

THE IEA AND ENERGY EFFICIENCY INDICATORS

**United Nations Economic Commission for Europe
Group of Experts on Global Energy Efficiency 21
10 June 2010**

**Robert Schnapp
Head of Section**

Coal, Renewables, Electricity, and Heat



International
Energy Agency

OVERVIEW

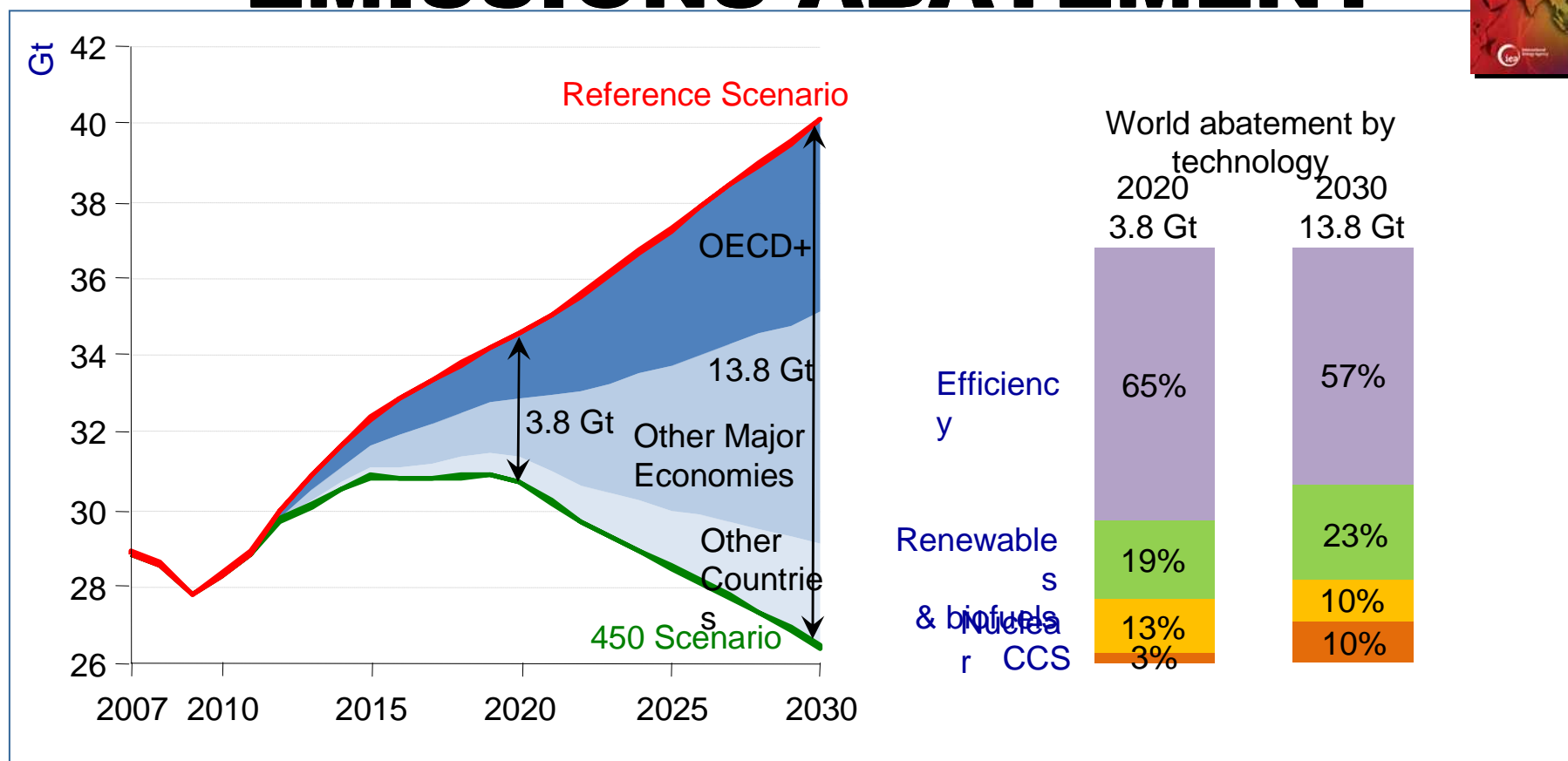
- **Importance of energy efficiency data**
- **The contribution of the IEA**
- **New IEA Questionnaire**
- **Uses of the data**



WHY INTEREST IN EFFICIENCY

- **Save energy in all sectors**
- **Increase domestic (and global) energy security**
- **Strengthen RD&D**
- **Create jobs**
- **Reduce greenhouse gas (mainly CO₂) emissions**

EFFICIENCY'S ROLE IN CO₂ EMISSIONS ABATEMENT



➔ More than 50% of the reduction of CO₂ emissions should come from energy efficiency

COUNTRIES ARE ADOPTING AMBITIOUS TARGETS

- **EU 20-20-20 programme by 2020**
- **China Reduce CO₂ intensity by 40-45%
between 2005 and 2020**
- **India Reduce CO₂ intensity by 20%
between 2005 and 2020**
- **How to verify meeting these targets?**

IMPORTANCE OF COLLECTING INDICATORS DATA

At a country level

- **Provide guidance to policy-makers on:**
 - **Underlying drivers (economic activity & structure, income, prices...)**
 - **Trends in energy use and CO₂ emissions**
 - **Energy efficiency opportunities and progress**
 - **Policy effectiveness**

IMPORTANCE OF COLLECTING INDICATORS DATA

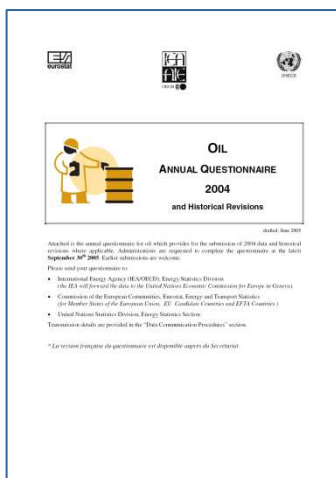
 **At a regional or international level**

- **Establish a harmonised framework**
 - **Comparability**
 - **Understanding of global trends and drivers**
 - **Cross-country analysis**

IEA CONTRIBUTION TO ENERGY EFFICIENCY INDICATORS



The IEA collects annual energy statistics from the OECD Member countries through 5 annual questionnaires



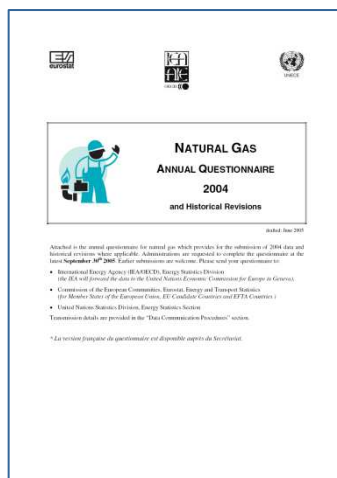
OIL
ANNUAL QUESTIONNAIRE
2004
and Historical Revisions

Attached is the annual questionnaire for oil which provides for the submission of 2004 data and historical revisions where applicable. Administrations are requested to complete the questionnaire at the latest September 30th 2005. Earlier submissions are welcome. Please send your questionnaire to:

- International Energy Agency (IEA/ECED), Energy Statistics Division (The IEA will forward the data to the United Nations Economic Commission for Europe in Geneva)
- Commission of the European Communities, Energy, Energy and Transport Statistics (for Member States of the European Union, EU Candidate Countries and EFTA Countries)
- United Nations Statistics Division, Energy Statistics Section

Transmission details are provided in the "Data Communication Procedures" section.

* Le version française du questionnaire est disponible auprès du Secrétariat.



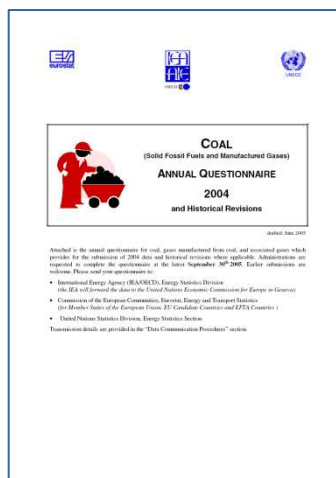
NATURAL GAS
ANNUAL QUESTIONNAIRE
2004
and Historical Revisions

Attached is the annual questionnaire for natural gas which provides for the submission of 2004 data and historical revisions where applicable. Administrations are requested to complete the questionnaire at the latest September 30th 2005. Earlier submissions are welcome. Please send your questionnaire to:

- International Energy Agency (IEA/ECED), Energy Statistics Division (The IEA will forward the data to the United Nations Economic Commission for Europe in Geneva)
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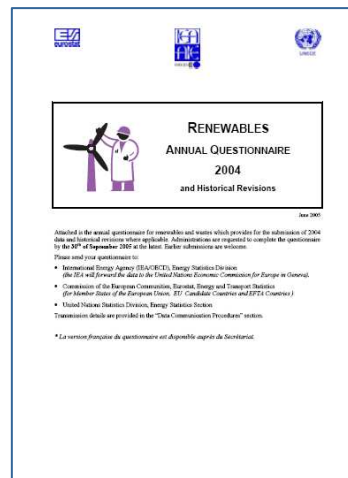


COAL
(Solid Fossil Fuels and Manufactured Gases)
ANNUAL QUESTIONNAIRE
2004
and Historical Revisions

Attached is the annual questionnaire for coal, gas manufactured from coal, and associated gases which provides for the submission of 2004 data and historical revisions where applicable. Administrations are requested to complete the questionnaire at the latest September 30th 2005. Earlier submissions are welcome. Please send your questionnaire to:

- International Energy Agency (IEA/ECED), Energy Statistics Division (The IEA will forward the data to the United Nations Economic Commission for Europe in Geneva)
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RENEWABLES
ANNUAL QUESTIONNAIRE
2004
and Historical Revisions

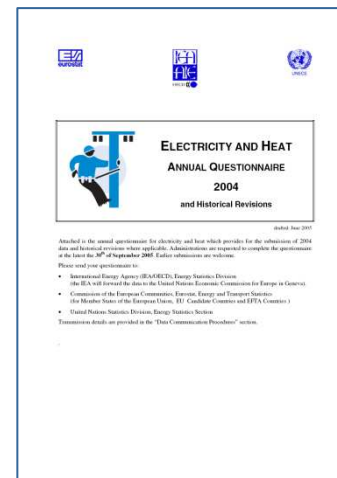
Attached is the annual questionnaire for renewables and wastes which provides for the submission of 2004 data and historical revisions where applicable. Administrations are requested to complete the questionnaire by the 30th of September 2005 at the latest. Earlier submissions are welcome.

Please send your questionnaire to:

- International Energy Agency (IEA/ECED), Energy Statistics Division (The IEA will forward the data to the United Nations Economic Commission for Europe in Geneva)
- Commission of the European Communities, Energy, Energy and Transport Statistics (for Member States of the European Union, EU Candidate Countries and EFTA Countries)
- United Nations Statistics Division, Energy Statistics Section

Transmission details are provided in the "Data Communication Procedures" section.

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ELECTRICITY AND HEAT
ANNUAL QUESTIONNAIRE
2004
and Historical Revisions

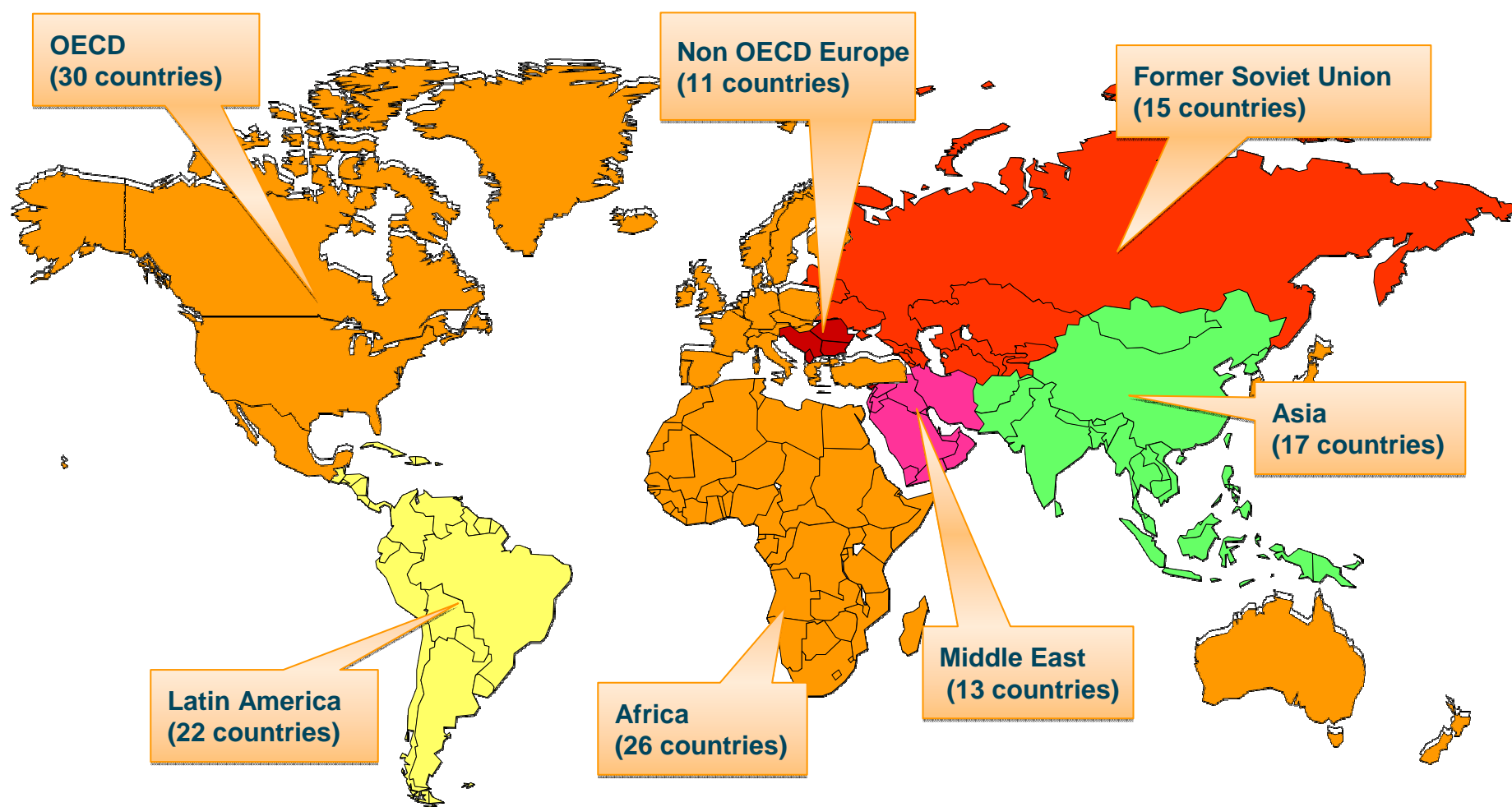
Attached is the annual questionnaire for electricity and heat which provides for the submission of 2004 data and historical revisions where applicable. Administrations are requested to complete the questionnaire at the latest the 30th of September 2005. Earlier submissions are welcome.

Please send your questionnaire to:

- International Energy Agency (IEA/ECED), Energy Statistics Division (The IEA will forward the data to the United Nations Economic Commission for Europe in Geneva)
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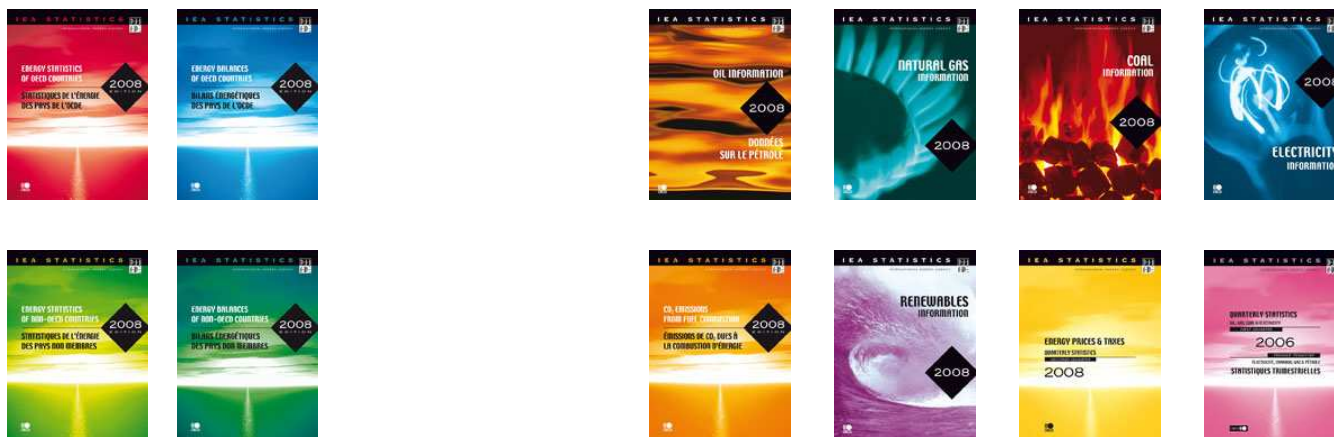
THE IEA ALSO COLLECTS ENERGY STATISTICS FOR OVER 100 NON-OECD COUNTRIES



IEA STATISTICS ARE AVAILABLE IN VARIOUS PAPER AND ELECTRONIC FORMATS



Books




CDs

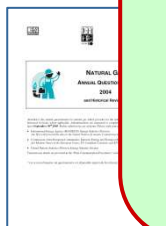
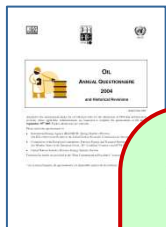



Internet



Most visited page on the IEA website

- Free access to Administrations
- Subscription for others
- Pay-per-view also available



SUPPLY AND CONSUMPTION	Coal	Crude Oil	Petroleum Products	Gas	Nuclear	Hydro Geotherm.	Solar etc.	Combust. Renew. & Waste	Electricity	Heat	Total
APPROVISIONNEMENT ET DEMANDE	Charbon	Pétrole brut	Produits pétroliers	Gaz	Nucléaire	Hydro Géotherm. solaire		Comb. ren. & déchets	Électricité		
Production	1145355	181427	-	42621	13835	34143	-	223561	-	-	-
Imports	14893	126817	41493	-	-	-	-	-	431	-	431
Exports	-55279	-8067	-16722	-2484	-	-	-	-	-	-	-963
Intl. Marine Bunkers	-	-	-7642	-	-	-	-	-	-	-	-
Stock Changes	-17345	788	288	-	-	-	-	-	-	-	-
TPES	1087624	300965	17417	40137	13835	34143	-	223561	-532	-	-
Transfers	-	-74	88	-	-	-	-	-	-	-	-
Statistical Differences	7118	-1328	917	-1137	-	-	-	-	-	-	-
Plants	-527596	-213	-15059	-2637	-13835	-34143	-	-861	214780	-	-
Refineries	-71089	-3	-2672	-1938	-	-	-	-503	-	-	-
Information	-6640	-	-144	4841	-	-	-	-	-	-	-
Information	-69485	-290405	283439	-	-	-	-	-	-	-	-
Information	-	-	-	-	-	-	-	-	-	-	-
Losses	-46624	-5037	-17434	-6549	-864	-	-	-	-28398	-	-14494
	373308	3905	266532	31852	-	-	-	222197	171355	-	-
INDUSTRIAL SECTOR	279763	2509	35753	12366	-	-	-	-	116217	-	116217
Chemical	102809	-	3011	894	-	-	-	-	21882	-	21882
Petrochemical	28095	-	5380	5580	-	-	-	-	21588	-	21588
Metals	814	-	-	-	-	-	-	-	12639	-	12639
Minerals	857	-	-	-	-	-	-	-	12179	-	12179
Equipment	3	-	-	-	-	-	-	-	2580	-	2580
Quarrying	9	-	-	-	-	-	-	-	13801	-	13801
Tobacco	3	-	-	-	-	-	-	-	4337	-	4337
Food and Printing	11	-	-	-	-	-	-	-	4123	-	4123
Food and Wood Products	8	-	-	-	-	-	-	-	4019	-	4019
Construction	1	-	-	-	-	-	-	-	1114	-	1114
Textile and Leather	3	-	-	-	-	-	-	-	2012	-	2012
Non-specified	9	-	-	-	-	-	-	-	8288	-	8288
	4	-	-	-	-	-	-	-	7656	-	7656
TRANSPORT SECTOR	4	-	-	-	-	-	-	-	1737	-	114230
International Aviation	-	-	-	-	-	-	-	-	-	-	2095
Domestic Aviation	-	-	-	-	-	-	-	-	-	-	7566
Road	-	-	-	-	-	-	-	-	-	-	75740
Rail	4079	-	9129	-	-	-	-	-	1737	-	14944
Pipeline Transport	-	-	4627	9	-	-	-	-	-	-	4636
Domestic Navigation	1	-	9247	-	-	-	-	-	-	-	9248
Non-specified	1	-	-	-	-	-	-	-	-	-	1

No breakdown by end use:

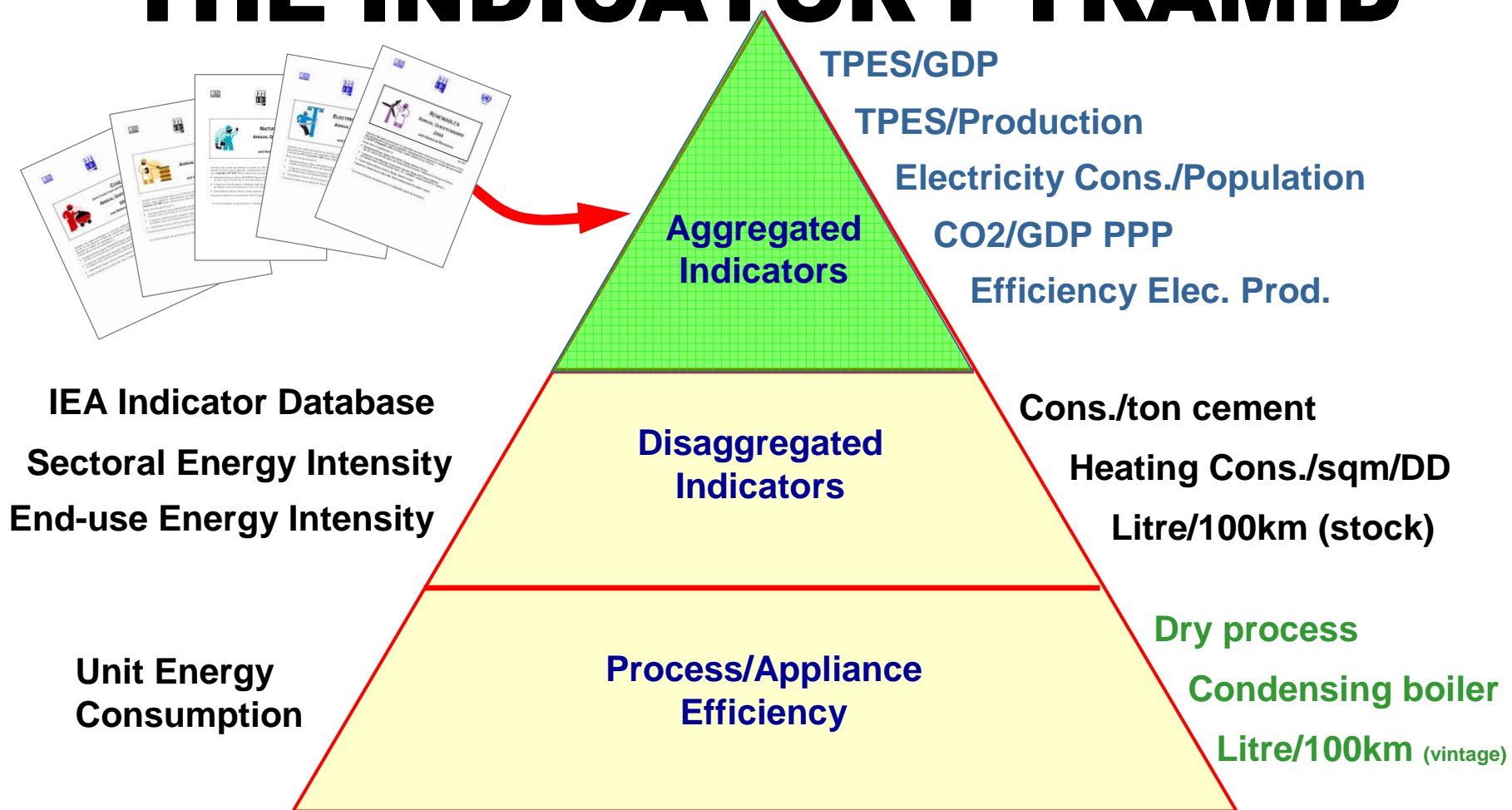
- heating
- DHW
- lighting
- cooking
- air conditioning
- appliances

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

What most organisations collect on a regular basis is limited to aggregated levels, but their use is limited for energy efficiency indicators

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

THE INDICATOR PYRAMID



Need for the IEA to develop a new questionnaire for energy efficiency indicators



OVERVIEW OF QUESTIONNAIRE



Draft 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-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 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

BASIC SOCIO-ECONOMIC DATA

- **Structural activities**
 - **Population**
 - **Employment**
 - **Heat and cooling degree-days**
 - **Exchange rate and purchasing power**
 - **Final consumption**
 - **GDP based on various indices**
 - **Value-added by sector**

INDUSTRIAL CONSUMPTION OF ENERGY

- **7 types of fuel consumption**
- **Value-added**
- **19 Major ISIC categories**
- **Efficiency indicator:**
 - **Energy Intensity: energy use/production**



SERVICES SECTOR CONSUMPTION OF ENERGY

- **Fuel consumption by fuel type**
- **Five end-uses**
- **Floor space**
- **Efficiency indicator:**
 - **Energy/floor space**

RESIDENTIAL CONSUMPTION OF ENERGY

- **Five end-uses**
- **Six appliances**
- **Appliance stock**
- **Efficiency indicator:**
 - **Electricity consumption per unit**



TRANSPORTATION CONSUMPTION OF ENERGY

- **Four transport modes**
- **Six road vehicles**
- **Fuel consumption by transport mode**
- **Energy use by transport mode**
- **Stock of vehicles**
- **Efficiency indicators:**
 - **Passenger-kilometres**
 - **Tonnes-kilometres**

ELECTRICITY GENERATION DATA

- **Fuel inputs**
- **Electric outputs**
- **Heat outputs**
- **Four types of producers**
- **Efficiency indicator:**
 - **Efficiency of heat and power plants**

COOPERATING PARTNERS

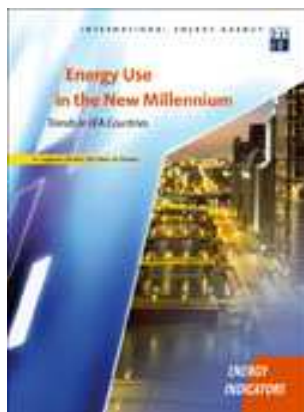
- **Member and non-Member countries**
- **ODYSSEE network**
- **APEC**
- **Industrial associations**
- **WBCSD**
- **ISO/IEC**
- **World Bank**
- **United Nations**
- **Asia Pacific Partnership**

MAJOR PROGRESS

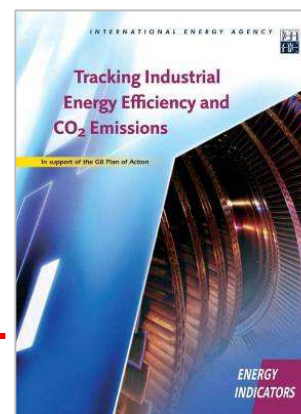
- **Data for 22 IEA countries, up from only 11**
- **Reduced lag in data availability**
- **Significant country involvement**
- **Strong co-operation with ODYSSEE**
- **Key IEA activity – many reports**
- **Significant political support at highest levels**
- **Official commitment by IEA Ministers to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



USES OF THE DATA



 **Energy Use in a New Millennium**



Tracking Industrial Energy Efficiency and CO₂ Emissions 



 **Worldwide Trends in Energy Use and Efficiency**



Towards a More Energy Efficient Future 

WHAT'S NEXT

- **Update with 2008 data**
- **Preparation for Manual**
- **Workshop planned for November 2009**
- **Strengthening cooperation with ODYSSEE, APEC, etc.**

USEFUL IEA WEBSITES

- **IEA Statistics -**
<http://www.iea.org/index.asp>
- **Energy Efficiency Indicators -**
http://www.iea.org/subjectqueries/keyresuIt.asp?KEYWORD_ID=4122
- **Energy Efficiency Home Page -**
<http://www.iea.org/efficiency/index.asp>



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THANK YOU