

Compiling Energy Statistics Based on IRES and the ESCM

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Overview

- Historical background
- The need for IRES
- Key IRES concepts
- IRES practical applications
- ESCM: why, what and how
- Chapters of compilers' manual and examples

Previous manuals for energy statistics

- UNSD data collection goes back to 1950
- International guidance on energy statistics existed in a number of international publications:
 - **UN Concepts and Methods in Energy Statistics (1982)**
[Focused on Energy Accounts and Balances]
 - **UN Energy Statistics: Definitions, Units of Measure and Conversion Factors (1987)**
 - **UN Energy Statistics: A Manual for Developing Countries (1991)**
 - **IEA/EUROSTAT Energy Statistics Manual (2005)**

The Need for IRES

- The older documents' main provisions were reflected in country methodologies, but they were descriptive in nature, and didn't focus on harmonization.
- Important topics were covered BUT needed to be updated to reflect market developments.
- Clear reference to other international classifications such as ISIC, CPC, HS was necessary to harmonise with other statistical areas.
- Guidance on energy balance compilation, classification of energy industries, treatment of newer biofuels was necessary.

IRES: a very brief history

- A UN Statistical Commission decision in 2005 recognised the need for development of energy statistics and guidance, and set up the Oslo Group and InterEnerStat.
- Oslo City Group established under the Statistical Commission in 2005 to “contribute to the development of improved methods and international standards for national official energy statistics”. It helped draft IRES.
- InterEnerStat is a group of over 20 international organisations working in the field of energy statistics. Its mandate was (is) to harmonize differing definitions across organisations as close as possible. It published a harmonized list of products and flows in 2010.

Principles of IRES

- Do the data meet the needs of policy makers, producers and users?
- Are they comparable with other statistics?
- Recommendations had to consider:
 - The availability of data sources
 - The reporting burden
 - Can **most** countries implement them?

IRES

- Important milestone for energy statistics as they provide:
 - Standard International Energy product Classification (SIEC)
 - Internationally-agreed definitions
 - Clear reference to other international classifications
 - Reference list of data items for collection
 - Recommendations for data collection and dissemination
- The goal: to improve comparability across countries

<http://unstats.un.org/UNSD/energy/ires/default.htm>

Key IRES points

- IRES improves comparability across products, flows and countries, so that:
 - Countries will measure the same thing
 - Countries will publish data in similar formats
 - Data for different products will be compiled the same way
 - Users will understand what the statistics represent

Transparency

Definition of energy product

- IRES 2.9: “Energy products” refers to products exclusively or mainly used as a source of energy. Biomass and waste included only when used for energy purposes
- Result: energy statistics exclude wood or ethanol when not used as an energy product. Non-energy products from a fossil origin (e.g. lubricants) are always included by definition, allowing refinery input/output checks



Scope of Energy Statistics

- IRES 2.18: it's important that data on the production of energy outside energy industries is also collected and included in total energy production.
- Result: fuelwood collected and used non-commercially needs to be properly accounted for; small “teapot” refineries should have their output measured



IRES Applications for Oil and Gas

- Units for Dissemination: mass (kt) for coal and oil, Terajoules (GCV) for natural gas, TJ (NCV) for solid biofuels and wastes (IRES 4.29).
- Net calorific values (aka lower heating values) should be used to compile balances in TJ (IRES 4.36), as interest lies in *useful* energy output and TJ is a SI unit.

The Concept of Production

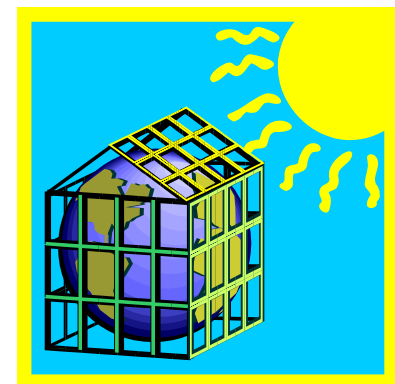
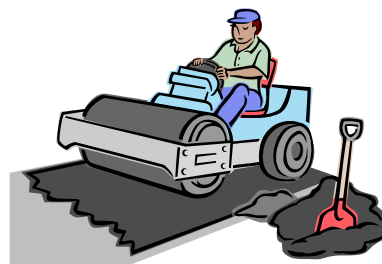
- 5.10: Primary production is the capture or extraction of fuels or energy... within the national territory in a form suitable for use. Inert matter removed from the extracted fuels and quantities reinjected, flared or vented are not included.

Data for oil and gas production should be NET of reinjected, flared and vented quantities (and water, sand etc.)

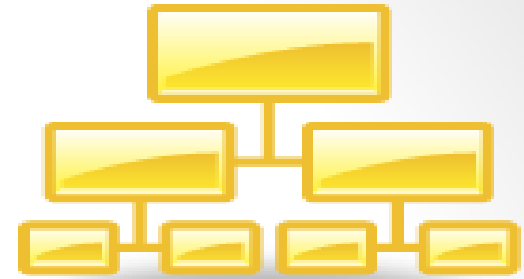


Bunkers and Non-Energy Use

- IRES 5.14/5: For the purposes of energy statistics, exclude International Marine and Aviation Bunkers from exports and supply
- IRES 5.5: It's important to separately identify the non-energy part of final consumption.
- Why? Both important principles for accurate GHG emission inventories



SIEC



- IRES 3.1: creates the Standard International Energy product Classification (SIEC)
- Provides a tree-structured framework for all energy products; different levels of detail possible depending on the country's situation
- A standard to be used across countries; further breakdown possible if desired (coconut oil, olive cake, shale gas, offshore vs onshore...)

5 Biofuels

53 Biogases

531 Biogases from anaerobic fermentation

5312 Sewage sludge gas

4 Oil

46 Oil products

465 Gasolines

4652 Motor gasoline

Relations with other systems

- HS 2710.11: “Light oils and preparations”
- CPC 33310 and 33320: “Motor spirit (gasolene), including aviation spirit” ; “spirit type (gasolene type) jet fuel”
- SIEC 465: “gasolines”

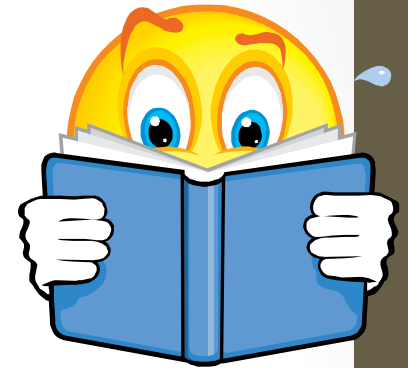
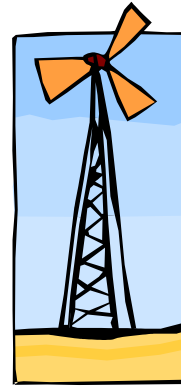
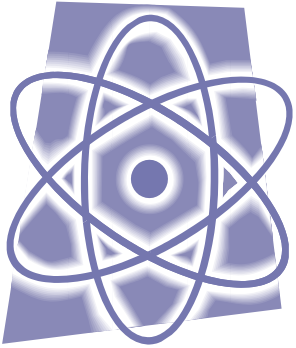
HS	2710.11*		
CPC	33310	33320	
SIEC	4651	4652	4653



SIEC compatibility

JODI (short) definition:	SIEC definition:
“LPG comprises Propane and Butane”	“LPG refers to liquefied propane (C ₃ H ₈) and butane (C ₄ H ₁₀) or mixtures of both. Commercial grades are usually mixtures of the gases with small amounts of propylene, butylene, isobutene and isobutylene stored under pressure in containers.”
Simple and clear; ideal for a monthly data collection	More exhaustive, relevant for more accurate annual data, or when deriving energy data from CPC or HS data
Compatible	

IRES provides useful definitions of flows/products.
But...



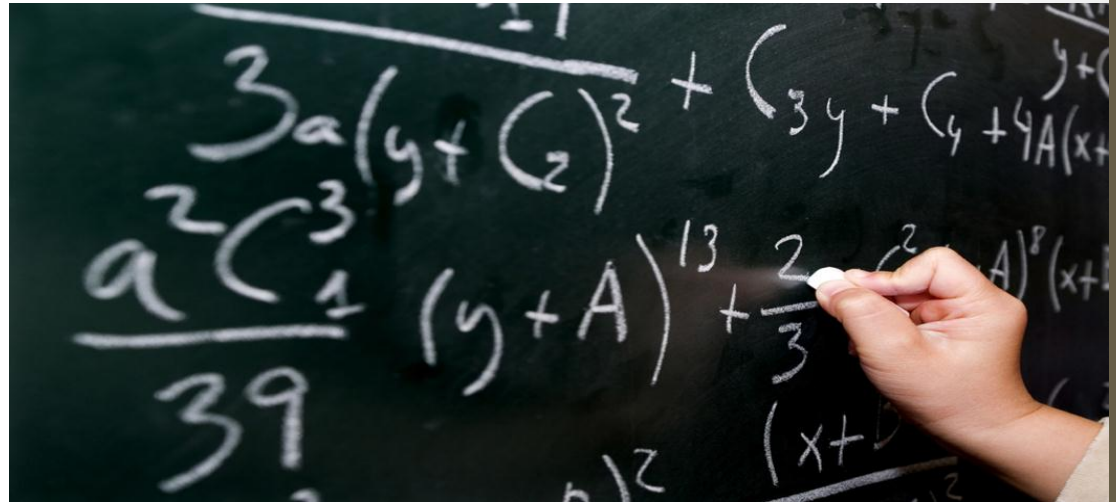
- How do these recommendations relate to MY country?
- How should I compile metadata, or handle confidentiality?
- Can I see some examples of other countries' practices?



The need for a Compilers Manual

- During the preparation of IRES, the need for more explanation was recognised
- A Compilers Manual should be a more hands-on, example-heavy document, to complement IRES.
- It is NOT a set of recommendations or “best” practices, but a set of voluntary guidance and examples for countries to use if they want to
- Still being finalised

IRES is about
definitions of
flows/products:
THEORETICAL



ESCM is about
practical
guidance and
country
examples:
PRACTICAL

Some country practices already published (ESCM will have many more)

The screenshot shows a Windows Internet Explorer browser window displaying the United Nations Statistics Division website. The address bar shows the URL: http://unstats.un.org/unsd/energy/template/responses_c.htm. The page title is "Country Practice Template Responses by Country". The page is dated August 2012. The main content area features a table with two columns: "Country" and "Topic". The table lists responses for Argentina, Australia, and Austria. A sidebar on the left contains a list of navigation links under the heading "Energy Statistics".

United Nations Statistics Division - Energy Statistics - Windows Internet Explorer

http://unstats.un.org/unsd/energy/template/responses_c.htm

File Edit View Favorites Tools Help

United Nations Statistics Division - Energy Statistics

Home Statistical Databases Publications Methods & Classifications Meetings & Events Technical Newsletters [Site search] Go

Energy Statistics August 2012

Description of Activities
International Recommendations for Energy Statistics (IRES)
Energy Statistics Compilers Manual (ESCM)
Country Practice Template
Energy Yearbook
Energy Balances and Electricity Profiles
Energy Statistics Database
UNSD Annual Energy Questionnaire
Global Assessment on Energy Statistics and Energy Balances
Joint Oil Data Initiative (JODI)
Oslo Group
Intersecretariat Working Group on

see responses by topic

Country	Topic
Argentina	Annual energy statistics
Australia	Energy consumption
Austria	Electricity and natural gas consumption Energy analysis in industry Energy Balance Energy consumption of households Energy consumption in industry Energy consumption in the service sector

Done Internet 115%

<http://unstats.un.org/unsd/energy/template.htm>

ESCM Chapters

- Introduction
- Legal Framework
- Classifications and linking with other international standards (HS, CPC, ISIC)
- Generic Statistical Business Process Model
- Data sources (surveys and administrative data sources, estimation, modelling)
- How to compile energy balances
- Data quality
- Data dissemination

Highlights

Presentation of primary and secondary oil products in energy statistics versus energy balances

Secondary production zero by definition

Commodity Balance		
	Crude oil (kt)	Motor Gasoline (kt)
Production	100	30
Import		
Export	10	24
Supply	90	6
Oil Refineries	88	
Final Consumption	2	6

Energy Balance		
	Crude oil (TJ)	Motor Gasoline (TJ)
Production	4230	
Import		
Export	423	1063
Supply	3807	-1063
Oil Refineries	-3722	1329
Final Consumption	85	266

Motor gasoline in kt x 44.3 TJ/kt = Motor gasoline in TJ

Crude oil in kt x 42.3 TJ/kt = Crude oil in TJ

Other Examples

Austria: Adding an energy module to Labor Force Survey increased the response rate and reduced costs

Bulgaria: NSO's metadata policy

Norway: lessons from publishing preliminary monthly statistics and balances

UK: Energy Efficiency Data framework measures the result of energy efficiency policies

South Africa: experience with social media and dissemination in a developing country

FAO guidance on fuelwood surveys

Confidentiality practices for many countries

Azerbaijan: producing full commodity balances for all products

Legal frameworks for many countries

And many more!

Conclusion

- IRES provides methodology to compile energy statistics that are comparable across products and countries, and consistent with other statistics
- This applies to everyone! IRES compiled data can be used to compile annual data for international organisations (UNSD, IEA, OLADE...)
- ESCM will provide guidance on HOW, with real examples relevant for all countries

Thanks!

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