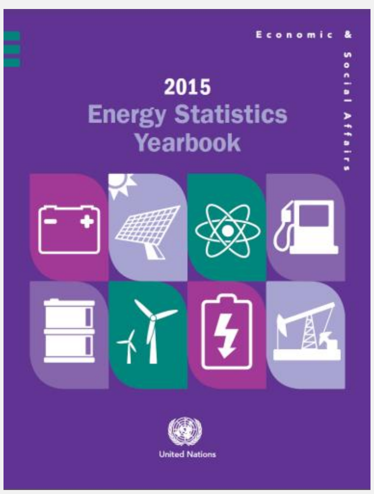
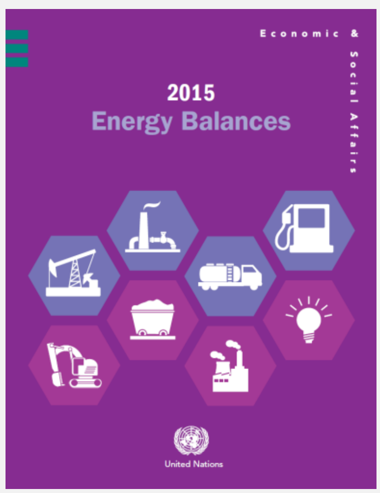
UNITED NATIONS STATISTICS DIVISION

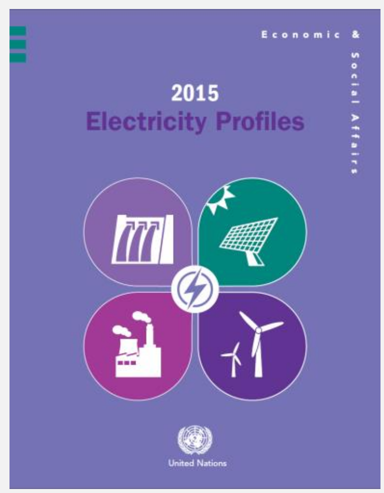
Energy Statistics *Newsletter*

What's inside

LATEST UNSD PUBLICATIONS





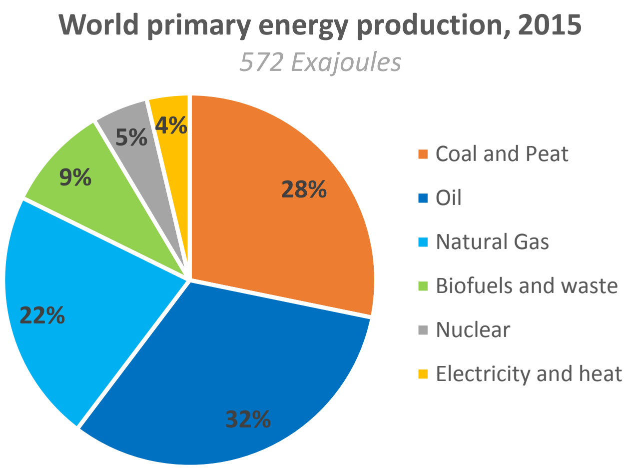


The 2015 Energy Statistics Yearbook, the 2015 Energy Balances and the 2015 Electricity Profiles are now available online at the UNSD website! To access the online publications, please visit: http://unstats.un.org/unsd/energy/.

This is the fourth set of publications to incorporate changes due to the adoption of the International Recommendations for Energy Statistics (IRES). Printed copies, as well as the full 2015 edition of the Energy Statistics Database (containing data from 1950 to 2015) can be ordered from the United Nations Publications website (https://shop.un.org). Energy Statistics data for the period 1990 – 2015 are also available online free of charge at the UNdata portal http://data.un.org/.

Selected highlights

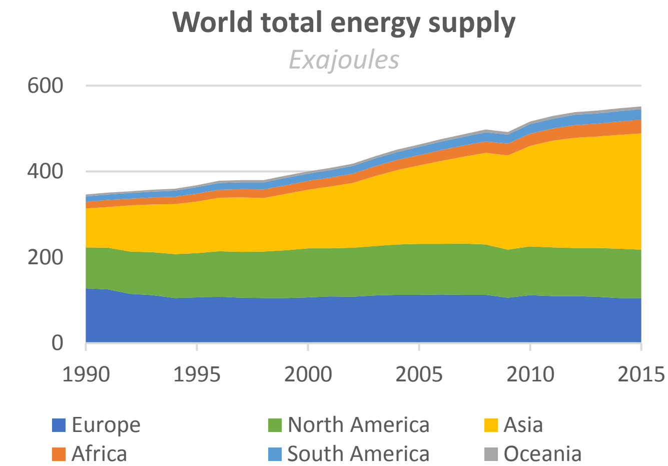
World primary energy production was relatively stable at a level of 572 exajoules in 2015, showing a 0.9% increase compared to 2014. The most significant absolute increases were visible for primary oil (above 5.1 EJ, or +2.8%) and natural gas (around 3 EJ, or +2.4%), while primary coal and peat showed a 2.4% decrease (-4 EJ). Oil continued dominating primary energy production mix in 2015, accounting for 32% of total.



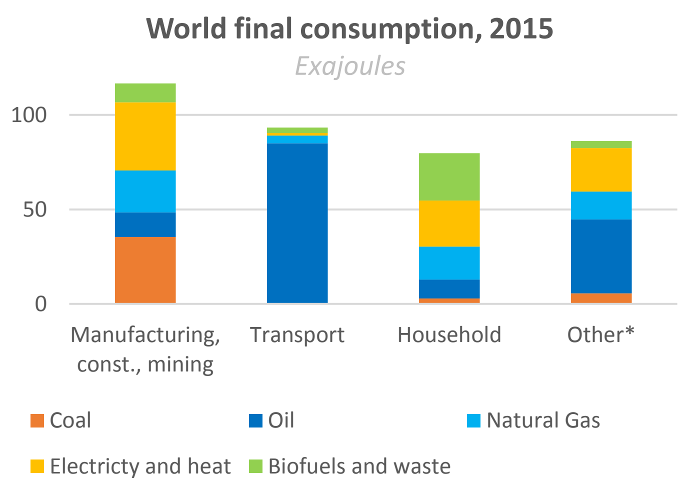
World total energy supply (TES) increased slightly in 2015, exceeding to 551.7 exajoules (+0.8% compared to 2014). This increase came mostly from the growth in Asia (+2.3% compared to 2014), mainly due to the growth in Saudi Arabia, Indonesia and India.

China, United States, India and Russian Federation combined made up for more than a half (50.2%) of world TES in 2015 while Chinese total energy supply accounted for 22% of world TES in 2015.

Oil remained the dominant fuel in the energy mix in 2015 (representing 30% of world TES in 2015), followed closely by coal (almost 29% of world TES in 2015).



World final consumption showed a 1.1% increase in 2015, reaching 375 exajoules. Manufacturing, construction and mining sector remained the largest consuming sector in 2015, accounting for 31% of world final consumption. Transport which over the last five years was the fastest growing consuming sector, slowed down significantly in 2015, showing a minimal decrease compared to 2014.



*Other includes non-energy use

SERIES: EXAMPLES FROM THE ENERGY STATISTICS COMPILERS MANUAL

CLASSIFICATION OF ENERGY PRODUCTS - WHY WAS CPC NOT ENOUGH?

IRES introduced the Standard International Energy Product Classification (SIEC), which constituted an important milestone in energy statistics as it represents the first internationally agreed classification of energy products based on a set of internationally agreed product definitions.

SIEC was the result of a harmonization process of definitions used by international, regional and supranational organizations involved in the collection and compilation of energy statistics. A classification structure with a coding system was then developed based on the harmonized definitions. SIEC went through a wide consultation process with countries as well as consultation with experts on statistical standard classifications.

The benefits of a standard international classification of energy products are numerous: it focuses solely on products that are relevant to understanding the energy situation (thus excluding products not related to energy); by providing definitions for all energy products, it reduces the ambiguity of different energy products; it facilitates data collection and allows for a better integration of data collected in different statistical domains (thus reducing response burden due to multiple data requests), and it improves comparability of data. However, SIEC still faces a number of challenges mainly because of two interlinked reasons: on the one side SIEC is based on mixed classification criteria partly based on the purpose of use and partly based on the characteristics of the product; and on the other side the correspondence between SIEC and the Central Product Classification (CPC) and the Harmonized Commodity Coding and Description System – or short, the Harmonized System (HS) is not always straightforward. The latter is a particularly important point as a better correspondence would facilitate the integration of statistics collected across statistical domains (e.g. economic and trade statistics) and may reduce the response burden to the data providers.

The full SIEC classification is provided in Annex 3A of the Energy Statistics Compilers Manual (ESCM) with the correspondence to recent product classifications, namely CPC Ver.2, CPC Ver.2.1, HS 2007, HS 2012 and HS 2017. The correspondences with CPC Ver. 2 and HS 2007 have been established at the time of creation of IRES. The other international classifications have since been revised (CPC Version 2.1 and HS 2017 are now in effect) and updated correspondence tables with the new and future classifications will also be made available on the UNSD website.

Note that in energy statistics the distinction between primary and secondary energy products as well as renewable and non-renewable energy products is often made and reflected both in the compilation of the energy balances as well as in the calculation of indicators for policy making. Although these are not explicit classification criteria in SIEC, in many cases a complete SIEC category can clearly be assigned to one or the other set. IRES provides the list of products considered primary or secondary and renewable or non-renewable.

Why was CPC not enough?

The Central Product Classification (CPC) is a comprehensive and multipurpose classification of all products. Its main purpose is to provide a framework for international comparison of statistics on products. Among other roles, it is intended to function as a basis for recompiling basic statistics from their original classifications into a standard classification for analytical use. Since its inception in 1990, the goods part of the CPC has been largely built upon and influenced by the Harmonized System used in international trade, but deviations have been made in areas where the level of detail in the HS was not sufficient to measure domestic production, such as for agricultural products.

Because of its multipurpose nature, the CPC was not developed with a particular focus on specific subject areas like energy statistics. Therefore, it does not fully reflect and respond to the needs of energy statistics: energy products are often not explicitly identified within a CPC class and may sometimes cover different classes of CPC; also, there is no higher aggregate for energy products.

On the other hand, SIEC was developed to reflect more appropriately the products relevant for a better understanding of the energy supply, availability and consumption in a country. The definitions that form the basis of SIEC were only internationally agreed recently and with significant international effort. Up until this point, the concepts and definitions in energy statistics had been developed independently and varied across organizations and countries. During the discussions to agree on the energy product definitions, no explicit consideration of CPC or HS concepts was included, adding to the differences between SIEC and these classifications.

The criteria and concepts used by CPC and SIEC are therefore quite different, which leads to differing product definitions and hierarchies. In some cases, the differences might reasonably be overcome, whereas in a few cases the underlying criteria are so different that it will be very difficult to reconcile the two systems.

What are the main issues in the correspondence between SIEC, CPC and HS?

As indicated above, the categories do not always match across the three classifications due to the specific uses/needs of energy statistics which are more addressed in SIEC as compared to the uses/needs which are behind the CPC and HS.

One issue in the correspondence between the classifications is related to the definitions of the categories, since there are a number of products in SIEC which are defined in terms of their use rather than their physical characteristics (which is the underlying classification criterion in the CPC and HS). This is the case of the Refinery feedstocks, for example, which are defined as consisting of "oils or gases from crude oil refining or the processing of hydrocarbons in the petrochemical industry which are destined for further processing in the refinery excluding blending. Typical feedstocks include naphthas, middle distillates, pyrolysis gasoline and heavy oils from vacuum distillation and petrochemical plants." Feedstocks may cover a wider range of products, including naphthas (HS 2710.11) and pyrolysis gasoline (HS 2707.50) among others. Since the definition of feedstocks is primarily based on intended use rather than the types of products that it covers, giving an explicit CPC/HS link could be misleading.

Another example is given by the additives and oxygenates which are defined as "Compounds added to or blended with oil products to modify their properties (octane, cetane, cold properties, etc.)". The examples provided in the definition are: (a) oxygenates such as alcohols (methanol, ethanol) and ethers [MTBE (methyl tertiary butyl ether), ETBE (ethyl tertiary butyl ether), TAME (tertiary amyl methyl ether)]; (b) esters (e.g., rapeseed or dimethylester, etc.); and (c) chemical compounds (such as tetramethyl lead (TML), tetraethyl lead (TEL) and detergents). Some additives/oxygenates may be derived from biomass while others may be of fossil hydrocarbon origin. Similar to the case of feedstocks, "additives and oxygenates" is a category that covers a number of different products that are added to or blended with oil products. The correspondence between SIEC, CPC and HS on these categories is expected to remain problematic. The examples listed above in the definition are for example included in HS categories 2207, 2905.11, 2909.19 etc.

In other cases, the definition of the product is not consistent across the classifications. This is the case of biodiesel, for example. While SIEC distinguishes the pure bio component in the Biofuel section, the recently introduced category "biodiesel" (HS 2012 code 3826) covers also the blended mixture containing less than 70% by weight of petroleum oils or oils obtained from bituminous minerals. Therefore, when using custom data for the trade of biodiesel, adjustments are necessary to properly use the data in energy statistics.

Another issue is related to the different levels of detail of the different classifications. This leads for example to a SIEC category linked to categories (sometimes broader in scope) belonging to different CPC divisions. For example SIEC 511 - Fuelwood, wood residues and by products can be matched with a set of three CPC subclasses taken from three different divisions of CPC: CPC 03130-Fuel wood, in logs, in billets, in twigs, in faggots or in similar forms; CPC 31230-Wood in chips or particles; and CPC 39280-Sawdust and wood waste and scrap. In the current version of SIEC it is not possible to further divide this aggregation, since SIEC 5119 links to all three of the involved CPC subclasses.

The Harmonized System also does not provide a lot of detail for oil products, resulting in the fact that many of the products in SIEC Division 46 are linked to the two HS 2007 subheadings 2710.11 and 2710.19. This particular issue becomes visible when import/export data for oil products, such as motor gasoline or kerosene, are sought to compile an energy balance. The relevant categories at the most detailed level of the HS 2007 distinguished "Light oils and preparations" (2710.11) and "Other" (2710.19) only - two categories to which 13 different SIEC products would be linked. The HS 2012 and HS 2017 essentially maintain this level of detail, but add a separate category for oil products containing biodiesel. While the level of detail in the HS at the international level is thus not suitable for an easy conversion to SIEC, and therefore the use of customs data, many countries have adapted the Harmonized System to a more detailed national version. Such national versions often provide detail that allows the direct use of customs data for energy statistics.

At the international level, further discussions with the World Customs Organization and its Harmonized System Committee will be needed to establish more detail for this type of products in the HS. The CPC on the other hand already provides detail that is more closely reflecting the needs of energy statistics, identifying another area where the CPC deviates from the HS by providing additional detail.

There are also products in SIEC that are not reflected at all in the HS or the CPC, since they do not meet product criteria in these classifications. An example would be Black liquor (SIEC 514). Since this product is primarily produced and used by the same unit (typically a paper manufacturer), there are no market transactions and no international trade is taking place, which are the main focus of CPC and HS applications. Another example may be recovered gases, for which no significant international trade exists.

Since national adaptations of the CPC and HS sometimes include detail that is more applicable for energy statistics purposes, such as the creation of separate categories for motor gasoline etc. in the national external trade classification, the linkages between SIEC and national classifications may be more straightforward in those countries.

What is being done to improve the links between SIEC, CPC and HS?

Ideally the three classifications, SIEC, CPC and HS should be fully compatible, that is, the definition of the categories at least at the lowest level of detail should be the same. This would foster the data integration and reduce response burden. While SIEC is the first classification of energy products that was internationally agreed, which is a major step forward in energy statistics, its less than perfect linkage to CPC and HS enables a clear identification of areas of improvement/refinement to better align it with the latter. Some of those examples have been given above. To improve the linkages between these classifications, changes are required on all sides: there are a number of areas in which the CPC and HS could better accommodate the detail requirements of energy statistics and there are some areas where SIEC definitions could be brought more in line with other standards. It is expected that improvements will take place over time.

Some changes have already been done in the CPC Ver.2.1 to improve the linkages and reduce differences in terminology. However, not all problems could be solved – sometimes due to ambiguity in the SIEC definitions – and additional work is being carried out to identify changes in the CPC that could be undertaken in the next update of the CPC.

In addition, SIEC, like other statistical standard classifications, is expected to be reviewed and updated on a regular basis and further improvement of SIEC will be considered in the next update of the classification.

Workshop on energy statistics for ASEAN countries

The United Nations Statistics Division (UNSD) and the Energy Commission of Malaysia organized an international Workshop on Energy Statistics from 21 to 23 November 2017 in Kuala Lumpur, Malaysia, aiming to enhance the capacity of National Statistical Offices and Energy Ministries of ASEAN countries in the area of energy statistics.

Mr. Abdul Razak bin Abdul Majid, Chairman of the Energy Commission of Malaysia and Leonardo Rocha Souza from UNSD highlighted to the role of this workshop in the work programmes of their agencies in their welcoming speeches. The Energy Commission also selected the opportunity for the launch of their mobile energy statistics application.

The workshop addressed specific issues related to the collection, compilation, and harmonization of energy statistics for all types of energy: coal, oil, gas, renewables and electricity, following the International Recommendations for Energy Statistics (IRES).

The workshop trained participants on the implementation of the recommendations contained in IRES; reviewed and discussed issues that countries face in the collection, compilation and dissemination of energy statistics; and shared national experiences.

In particular, the workshop focused on commodity balances, energy balances, energy indicators, including Sustainable Development Goal 7 indicators, and greenhouse gas emissions.

Further details can be found at:

https://unstats.un.org/unsd/energy/Workshops/Malaysia2017.htm

13th International JODI Conference

The 13th International Joint Organisations Data Initiative (JODI) Conference took place at the Institution of Mechanical Engineers in London, United Kingdom from 10 to 11 October 2017. The Conference was hosted by the British Government and organized by the International Energy Forum (IEF) in cooperation with the JODI partners, including UNSD.

The Conference benefitted from the active participation of more than 120 delegates representing national statistical systems, national energy authorities, energy data experts, market analysts, the financial sector, media, and the industry at large.

The role of JODI in improving energy data transparency was a central theme at the Conference and participants discussed the different uses of data provided by JODI as well as ways to improve the production of complete, accurate and timely data needed for such purposes.

The data collection discussions included representatives from industry and national administrations who shared their experiences in regard to the collection of JODI data and highlighted good practices and flagged challenges in improving the sustainability, timeliness and completeness of JODI data. The role of JODI training programmes, which have trained more than 500 energy data experts over the past years, was well noted in these efforts.

The biennial JODI Conference plays a key role in the JODI development cycle, which aims to continually advance the global energy data transparency agenda in support of stable energy markets as advocated by IEF Ministers, G20 leaders and other stakeholders.

Further details can be found at:

https://www.jodidata.org/events/13th-international-jodi-conference .

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Editorial Notes

The Energy Statistics newsletter is prepared by the Industrial and Energy Statistics Section of the United Nations Statistics Division, Department of Economic and Social Affairs.

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