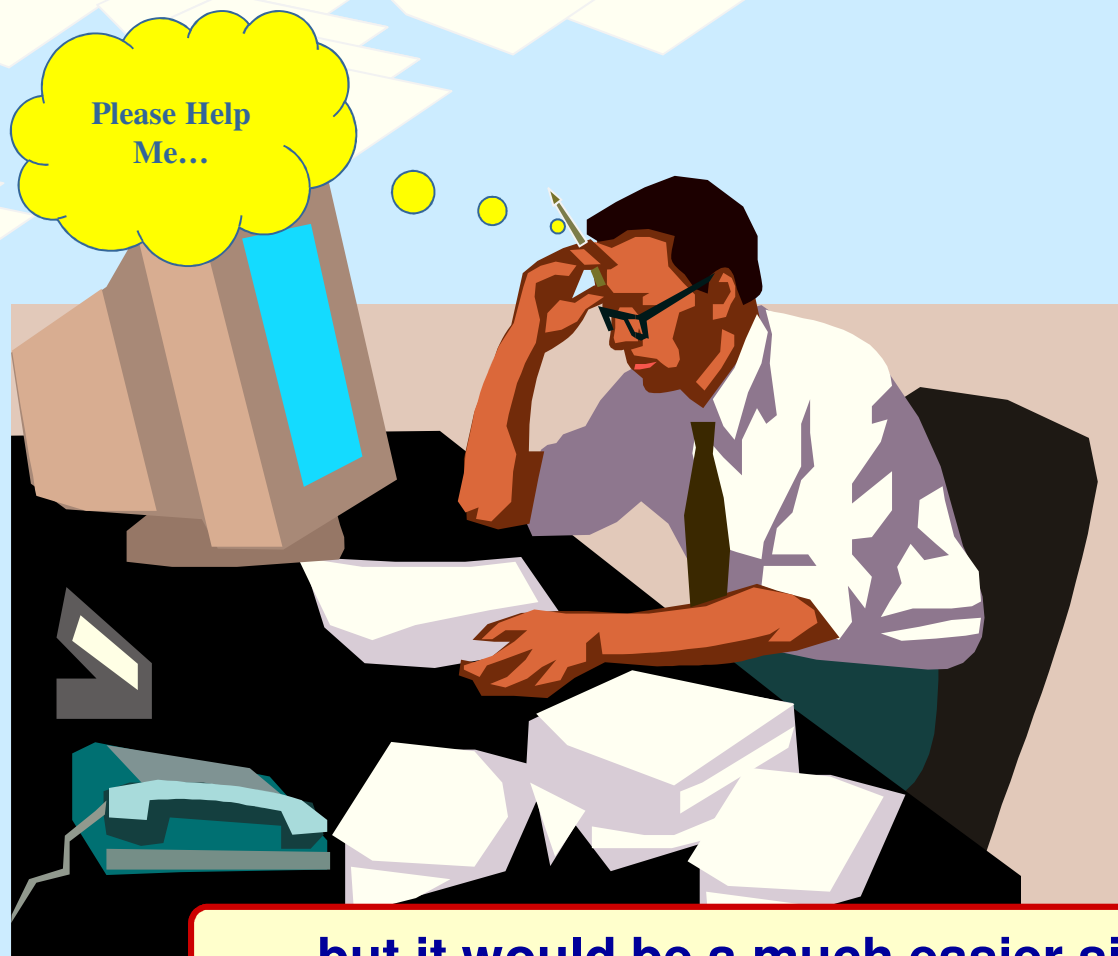
**Residential!**

**The extreme situation**



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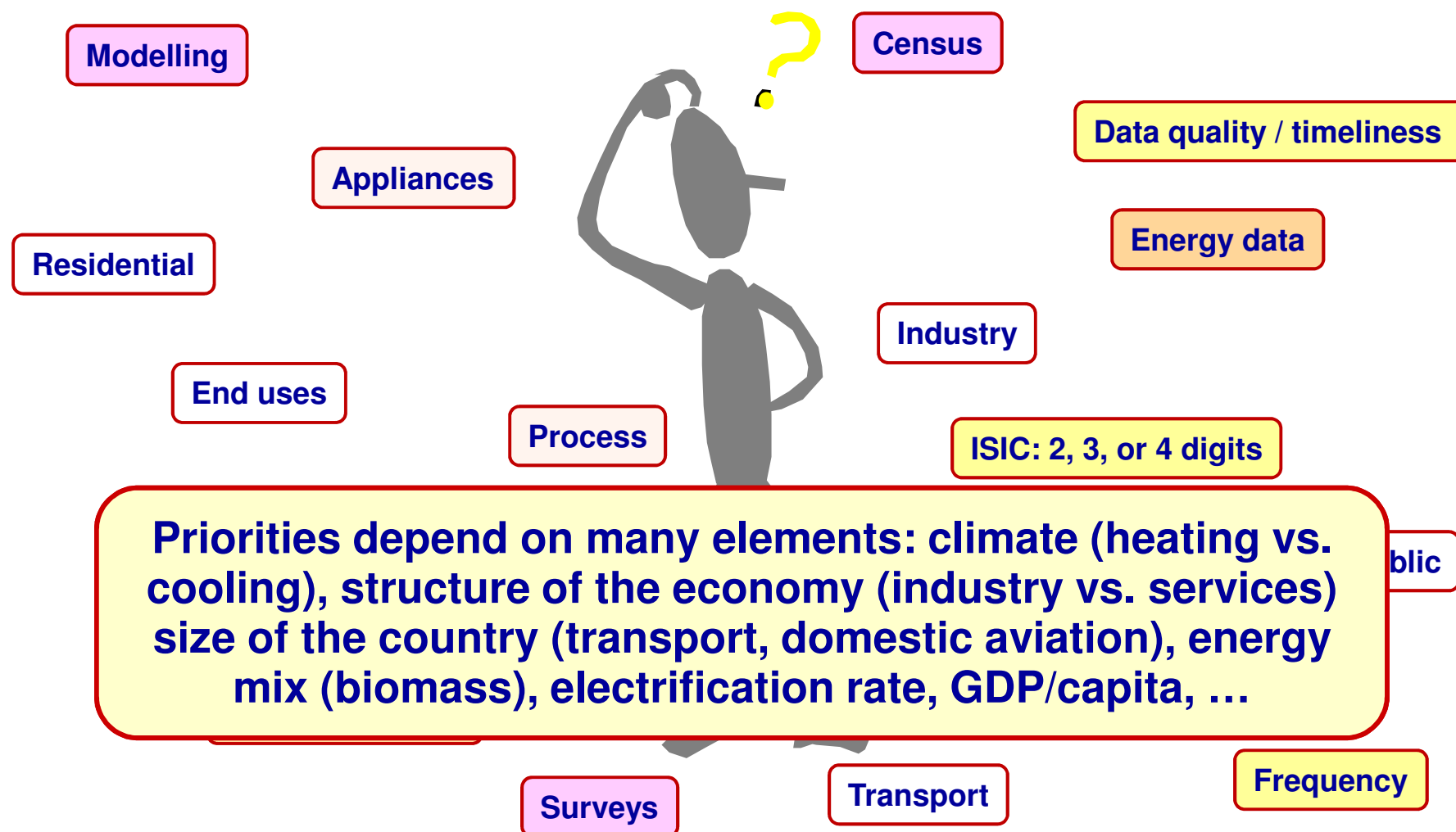
# The other extreme would be to have too much data...



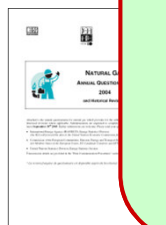
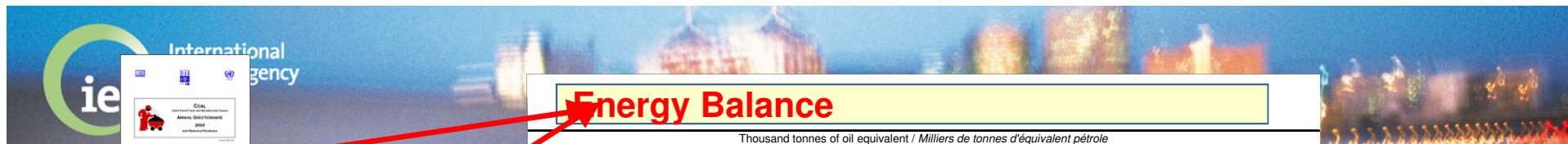
... but it would be a much easier situation!

**What should be collected: Collecting any statistics has a cost. As a consequence, one should limit the collecting to what is necessary.**

## But what is necessary?







## Energy Balance

Thousand tonnes of oil equivalent / Milliers de tonnes d'équivalent pétrole										
SUPPLY AND CONSUMPTION	Coal	Crude Oil	Petroleum Products	Gas	Nuclear	Hydro Geotherm.	Solar etc.	Combust. Renew. & Waste	Electricity	Heat
APPROVISIONNEMENT ET DEMANDE	Charbon	Pétrole brut	Produits pétroliers	Gaz	Nucléaire	Hydro Géotherm. solaire	Comb. ren. & déchets	Electricité		Total
Production	1145355	181427	-	42621	13835	34143	-	223561	-	-
Imports	14893	126817	41493	-	-	-	-	-	431	-
Exports	-55279	-8067	-16722	-2484	-	-	-	-	-963	-
Intl. Marine Bunkers	-	-	-7642	-	-	-	-	-	-	-
Stock Changes	-17345	788	288	-	-	-	-	-	-	-
<b>TPES</b>	<b>1087624</b>	<b>300965</b>	<b>17417</b>	<b>40137</b>	<b>13835</b>	<b>34143</b>	<b>-</b>	<b>223561</b>	<b>-532</b>	
Transfers	-	-74	88	-	-	-	-	-	-	-
Unallocated Differences	7118	-1328	917	-1137	-	-	-	-	-	-
Plants	-527596	-213	-15059	-2637	-13835	-34143	-	-861	214780	-
Refineries	-71089	-3	-2672	-1938	-	-	-	-503	-	-
Information	-6640	-	-144	4841	-	-	-	-	-	-
Plants	-69485	-290405	283439	-	-	-	-	-	-	-
Information	-	-	-	-	-	-	-	-	-	-
Losses	-46624	-5037	-17434	-6549	-	-	-	-	-28398	-
	-	-	-20	-864	-	-	-	-	-14494	-
	<b>373308</b>	<b>3905</b>	<b>266532</b>	<b>31852</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>222197</b>	<b>171355</b>	
<b>SECTOR</b>	<b>279763</b>	<b>2509</b>	<b>35753</b>	<b>12366</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>116217</b>	
Iron and Steel	102809	-	3011	894	-	-	-	-	21882	-
Non-ferrous Metals	28095	-	5380	5589	-	-	-	-	21588	-
Chemicals	8147	-	-	-	-	-	-	-	12639	-
Minerals	85282	-	-	-	-	-	-	-	12179	-
Equipment	3226	-	-	-	-	-	-	-	2580	-
Quarrying	9117	-	-	-	-	-	-	-	13801	-
Tobacco	3628	-	-	-	-	-	-	-	4337	-
Printing	11816	-	-	-	-	-	-	-	4123	-
Wood and Wood Products	8551	-	-	-	-	-	-	-	4019	-
Construction	1870	-	-	-	-	-	-	-	1114	-
Textile and Leather	3200	-	-	-	-	-	-	-	2012	-
Non-specified	9378	-	-	-	-	-	-	-	8288	-
<b>TRANSPORT SECTOR</b>	<b>4642</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>7656</b>	
International Aviation	<b>4080</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>1737</b>	
Domestic Aviation	-	-	-	-	-	-	-	-	-	-
Road	-	-	-	-	-	-	-	-	-	-
Rail	-	-	-	-	-	-	-	-	-	-
Pipeline Transport	4079	-	9129	-	-	-	-	-	1737	-
Domestic Navigation	-	-	4627	9	-	-	-	-	-	-
Non-specified	1	-	9247	-	-	-	-	-	-	-
	1	-	-	-	-	-	-	-	-	1

No breakdown by end use:

- heating
- DHW
- lighting
- cooking
- air conditioning
- appliances

No breakdown by end use and by function of buildings (hospitals, schools, hotels, offices, restaurants, etc.)

What most countries collect on a regular basis is limited to aggregated levels

<b>OTHER SECTORS</b>	<b>67380</b>	<b>238</b>	<b>61076</b>	<b>12071</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>222197</b>	<b>53401</b>	<b>14230</b>	<b>188090</b>
<b>Residential</b>	<b>46162</b>	<b>-</b>	<b>17598</b>	<b>8895</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>222197</b>	<b>24293</b>	<b>12356</b>	<b>156840</b>
<b>Comm. &amp; Pub. Services</b>	<b>5190</b>	<b>-</b>	<b>22302</b>	<b>3177</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>10040</b>	<b>867</b>	<b>11931</b>
<b>Agriculture/Forestry</b>	<b>12155</b>	<b>-</b>	<b>21175</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>7536</b>	<b>18</b>	<b>14286</b>
<b>Fishing</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>Non-specified</b>	<b>3872</b>	<b>238</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>11532</b>	<b>988</b>	<b>5033</b>



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# What indicators can be built from the annual questionnaires

Figure 1. TPES\* in 1973

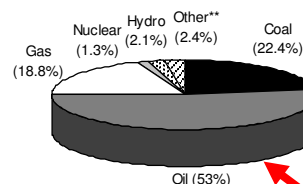


Figure 5. Electricity Generation by Fuel

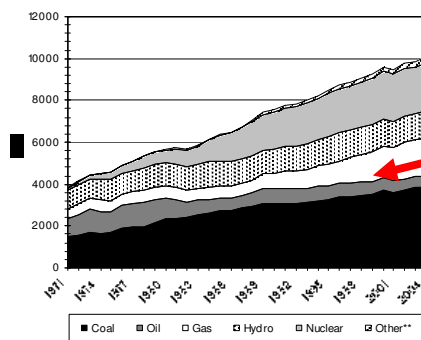


Figure 4. Breakdown of Sectorial Final Consumption by Source in 1973 and 2004

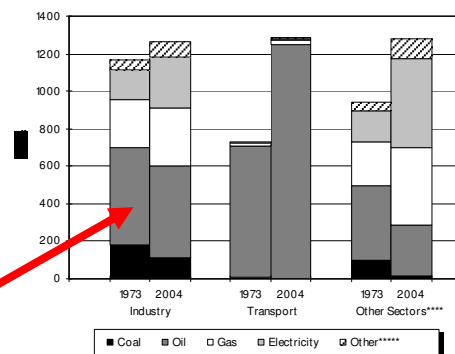
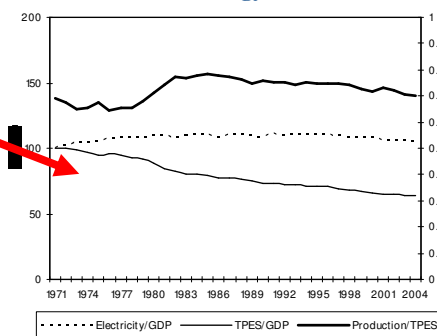


Figure 6. Electricity Consumption/GDP, TPES/GDP and Energy Production/TPES



Energy Production/TPES	0.7265	0.7190	0.7297	0.7195	0.7050	0.7007
Net Oil Imports/GDP (toe per thousand 2000 US\$)	0.0481	0.0474	0.0476	0.0461	0.0474	0.0478
TPES/GDP (toe per thousand 2000 US\$)	0.2108	0.2074	0.2043	0.2033	0.2014	0.1989
TPES/GDP (toe per thousand 2000 US\$ PPP)	0.1993	0.1956	0.1926	0.1912	0.1893	0.1868
TPES/Population (toe per capita)	4.6513	4.7071	4.6524	4.6582	4.6706	4.7322
Oil Supply/GDP (toe per thousand 2000 US\$)	0.0874	0.0844	0.0838	0.0826	0.0822	0.0809
Oil Supply/Population (toe per capita)	1.9284	1.9157	1.9091	1.8925	1.9073	1.9259
Elect. Cons./GDP (k/w/h per 2000 US\$)	0.3525	0.3525	0.3463	0.3488	0.3482	0.3447
Elect. Cons./Population (k/w/h per capita)	7 777	8 001	7 888	7 992	8 076	8 204
Industry Cons.**/Industrial Production (2000=100)	101.50	100.00	99.44	100.25	98.49	97.59
Industry Oil Cons.**/Industrial Production (2000=100)	105.30	100.00	103.41	103.66	103.19	103.74

## **No answer to the following questions from the annual questionnaires**

- **How much energy is consumed to produce a ton of cement, steel, etc?**
- **How much energy is used for heating/cooling a square metre of floor in residential?**
- **What is the average consumption of gasoline per passenger-km in a car?**
- **What is the consumption of electricity in street lighting?**

**The lack of detailed data on energy consumption was one of the starting points for the indicators programme**



Excel

## Energy Efficiency Indicators Template



### COUNTRY DATA SECTION (to be reviewed and updated)

web links

MACRO ECONOMIC DATA	Macro economic and activity data	>>
COMMODITIES	Production outputs from selected energy-consuming industries	>>
INDUSTRY	Energy consumption by ISIC categories	>>
SERVICES	Energy consumption by end-uses in the services sector	>>
RESIDENTIAL	Household energy consumption by end-uses and selected appliances data	>>
TRANSPORT	Energy and activity data for passenger and freight transport	>>

### IEA DATA and AGGREGATE INDICATORS

ELECTRICITY GENERATION	Electricity generation from combustible fuels and efficiencies	>>
BASIC INDICATORS	Predetermined set of aggregate energy and activity indicators	>>

### SUPPORT TOOLS

USER REMARKS	To incorporate comments	
DATA COVERAGE	Generates a graph	
SINGLE INDICATOR GRAPHS	To generate a graph for one energy indicator	>>
MULTIPLE INDICATORS GRAPHS	To generate a graph comparing trends from multiple indicators	>>
CONSISTENCY CHECKS	To run the integrated consistency checks	>>

**Menu driven**

If you have any questions or need assistance with this questionnaire  
visit the dedicated website <http://indicators.iea.org>  
username: indicators  
password: efficiency  
or write to [energyindicators@iea.org](mailto:energyindicators@iea.org)

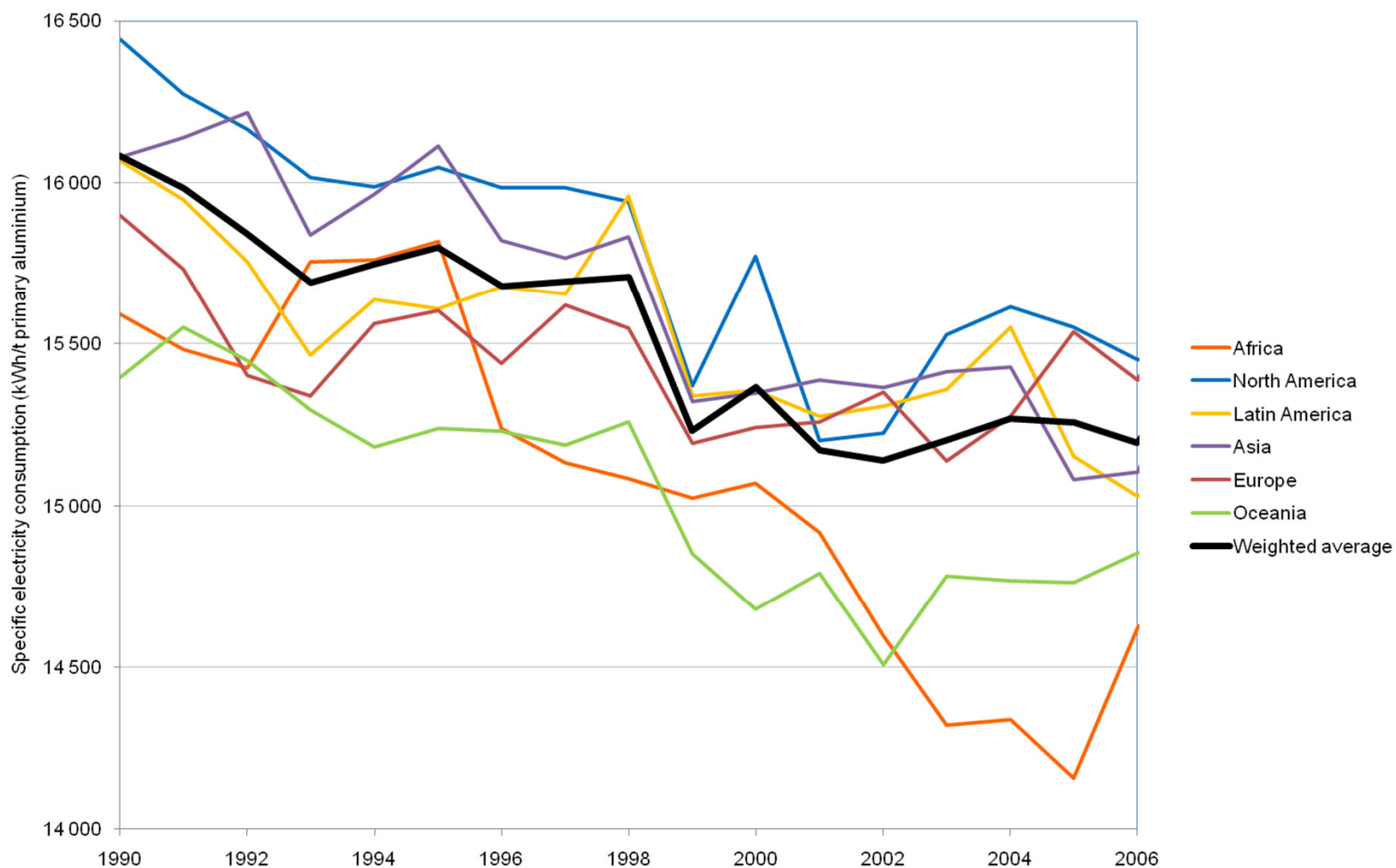
Click on the START button to begin working

START

MAIN MENU | MACRO ECONOMIC DATA | COMMODITIES | INDUSTRY | SERVICES | RESIDENTIAL | TRANSPORT | ELECTRICITY GENERATION | BASIC INDICATORS

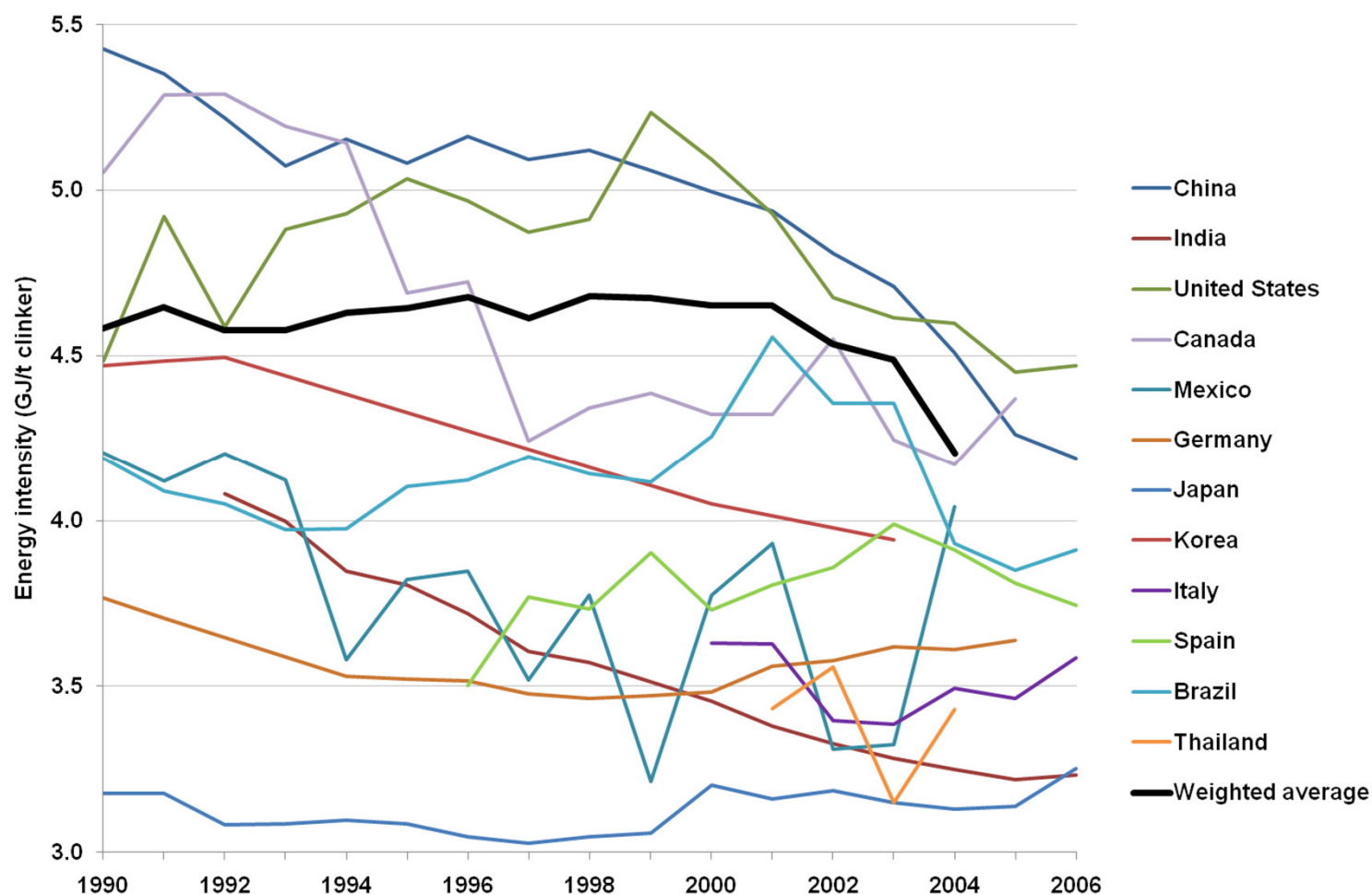
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W
1	COMMODITIES													1999	2000	2001	2002	2003	2004	2005	2006	2007	
2	Menu	Legend	Chart																				
3	Production of commodities by division																						
4	21	21: Manufacture of paper and paper products																					
5	✓	Pulp		Mt										0.88	1.03	1.21	1.39	1.17	1.11	1.16	1.15	0	
6	✓	Chemical pulp		Mt										0.39	0.40	0.41	0.61	0.63	0.64	0.67	0.69	0	
7	✓	Mechanical pulp		Mt										0.37	0.36	0.54	0.54	0.45	0.38	0.39	0.37	0	
8	✓	Recovered Paper		Mt										1.54	1.54	1.63	1.63	1.92	2.18	2.41	3.02	0	
9	✓	Inked		Mt										0	0	0	0	0	0	0	0	0	
10	✓	De-inked		Mt										0	0	0	0	0	0	0	0	0	
11	structural impact - index													#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	
12																							
13	✓	Paper and paperboard		Mt										2.65	2.84	2.67	2.65	3.09	3.10	3.24	3.89	0	
14	✓	Household + Sanitary Paper		Mt										0.19	0.23	0.20	0.20	0.19	0.20	0.22	0.22	0	
15	✓	Newsprint		Mt										0.41	0.46	0.47	0.41	0.46	0.47	0.42	0.42	0	
16	✓	Printing + Writing Paper		Mt										0.50	0.54	0.55	0.50	0.54	0.55	0.66	0.66	0	
17	✓	Wrapping + Packaging Paper + Paperboard		Mt										1.48	1.41	1.43	1.48	1.41	1.43	2.59	2.59	0	
18	✓	Other		Mt										0	0	0.02	0	0	0	0.01	0.01	0	
19	structural impact - index													#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	
20																							
21	24	24: Manufacture of chemicals and chemical products																					
22	✓	Ethylene		Mt										48.42	53.80	53.80					62.31	0	
23	✓	Propylene		Mt										14.53	15.68	16.31					18.31	0	
24	✓	BTX		Mt										0	0	0					0	0	
25	✓	Ammonia (NH3)		Mt										1.72		1.80					1.93	0	
26	✓	Butadiene		Mt										0		0					0	0	
27	structural impact - index													#N/A		#N/A					#N/A	#N/A	
28																							
29	26	26: Manufacture of other non-metallic mineral products																					
30	✓	Cement		Mt										7.50		7.50	7.55	8.00	8.00	9.00		0	
31	✓	Clinker		Mt										0		0	0	0	0	0	0	0	
32	✓	Cement production		Mt										0		0	0	0	0	0	0	0	
33	structural impact - index													#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	
34																							
35	27	27: Manufacture of basic metals																					
36	✓	Crude Steel		Mt										8.17	7.13	7.03	7.53	7.54	7.41				
37	✓	Basic Oxygen Furnace production		Mt										0	0	0	0	0	0				
38	✓	Electric Arc Furnace production		Mt										0	0	0	0	0	0				
39	✓	Direct Reduced Iron		Mt										0	0	0	0	0	0				
40	structural impact - index													#N/A	#N/A	#N/A	#N/A	#N/A	#N/A				
41																							

## Regional Specific Power Consumption in Aluminium Smelting Reported Electrical Power Used per Metric Ton of Primary Aluminium Produced

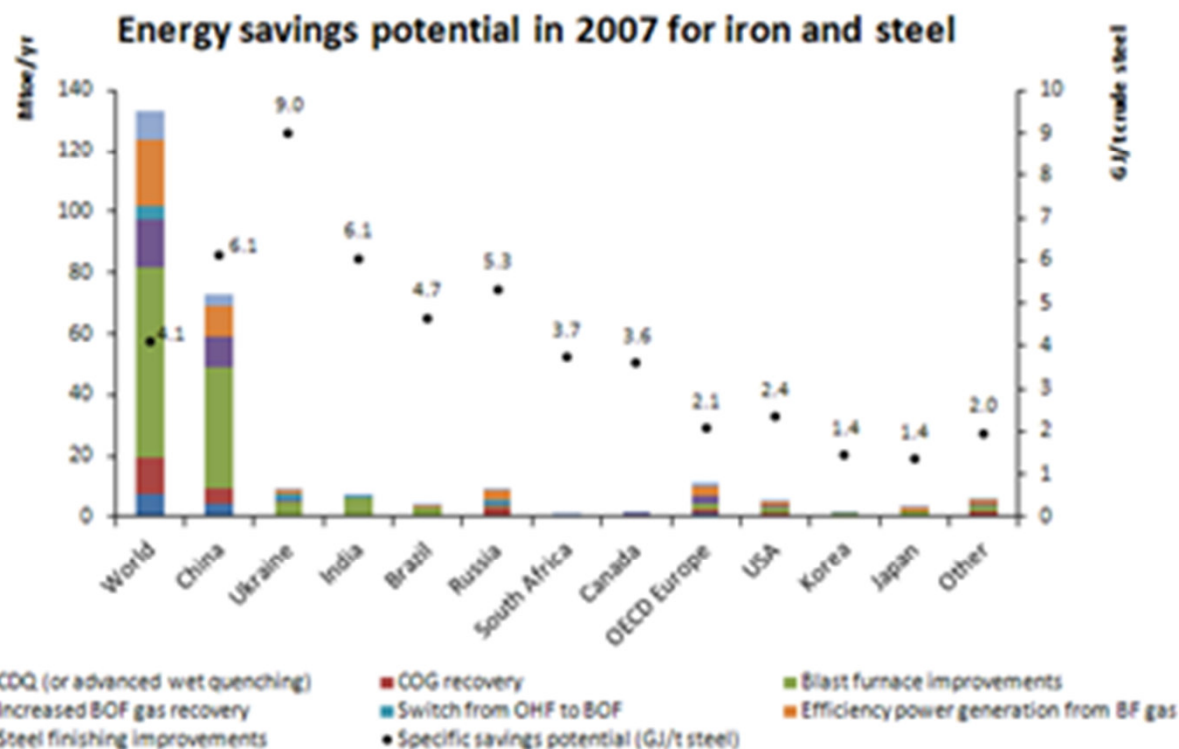




# Thermal Energy Requirement per tonne of Clinker by Country including Alternate Fuels



## Potential for reducing energy consumption



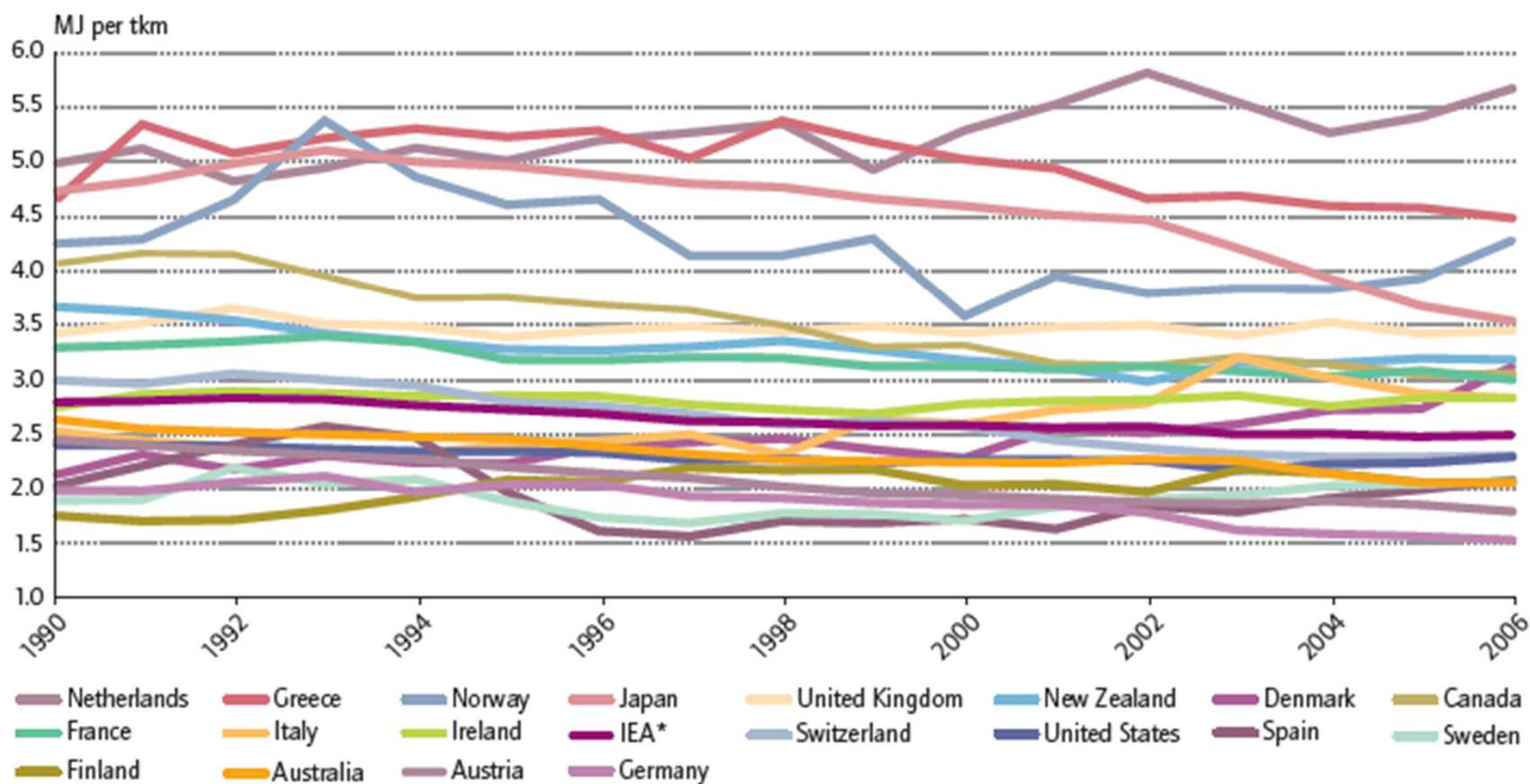
*Despite the significant reduction in energy intensity in recent years, there is still large energy savings potentials in manufacturing sectors*



# TRANSPORT

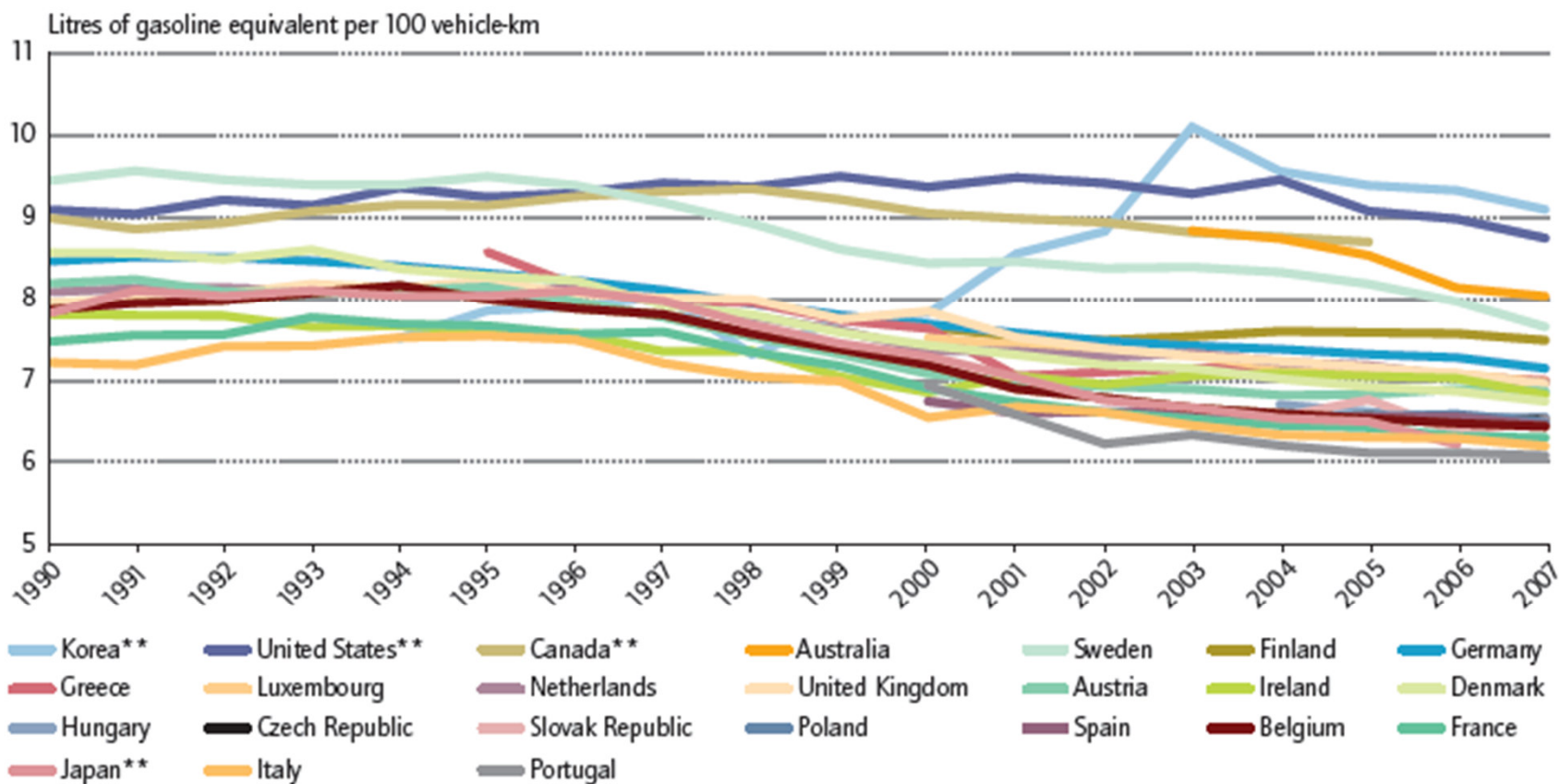
[illegible]

# Truck Freight Energy Intensity



\* IEA average is limited to countries shown in graph.

# Trends in new car fuel intensity

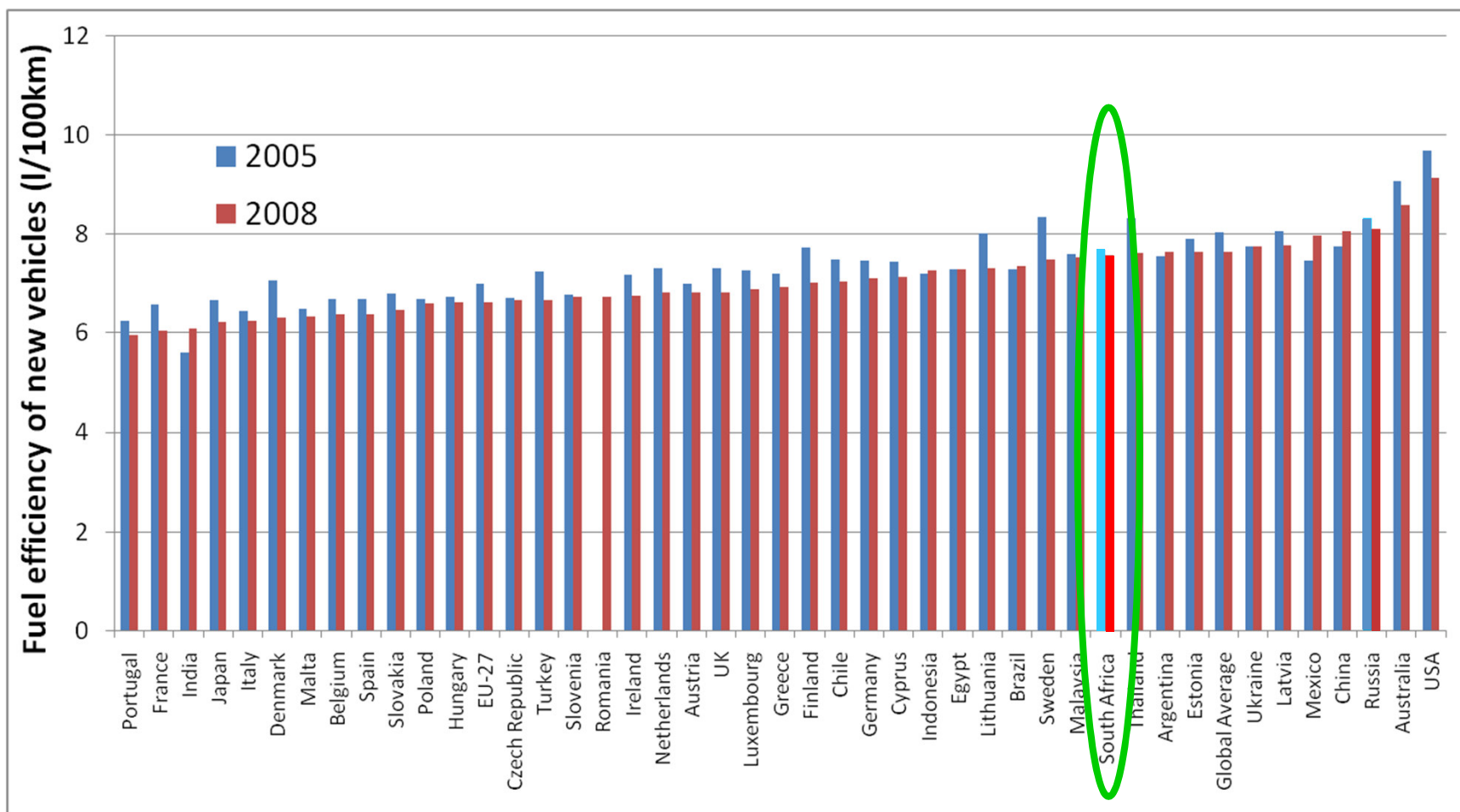


\* IEA average is limited to countries shown in graph.

\*\* Data for Canada, Japan, Korea and the United States are not directly comparable with the other countries.



## Fuel economy of new vehicles





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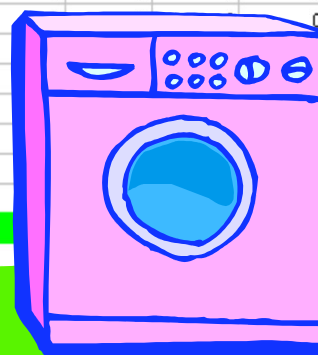
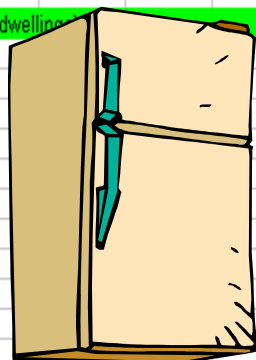
# Diffusion, stocks and average consumption of selected appliances

## RESIDENTIAL

### Appliances Diffusion (as a percentage of occupied dwellings)

		1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Refrigerators	%				0	0	0	0	0	0	0	0	0	0	0	0	0	0
Freezers	%				0	0	0	0	0	0	0	0	0	0	0	0	0	0
Refrigerator/Freezer Combination	%				0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dish Washers	%				0	0	0	0	0	0	0	0	0	0	0	0	0	0
Clothes Washers	%				0	0	0	0	0	0	0	0	0	0	0	0	0	0
Clothes Dryers	%				0	0	0	0	0	0	0	0	0	0	0	0	0	0
Room Air Conditioners	%				0	0	0	0	0	0	0	0	0	0	0	0	0	0
Central Air Conditioners	%				0	0	0	0	0	0	0	0	0	0	0	0	0	0
Television	%				0	0	0	0	0	0	0	0	0	0	0	0	0	0
PC	%				0	0	0	0	0	0	0	0	0	0	0	0	0	0

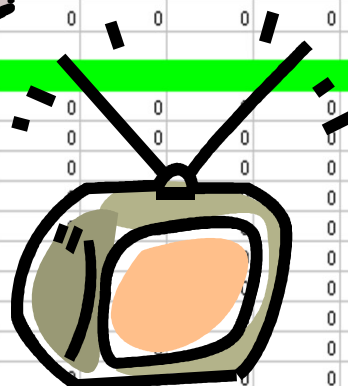
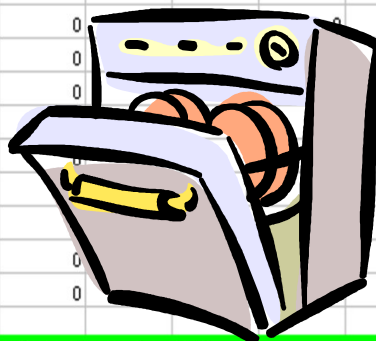
%



### Appliances Stock (only within occupied dwellings)

		1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Refrigerators	10 <sup>6</sup>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Freezers	10 <sup>6</sup>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Refrigerator/Freezer Combinations	10 <sup>6</sup>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dish Washers	10 <sup>6</sup>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Clothes Washers	10 <sup>6</sup>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Clothes Dryers	10 <sup>6</sup>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Room Air Conditioners	10 <sup>6</sup>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Central Air Conditioners	10 <sup>6</sup>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Television	10 <sup>6</sup>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PC	10 <sup>6</sup>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

10<sup>6</sup>



### Appliances, unit energy consumption per year (average for appliances in stock)

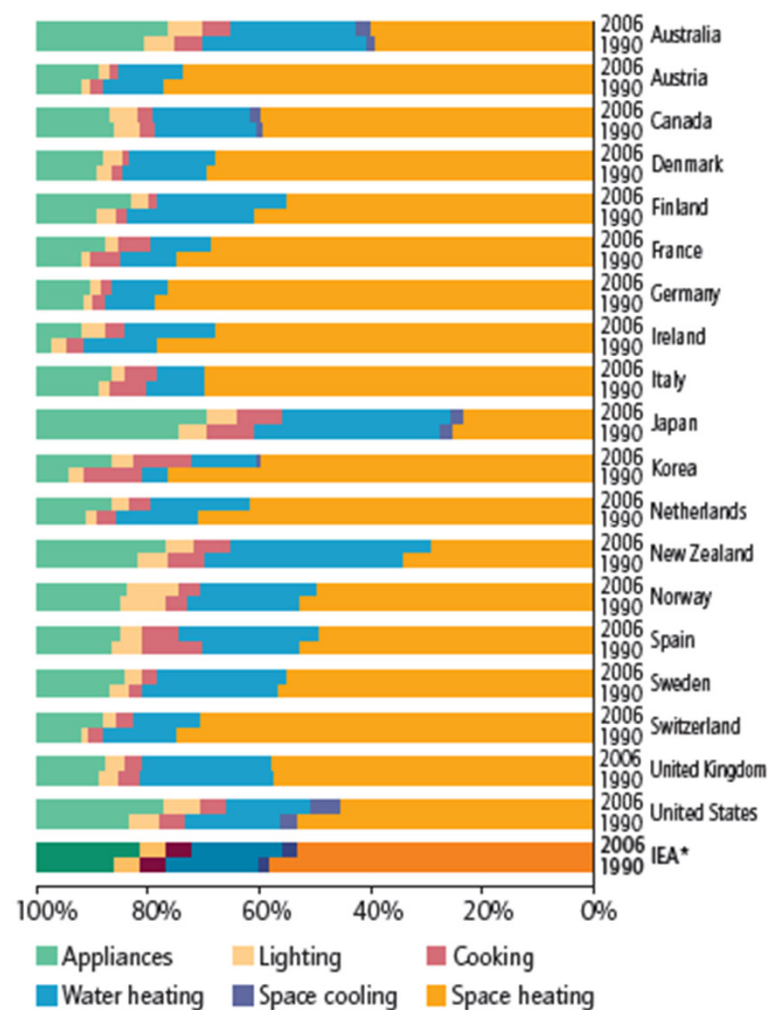
		1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Refrigerators	kWh/unit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Freezers	kWh/unit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Refrigerator/Freezer Combinations	kWh/unit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dish Washers	kWh/unit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Clothes Washers	kWh/unit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Clothes Dryers	kWh/unit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Room Air Conditioners	kWh/unit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Central Air Conditioners	kWh/unit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Television	kWh/unit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PC	kWh/unit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

kWh/unit

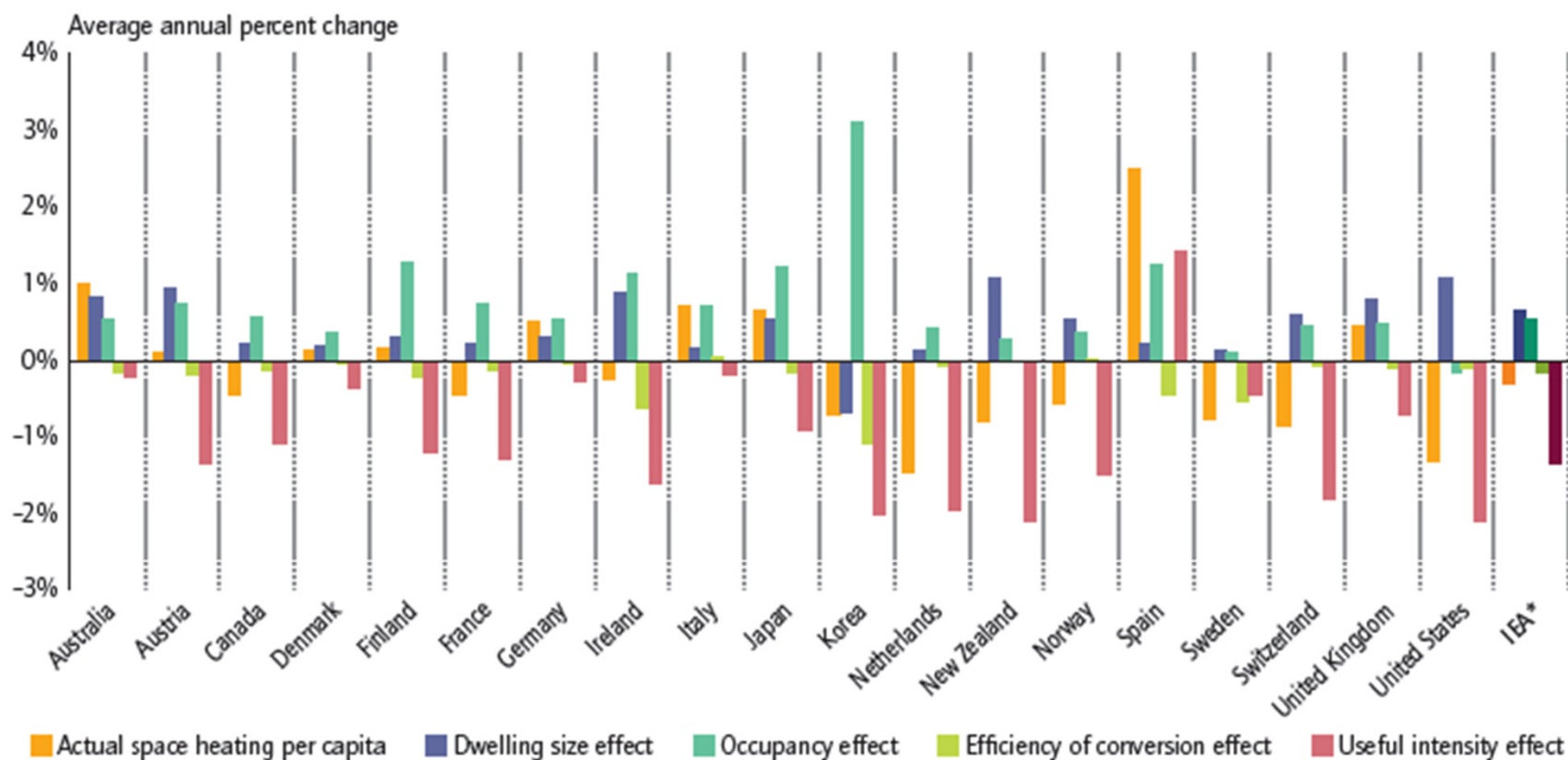
Energy Use (total final energy use - net calorific values)



# Household energy use by end use



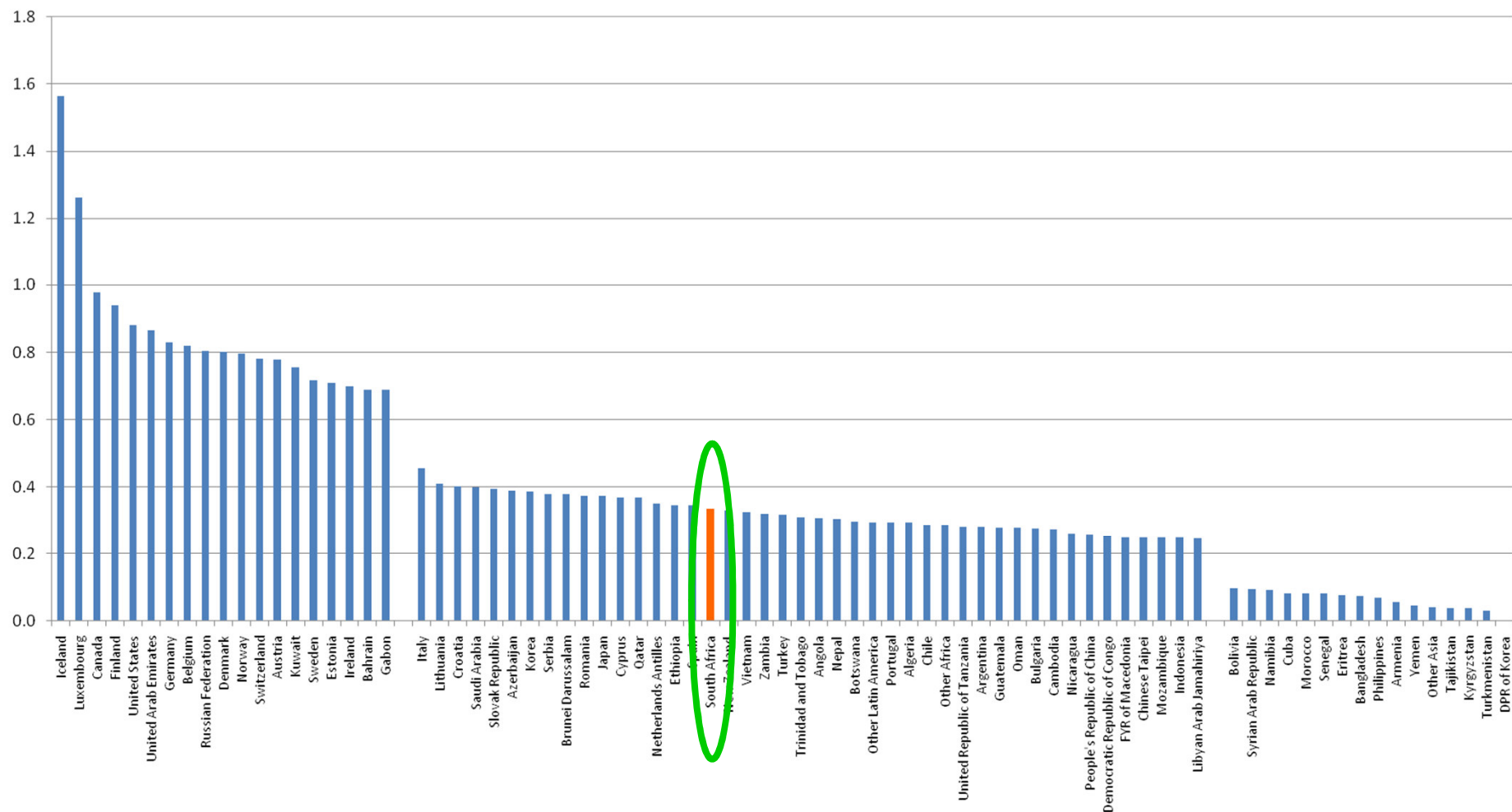
# Decomposition of changes in space heating per capita, 1990-2006



\* IEA average is limited to countries shown in graph.

# Residential consumption per capita

toe/capita

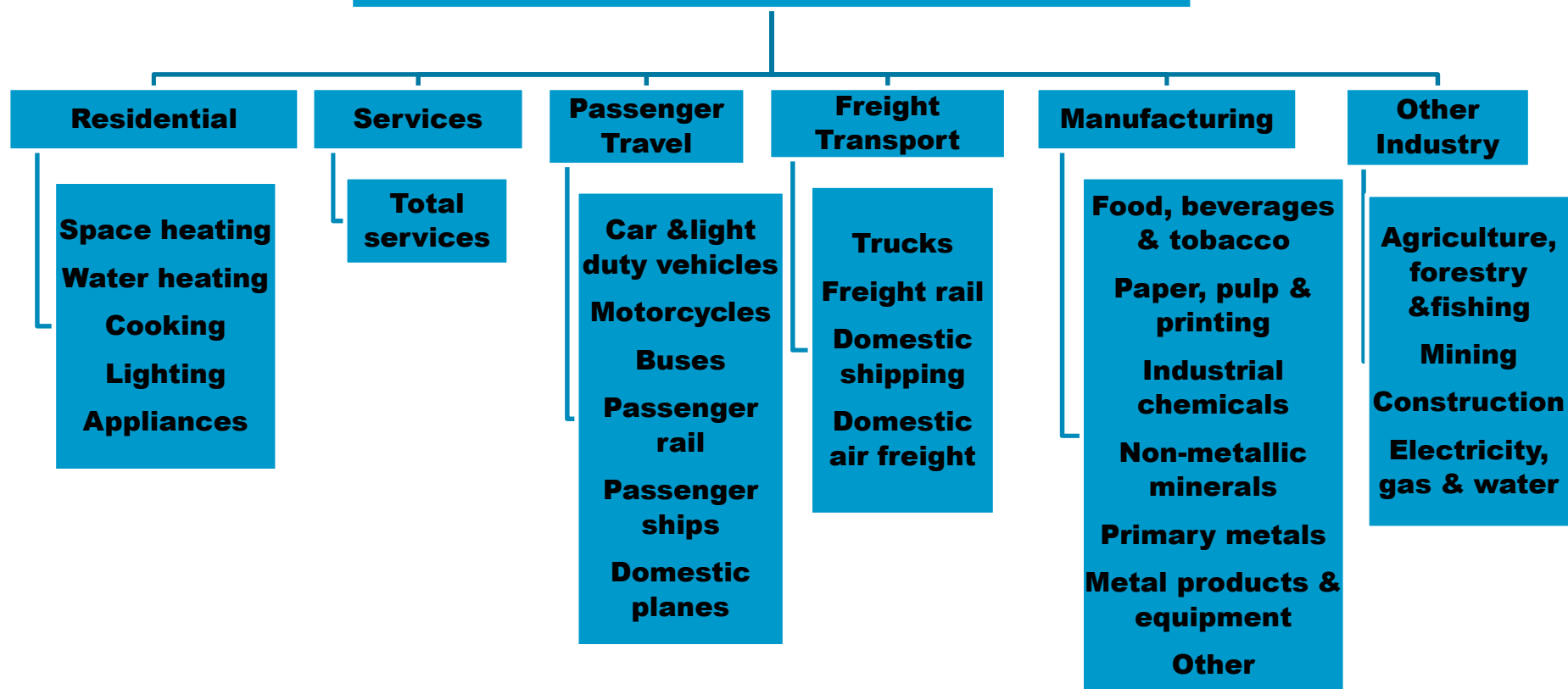


# SERVICES

	A		N	O	P	Q	R	S	T	U	V	W
1			1999	2000	2001	2002	2003	2004	2005	2006	2007	
2	Menu	Legend	Check all/none									
18												
19		<b>Space Heating</b>										
20		Oil & Petroleum Products	PJ	0	0	0	0	0	0	0	0	
21		Natural Gas	PJ	0	0	0	0	0	0	0	0	
22		Coal & Coal Products	PJ	0	0	0	0	0	0	0	0	
23		Combust. Renewables & Waste	PJ	0	0	0	0	0	0	0	0	
24		Heat	PJ	0	0	0	0	0	0	0	0	
25		Electricity	PJ	0	0	0	0	0	0	0	0	
26		Other	PJ	0	0	0	0	0	0	0	0	
27	<input checked="" type="checkbox"/>	<b>Total</b>	PJ	0	0	0	0	0	0	0	0	
28		<b>Total (climate corrected for 1990-2007)</b>	PJ	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	
29												
30		<b>Space Cooling</b>										
31		Oil & Petroleum Products	PJ	0	0	0	0	0	0	0	0	
32		Natural Gas	PJ	0	0	0	0	0	0	0	0	
33		Coal & Coal Products	PJ	0	0	0	0	0	0	0	0	
34		Combust. Renewables & Waste	PJ	0	0	0	0	0	0	0	0	
35		Heat	PJ	0	0	0	0	0	0	0	0	
36		Electricity	PJ	0	0	0	0	0	0	0	0	
37		Other	PJ	0	0	0	0	0	0	0	0	
38	<input checked="" type="checkbox"/>	<b>Total</b>	PJ	0	0	0	0	0	0	0	0	
39		<b>Total (climate corrected for 1990-2007)</b>	PJ	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	
40												
41		<b>Lighting</b>										
42		Electricity	PJ	0	0	0	0	0	0	0	0	
43		Other	PJ	0	0	0	0	0	0	0	0	
44	<input checked="" type="checkbox"/>	<b>Total</b>	PJ	0	0	0	0	0	0	0	0	
45												
46		<b>Other Building Energy Use in Services Sector</b>										
47		Oil & Petroleum Products	PJ	19.33	19.40	18.23	19.48	19.21	19.45	19.30	19.10	
48		Natural Gas	PJ	44.22	44.76	38.61	39.15	39.41	40.15	39.90	39.60	
49		Coal & Coal Products	PJ	1.92	2.85	3.82	3.70	3.75	3.70	3.60	3.50	
50		Combust. Renewables & Waste	PJ	0.42	0.42	0.42	0.42	0.43	0.43	0.43	0.43	
51		Heat	PJ	0	0	0	0	0	0	0	0	
52		Electricity	PJ	139.42	144.19	159.93	166.55	166.41	165.98	168.11	168.10	
53		Other	PJ	0	0	0	0	0	0	0	0	
54	<input checked="" type="checkbox"/>	<b>Total</b>	PJ	205.31	211.62	221.01	229.30	229.22	230.21	233.45	239.00	
55												



# End-Use Coverage





# Some bonuses from the template

Pre-filled time series

## RESIDENTIAL

### Space Heating

### Space Cooling

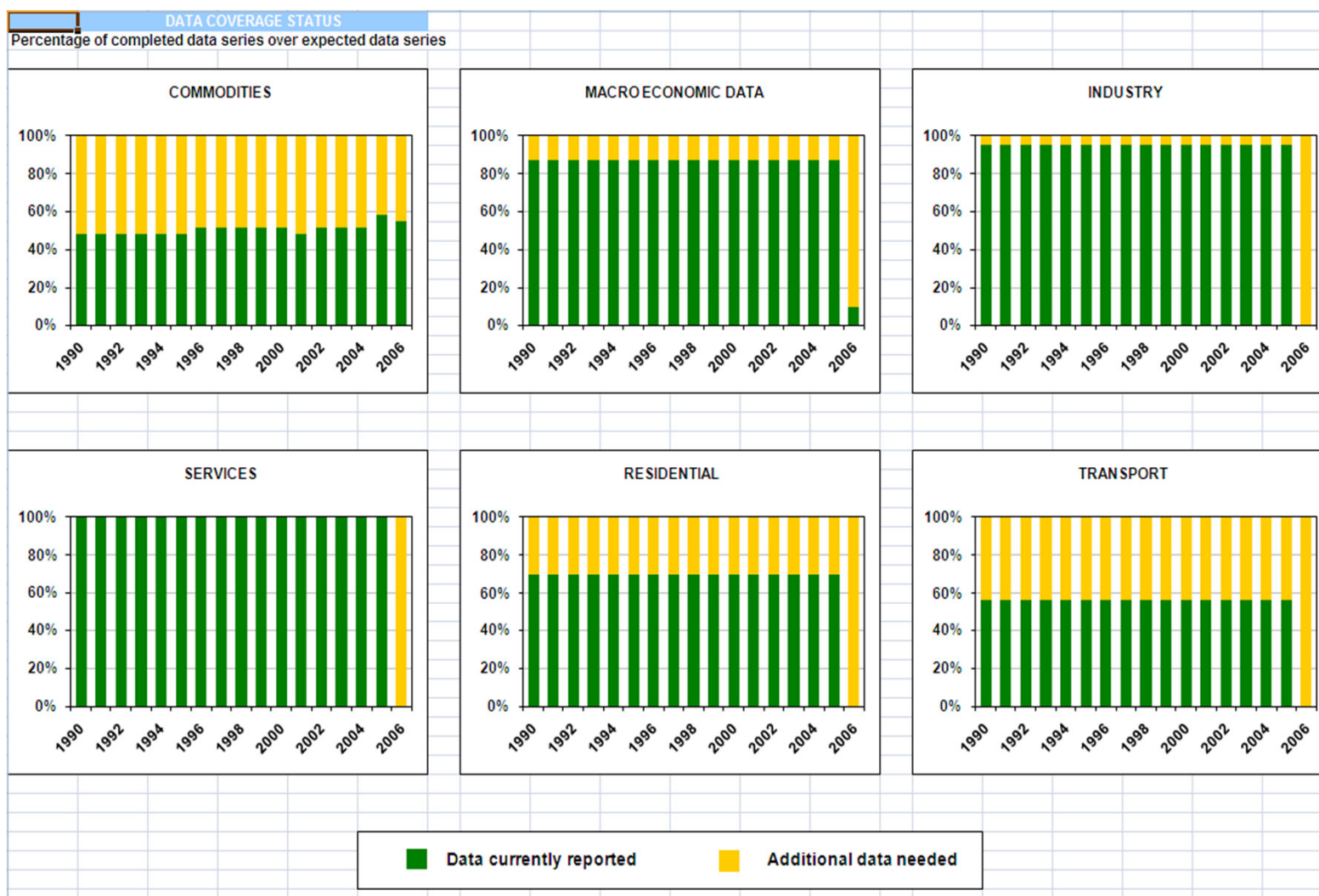
### Water Heating

### Cooking

Residential			AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO
			1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	
Total Energy Use in Residential Sector (IEA balances) For information															
Oil & Petroleum Products	PJ		146.29	166.02	154.39	132.89	133.55	137.98	127.11	122.79	128.80	112.57	100.75	0	
Natural Gas	PJ		567.27	626.19	583.09	519.85	548.17	580.17	540.72	576.03	602.93	585.80	581.77	0	
Coal & Coal Products	PJ		2.26	2.16	1.88	1.67	1.58	1.51	1.26	1.02	0.99	1.05	1.05	0	
Combust. Renewables & Waste	PJ		72.71	73.11	74.77	75.95	76.61	76.78	76.91	77.06	77.20	77.32	85.42	0	
Heat	PJ		0	0	0	0	0	0	0	0	0	0	0.01	0	
Electricity	PJ		473.88	486.98	484.25	465.64	479.91	497.73	504.96	513.60	532.86	543.62	543.65	0	
Other	PJ		0	0	0	0	0	0	0	0	0	0	0	0	
Total	PJ		1262.42	1354.46	1298.38	1196.00	1239.82	1294.18	1250.96	1280.50	1342.84	1320.37	1312.65	0	
Space Heating															
Natural Gas	PJ		130.57	148.21	136.91	115.03	117.41	120.32	109.70	106.30	111.97	98.89	88.18	0	
Coal & Coal Products	PJ		409.44	461.44	416.01	357.45	384.90	419.37	381.20	415.50	439.26	425.94	418.01	0	
Combust. Renewables & Waste	PJ		64.43	64.29	71.37	60.81	65.68	73.80	68.36	72.46	76.33	77.47	76.31	0	
Heat	PJ		0	0	0	0	0	0	0	0	0	0	0	0	
Electricity	PJ		159.22	170.21	167.24	143.09	152.27	169.92	161.38	172.56	187.30	192.54	185.73	0	
Other	PJ		0	0	0	0	0	0	0	0	0	0	0	0	
Total	PJ		763.66	844.15	791.53	676.39	720.26	783.41	720.64	766.82	814.85	794.84	766.22	0	
Space Cooling															
Natural Gas	PJ		0	0	0	0	0	0	0	0	0	0	0	0	
Coal & Coal Products	PJ		0	0	0	0	0	0	0	0	0	0	0	0	
Combust. Renewables & Waste	PJ		0	0	0	0	0	0	0	0	0	0	0	0	
Heat	PJ		0	0	0	0	0	0	0	0	0	0	0	0	
Electricity	PJ		15.82	12.32	12.91	19.71	23.19	15.64	25.40	31.09	24.27	19.25	36.53	0	
Other	PJ		0	0	0	0	0	0	0	0	0	0	0	0	
Total	PJ		15.82	12.32	12.91	19.71	23.19	15.64	25.40	31.09	24.27	19.25	36.53	0	
Water Heating															
Natural Gas	PJ		16.52	18.32	17.84	18.15	18.61	17.77	17.72	16.19	16.49	13.61	12.49	0	
Coal & Coal Products	PJ		154.60	161.06	163.31	158.48	159.43	156.86	155.45	156.33	158.99	155.48	159.00	0	
Combust. Renewables & Waste	PJ		1.10	1.35	1.55	1.72	1.92	2.11	2.15	2.14	2.10	2.11	2.16	0	
Heat	PJ		0	0	0	0	0	0	0	0	0	0	0	0	
Electricity	PJ		57.57	57.99	56.98	56.55	56.08	56.50	56.49	55.50	56.51	57.30	55.43	0	
Other	PJ		0	0	0	0	0	0	0	0	0	0	0	0	
Total	PJ		229.78	238.71	239.67	234.89	236.05	233.24	231.81	230.15	234.08	228.50	229.08	0	
Cooking															
Natural Gas	PJ		0	0	0	0	0	0	0	0	0	0	0	0	
Coal & Coal Products	PJ		2.37	2.79	2.88	3.07	3.00	3.13	3.25	3.40	3.92	3.55	3.94	0	

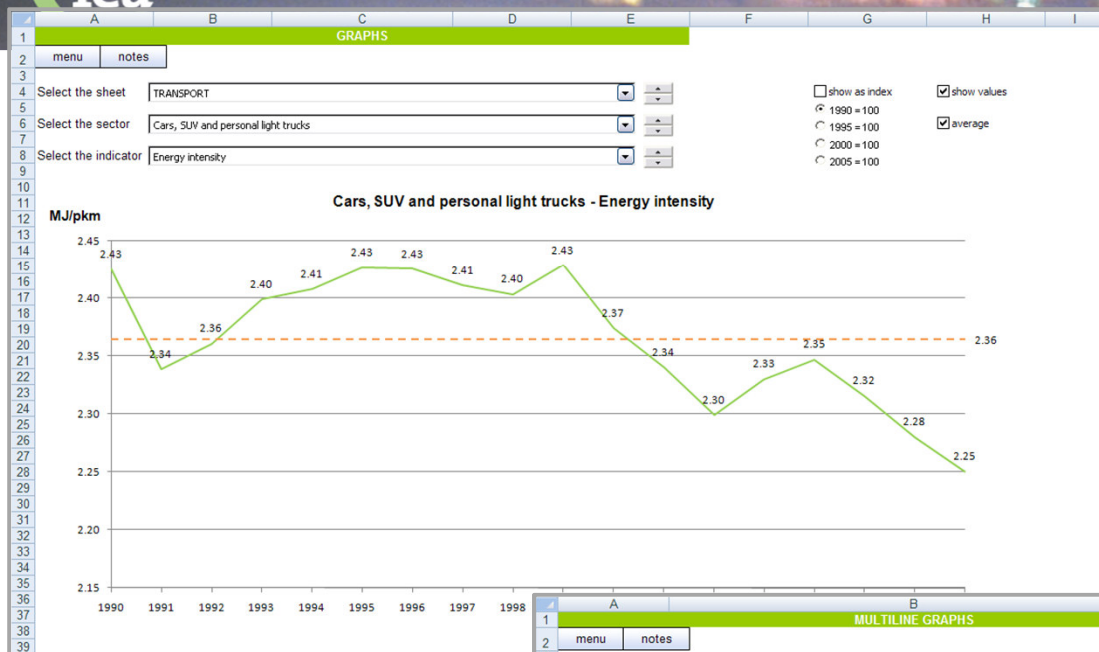
# Some bonuses from the template

A report on the coverage status is automatically updated when new data are entered.

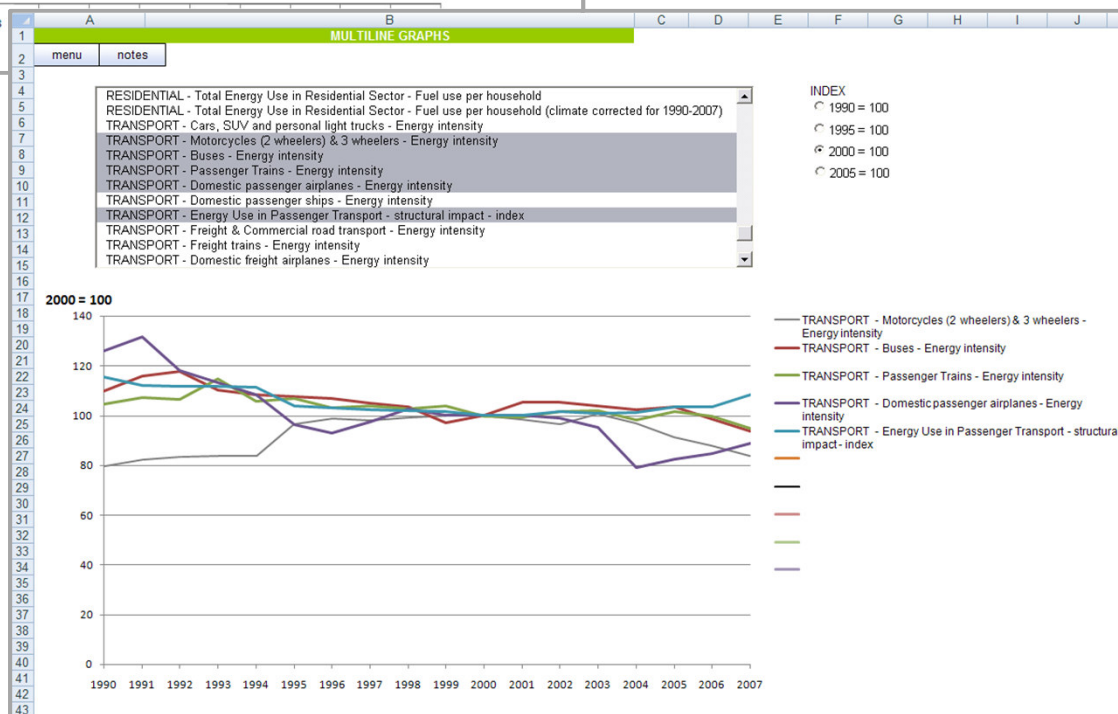


# Some bonuses from the template

**Various  
options  
offered for  
plotting  
indicators**



**Including  
possibility  
of comparing  
indicators**







International  
Energy Agency

# An electronic manual has been developed

## Energy Efficiency Indicators

International Energy Agency

35 years 1974-2009

Home User Guide Methodology Indicators Maps

Type text to search here...

### User Guide

June 10th, 2009

[Go to comments](#) [Leave a comment](#)

#### The template at a glance

The purpose of the template is to collect energy- and activity-related data in order to build energy efficiency indicators for the different sectors of a country's economy:

- Industry
- Services
- Residential
- Transport

By dividing the energy consumption of one sector by a measure of this sector's activity, such as the value-added generated or the quantities of physical output produced, one can calculate the intensity of the sector and monitor the trends in energy efficiency.

#### Structure of the template

The template is divided into three parts:

- Country data sheets (MACRO ECONOMIC DATA, COMMODITIES, INDUSTRY, RESIDENTIAL, SERVICES, TRANSPORT) that are to be filled
- Information sheets (ELECTRICITY GENERATION, BASIC INDICATORS) showing data from the IEA used to calculate basic indicators
- Support sheets (USER REMARKS, DATA COVERAGE, SINGLE LINE GRAPHS, MULTILINE GRAPHS, CHECKS) with a visual presentation of the data entered and remarks from the user

#### Instructions for reporting

All data are to be reported with a maximum of 4 decimals.

The units in which the data are expressed are indicated on column D of each sheet. Especially, the energy data are to be reported in petajoules (PJ), on a net calorific value basis.

#### File conventions

In order to make the task of filling and reviewing the template easier, the following conventions have been adopted throughout the template:

### Page

- [User Guide](#)
- [Definitions](#)
- [Sheet INDUSTRY](#)
- [Sheet RESIDENTIAL](#)
- [Sheet SERVICES](#)
- [Sheet TRANSPORT](#)
- [Sheet COMMODITIES](#)
- [Methodology](#)
- [Industrial classification](#)
- [Indicators](#)
- [Industry](#)
- [Services](#)
- [Residential](#)
- [Transport](#)
- [Electricity generation](#)
- [Maps](#)

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[electricity generation](#) [transport](#) [residential](#)

[user guide](#) [services](#)

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[Energy Use in the New Millennium](#)

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# A fast growing interest

- **Data for 22 IEA countries, up from only 11**
- **Reduced lag in data availability**
- **Significant country involvement**
- **Strong co-operation with ODYSSEE**
- **Key IEA activity – many reports**
- **Significant political support at highest levels**
- **Official commitment by IEA Ministers to report data**





# What's next

- **Update with 2008 data**
- **Preparation for a Manual on Energy Statistics for Energy Efficiency Indicators**
- **Workshop planned for November 2010**
- **A new publication in 3<sup>rd</sup> Quarter 2011**
- **Strengthening cooperation with many key partners: ODYSSEE, APEC, etc.**



International  
Energy Agency

# Some useful websites on energy efficiency

- **IEA Statistics -**  
**[www.iea.org/stats/index.asp](http://www.iea.org/stats/index.asp)**
- **Energy Efficiency Indicators -**  
**[www.iea.org/subjectqueries/keyresult.asp?KEYWORD\\_ID=4122](http://www.iea.org/subjectqueries/keyresult.asp?KEYWORD_ID=4122)**
- **Energy Efficiency Home Page -**  
**[www.iea.org/efficiency/index.asp](http://www.iea.org/efficiency/index.asp)**

**Thank you**