



The Importance of Energy Efficiency Indicators

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16th APEC Workshop on Energy Statistics, Tokyo 10th – 12th July 2018

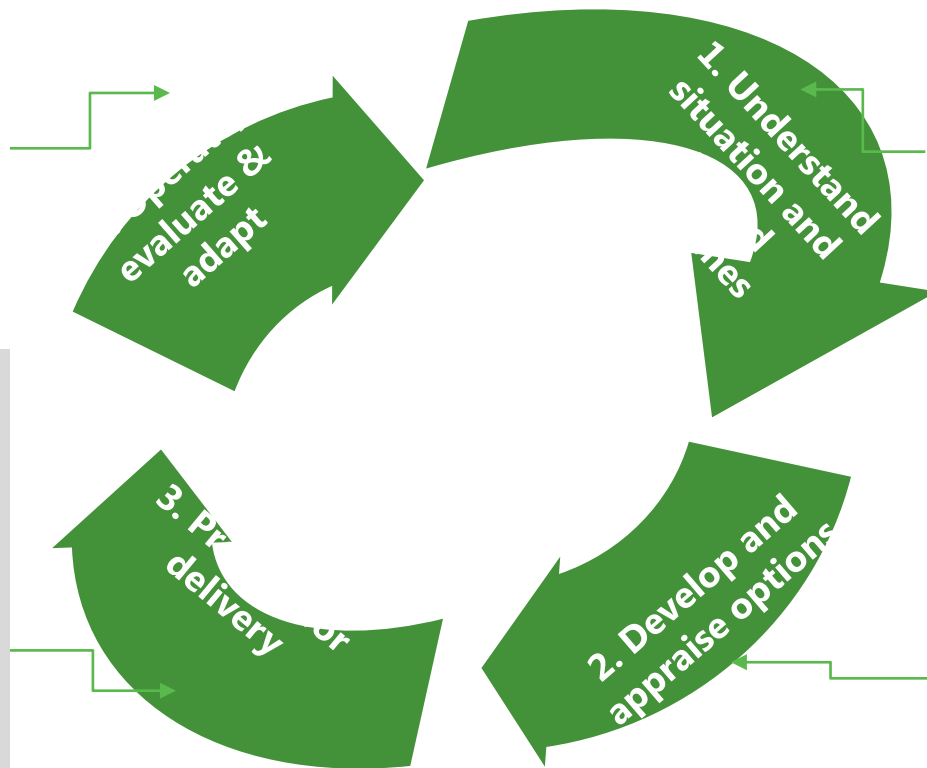
- Why is data important to policy
- What indicators help us track energy efficiency?
- What information is needed to understand energy efficiency?
- Data issues faced by countries
- The IEA's EE template and support provided

Why is data important to policy

How do energy statistics help policy-making?

- Monitoring performance indicators and expected benefits
- Evaluation and reporting

- Undertake pilots & collect good practice
- Benchmark against other schemes
- Agree and put in place delivery arrangements with delivery partners and regulators
- Put in place policy monitoring, evaluation & reporting mechanisms



- Do we really understand what the problem or issue is?
- Are you sure there is a gap?
- What policy or evidence is already out there & what are others doing in the country broad?
- What outcome would indicate success?

- Understand, quantify & analyse impacts, costs, risks & benefits of policy options,
- Address evidence gaps & identify research & analysis required

Indicators: key to set targets and monitor impacts

Government of Canada / Gouvernement du Canada

Canada.ca | Services | Departments | Français

Justice Laws Website

Family Law - Criminal Justice - Funding - Canada's System of Justice - Laws

Home > Laws Website Home > Consolidated Acts > S.C. 1992, c. 36 - Table of Contents > S.C. 1992, c. 36

Energy Efficiency Act (S.C. 1992, c. 36)

Full Document: [HTML](#) | [XML](#) (61 KB) | [PDF](#) (250 KB)

Act current to 2014-09-01 and last amended on 2009-09-21. [Previous Versions](#)

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Energy Efficiency Act

S.C. 1992, c. 36

Assented to 1992-06-23

An Act respecting the energy efficiency of energy-using products and the use of alternative energy sources

Her Majesty, by and with the advice and consent of the Senate and House of Commons of Canada, enacts as follows:

European Commission

ENERGY

European Commission > Energy > Energy Efficiency > Energy Efficiency Directive

Energy Efficiency

Home

Energy Efficiency

- Energy Efficiency Directive
 - National Energy Efficiency Action Plans
 - Reporting targets
 - Guidance notes
 - Article 4 Building Renovation Strategies
 - Notifications according to Article 5
 - Article 7 notifications
 - Article 14.6 - Exemption Notifications
- Energy Efficiency Plan
- Financing Energy Efficiency
- Buildings
- Cogeneration
- End-use & Services
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- Office equipment
- Tyres (Labelling)

Legislation

- Summaries
- Overview

News room

- Press releases
- Public consultations
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- Videos & Publications
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- News

Funding

- Grants

Reporting targets

Under Article 24, paragraph 11, of the Energy Efficiency Directive the "Commission shall make the reports referred to in paragraphs 1 and 2 publicly available".

Reports are published on this page as soon as they are received from Member States.

EU Member State	Article 3 indicative national energy efficiency target for 2020	Absolute level of energy consumption in 2020 [Mtoe]		Annual 2013 report and NRP
		Primary	Final	
Austria	Final energy consumption of 1100 PJ	31.5	26.3	DE/EN MB [14] NRP
Belgium	18% reduction in primary energy consumption by 2020 relative to the Primes 2007 baseline (53.3 Mtoe)	43.7	32.5	EN [469] NRP
Bulgaria	Increase of energy efficiency by 25% until 2020 (5 Mtoe primary energy savings in 2020) and 50% energy intensity reduction by 2020 compared to 2005 levels	15.8	9.16	BG [3] MB [EN] EN [229 KB] NRP
Croatia	Increase in energy efficiency resulting in final energy consumption reduction of 19,77 PJ in 2016 and 22,76 PJ in 2020	-	9.24	HR/EN [910 KB] NRP
Cyprus	0.463 Mtoe energy savings in 2020	2.8	2.2	NRP

Council of Australian Governments (COAG)

National Strategy on Energy Efficiency

July 2009

Monitoring provides headline data on policy performance - *What happens as a result of the policy?*

Evaluation provides an *understanding* of what is happening / happened in practice and why and what can be done about it

Why are they are needed

- Understand what happens as a result of the policy - how do energy consumers react
 - Government accountable for use of money
 - Ability to change policy during its implementation
 - Learn for other policies
-
- But they need data (which also has wider benefit in wider understanding of energy)

1. Before launch

Should the policy work?

How will it work?

Will it be worth it?

2. During delivery

Is it working? For whom?

Why / how?

Unforeseen events

3. After delivery

Did it work?

How & why did it work?

Was it worth it?

Who gained

Were objectives met?

A 1

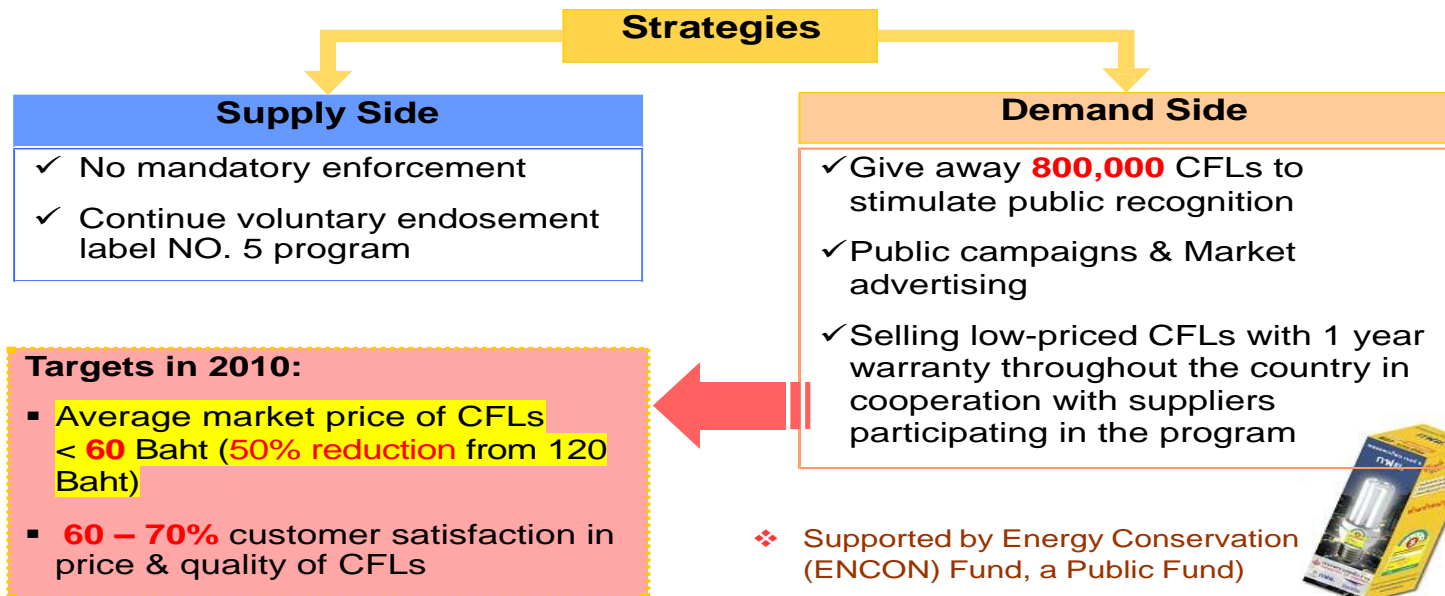


Energy Efficient Appliance

Thailand Incandescent Phase-Out Scheme (2007-2010)

16

- To foster the permanent use of good quality CFLs in place of GLS incandescent lamps by 2010 using Energy Conservation Fund & EGAT budget



A 1



Energy Efficient Appliance



Incandescent Phase-Out Scheme (2007-2010)

17

➤ Results to Date

- ✓ Average market price of CFLs lower by 20%
(Before: 120 Baht in 2006, After: 77 Baht in 2011)
- ✓ Number of CFLs labeled no. 5 increased from average
3 millions in 2006 to 9 millions in 2007 to 13 millions in 2008 and 10
millions on average in 2009-2012.
- ✓ Energy savings of **2,502 GWh** with peak demand reduction of **386 MW**
and CO₂ reduction of **1.3 million ton**
(since labeling scheme in 2008 to April 2013)

➤ Note:

- Market barrier of high initial cost of
- CFLs has been gradually reduced.
- Customer information and awareness
has been widely raised.

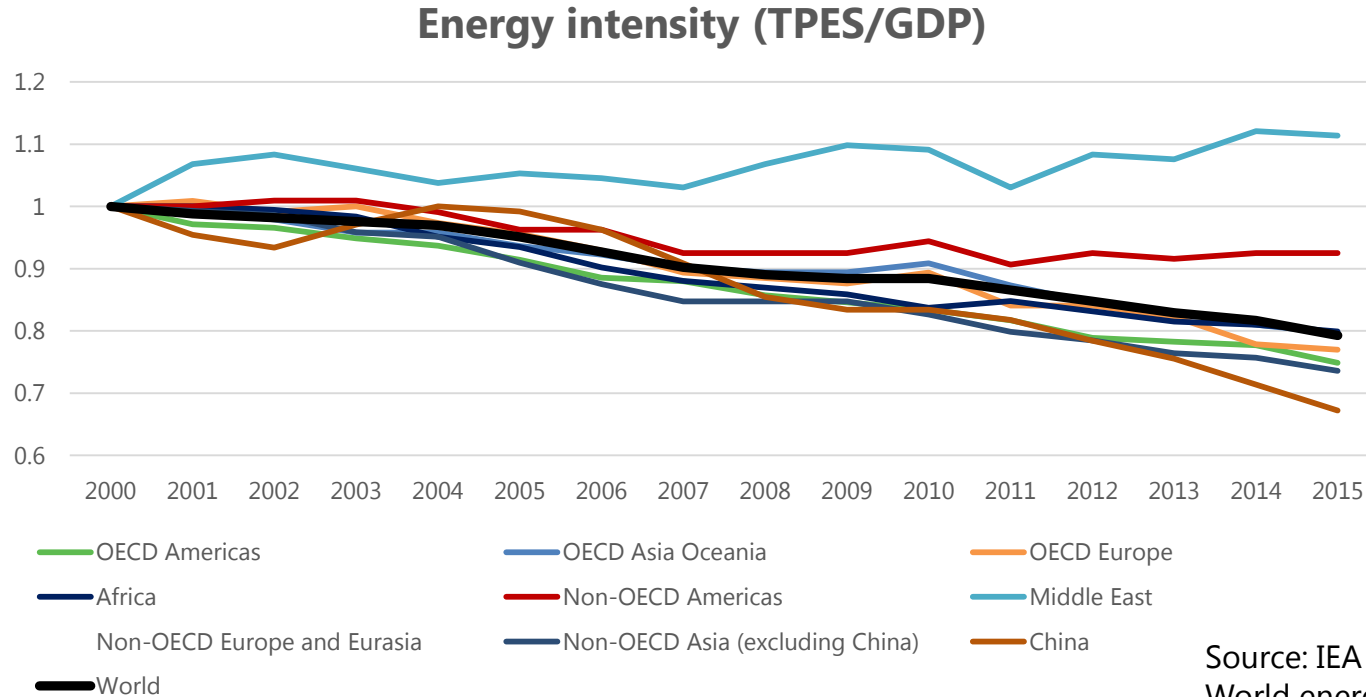


Campaign: Together in conservation



What indicators help us track energy efficiency?

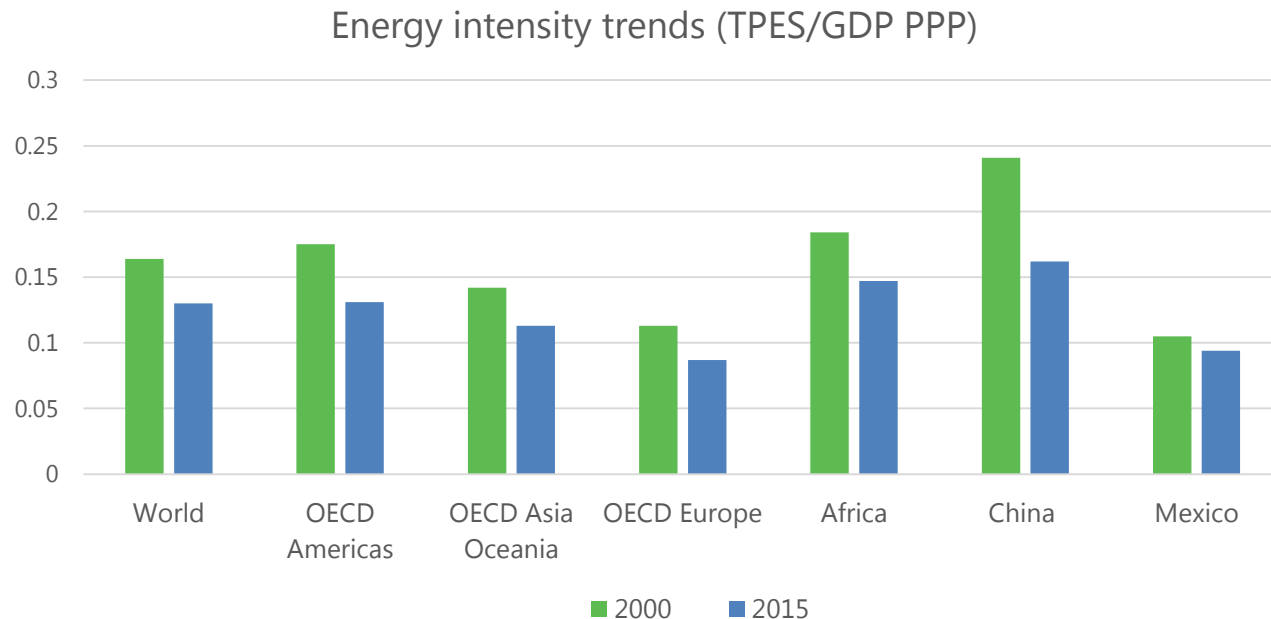
Does energy intensity track energy efficiency?



Energy intensity has generally decreased across regions.

Using less energy per GDP means “decoupling” economic growth from energy use

What drives energy intensity trends?

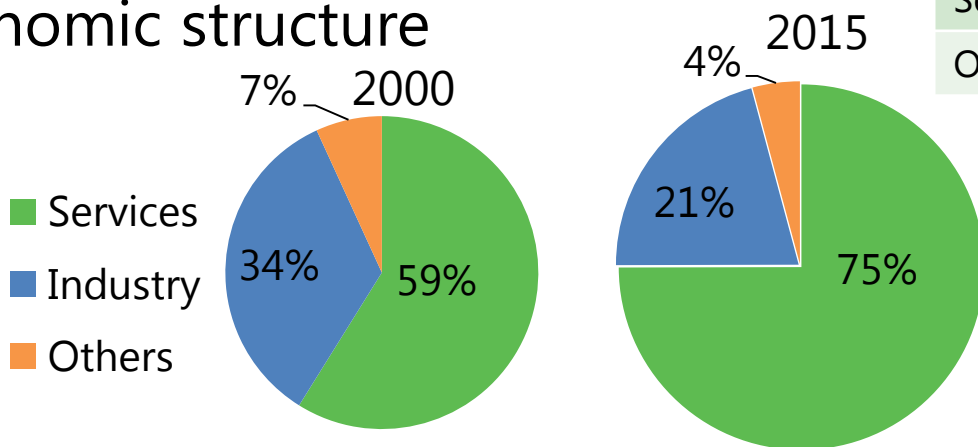


Source: IEA World energy balances, 2017

Efficiency progress and also other factors (mainly structural changes)

What other factors affect energy intensity?

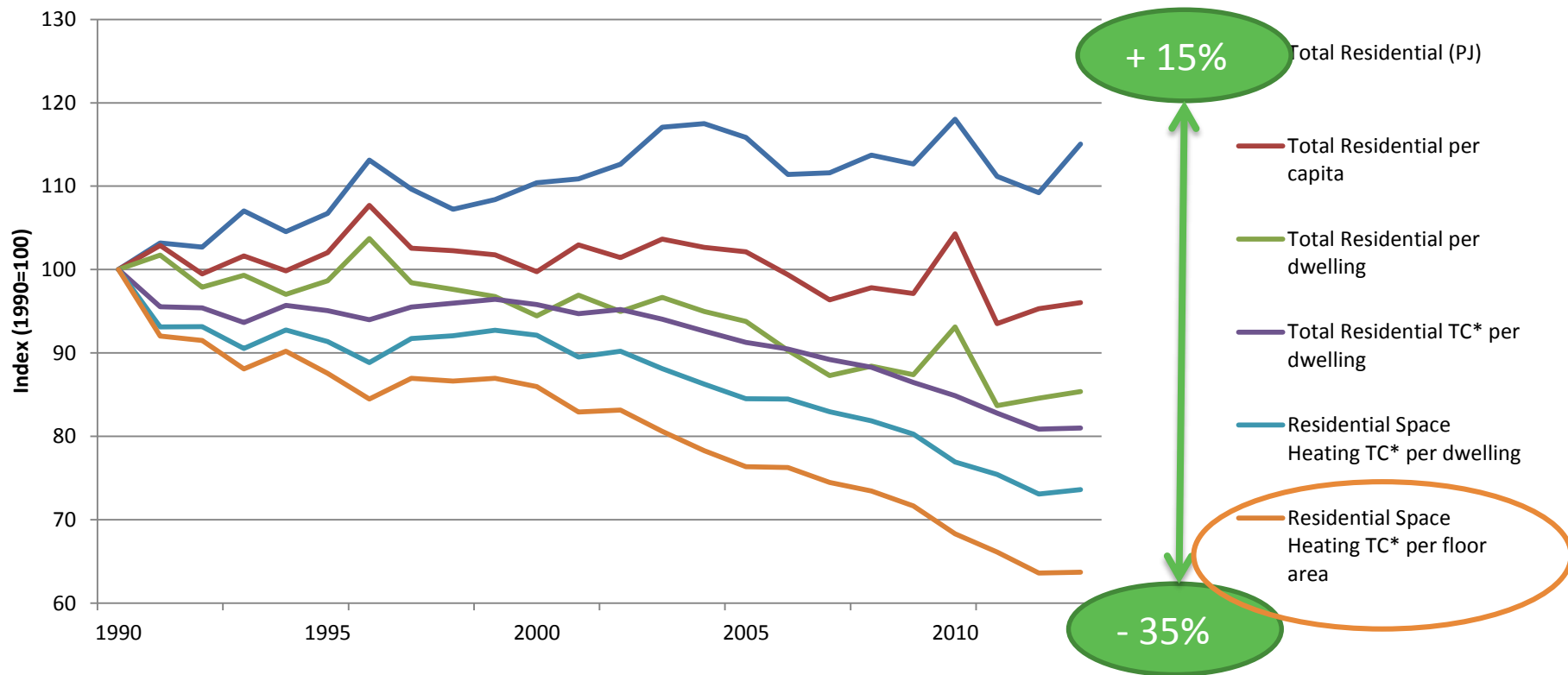
- Size of the country
- Climate
- Economic structure



Energy intensity MJ/US\$PPP	2000	2015
Total	3.2	3.0
Industry	7.2	10.4
Services	1.0	1.0
Others	2.1	2.9

A decrease in energy intensity is possible without any energy efficiency improvement

Choosing the most appropriate indicators is essential



Data for IEA 20 (Australia, Austria, Canada, Czech Republic, Denmark, Finland, France, Germany, Hungary, Ireland, Italy, Japan, Netherlands, Norway, Slovakia, Spain, Sweden, Switzerland, UK, USA).

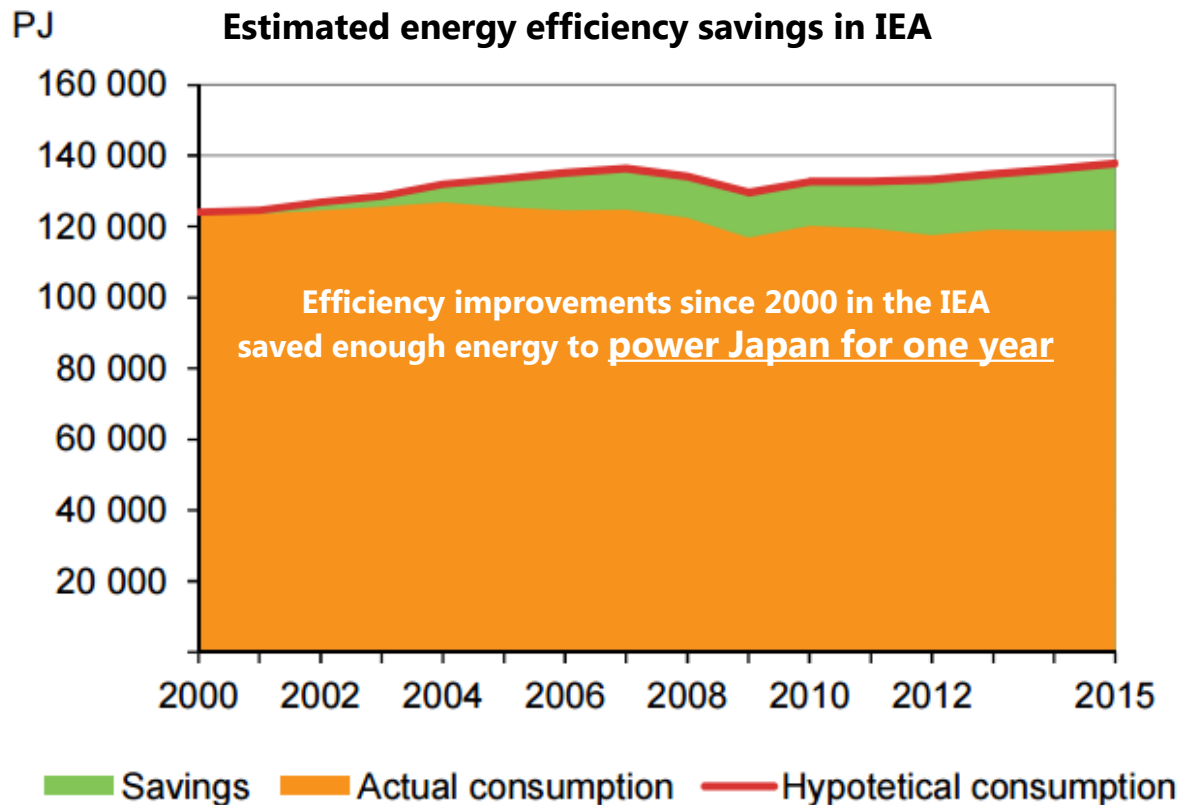
* Temperature correction using heating degree days

Data source: IEA, Energy efficiency indicators.

What information is needed to understand energy efficiency?

How to describe what doesn't happen?

- Energy efficiency can be considered as using less energy for the same or higher output
- So measuring and presenting something that doesn't happen
- Eg replacing a 60watt lightbulb with a 10watt low energy lightbulb means around 100 kWh of electricity are not used.
- But not all energy savings are efficiency (eg the closure of a factory) and energy growth can include more use of energy efficiently
- Often need to look at a counterfactual – what would have happened



Source: IEA *Energy Efficiency Market Report 2016*;
Energy efficiency indicators Highlights, 2016

The importance of energy balances...

Supply

Transformation

Final
consumption

World										
Million tonnes of oil equivalent										
SUPPLY AND CONSUMPTION	Coal & peat	Crude oil	Oil products	Natural Gas	Nuclear	Hydro	Geotherm. solar etc.	Biofuels & waste	Electricity	Heat
Production	3596.04	4069.38	-	2719.10	718.96	295.62	112.02	1277.08	-	1.04
Imports	640.82	2295.06	1053.71	817.02	-	-	-	10.78	51.38	0.00
Exports	-681.28	-2211.55	-1111.80	-826.35	-	-	-	-8.29	-50.74	-0.01
Stock changes	-79.80	6.49	6.16	17.84	-	-	-	0.54	-	-49.86
Total	3475.77	4159.37	-51.93	2727.61	718.96	295.62	112.02	1278.03	0.64	1.04
Transformation	0.00	-156.64	179.33	-	-	-	-	-	-	22.69
Statistical differences	-49.50	11.30	-27.05	-1.68	-	-	0.00	-0.40	1.43	-1.24
Electricity plants	-1974.84	-34.63	-201.57	-705.47	-715.67	-295.62	-88.61	-63.40	1671.71	-0.37
CHP plants	-161.19	-0.01	-22.50	-304.76	-3.13	-	-1.06	-35.21	171.56	150.84
Heat plants	-103.61	-0.81	-12.92	-30.14	-0.15	-	-0.22	-10.42	-0.34	189.23
Blas furnaces	-168.50	-	-0.79	-0.11	-	-	-	-	-	-
Gas works	-8.80	-	-3.53	2.81	-	-	-	-0.02	-	-9.54
Coke/peat/fuel/BKS plants	51.08	-	-2.40	-0.00	-	-	-	-0.01	-	-53.49
Oil refineries	-	-3964.42	3921.30	-0.90	-	-	-	-	-	-43.52
Petrochemical plants	-	30.51	-31.35	-	-	-	-	-	-	-0.84
Liquefaction plants	-16.20	7.85	-	-7.10	-	-	-	-	-	-15.45
Other transformation	0.01	0.13	-0.17	2.22	-	-	-	-53.14	-	-55.77
Energy industry own use	-86.22	-10.10	-20.37	-12.36	-	-	-0.13	-13.27	-156.15	-40.51
Losses	-2.70	-8.23	-0.58	-24.63	-	-	-0.14	-0.15	-153.17	-22.67
TFC	853.34	34.34	3535.48	1318.16	-	21.87	1102.01	1535.69	275.93	8676.63
INDUSTRY	677.86	12.51	310.02	463.87	-	-	0.46	195.83	636.96	125.43
Iron and steel	248.74	0.03	11.36	51.71	-	-	0.01	4.16	87.06	17.48
Chemical and petrochemical	58.37	2.18	-47.73	99.16	-	-	0.00	2.30	95.52	45.11
Non-ferrous metals	14.47	0.00	6.84	16.16	-	-	0.00	0.11	68.40	2.97
Non-metallic minerals	176.70	0.07	36.98	50.61	-	-	0.00	7.08	40.97	3.01
Transport equipment	4.67	0.01	3.19	11.35	-	-	0.00	0.01	18.39	4.22
Machinery	14.34	0.05	10.04	23.24	-	-	0.00	0.17	67.77	6.78
Mining and quarrying	6.93	-	16.96	15.93	-	-	0.00	0.06	23.72	2.52
Food and tobacco	22.70	0.12	26.68	37.22	-	-	0.00	29.92	34.93	11.20
Paper pulp and printing	21.66	0.01	8.08	26.06	-	-	0.15	53.10	40.87	10.88
Wood and wood products	2.71	0.01	4.78	3.30	-	-	0.00	11.58	7.89	5.87
Construction	6.12	0.05	26.92	0.36	-	-	0.00	0.16	8.00	1.78
Textile and leather	11.18	0.06	5.59	7.14	-	-	0.00	0.23	23.22	7.01
Non-specified	89.28	9.34	104.85	115.59	-	-	0.30	86.95	120.21	6.60
TRANSPORT	3.36	0.04	2195.89	88.96	-	-	-	57.56	23.81	2369.81
World aviation bunkers	-	-	153.65	-	-	-	-	-	-	153.65
Domestic aviation	-	-	96.42	-	-	-	-	-	-	96.42
Road	-	0.03	1666.60	28.52	-	-	-	57.53	0.00	-
Rail	3.22	-	28.37	-	-	-	-	0.02	18.04	-
Pipeline transport	-	-	0.43	59.99	-	-	-	-	-	63.31
World marine bunkers	-	-	200.72	-	-	-	-	-	-	200.72
Domestic navigation	0.12	-	43.98	0.05	-	-	-	0.01	-	44.16
Non-specified	0.01	0.00	5.73	0.49	-	-	-	0.00	2.97	-
OTHER	135.96	6.75	435.64	613.33	-	-	21.43	848.82	874.82	150.50
Residential	78.65	0.55	210.54	421.08	-	-	9.42	820.70	426.24	105.72
Comm. and publ. services	22.94	0.11	102.97	179.56	-	-	2.01	17.76	358.61	31.52
Agriculture/forestry	10.90	0.09	101.47	6.07	-	-	0.67	7.43	38.98	3.76
Fishing	0.01	0.01	6.23	0.02	-	-	0.00	0.00	0.39	0.77
Non-specified	23.47	6.00	14.43	6.10	-	-	9.25	2.73	50.60	9.45
NON-ENERGY USE	35.97	15.05	593.93	152.40	-	-	-	-	-	797.35
Industry/transport/energy	35.83	15.05	569.93	152.40	-	-	-	-	-	773.01
Of which: feedstocks	2.44	14.49	362.42	149.75	-	-	-	-	-	529.10
in transport	-	-	6.63	0.00	-	-	-	-	-	6.63
in other	0.33	-	17.38	-	-	-	-	-	-	17.71
Electricity and Heat Output										
Electr. Generated - GWh	8697512	27881	961377	4768076	2756289	3437483	449596	331679	-	1573
Electricity plants	8091893	27864	891872	3821493	2746188	3437483	446098	29138493	-	19438493
CHP plants	605647	17	69505	1185583	10101	-	3588	120431	-	746
Heat Generated - TJ	5706864	26036	751312	6597541	27357	-	346248	761894	7495	60077
CHP plants	2058353	216	299046	3489955	20944	-	10389	434740	208	24968
Heat plants	3648511	25820	452266	3107586	6413	-	336859	327154	7287	35119

Energy intensity,
Self-sufficiency
...

Efficiencies of
transformation
sector

Shares of energy
consumption by
sector

... and its limitations

WORLD ENERGY BALANCE

SUPPLY AND CONSUMPTION	Million tonnes of oil equivalent									
	Coal & peat	Crude oil	Oil products	Natural Gas	Nuclear	Hydro	Geotherm. solar etc.	Biofuels & waste	Electricity	Heat
	3596.04	4069.38	-	2719.10	718.96	295.62	112.02	1277.08	-	1.1
	640.82	2295.05	1053.71	817.02	-	-	-	10.78	51.38	0.1
	-681.28	-2211.55	-1111.80	-826.35	-	-	-	-9.29	-50.74	-0.1
	-79.80	6.49	6.16	17.84	-	-	-	-0.54	-	-
	3475.77	4159.37	-51.93	2727.61	718.96	295.62	112.02	1278.03	0.64	1.1
	0.00	-156.64	179.33	-	-	-	-	-	-	-
	-49.50	11.30	-27.05	-1.68	-	-	0.00	-0.40	1.43	-1.1
	-1974.84	-34.63	-201.57	-705.47	-715.67	-295.62	-88.51	-63.40	1671.71	-0.1
	-161.19	-0.01	-22.50	-304.76	-3.13	-	-1.06	-35.21	171.56	150.1
	-103.61	-0.81	-12.92	-90.14	-0.15	-	-0.22	-10.42	-0.34	189.1
	-168.50	-	-0.79	-0.11	-	-	-	-	-	-
	-8.80	-	-3.53	2.81	-	-	-	-0.02	-	-
	-51.08	-	-2.40	-0.00	-	-	-	-0.01	-	-
	-	-3964.42	3921.30	-0.80	-	-	-	-	-	-
	-	30.51	-31.35	-	-	-	-	-	-	-
	-16.20	7.85	-	-7.10	-	-	-	-	-	-
	0.01	0.13	-0.17	-2.22	-	-	-	-53.14	-	-0.1
	-86.22	-10.10	-210.37	-275.36	-	-	-0.13	-13.27	-156.15	-40.1
	-2.70	-8.23	-0.58	-24.63	-	-	-0.14	-0.15	-153.17	-22.1
	853.14	34.34	3535.48	1318.15	-	-	21.87	1162.01	1535.69	275.1
	677.86	12.51	-	-	-	-	-	136.96	125.1	-
	248.74	0.0	-	-	-	-	-	87.06	17.1	-
	58.37	2.1	-	-	-	-	-	95.52	45.1	-
	14.47	0.0	-	-	-	-	-	68.40	2.1	-
	176.70	0.0	-	-	-	-	-	40.97	3.1	-
	4.67	0.0	-	-	-	-	-	18.39	4.1	-
	14.34	0.0	-	-	-	-	-	67.77	6.1	-
	6.93	-	-	-	-	-	-	23.72	2.1	-
	22.70	0.1	-	-	-	-	-	34.93	11.1	-
	21.66	0.0	-	-	-	-	-	40.87	10.8	-
	2.71	0.0	-	-	-	-	-	7.89	5.87	-
	6.12	0.0	-	-	-	-	-	8.00	1.78	-
	11.18	0.06	-	-	-	-	-	23.22	7.01	-
	89.38	3.1	104.85	115.59	-	-	0.30	86.95	120.21	6.0
	3.74	0.04	2195.89	89.86	-	-	-	57.56	23.91	-
	-	-	153.65	-	-	-	-	-	-	-

No breakdown by end-use:

- space heating
- space cooling
- water heating
- lighting
- cooking
- appliances

No breakdown by end-use and by service category

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

OTHER SECTORS

Residential

Commercial (Services)

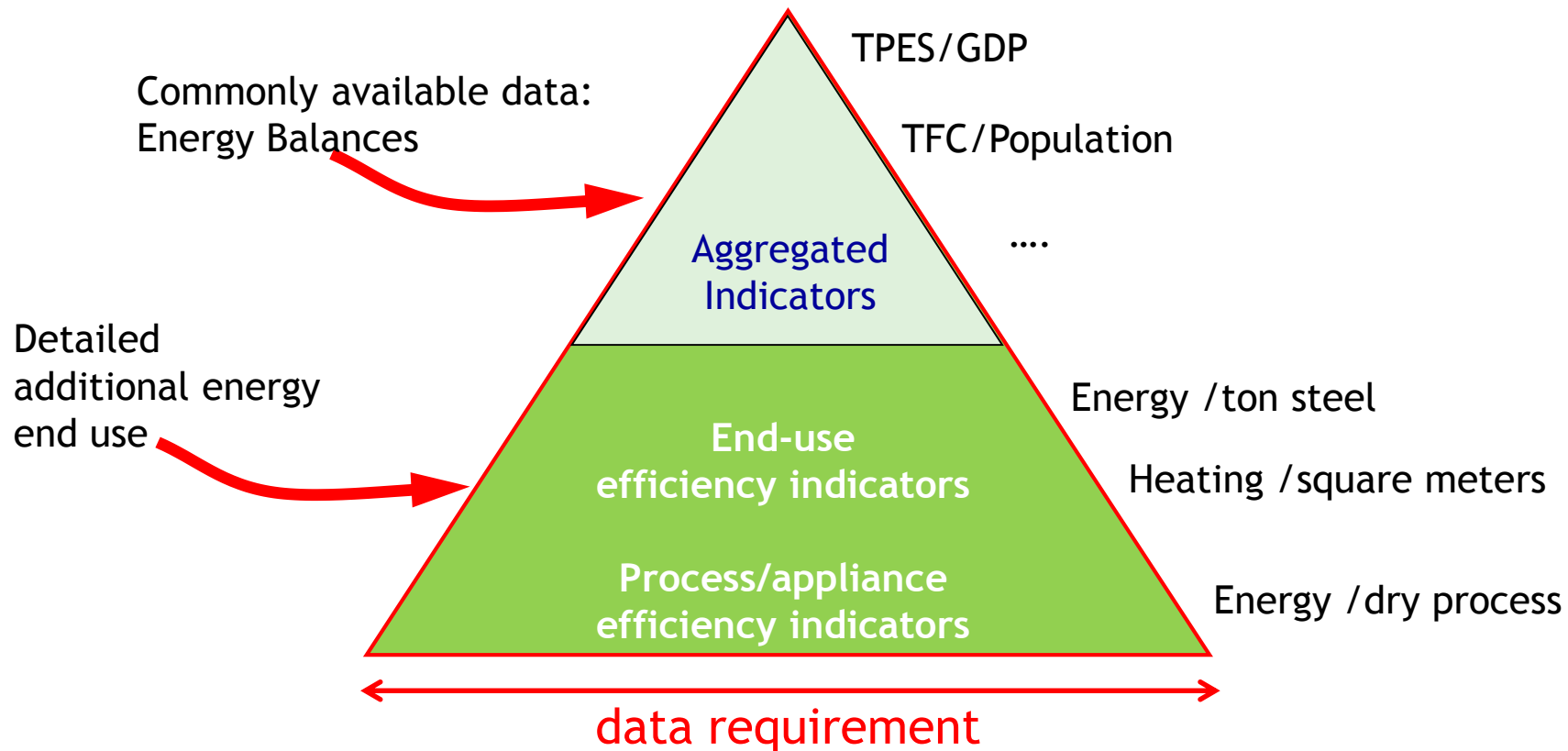
Agriculture/Forestry

Fishing

Non-specified

Coal & Peat	Crude Oil	Oil Products	Gas	Nuclear	Hydro	Geoth.	Solar	Comb.	Ren. & Waste	Electricity	Heat	Total
136.42	0.23	425.87	633.44	-	-	-	-	14.37	834.05	820.32	145.22	3036.92
76.58	-	222.89	418.55	-	-	-	-	6.98	805.42	395.81	97.97	2024.19
23.30	-	107.32	173.79	-	-	-	-	1.15	16.33	338.31	32.47	692.67
9.57	0.02	102.97	5.58	-	-	-	-	0.16	7.02	36.20	3.36	164.88
0.01	-	5.69	0.02	-	-	-	-	0.03	-	0.36	0.06	6.17
26.96	0.21	14.00	35.51	-	-	-	-	6.05	5.28	49.64	11.36	149.01

Going beyond the balances: what level of details?



Significant new data are needed to build a minimum set of disaggregated indicators?

Sector	Activity
Overall	GDP Population
Residential	Population Number of dwellings Floor area Number of appliances ...
Services (ideally by category)	Value added Number of employees Floor area
Transport	Passenger-kilometer Tonne-kilometer
Industry (by subsector)	Value added Physical production process-level production

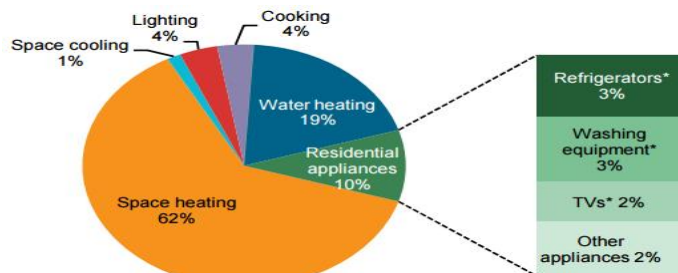


Need to consider what data are available

Energy consumption data:

- Space heating*
- Space cooling*
- Water heating
- Cooking
- Lighting
- Appliances energy consumption:
 - Refrigerator
 - Freezer
 - Dishwasher
 - Clothes washer
 - Clothes dryer
 - TV
 - Computers

* Temperature corrected, using HDD & CDD



Energy consumption by end-use, country B

Activity data:

- Population
- Number of occupied dwellings
- Residential floor area
- Appliances stock and diffusion



of people



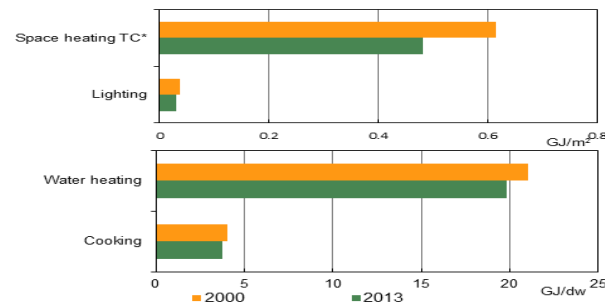
of dwellings



Surface

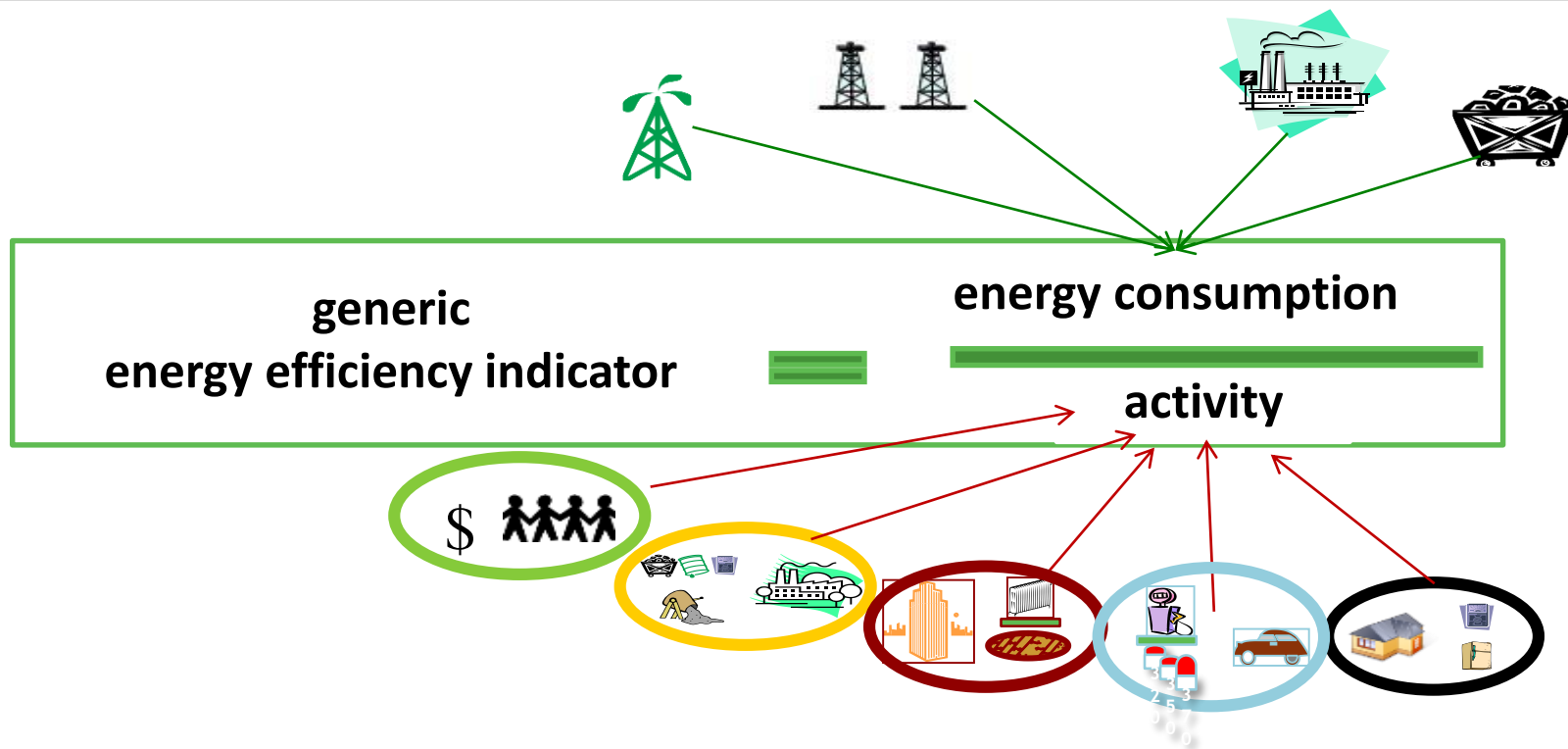


of appliances



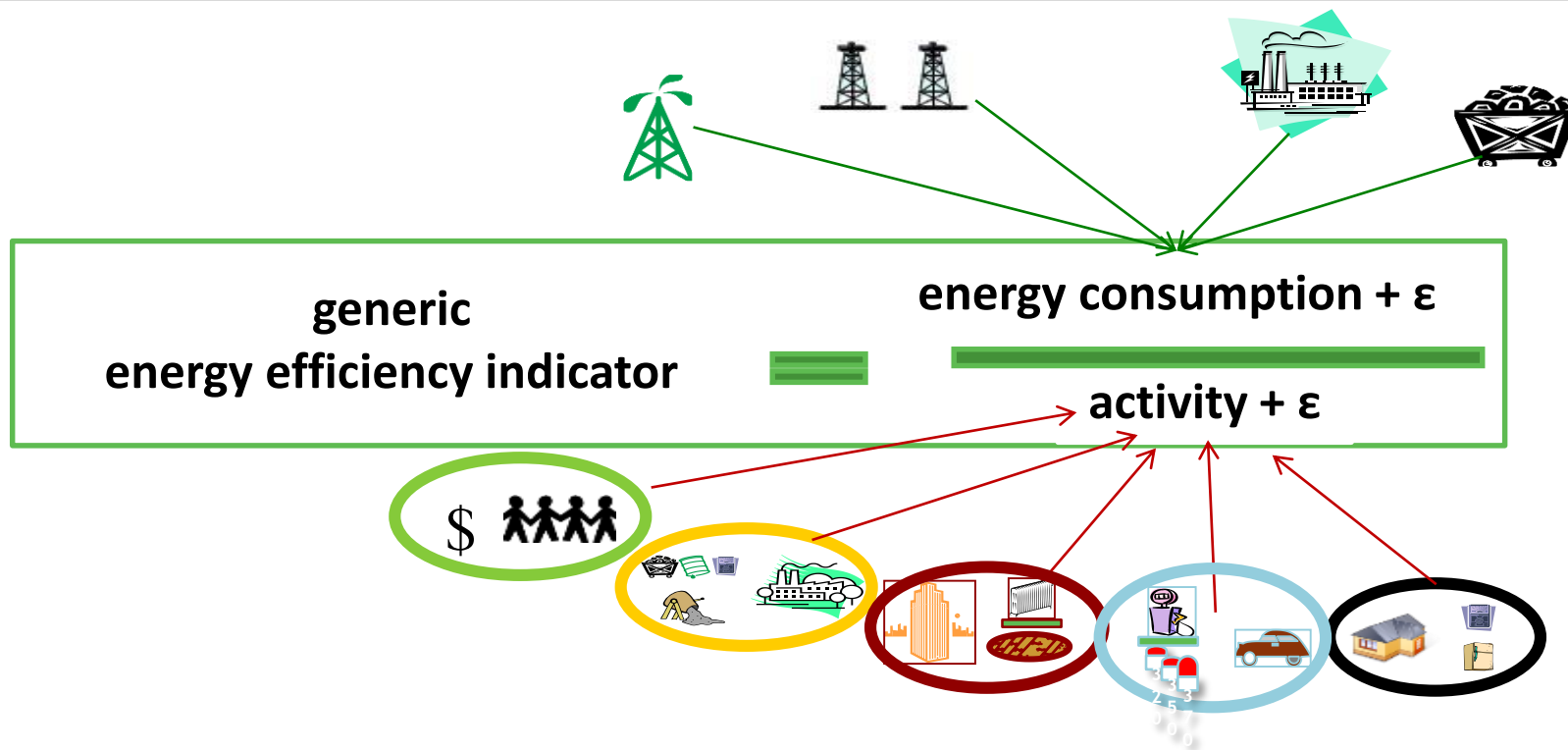
Selected energy intensities, country B

Indicators link activity and energy data – the reality



Linking energy use and service produced (activity)

Indicators link activity and energy data – the reality



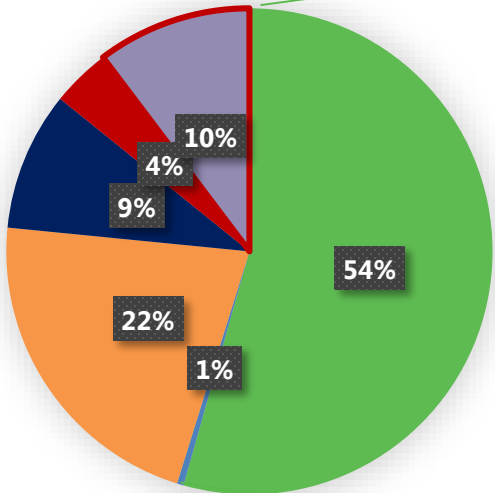
Need to understand the accuracy of both the energy and activity data – are error terms greater than change
Think about data in indicators

Data issues faced by countries

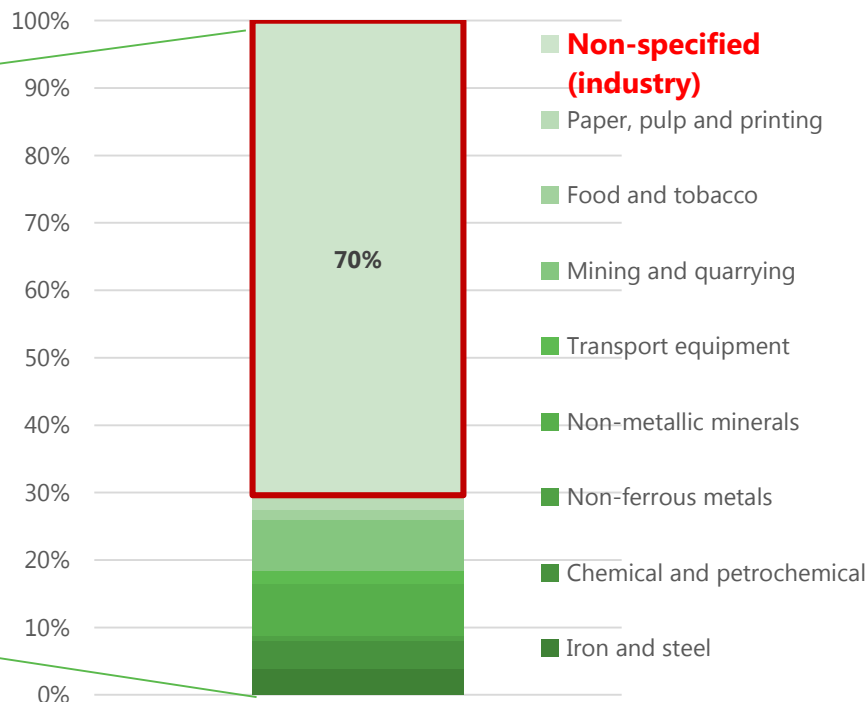
Who are the final users of electricity?

Electricity total final consumption - 2015

- Industry
- Transport
- Residential
- Commercial and public services
- Agriculture/forestry
- Non-specified (other)

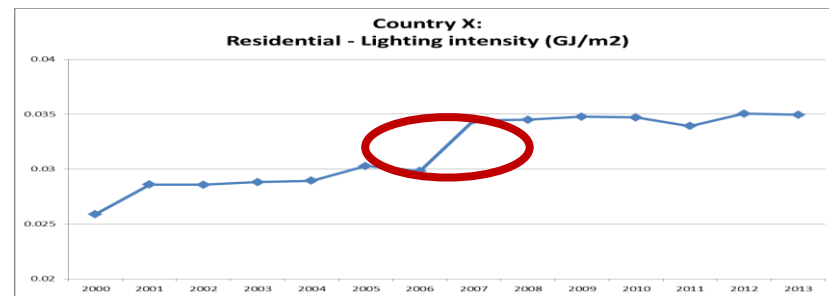
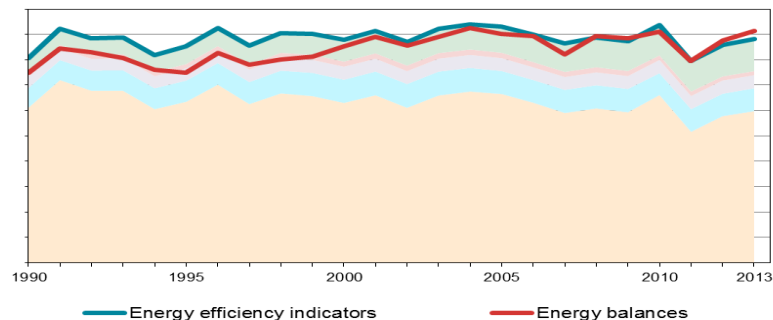
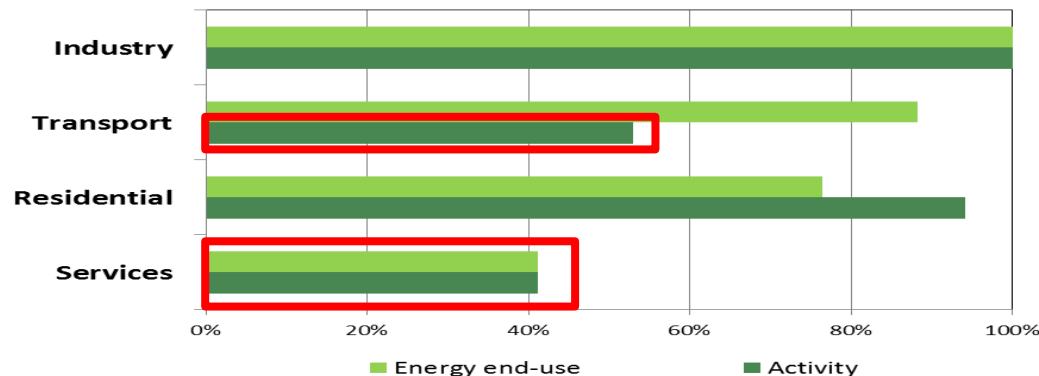


Electricity in industry by sub-sector 2015



Source: IEA World Energy Balances, 2017


In energy balance, almost half electricity final consumption is “non-specified”



The IEA's EE template and support provided

The IEA Energy Efficiency Indicators (EEI) Template



 Energy Efficiency Indicators Template country name	
COUNTRY DATA SECTION (to be reviewed and updated)	
MACRO ECONOMIC DATA	Macro economic and activity data
COMMODITIES	Production outputs from selected energy-con
INDUSTRY	Energy consumption by ISIC categories
SERVICES	Energy consumption by end-uses in the servi
RESIDENTIAL	Household energy consumption by end-uses
TRANSPORT	Energy and activity data for passenger and fr
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 associated to the data from the individual sheets
DATA COVERAGE	Generates a graphical summary of data coverage (completed vs. expected)
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

Energy consumption & Activity data for:

- INDUSTRY
- SERVICES
- RESIDENTIAL
- TRANSPORT

Source: <http://www.iea.org/media/statistics/topics/energyefficiency/IndicatorsQuestionnaire.xls>

The EEI Template – Residential (one of 4 sectors)

Energy consumption data:

- by end-use

RESIDENTIAL				units	2013	2014	2015
Menu	Legend	Check all/none	Add remarks				
Space Heating							
	Oil & Petroleum Products			PJ	99.83	86.05	0
	Natural Gas			PJ	951.07	819.75	0
	Coal & Coal Products			PJ	28.89	24.90	0
	Combust. Renewables & Waste			PJ	56.52	48.72	0
	Heat			PJ	2.17	2.17	0
	Electricity			PJ	90.02	77.59	0
	Other			PJ	0	0	0
<input checked="" type="checkbox"/>	Total			PJ	1,228.51	1,059.18	0
	Total (climate corrected for 1990-2015)			PJ	1,107.83	1,108.15	#N/A
Space Cooling							
	Oil & Petroleum Products			PJ	0	0	0
	Natural Gas			PJ	0	0	0
	Coal & Coal Products			PJ	0	0	0
	Combust. Renewables & Waste			PJ	0	0	0
	Heat			PJ	0	0	0
	Electricity			PJ	0	0	0
	Other			PJ	0	0	0
<input checked="" type="checkbox"/>	Total			PJ	0	0	0
	Total (climate corrected for 1990-2015)			PJ	#N/A	#N/A	#N/A

- by appliance type

Dish Washers							
	Electricity			PJ	11.87	11.94	0
	Other			PJ	0	0	0
<input checked="" type="checkbox"/>	Total			PJ	11.87	11.94	0
Clothes Washers							
	Electricity			PJ	20.63	20.82	0
	Other			PJ	0	0	0
<input checked="" type="checkbox"/>	Total			PJ	20.63	20.82	0
Clothes Dryers							
	Electricity			PJ	21.25	21.50	0
	Other			PJ	0	0	0
<input checked="" type="checkbox"/>	Total			PJ	21.25	21.50	0
Television/Home entertainment							
	Electricity			PJ	76.72	76.66	0
	Other			PJ	0	0	0
<input checked="" type="checkbox"/>	Total			PJ	76.72	76.66	0

Activity data:

- appliances stock and diffusion

RESIDENTIAL				units	2013	2014	2015
Menu	Legend	Check all/none	Add remarks				
Appliances Diffusion (number of units per occupied dwelling)							
	Refrigerators			unit/dw	0.38	0.38	0
	Freezers			unit/dw	0.47	0.47	0
	Refrigerator/Freezer Combinations			unit/dw	0.69	0.69	0
	Dish Washers			unit/dw	0.38	0.39	0
	Clothes Washers			unit/dw	0.80	0.81	0
	Clothes Dryers			unit/dw	0.56	0.56	0
	Television/Home entertainment			unit/dw	2.37	2.37	0
	PC/Information & communication technology			unit/dw	1.39	1.41	0
Appliances Stock (only within occupied dwellings)							
<input checked="" type="checkbox"/>	Refrigerators			10 ⁶	10.21	10.31	0
<input checked="" type="checkbox"/>	Freezers			10 ⁶	12.70	12.82	0
<input checked="" type="checkbox"/>	Refrigerator/Freezer Combinations			10 ⁶	18.77	18.96	0
<input checked="" type="checkbox"/>	Dish Washers			10 ⁶	10.35	10.59	0
<input checked="" type="checkbox"/>	Clothes Washers			10 ⁶	21.83	22.08	0
<input checked="" type="checkbox"/>	Clothes Dryers			10 ⁶	15.20	15.29	0
<input checked="" type="checkbox"/>	Television/Home entertainment			10 ⁶	64.24	65.42	0
<input checked="" type="checkbox"/>	PC/Information & communication technology			10 ⁶	37.87	38.47	0

- population, number of dwellings, ...

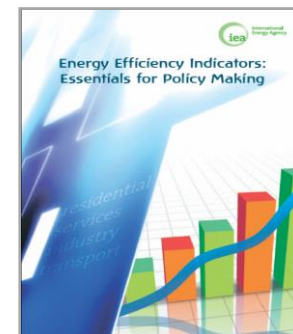
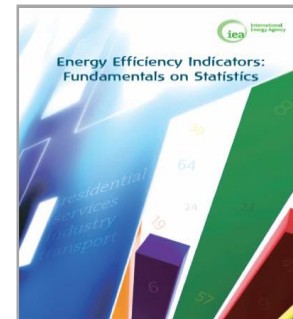
MACRO ECONOMIC DATA				units	2013	2014	2015
Menu	Legend	Check all/none	Add remarks				
I. Activity & Structure Indicators							
<input checked="" type="checkbox"/>	Total Population			10 ⁶ pers	64.11	64.60	65.03
<input checked="" type="checkbox"/>	Total Employment			10 ⁶ pers	30.04	30.75	31.29
<input checked="" type="checkbox"/>	Total Dwellings			10 ⁶ dw	27.91	0	0
<input checked="" type="checkbox"/>	Occupied Dwellings			10 ⁶ dw	27.15	27.41	0
	New Dwellings			10 ⁶ dw	0.14	0.14	0
	Household Occupancy			pers/dw	2.36	2.36	0
<input checked="" type="checkbox"/>	Total Dwelling Area (Residential Floor Area)			10 ⁶ m ²	2,587.15	0	0
<input checked="" type="checkbox"/>	Annual Heating Degree-Days			dd°C	3,179.35	2,740.35	3,017.01
<input checked="" type="checkbox"/>	Annual Cooling Degree-Days			dd°C	0	0	0
<input checked="" type="checkbox"/>	Total Services Floor Area			10 ⁶ m ²	0	0	0
	New Services Floor Area			10 ⁶ m ²	0	0	0

- ❑ Fundamentals on statistics:
provides guidance on how to collect the data needed for indicators
 - Includes a compilation of over 170 existing practices from across the world
 - <https://goo.gl/Y8QD1G>
- ❑ Essentials for policy makers:
provides guidance to develop and interpret energy efficiency indicators
 - <https://goo.gl/agcNg2>

Both available also in Russian and other languages

A translation to Azeri has been done by the Ministry of energy of the Republic of Azerbaijan.

Being developed as on-line tools to complement the existing training on stats





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<https://www.iea.org/eeindicatorsmanual/>

Countries

- ☐ Israel
- ☐ Italy
- ☐ Japan
- ☐ Kazakhstan
- ☐ Korea, Republic of
- ☐ Mexico
- ☐ Netherlands
- ☐ New Zealand
- ☐ Norway
- ☐ Portugal
- ☐ Romania

Sector

- ☐ Industry
- ☐ Residential
- ☐ Services
- ☐ Transport

Methodology

- ☐ Administrative sources
- ☐ Measuring
- ☐ Modelling
- ☐ Surveying

Available content

- ☐ methodology
- ☐ project web site
- ☐ questionnaire
- ☐ report
- ☐ results

Search by keywords

Country Practices Database

Energy Efficiency Indicators Statistics: Country Practices Database

A supplement to the publication [Energy Efficiency Indicators: Fundamentals on Statistics](#), this database provides information on energy efficiency indicators from a variety of OECD Members and non-Members.

Practices are searchable by country and territory, sector, methodology and type of available documents. Users can also filter by available content to develop their own energy efficiency indicators programmes.

Countries and territories	Sector	Methodology	Available content
<input type="checkbox"/> Albania <input type="checkbox"/> Australia <input type="checkbox"/> Austria <input type="checkbox"/> Belgium <input type="checkbox"/> Bosnia and Herzegovina <input type="checkbox"/> Brazil <input type="checkbox"/> Bulgaria <input type="checkbox"/> Canada	<input type="checkbox"/> Industry <input checked="" type="checkbox"/> Residential <input type="checkbox"/> Services <input type="checkbox"/> Transport	<input type="checkbox"/> Administrative sources <input type="checkbox"/> Measuring <input checked="" type="checkbox"/> Modelling <input checked="" type="checkbox"/> Surveying	<input type="checkbox"/> methodology <input type="checkbox"/> project web site <input type="checkbox"/> questionnaire <input type="checkbox"/> report <input type="checkbox"/> results

- Practices in surveying, administrative sources, modelling and metering across sectors
- Questionnaires and other material available
- Links to various national administrations work

Energy Efficiency Indicators Statistics: Country Practices Database

26 results found
(Tip: sort columns by clicking on the column header)
Perform another search

PRACTICE	COUNTRIES AND TERRITORIES	SECTOR	METHODOLOGY	AVAILABLE CONTENT
R/Su/01	Albania	Residential	Surveying	questionnaire
R/Su/02	Austria	Residential	Surveying	methodology, questionnaire, results
R/Su/03	Belgium	Residential	Surveying	report
R/Su/04	Portugal, Belgium, Bulgaria, Czech Republic, Denmark, France, Germany, Greece, Hungary, Italy, Norway, Romania	Residential	Surveying	methodology, project web site, questionnaire, report, results
R/Su/05	Canada	Residential	Surveying	project web site, questionnaire
R/Su/06	China	Residential	Surveying	
R/Su/07	China	Residential	Surveying	
R/Su/08	Croatia	Residential	Surveying	
R/Su/09	Croatia	Residential	Surveying	report
R/Su/10	Bosnia and Herzegovina	Residential	Surveying	report, questionnaire, results

Information for country practice (R/Su/05)

Background	
Country	Canada
Sector	Residential
Methodology	Surveying
Organisation	Natural Resources Canada
Name	Survey of Household Energy Use (SHEU)
Purpose	To determine total residential energy consumption To determine residential appliances energy consumption To collect residential appliances diffusion To collect household energy expenditure To collect dwelling physical characteristics To collect household occupant characteristics
Data collection	
Sample design	Stratified random sampling approach
Sample sources	The respondents for the households and the environment survey (HES) were part of the community health survey (CHS) who were interviewed for the CHS. The response rate of the HES to get the SHEU.
Sample/Population size	21 690 / 12 932 350
Response rate	45%
Time to complete	60 minutes
Mandatory	No
Incentive	None
Survey respondents	Households, property managers/landlords

Natural Resources Canada
www.nrcan.gc.ca

Office of Energy Efficiency (OEE)
Energy Use Inside and Outside the Dwelling - 2007 Survey of Household Energy Use - Supplemental Report

Office of Energy Efficiency
Energy Use Inside and Outside the Dwelling - 2007 Survey of Household Energy Use - Supplemental Report

Appendix B.
Questionnaires
Energy use inside the dwelling
See Appendix C of the 2007 Survey of Household Energy Use - Detailed Statistical Report for a copy of the questionnaire on energy use inside the dwelling.

Energy use outside the dwelling
Section: Sport recreation vehicles / Outdoor equipment
Have you / Has anyone in your household owned any of the following recreational vehicles in the last 12 months?

... All-terrain vehicle (ATV)
... Snowmobile
... Personal watercraft (e.g. a sea-doo or jet-ski)
... Motorboat (with an inboard or outboard motor)
... Household does not own any recreational vehicles

1 Yes
2 No

An example of how to benefit from each other's work

6/8 IEA Webinar : Energy Efficiency Indicators



IEA Online Statistics School Energy Efficiency Indicators

Urszula Ziebinska and Gianluca Tonolo
27th July 2017, Paris



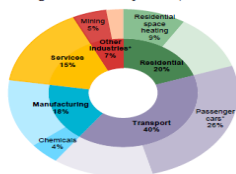
© OECD/IEA 2017

<https://www.iea.org/training/ieaonlinestatisticstrainingprogramme/ieaonlinestatisticsschool2017/>
<https://youtu.be/CEsuvf651vE>

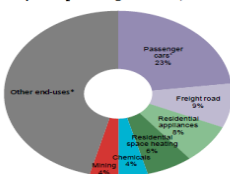
Energy efficiency indicators highlights

Cross-sectoral overview

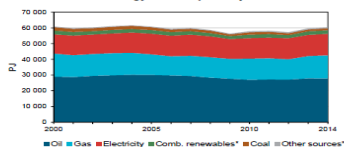
Largest end-uses by sector, 2014



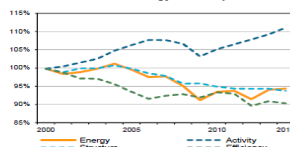
Top-6 CO₂ emitting end-uses, 2014**



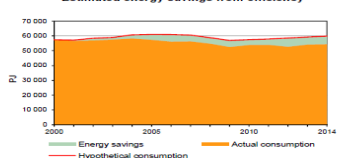
Final energy consumption by source



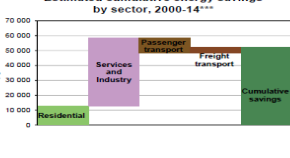
Drivers of final energy consumption***



Estimated energy savings from efficiency***



Estimated cumulative energy savings by sector, 2000-14***

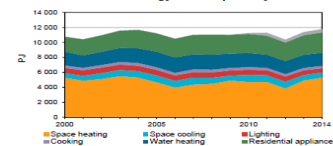


*Other industries includes agriculture, mining and construction; passenger cars includes cars, sport utility vehicles and personal trucks; other end-uses includes the remaining part of emissions beyond the top-6; comb. renewables includes combustible renewables and wastes; other sources includes heat and other energy sources.

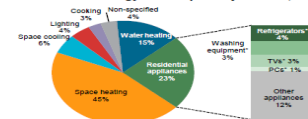
Residential sector

	Residential consumption (PJ)	Share of fossil fuels* in space heating (%)	Population (million)	Consumption per capita (GJ/person)	Average dwelling surface (m ²)	Average dwelling occupancy (pers/dw)
2000	10 772	94	292	36	150	2.8
2014	11 762	79	319	37	181	2.8

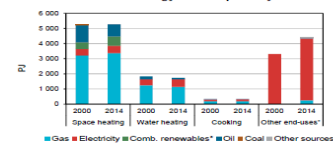
Residential energy consumption by end-use



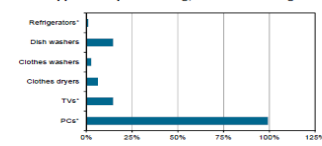
Residential energy consumption by end-use, 2014



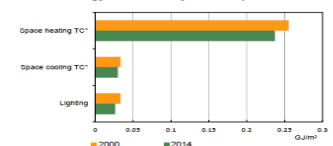
Residential energy consumption by source



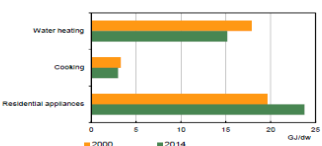
Appliances per dwelling, 2000-14 % change



Energy intensities by end-use per floor area



Energy intensities by end-use per dwelling

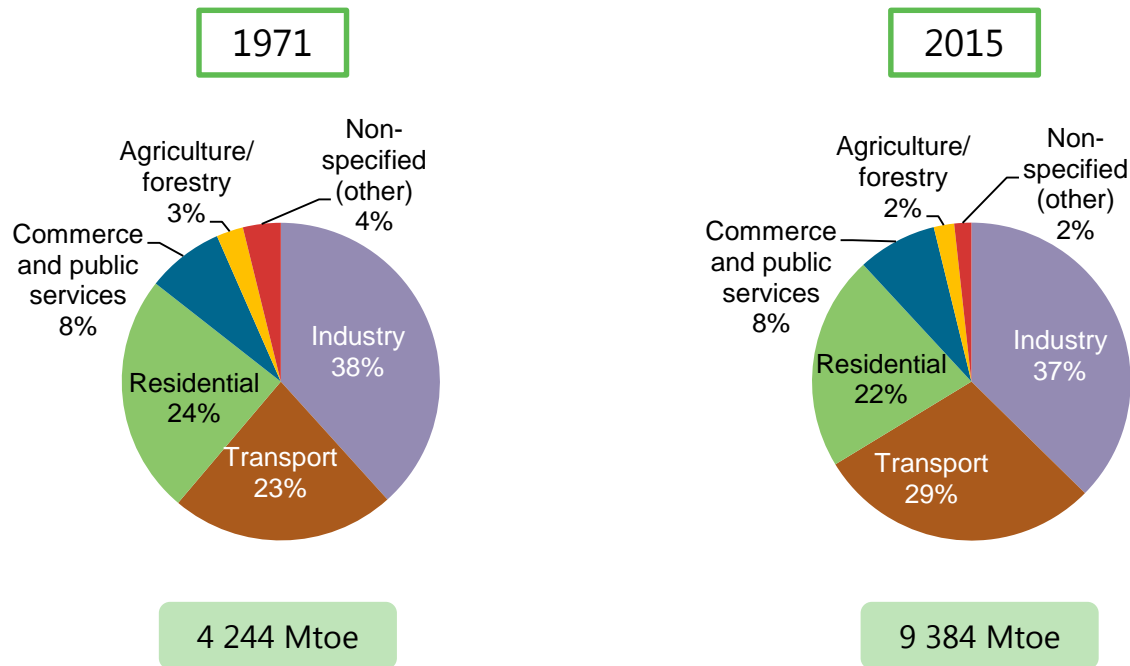


<https://www.iea.org/publications/freepublications/publication/energy-efficiency-indicators-highlights-2016.html>

Free database excel file is here: <http://www.iea.org/media/statistics/EnergyEfficiencyIndicators.xls>



World total final consumption by sector



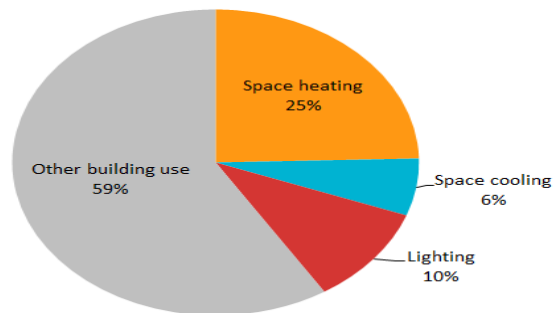
Source: IEA, World Energy Balances, 2017

Transport's importance for energy consumption is growing

Energy consumption data:

- Space heating*
- Space cooling*
- Lighting
- Other building use
- Non-building use

* Temperature corrected, using HDD & CDD



Energy consumption by end-use, country C

Activity data:

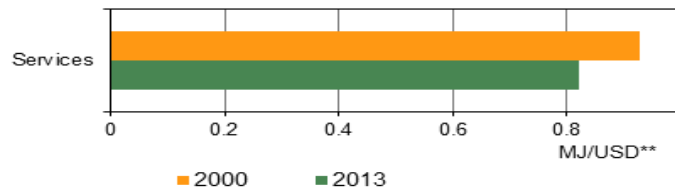
- Value added
- Number of employees
- Services floor area



of people

Value

Surface



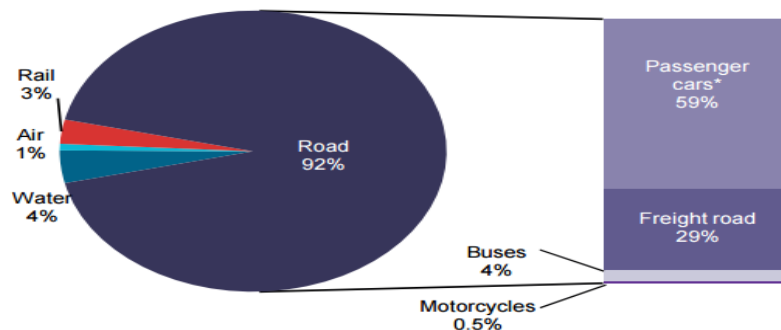
Selected energy intensities, country C

Energy consumption data:

- Transport segment
 - passenger / freight
- Transport modes
 - road, rail, air, water, etc.

Activity data:

- Vehicle stocks
- Passenger-kilometers
- Tonne-kilometers



Energy consumption by mode/vehicle type, country D



Vehicle stock



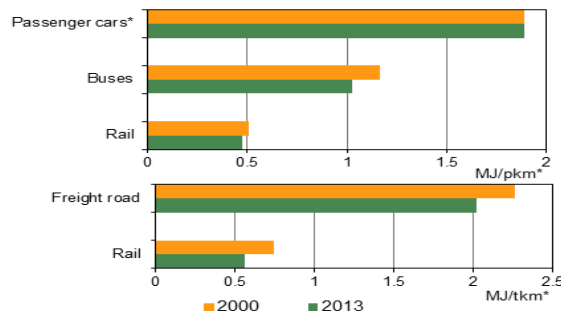
Distance travelled



Occupancy



Load



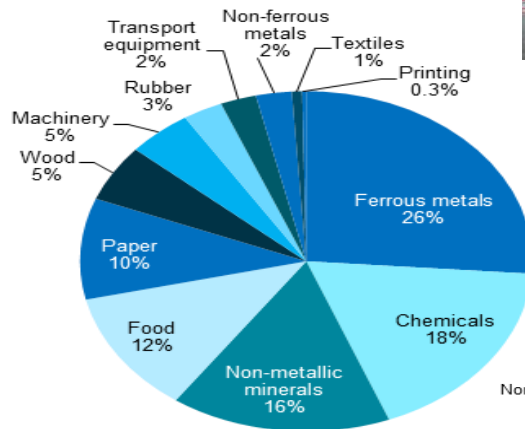
Selected energy intensities, country D

Energy consumption data

- (major ISIC sub-sectors):
- Chemical
- Iron and steel
- Non-ferrous metals
 - Aluminum
- Non-metallic minerals
 - Cement
 - Clinker
- Pulp and paper
 - Pulp
 - Paper
- etc.

Activity data:

- Value added
- Physical production

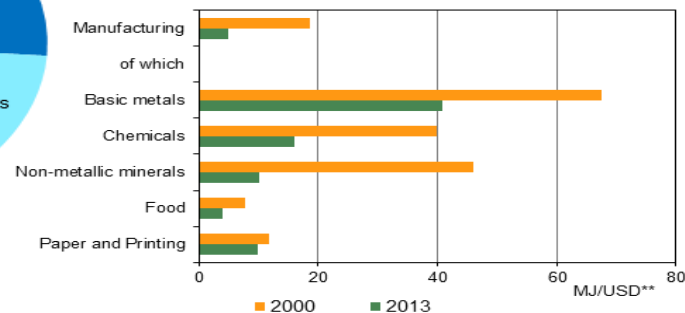


Energy consumption by end-use, country A



Volume

Value



Selected energy intensities, country A

The EEI Template - Transport

Energy consumption data:

- by segment and mode

TRANSPORT				units	2013	2014	2015
Menu	Legend	Check all/none	Add remarks				
<input checked="" type="checkbox"/>	Energy Use						
<input checked="" type="checkbox"/>	Cars, SUV and personal light trucks						
	Motor Gasoline (including biofuels)			PJ	510.12	500.29	0
	Automotive Diesel (including biofuels)			PJ	357.97	340.51	0
	LPG (Liquefied Petroleum Gas)			PJ	1.24	1.10	0
	Natural Gas			PJ	0	0	0
	Electricity			PJ	0	0	0
	Other			PJ	0	0	0
<input checked="" type="checkbox"/>	Total			PJ	869.35	841.95	0
<input checked="" type="checkbox"/>	Motorcycles (2 wheelers) & 3 wheelers						
	Motor Gasoline (including biofuels)			PJ	7.12	6.78	0
	LPG (Liquefied Petroleum Gas)			PJ	0	0	0
	Electricity			PJ	0	0	0
	Other			PJ	0	0	0
<input checked="" type="checkbox"/>	Total			PJ	7.12	6.78	0
<input checked="" type="checkbox"/>	Buses						
	Motor Gasoline (including biofuels)			PJ	0	0	0
	Automotive Diesel (including biofuels)			PJ	53.59	61.35	0
	LPG (Liquefied Petroleum Gas)			PJ	0	0	0
	Natural Gas			PJ	0	0	0
	Electricity			PJ	0	0	0
	Other			PJ	0	0	0
<input checked="" type="checkbox"/>	Total			PJ	53.59	61.35	0
<input checked="" type="checkbox"/>	Passenger Trains						
	Diesel & Light Fuel Oil			PJ	18.13	18.16	0
	Heavy Fuel Oil			PJ	0.23	0.23	0
	Natural Gas			PJ	0	0	0
	Electricity			PJ	21.26	21.04	0
	Coal & Coal Products			PJ	0	0	0
	Other			PJ	0	0	0
<input checked="" type="checkbox"/>	Total			PJ	39.62	39.66	0
<input checked="" type="checkbox"/>	Freight & Commercial road transport						
	Motor Gasoline (including biofuels)			PJ	9.21	9.34	0
	Automotive Diesel (including biofuels)			PJ	527.96	525.37	0
	LPG (Liquefied Petroleum Gas)			PJ	0	0	0
	Natural Gas			PJ	0	0	0
	Electricity			PJ	0	0	0
	Other			PJ	0	0	0
<input checked="" type="checkbox"/>	Total			PJ	537.17	534.71	0
<input checked="" type="checkbox"/>	Freight trains						
	Diesel & Light Fuel Oil			PJ	3.41	3.43	0
	Heavy Fuel Oil			PJ	0.13	0.13	0
	Natural Gas			PJ	0	0	0
	Electricity			PJ	10.01	9.91	0
	Coal & Coal Products			PJ	0	0	0
	Other			PJ	0	0	0
<input checked="" type="checkbox"/>	Total			PJ	13.55	13.47	0
<input checked="" type="checkbox"/>	Domestic freight airplanes						
	Jet Fuel & Aviation Gasoline			PJ	0	0	0
	Other			PJ	0	0	0
<input checked="" type="checkbox"/>	Total			PJ	0	0	0
<input checked="" type="checkbox"/>	Domestic freight ships						
	Motor Gasoline (including biofuels)			PJ	0	0	0
	Diesel & Light Fuel Oil			PJ	34.69	32.29	0
	Heavy Fuel Oil			PJ	0	0	0
	Natural Gas			PJ	0	0	0
	Coal & Coal Products			PJ	0	0	0
	Other			PJ	0	0	0
<input checked="" type="checkbox"/>	Total			PJ	34.69	32.29	0

Activity data:

- segment and mode

TRANSPORT				units	2013	2014	2015
Menu	Legend	Check all/none	Add remarks				
<input checked="" type="checkbox"/>	Activity & Structure indicators						
<input checked="" type="checkbox"/>	Passenger transport [passenger-kilometres]						
	Cars, SUV and personal light trucks			10 ³ pass-km	637.67	694.23	0
	- gasoline (spark ignition) engine			10 ³ pass-km	0	0	0
	- diesel (compression ignition) engine			10 ³ pass-km	0	0	0
	Motorcycles (2 wheelers) & 3 wheelers			10 ³ pass-km	4.91	4.64	0
	Buses			10 ³ pass-km	40.40	39.60	0
	Passenger Trains			10 ³ pass-km	72.07	75.40	0
	Domestic passenger airplanes			10 ³ pass-km	0.45	0.45	0
	Domestic passenger ships			10 ³ pass-km	0	0	0
<input checked="" type="checkbox"/>	Total Passenger Transport			10³ pass-km	763.50	782.36	0
<input checked="" type="checkbox"/>	Freight transport [tonne-kilometres]						
	Freight & Commercial road transport			10 ³ tonne-km	151.42	153.55	0
	- gasoline (spark ignition) engine			10 ³ tonne-km	0	0	0
	- diesel (compression ignition) engine			10 ³ tonne-km	0	0	0
	Freight trains			10 ³ tonne-km	22.00	22.00	0
	Domestic freight airplanes			10 ³ tonne-km	0	0	0
	Domestic freight ships			10 ³ tonne-km	29.00	27.00	0
<input checked="" type="checkbox"/>	Total Freight Transport			10³ tonne-km	203.42	202.55	0
<input checked="" type="checkbox"/>	Freight transport [tonnes]						
	Freight & Commercial road transport			10 ³ tonnes	0	0	0
	- gasoline (spark ignition) engine			10 ³ tonnes	0	0	0
	- diesel (compression ignition) engine			10 ³ tonnes	0	0	0
	Freight trains			10 ³ tonnes	0	0	0
	Domestic freight airplanes			10 ³ tonnes	0	0	0
	Domestic freight ships			10 ³ tonnes	0	0	0
<input checked="" type="checkbox"/>	Vehicle kilometres						
	Cars, SUV and personal light trucks			10 ³ vkm	386.23	387.05	0
	- gasoline (spark ignition) engine			10 ³ vkm	0	0	0
	- diesel (compression ignition) engine			10 ³ vkm	0	0	0
	Motorcycles (2 wheelers) & 3 wheelers			10 ³ vkm	4.35	4.51	0
	Buses			10 ³ vkm	3.54	3.38	0
	Passenger Trains			10 ³ vkm	0	0	0
	Domestic passenger airplanes			10 ³ vkm	0	0	0
	Domestic passenger ships			10 ³ vkm	0	0	0
	Freight & Commercial road transport			10 ³ vkm	93.51	96.88	0
	- gasoline (spark ignition) engine			10 ³ vkm	0	0	0
	- diesel (compression ignition) engine			10 ³ vkm	0	0	0
	Freight trains			10 ³ vkm	0	0	0
	Domestic freight airplanes			10 ³ vkm	0	0	0
	Domestic freight ships			10 ³ vkm	0	0	0
<input checked="" type="checkbox"/>	Vehicle stocks (number of vehicles in use)						
	Cars, SUV and personal light trucks			10 ⁴	29.14	29.61	0
	- gasoline (spark ignition) engine			10 ⁴	10.57	10.63	0
	- diesel (compression ignition) engine			10 ⁴	10.06	10.73	0
	Motorcycles (2 wheelers) & 3 wheelers			10 ⁴	1.22	1.22	0
	Buses			10 ⁴	0.16	0.16	0
	Passenger Trains			10 ⁴	0	0	0
	Domestic passenger airplanes			10 ⁴	0	0	0
	Domestic passenger ships			10 ⁴	0	0	0
	Freight & Commercial road transport			10 ⁴	3.92	3.95	0
	- gasoline (spark ignition) engine			10 ⁴	0.14	0.14	0
	- diesel (compression ignition) engine			10 ⁴	2.67	2.66	0
	Freight trains			10 ⁴	0	0	0
	Domestic freight airplanes			10 ⁴	0	0	0
	Domestic freight ships			10 ⁴	0	0	0

INDUSTRY				units	2010	2011	2012	2013	2014	2015	sources	comments
Menu	Legend	Check all/none	Add remarks									
<input type="checkbox"/>	Total Energy Use			PJ	0	0	0	0	0	0		
24	24: Manufacture of basic metals											
	Oil & Petroleum Products			PJ	0.32	0.16	0.08	0.17	0.29	0		
	Natural Gas			PJ	27.87	26.37	23.41	24.68	26.34	0		
	Coal & Coal Products			PJ	135.93	121.22	129.33	165.41	165.21	0		
	Combust. Renewables & Waste			PJ	0	0	0	0	0	0		
	Heat			PJ	0	0	0	0	0	0		
	Electricity			PJ	39.12	39.88	31.59	31.23	31.49	0		
	Other			PJ	0	0	0	0	0	0		
<input type="checkbox"/>	Total Energy Use			PJ	205.29	187.67	184.47	221.96	222.32	0		
	Class 2410-2421: Manufacture - Casting of iron and steel											
	Oil & Petroleum Products			PJ	0.32	0.16	0.08	0.17	0.29	0		IEA Energy Balances
	Natural Gas			PJ	21.91	20.35	17.35	18.47	19.99	0		IEA Energy Balances
	Coal & Coal Products			PJ	135.26	120.63	129.78	164.82	164.63	0		IEA Energy Balances
	Combust. Renewables & Waste			PJ	0	0	0	0	0	0		
	Heat			PJ	0	0	0	0	0	0		
	Electricity			PJ	14.90	14.78	13.40	13.28	15.22	0		IEA Energy Balances
	Other			PJ	0	0	0	0	0	0		
<input type="checkbox"/>	Total Energy Use			PJ	172.43	165.92	169.74	198.73	199.13	0		
	Class 2420-2432: Manufacture - Casting of precious and non-ferrous metals											
	Oil & Petroleum Products			PJ	0	0	0	0	0	0		IEA Energy Balances
	Natural Gas			PJ	6.01	5.96	6.12	6.23	6.35	0		IEA Energy Balances
	Coal & Coal Products			PJ	6.63	5.59	5.54	5.59	5.59	0		IEA Energy Balances
	Combust. Renewables & Waste			PJ	0	0	0	0	0	0		
	Heat			PJ	0	0	0	0	0	0		
	Electricity			PJ	24.22	25.10	18.10	15.95	16.26	0		IEA Energy Balances
	Other			PJ	0	0	0	0	0	0		
<input type="checkbox"/>	Total Energy Use			PJ	36.86	31.65	24.76	22.76	23.20	0		
	Of which aluminium											
	Oil & Petroleum Products			PJ	0	0	0	0	0	0		
	Natural Gas			PJ	0	0	0	0	0	0		
	Coal & Coal Products			PJ	0	0	0	0	0	0		
	Combust. Renewables & Waste			PJ	0	0	0	0	0	0		
	Heat			PJ	0	0	0	0	0	0		
	Electricity			PJ	0	0	0	0	0	0		
	Other			PJ	0	0	0	0	0	0		
<input type="checkbox"/>	Total Energy Use			PJ	0	0	0	0	0	0		

- physical production
- value added

(by major ISIC sub-sectors)

MACRO ECONOMIC DATA				units	2010	2011	2012	2013	2014	2015
Menu	Legend	Check all/none	Add remarks							
IV. Value added in USD PPP 2010 \$ (at the price levels and PPPs of 2010)										
ISIC Rev.4 Division										
<input checked="" type="checkbox"/>	01 - 03. Agriculture, forestry and fishing			14.96	16.60	15.39	15.49	17.05	0	0
<input checked="" type="checkbox"/>	09. Mining and quarrying			44.00	37.72	33.62	32.70	32.90	0	0
<input checked="" type="checkbox"/>	10 - 32. Manufacturing			196.40	200.33	197.60	195.03	200.52	0	0
<input checked="" type="checkbox"/>	10 - 12. Manufacture of food products, beverages, tobacco products			32.62	34.78	33.88	33.31	34.70	0	0
<input checked="" type="checkbox"/>	15. Manufacture of textiles, wearing apparel, leather and related products			6.66	6.75	6.52	6.23	6.07	0	0
<input checked="" type="checkbox"/>	16. Manufacture of wood and of products of wood and cork, except furniture, manufacture of paper and paper products			3.30	2.99	2.76	2.78	2.99	0	0
<input checked="" type="checkbox"/>	17. Printing and reproduction of recorded media			5.26	4.93	4.90	4.96	5.10	0	0
<input checked="" type="checkbox"/>	17 - 18. Paper & Printing			7.07	6.38	6.33	6.38	6.39	0	0
<input checked="" type="checkbox"/>	19. Manufacture of coke and refined petroleum products			12.33	11.76	11.22	11.50	11.43	0	0
<input checked="" type="checkbox"/>	20 - 21. Manufacture of chemicals and chemical products & basic pharmaceutical products			6.44	6.52	5.87	5.75	5.28	0	0
<input checked="" type="checkbox"/>	22. Manufacture of rubber and plastics products			10.27	10.31	10.35	9.95	11.17	0	0
<input checked="" type="checkbox"/>	23. Manufacture of other non-metallic mineral products			6.33	6.33	5.45	5.41	6.21	0	0
<input checked="" type="checkbox"/>	24. Manufacture of basic metals			4.22	4.58	4.70	4.67	4.58	0	0
<input checked="" type="checkbox"/>	Class 2400-2431. Manufacture - Casting of iron and steel			0	0	0	0	0	0	0
<input checked="" type="checkbox"/>	Class 2420-2432. Manufacture - Casting of precious and non-ferrous metals			0	0	0	0	0	0	0
<input checked="" type="checkbox"/>	25 - 28. Manufacture of fabricated metal products, machinery and equipment			40.34	49.70	51.15	48.24	49.46	0	0
<input checked="" type="checkbox"/>	29 - 30. Manufacture of motor vehicles, trailers, other transport equipment			22.18	24.43	25.51	27.46	28.44	0	0
<input checked="" type="checkbox"/>	31 - 32. Manufacture of furniture & other manufacturing			10.47	10.67	9.95	10.24	10.30	0	0
<input checked="" type="checkbox"/>	35 - 36. Electricity, gas, steam, air conditioning, and water supply			46.45	49.49	48.28	47.15	45.62	0	0
<input checked="" type="checkbox"/>	41 - 43. Construction			116.89	119.47	112.24	112.86	121.91	0	0
<input checked="" type="checkbox"/>	59. Services			1,629.34	1,654.64	1,684.04	1,724.29	1,781.53	0	0
<input checked="" type="checkbox"/>	Total gross value added at basic prices			2,048.04	2,075.44	2,097.16	2,126.10	2,158.20	0	0
Net statistical discrepancy				228.45	236.42	255.64	255.64	255.64	0	0
GDP PPP 2010				2,276.50	2,310.86	2,341.20	2,385.94	2,413.80	2,614.41	0

[illegible]