

EGEDA

(Expert Group on Energy Data Analysis)

Progress

**41st Meeting
of the APEC Expert Group on Energy Efficiency & Conservation
(EGEE&C 41)**

**Beijing International Convention Center
Beijing, China**

11 April, 2013

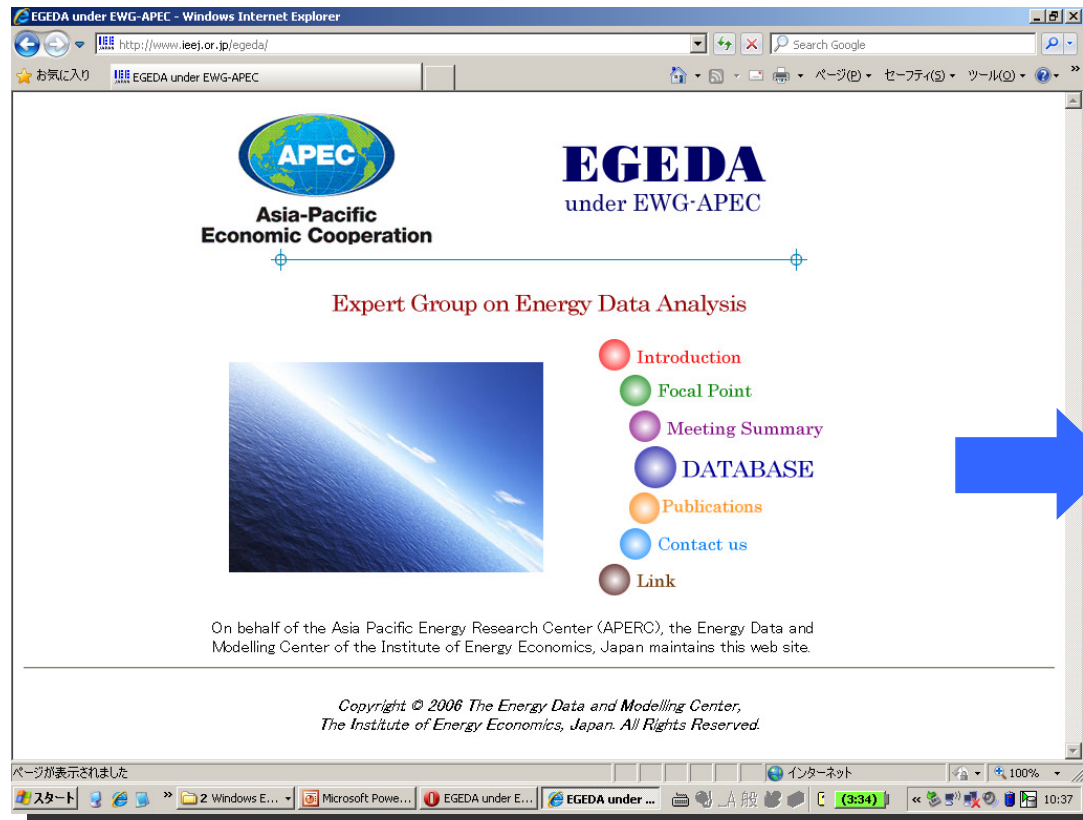
Takuya MIYAGAWA

EDMC, IEEJ



EGEDA:

Expert Group on Energy Data Analysis



Monthly Oil & Gas data

- JODI Oil

- JODI Gas

Quarterly Energy Supply Data

Annual Energy Data

<http://www.iej.or.jp/egeda/>

Monthly Oil Data (JODI Oil)



- JODI: Joint Organization Data Initiative



<http://www.jodidata.org/>

JOINT OIL DATA INITIATIVE

Closing minus opening level
Positive number corresponds to stock build, negative number corresponds to stock draw

Country _____

Month _____

Unit : _____

	Crude Oil	NGL	Other	Total (1)+(2)+(3)		Petroleum Products						
						LPG	Naphtha	Gasoline	Total Kerosene	Of which: Jet Kerosene	Gas/ Diesel Oil	Fuel Oil
	(1)	(2)	(3)	(4)		(5)	(6)	(7)	(8)	(9)	(10)	(11)
+ Production				0	+ Refinery Output							
+ From Other sources	+	+	+	0	+ Receipts							
+ Imports				0	+ Imports							
- Exports				0	- Exports							
+ Products Transferred + Backflows	+	+	+	0	- Products Transferred							
- Direct Use				0	+ Interproduct Transfers							
- Stock Change				0	- Stock Change							
- Statistical Difference	0	0	0	0	- Statistical Difference	0	0	0	0	0	0	0
= Refinery Intake	0	0	0	0	= Demand	0	0	0	0	0	0	0
Closing stocks					Closing stocks							

Monthly Oil Data (JODI Oil)



- JODI Oil

- Submission: 19 of the 21 economies
- Timeliness: Worsened a little bit in the first 8 months of 2012 but generally it has been improving from 2005.
- Accuracy: Generally good except for stock changes based on comparison with annual data
- The quality assessment reports of the JODI Oil data were distributed to APEC member economies for their data consistency check and data availability analysis.

Monthly Gas Data (JODI Gas)



•JODI Gas

Member Economy: _____

Month: _____

Year: _____

	Natural Gas Million m ³ (at 15°C, 760 mm Hg)	Natural Gas TJ (Gross Calor. Value)	of which: LNG 1 000 ton	of which: LNG TJ (Gross Calor. Value)	of which: pipeline Million m ³ (at 15°C, 760 mm Hg)	of which: pipeline TJ (Gross Calor. Value)
Indigenous Production						
Imports						
Exports						
Stock Changes (+ or -)						
Gross Inland deliveries (calculated)						
Statistical Difference						
Gross Inland deliveries (observed)						
of which: Power Generation						
of which: Own use and losses of the natural						
Total Stocks on National Territory- Opening						
Total Stocks on National Territory- Closing						

AVERAGE GROSS CALORIFIC VALUES:

Unit: KJ/cubic m

	Natural Gas
Indigenous Production	
Imports	
Exports	
Average	

- Submission: 19 of the 21 economies
- Completeness: Only 9 of the 19 economies submit complete data
- Accuracy: The methodology for accuracy check will be discussed at the coming 3rd Gas Data Transparency Conference to be held on 4-5 June in Bali, Indonesia.

Quarterly Data

Objective:

To prepare quarterly data as preliminary information of annual energy supply.

- Production
- Import
- Export
- Stock Changes

History:

1994 - Collection of quarterly data started.

1999 – 1st revision of simplified format.

2003 – 2nd revision of the format.

Coal Unit: 1,000ton

	Production	Imports	Exports	Stock Changes
2010 JAN.				
FEB.				
MAR.				
1st quarter				

Oil Unit: 1,000bbl or 1,000kl or 1,000t

	Crude Oil				Petroleum Products		
	Production	Imports	Exports	Stock Change	Imports	Exports	Stock Changes
2010 JAN.							
FEB.							
MAR.							
1st quarter							

Natural Gas (or LNG) Unit: 1,000CF or 1,000CM (or 1,000ton for LNG)

	Production	Imports	Exports	Stock Changes
(Unit)				
2010 JAN.				
FEB.				
MAR.				
1st quarter				

Electricity Unit: GWh

	Gross Generation					Imports	Export
	Total	Thermal	Hydro	Nuclear	Others		
2010 JAN.							
FEB.							
MAR.							
1st quarter							

Annual Supply & Demand Data



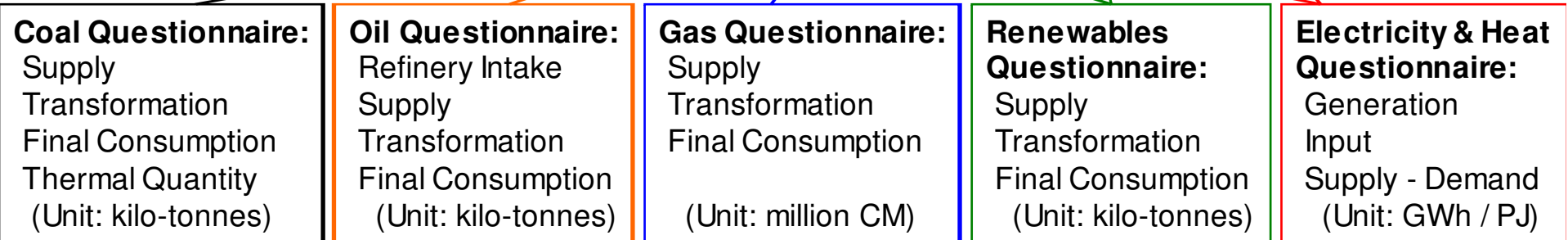
- 5 Questionnaires
 - Coal, Oil, Gas, Electricity & Heat and NRE (New & Renewables)
 - Supply, Transformation, Final Consumption
 - Microsoft Excel format
- The energy data should be filled in the questionnaires.
 - Following the definitions
 - Minimize statistical difference
 - Check for inconsistent historical trend

APEC-ASEAN Joint Format for Annual Coal Data
Supply Sector (Table 1)

Update	Primary Fuels							Secondary Fuels					of nuclear power generation	
	Coking Coal	Anthracite	Other bituminous coal	Sub- bituminous Coal	Lignite	Peat	Plant Fuel	Coke	Coal Tar	Gas BHP/PP	Gas Works Gas	Coke Oven Gas		Blas furnace Gas
	100t	100t	100t	100t	100t	100t	100t	100t	100t	100t	10 ⁶ kcal (gross)	10 ⁶ kcal (gross)		10 ⁶ kcal (gross)
	A	B	C	D	E	F	G	H	I	J	K	L	M	
Production														
of which is reworked														
of which is reworked														
from other sources														
of which is covered duties														
of which is on oil														
Imports														
Exports														
International Marine Bunkers														
Stock Changes														
APEC/ASEAN/DELT/VERBS (calculated from line 10)														
SI/DELT/VERBS/DELT/VERBS (calculated from line 10)														
APEC/ASEAN/DELT/VERBS (observed)														
Initial stock, nonnational territory - opening														
Initial stock, nonnational territory - closing														
IS codes	16	27012	27011	27016	27021	27022	27080	-	27040	27080	27012	-	-	-
IS codes	16	27012	27011	27016	27021	27022	27080	-	27040	27080	27012	-	-	-
IS codes	16	27012	27011	27016	27021	27022	27080	-	27040	27080	27012	-	-	-

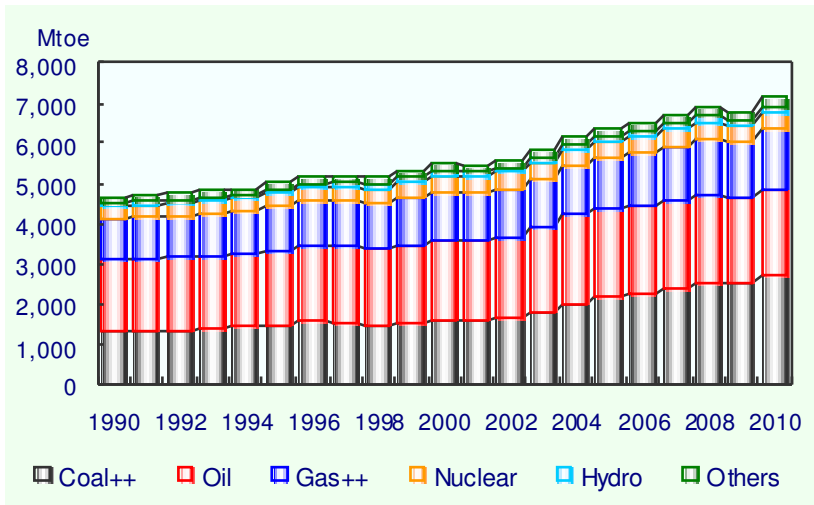
Energy Balance Table

	Coal	Coal Products	Crude Oil	Petroleum Products	Gas	Hydro	Nuclear	Geothermal, etc.	Others	Electricity	Heat	Total
Malaysia												
Indigenous Production	676		35513	2356	57022	642						96208
Imports	8310		8565	7370	4447					9		28701
Exports	-176		-14994	-9517	-21600					-50		-46337
International Marine Bunkers				-66								-66
International Aviation Bunkers												
Stock Changes	-695		144	-115								-666
Total Primary Energy Supply	8114		29229	28	39869	642				-41		77839
Total Transformation Sector	-6894		-26740	25917	-27982	-642				9563		-26778
Main Activity Producer	-6894			-479	-13300	-642				9103		-12211
Autoproducers				-63	-1004					460		-607
Gas Processing					-13679							-13679
Refineries			-26740	26459								-281
Coal Transformation												
Petrochemical Industry												
Loss & Own Use				-993	-1411					-772		-3175
Discrepancy	244		-2488	-519						-768		-3532
Total Final Energy Consumptions	1464			24433	10474					7983		44354
Industry Sector	1464			6092	10250					3685		21490
Transport Sector				16175	189					15		16378
Other Sector				2167	36					4283		6486



Annual Energy Data

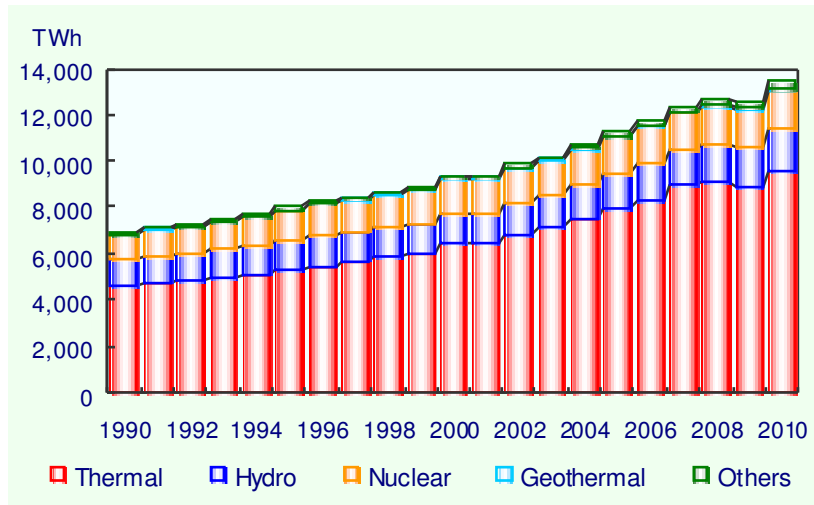
Primary Energy Supply in APEC21



	Mtoe					
	1990	1995	2000	2005	2009	2010
Coal++	1,359.9	1,485.8	1,571.7	2,150.8	2,519.0	2,687.4
Oil	1,751.6	1,820.2	2,009.9	2,202.0	2,114.1	2,149.8
Gas++	998.5	1,085.8	1,197.5	1,263.6	1,382.4	1,483.4
Nuclear	283.1	344.7	389.2	415.9	424.4	433.2
Hydro	94.7	111.1	111.0	128.5	148.6	156.5
Others	146.6	157.6	173.2	187.2	198.3	232.4
Total	4,634.4	5,005.2	5,452.5	6,347.9	6,786.8	7,142.7

	Share (%)					
	1990	1995	2000	2005	2009	2010
Coal++	29.3	29.7	28.8	33.9	37.1	37.6
Oil	37.8	36.4	36.9	34.7	31.2	30.1
Gas++	21.5	21.7	22.0	19.9	20.4	20.8
Nuclear	6.1	6.9	7.1	6.6	6.3	6.1
Hydro	2.0	2.2	2.0	2.0	2.2	2.2
Others	3.2	3.1	3.2	2.9	2.9	3.3

Power Generation by Type (APEC21)

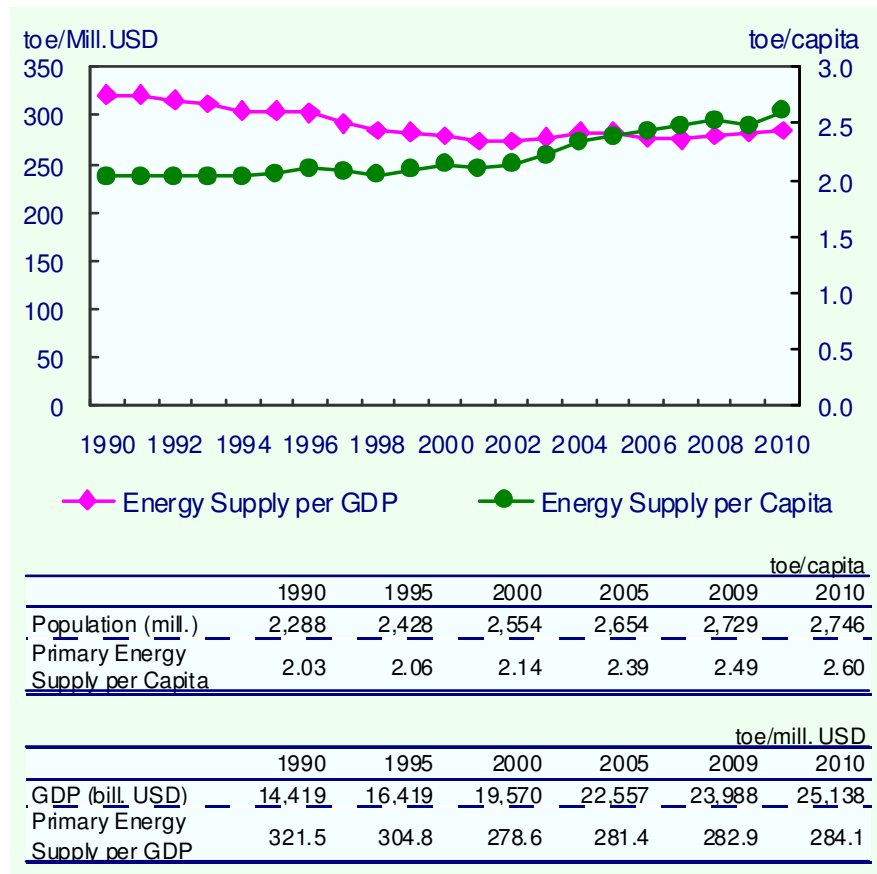


	TWh					
	1990	1995	2000	2005	2009	2010
Thermal	4,629.2	5,272.1	6,451.0	7,967.8	8,871.4	9,591.7
Hydro	1,101.0	1,291.7	1,290.4	1,493.6	1,726.7	1,820.5
Nuclear	1,087.3	1,322.7	1,493.4	1,595.9	1,628.5	1,662.3
Geothermal	31.5	34.1	43.4	47.4	51.1	52.9
Others	113.4	100.6	115.0	170.0	288.3	342.5
Total	6,962.5	8,021.2	9,393.1	11,274.7	12,566.1	13,469.9

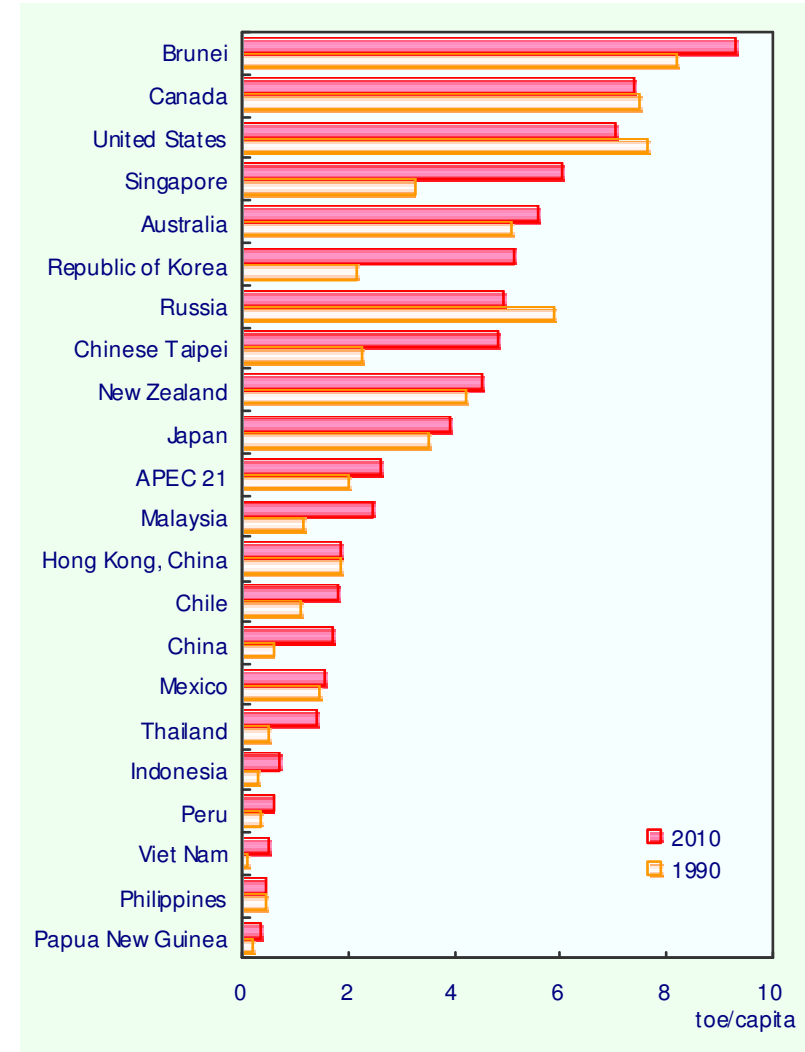
	Share (%)					
	1990	1995	2000	2005	2009	2010
Thermal	66.5	65.7	68.7	70.7	70.6	71.2
Hydro	15.8	16.1	13.7	13.2	13.7	13.5
Nuclear	15.6	16.5	15.9	14.2	13.0	12.3
Geothermal	0.5	0.4	0.5	0.4	0.4	0.4
Others	1.6	1.3	1.2	1.5	2.3	2.5

Annual Energy Data

Primary Energy Supply per GDP, per Capita



Primary Energy Supply per Capita (by economy)



IEA Efficiency Indicators Template



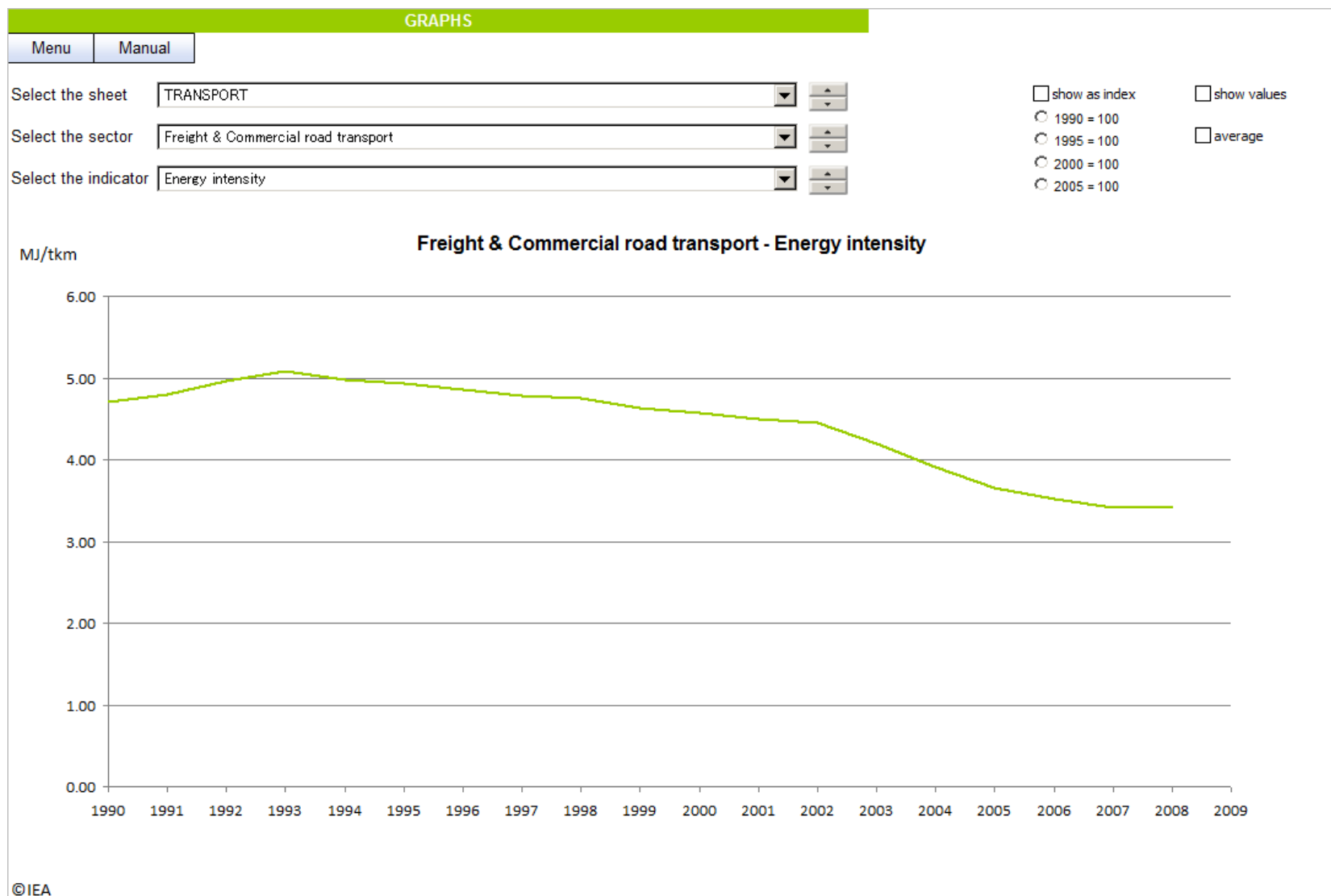
Energy Efficiency Indicators Template Japan		1991	1992	1993	1993	1994	1995	1994	1995	1996
COUNTRY DATA SECTION (to be reviewed and updated)										
MACRO ECONOMIC DATA	Macroeconomic and activity data	124.10	124.57	124.94						
COMMODITIES	Production output from selected energy-consuming industries	65.47	66.21	66.46						
INDUSTRY	Energy consumption by SIC categories	37.80	38.49	39.32						
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	Predefined index 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 INDICATOR GRAPHS	To generate a graph comparing trends from multiple indicators									
CONSISTENCY CHECKS	To run the integrated consistency checks									
<p>If you have any questions or need assistance with this questionnaire visit the dedicated website http://indicators.iea.org</p> <p>username: indicators password: efficiency or write to energyindicators@iea.org</p> <p>Click on the START button to begin working</p> <p>If nothing happens, adjust the macro security settings of EXCEL. For more info on macro security settings click on the following links: excel 2003 excel 2007</p>										
rates and PPPs)										
nuclear fuel)										
Electric Arc Furnace production	Mt	34.70	34.43	33.33	31.13	31.07	32.80	1,114.30	1,132.59	1,158.11
Direct Reduced Iron	Mt	0	0	0	0	0	0	0	0	0
Total Energy Use	TJ	1,201.00	1,177.71	1,207.02	1,200.00			4,337.95	4,383.15	4,438.46
Energy intensity (using GDP at US\$PPP)	MJ/US\$PPP	6.79	6.37	6.24	6.33	6.64	6.46	6.27		
Energy intensity (using GDP at nat. currency)	MJ/JPY	0.04	0.04	0.04	0.04	0.04	0.04	0.04		

Efficiency Indicators

- 7 categories in Energy Efficiency Indicators Template:

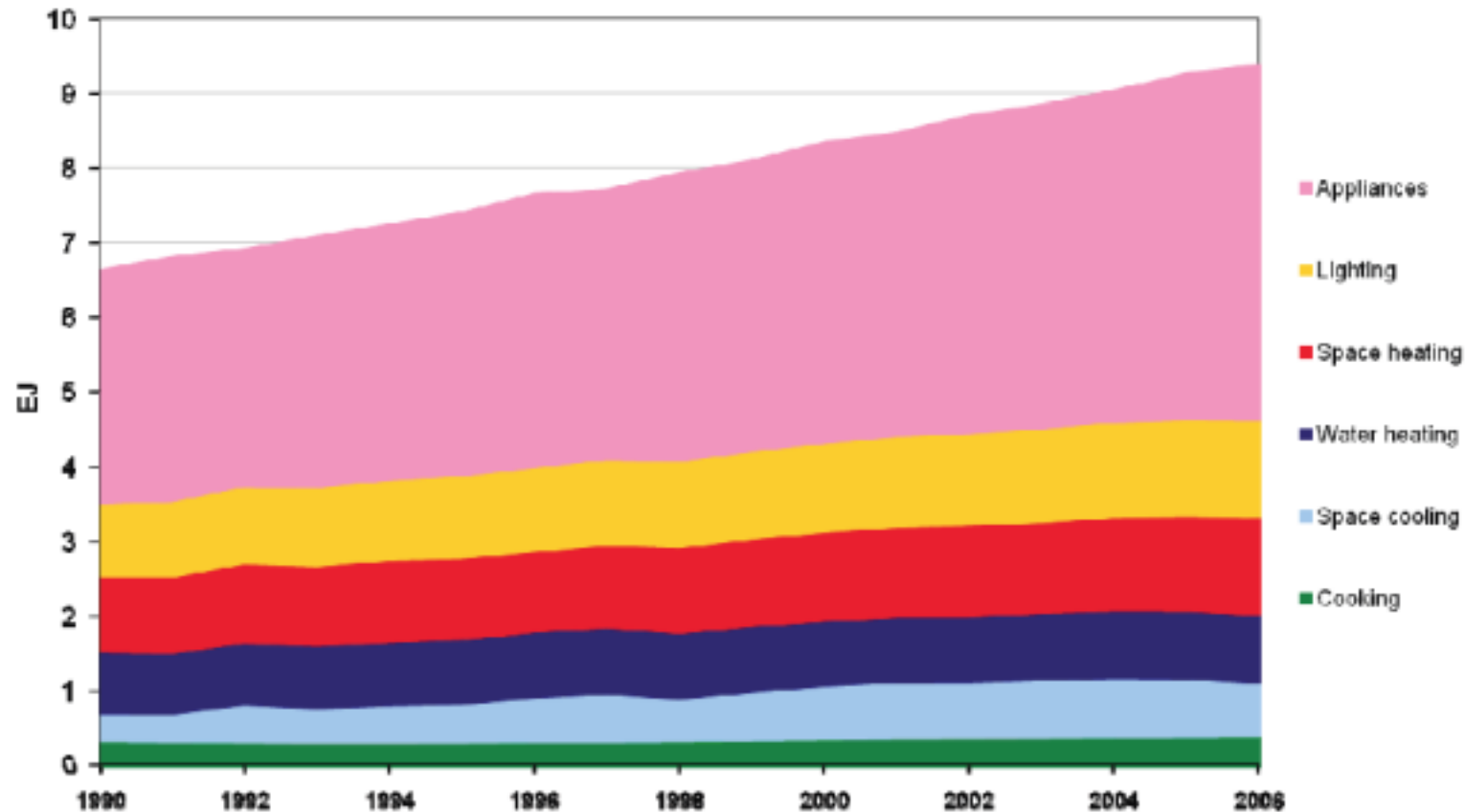
Category		Number of items	
1	Macro Economic Data	104	Population, Total Dwellings, Exchange Rate, GDP, etc.
2	Commodities	29	Production of Commodities (Pulp, Paper, Chemical, Basic Metals, etc...)
3	Industry	216	Energy Consumption by Sector
4	Services	59	Space Heating, Space Cooling, Lighting, Other Building Energy Use in Services Sector, Total Building Use in Services Sector
5	Residential	113	Space Heating, Space Cooling, Water Heating, Cooking, Lighting, Refrigerators, Freezers, Refrigerator/Freezer Combinations, Dish Washers, Clothes Washers, Clothes
6	Transport	208	Passenger Transport, Freight Transport, Vehicle Km, Vehicle Stocks,
7	Electricity Generation	75	Electricity Generation by Type, by Fuel, etc.
		804	

Examples of Analysis using the IEA Template



IEA Energy Efficiency Template

Household Electricity Demand by End-use, IEA19



Source: IEA

Beyond the Energy Balance

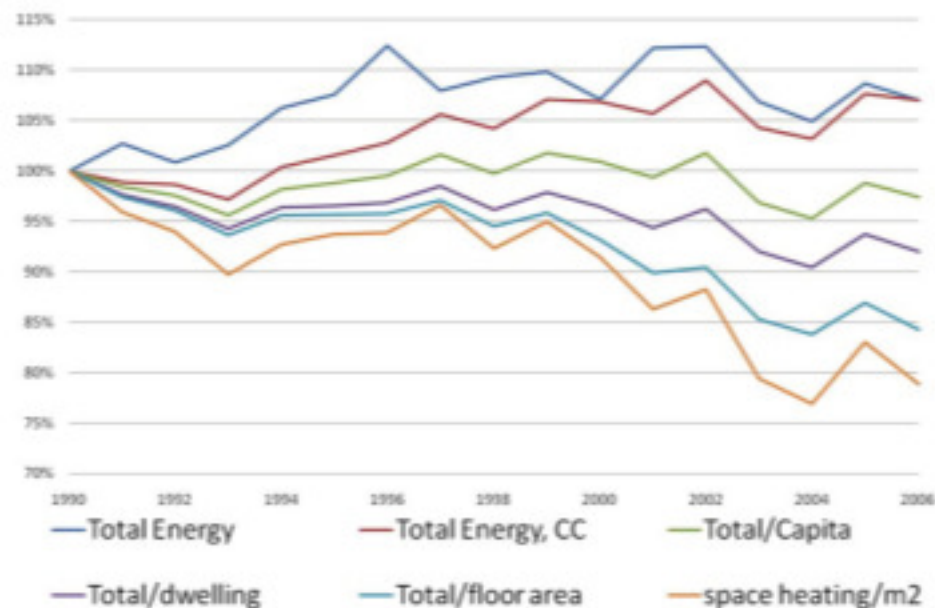
Energy Supply/Demand Data



Energy Efficiency Indicators



Energy Efficiency Analysis



Cooperation with EGEE&C & EGEDA