

# **Energy Efficiency and APEC Energy Statistics**

43<sup>rd</sup> Meeting APEC Expert Group on Energy Efficiency and Conservation Moana Surfrider, A Westin Resort & Spa Honolulu, U.S.A 11 April 2014

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# EGEDA: Expert Group on Energy Data Analysis



 The Expert Group on Energy Data and Analysis (EGEDA) is responsible for providing policy relevant energy information to APEC bodies and the wider community, through collecting energy data of the APEC region, managing the operation of the APEC Energy Data Base through the Coordinating Agency, collecting policy relevant information from member economies, and examining and advising on the research activities of the APERC.





# EGEDA: Expert Group on Energy Data Analysis



## **Energy Data**

- Monthly Oil and Gas (JODI: Joint Organisations Data Initiative)
- Quarterly Energy Supply
  - Coal, Oil, Petroleum Products, Gas and Electricity
- Annual Energy Supply and Demand
  - Coal, Oil, Petroleum Products, Gas, Electricity / Heat, New and Renewables

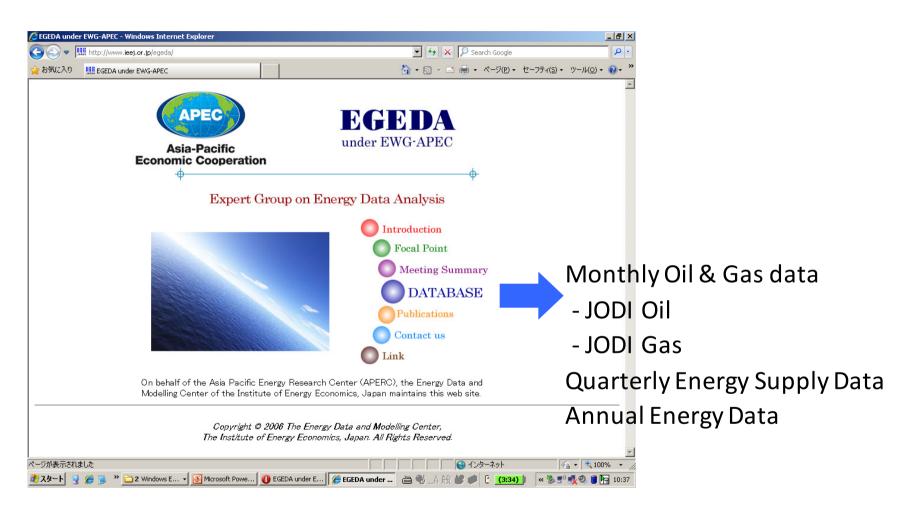
## **Other Data (Energy Related Data)**

- CO2 Emission
- Energy Prices
- Oil / Gas reserve and producing / refining capacity as JODI Annual



# EGEDA: Energy Database Web-site



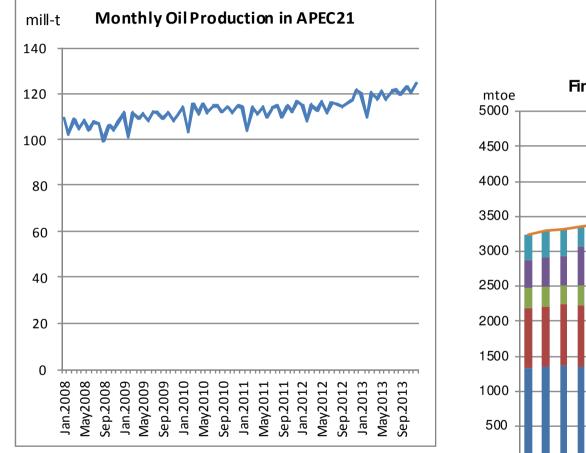


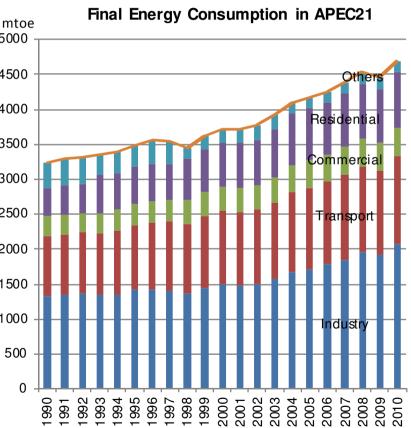
# http://www.ieej.or.jp/egeda/

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# **Energy Data Collection:**



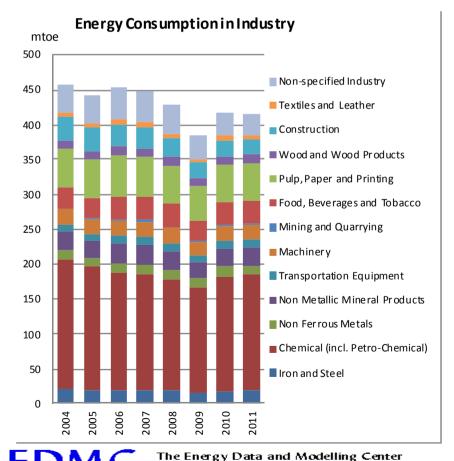




# **Statistics for Energy Consumption**



• To collect appropriate information for analyzing energy situation, it is important to collect detailed energy supply / demand data.



The Institute of Energy Economics, Japan

### **Energy Consumption by Sector**

#### **Energy Consumption in Industry** mtoe 25 Non-specified Industry Textiles and Leather 20 Construction Wood and Wood Products Pulp, Paper and Printing 15 Food, Beverages and Tobacco Non-specified others Mining and Quarrying Machinery 10 Transportation Equipment Non Metallic Mineral Products Non Ferrous Metals 5 Chemical (incl. Petro-Chemical) Ironand Steel 0 2005 2006 2009 2010 2004 2007 2008 2011

### **Energy Consumption by Sector**

# **Energy Efficiency and Statistics**



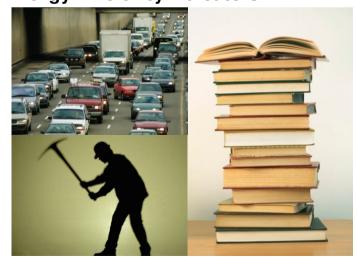
#### Energy Supply/Demand Data





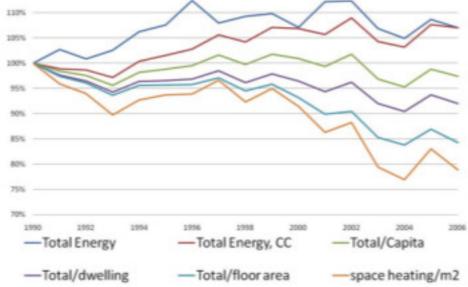
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### **Energy Efficiency Indicators**



## ~

**Energy Efficiency Analysis** 







# **IEA Efficiency Indicators Template**

iea	Energy Efficiency Indicators Template Japan	1991	1992	1993						
					993	1994	1995			
		124.10	124.57	124.94						
		65.47	66.21	66.46						
OUNTRY DATA SECTION (to	be reviewed and updated)	37.80	38.49	39.32				1994	1995	19
MACRO ECONOMIO DATA	Macro economic and activity data									
COMMODITIES	Production outputs from selected energy-consuming industries	44.33	45.10	45.88	0.45	10.44	10.98			
NDUSTRY	Energy consumption by ISIC categories		40.10	40.77	8.55	8.59	9.09			
SERVICES	Energy consumption by and-uses in the services sector	39.43			1.64	1.64	1.67	267.38	259.37	269
RESIDENTIAL	Household energy consumption by end-uses and selected appliances data	1.34	1.42	1.51		14.84	15.47	207.30	259.37	205
TRANSPORT	Energy and activity data for passenger and fielght transport	3.15	3.11	3.06	4.84			0.03	0.03	c
		0	0	0	0	0	0	0.03	0.03	,
A DATA and AGGREGATE IN	DICATORS	0	0	0	0	0	0			
ELECTRICITY GENERATION	Electricity generation from combusible fuels and efficiencies	0	0	0				0 7.34	0 6.12	e
BASIC INDICATORS	Predetermined set of apprepate energy and activity indicators	0	0	0	7.76	28.53	29.66	2.26	3.73	2
		0	0	0	1.52	1.55	1.56	277.00	269.24	
JPPORT TOOLS		3,3 62.72	3.411.76	-	2.92	2.97	3.10			280
USER REMARKS	To incorporate comments associated to the data from the individual sheets		-, -	5,057.05	9.54	9.81	10.57	4.81	4.98	5
DATA COVERAGE	Generates a graphical summary of data coverage (completed vs. expected)	1,6 33.70	1,686.40	1,700.00				0.03	0.03	•
SINGLE INDICATOR GRAPHS	To generate a graph for one energy indicator	371.50	318.40	190.60 1		11.99	12.26	3.35	3.47	:
MULTIPLE NDICATORS GRAPHS	To generate a graph comparing trends from multiple indicators				2.16	2.22	2.19			
CONSISTENCY CHECKS	Torunthe integrated consistency checks	134.71	126.65	111.20						
		187.10	185.74	182.71				9.08	9.55	10
		95.09	96.72	97.95	5.77	6.13	6.94	2.04	1.60	1
		1.8 69.77	1.910.65	1.934.98	4.27	4.43	4.96	0.67	0.64	(
Fyou have any questions or need assistant	a with this must conside	1,0 0011	1,010.00	1,001.00	0	0	0	0	0	
vigit the dedicated website http://indicators		1.3 27.82	1.365.64	1.407.46		1.71	1.83	0	0	
username: indicators			,	,	0.81	0.86	0.99	6.41	6.20	(
password efficiency		0	0	0				0	0	
or write to energyindicators gries.org					3.78	3.79	4.00	18.19	17.98	18
		rates and F	-/					4.57	4.75	4
Click on the START button to begin working		0	0	0				0.03	0.03	C
		4,2 88.24	4,323.37	4,330.76				3.18	3.31	3
Fricthing happens, adjust the macro securit		0	0	0	7.44	89.70	89.10			
For item labors mathematicationary servings of	ick on the following links:	0	0	0	4.76	97.43	96.41	iclear fu	- /	
excel 2003 excel 2007		2,9 86.20	3,010.66	3,015.81				1, 138.66	1,150.73	1,166
1002 01 20007								164.67	177.38	188
					0.00	0.0.00	101.01	1,918.54	1,920.77	1,922
		101.58	103.19	103.64	9.62	98.30	101.64	1.79	1.68	1
					8.49	67.22	68.84	0	0	
i	Electric Arc Furnace production Mit	34.70 34.	40 01		1.13	31.07	32.80	1,114.30	1,132.59	1,158
	Direct Reduced Iron Mt	0	0	0	0	0	0	0	0	
	idai Litergy Ca		-,			4,207.02	,20020	4,337.95	4,383.15	4,438
	Energy intensity (using GDP at US \$PPP) Energy intensity (using GDP at nat. currer	MJ/US NJ/J	•	6.79 0.04	637 0.04	6.24 0.04	6.33 0.04	6.64	6.46 0.04	



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# **Efficiency Indicators**



m		mber of items				
	Category		Data from Energy Database	Formula	Data Entry Required	
1	Macro Economic Data	104	0	52	52	Population, Total Dwellings, Exchange Rate, GDP, etc.
2	Commodities	29	0	0	29	Production of Commodities (Pulp, Paper, Chemical, Basic Metals,etc)
3	Industry	216	119	34	63	Energy Consumption by Sector
4	Services	59	8	21		Space Heating, Space Cooling, Lighting, Other Building Energy Use in Services Sector, Total Building Use in Services Sector
5	Residential	113	8	26		Space Heating, Space Cooling, Water Heating, Cooking, Lighting, Refrigerators, Freezers, Refrigerator/Freezer Combinations, Dish Washers, Clothes Washers, Clothes
6	Transport	208	34	47	127	Passenger Transport, Freight Transport, Vehicle Km, Vehicle Stocks,
7	Electricity Generation	75	75	0	0	Electricity Generation by Type, by Fuel, etc.
8	Basic Indicators	56	37	19	0	
		860	281	199	380	



## **Contents of EET Residential**

## **Contents:**

Space Heating / Cooling

Water Heating

Cooking

Lighting

Refrigerators / Freezers

**Dish Washers** 

Clothes Washers / Clothes Dryers

Television/Home entertainment

PC/Information & communication technology

**Other Appliances** 

Total Energy Use in Residential Sector

Appliances Diffusion

Appliances Stock



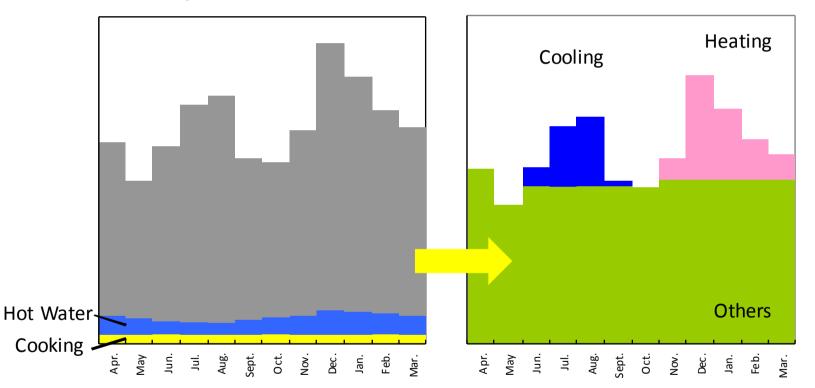


# 5. Residential Energy Consumption by Use



## Estimation methodology to figure out energy consumption by end use

### Electricity



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# **Energy Efficiency and Statistics**



• To analyze energy demand and improve energy efficiency, detailed information for energy end-use / energy related data are important for policy makers & energy analysts.

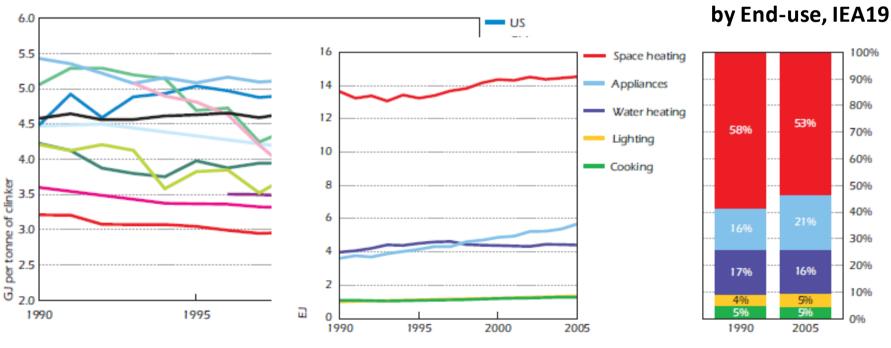
Energy Related Data (Industrial Production, Number of Carhold, etc.)

Energy End-use (lighting / Water Heating / Cooking etc. in Residential)

### Energy Consumption per Tonne of Clinker

The Energy Data and Modelling Center

The Institute of Energy Economics, Japan



Source : "Worldwide Trends in Energy Use and Efficiency" IEA

Household Energy Use