



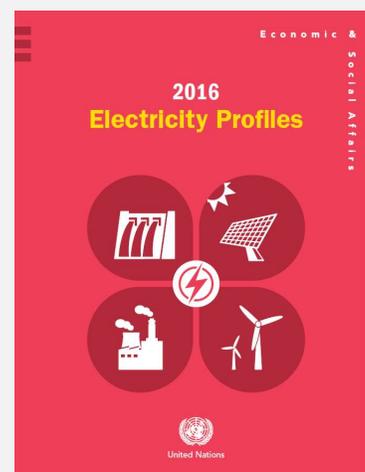
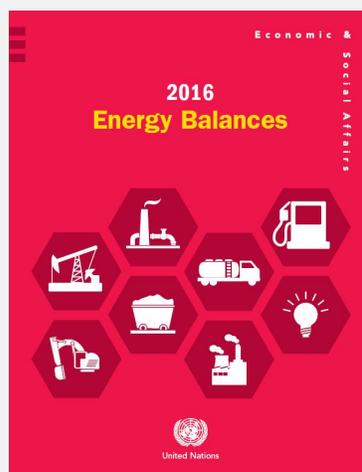
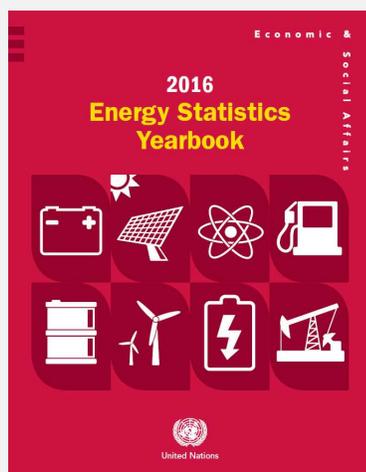
UNITED NATIONS STATISTICS DIVISION

# Energy Statistics *Newsletter*

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## ENERGY STATISTICS PUBLICATIONS – 2018 EDITION



The 2016 Energy Statistics Yearbook, the 2016 Energy Balances and the 2016 Electricity Profiles are now available online at the UNSD website! To access the online publications, please visit: <http://unstats.un.org/unsd/energy/>. Soon the 2016 Energy Statistics Pocketbook will follow.

This is the fifth set of publications after changes were incorporated due to the adoption of the International

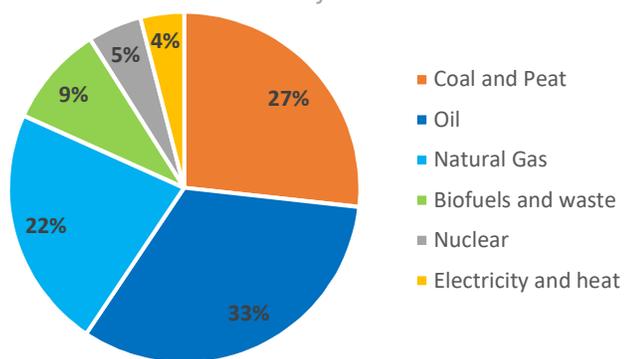
Recommendations for Energy Statistics (IRES). Printed copies, as well as the full 2016 edition of the Energy Statistics Database (containing data from 1950 to 2016 and provisional 2017 data for selected countries) can be ordered from the United Nations Publications website (<https://shop.un.org>). Energy Statistics data for the period 1990 – 2016 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 569 exajoules in 2016, showing a 0.3% decrease compared to 2015. The most significant absolute decreases were visible for primary coal and peat (almost 9.0 EJ, or -5.6%) which was not compensated by an increase in production of other primary energy products. Oil continued dominating primary energy production mix in 2016, accounting for 33% of total, followed closely by coal (almost 27% of total).

World primary energy production, 2016

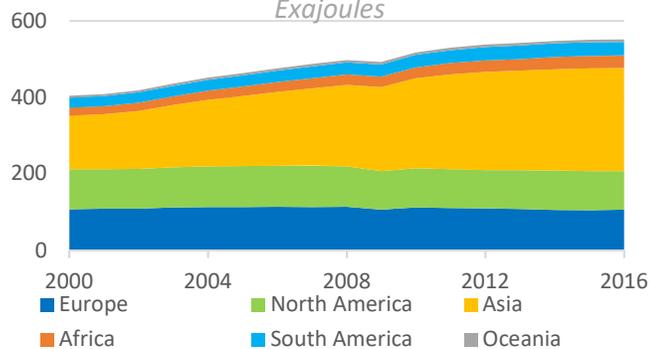
569 Exajoules



World total energy supply (TES) increased slightly in 2016, exceeding 551.5 exajoules<sup>1</sup> (+0.3% compared to 2015). This increase came mostly from the growth in Europe (+1.0% compared to 2015), and Africa (+2.7% compared to 2015). China, United States, India and Russian Federation combined made up for almost a half (49.6%) of world TES in 2016, with China alone accounting for 20% of world TES.

World total energy supply

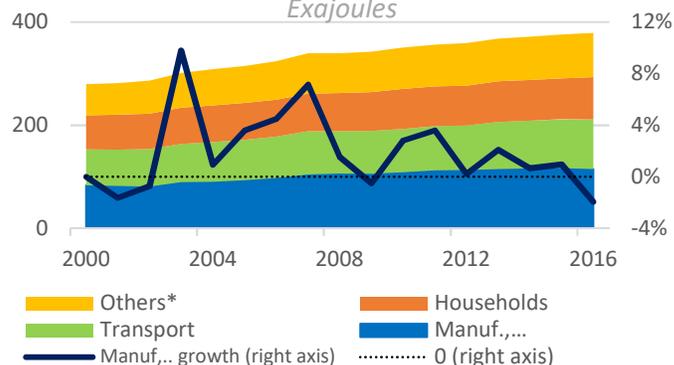
Exajoules



World final consumption<sup>2</sup> (FC) showed a 0.9% increase in 2016, reaching 379 exajoules. The manufacturing, construction and mining sector remained the largest consuming sector in 2016 (accounting for more than 30% of world final consumption), despite the almost 2% decrease compared to 2015. The decrease in the manufacturing, construction and mining was observed for the first time since the crisis in 2009. Transport which over the last seven years was the fastest growing consuming sector kept growing in 2016, showing a 2.3% increase compared to 2015.

World final consumption

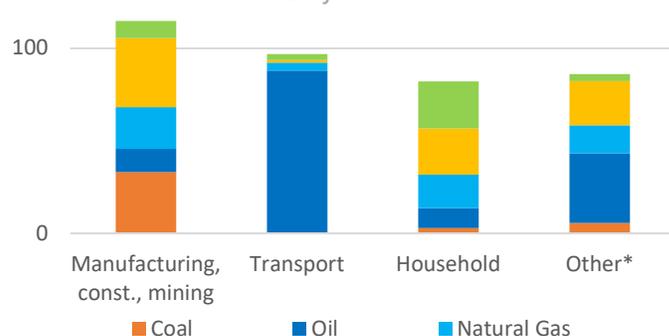
Exajoules



In 2016, more than 79% of coal (or 33 EJ) was consumed<sup>3</sup> by the manufacturing, construction and mining, while 59% of oil (88 EJ) was consumed for transportation and 18% of oil for others (mostly for non-energy use). Natural gas was used<sup>4</sup> mostly in industry (more than 37% of all consumed natural gas or 22 EJ) and households (almost 30% or 18 EJ). The largest share of electricity was consumed by industry (almost 43% of electricity FC or 37 EJ), followed by households (almost 29% or 25 EJ); other sectors accounted for more than 27% of electricity FC or 24 EJ.

World final consumption, 2016

Exajoules



<sup>1</sup> Excluding the amounts used in international bunkers

<sup>2</sup> Final consumption refers to the last stage of energy flows, meaning that fuels used for electricity generation are not accounted here, but accounted indirectly as final electricity consumption.

<sup>3</sup> Ibid.

<sup>4</sup> Ibid.

\*Other includes non-energy use.

## SERIES: EXAMPLES FROM THE ENERGY STATISTICS COMPILERS MANUAL

## INSTITUTIONAL ARRANGEMENTS

## Introduction

Institutional arrangements refer to those processes or mechanisms that are put in place to support the collaboration between organizations to manage or improve the functioning of the national statistics program. Institutional arrangements can be established formally or informally. Formal arrangements may be specified in legislation, for example, where a statistical agency is granted access to all government information holdings for statistical applications. That allows the agency to work with other departments to establish the ongoing partnership (e.g. gaining access to data, determining the format and frequency). An example of an informal arrangement would be the creation of an advisory committee to share ideas and expertise.

## Designation of one agency responsible for the dissemination of official energy statistics or agencies responsible for specific data sets

Where many organizations are involved in the management of the energy sector, there may be questions about where to go to get the official country statistics on energy. This could lead to confusion or the proliferation of multiple energy-related data sets.

Efforts should be made to coordinate the dissemination of data by partners within the country. It should be made clear to data users where to go to get access to official data on each related topic. The dissemination process and tools should be known, accessible and understood.

## Clear definition of roles and responsibilities of relevant agencies

In most countries, there are a variety of organizations involved in the collection, compilation, management and dissemination of energy statistics. There may be valuable opportunities to work together on a variety of fronts. The nature and extent of those collaborative arrangements will differ from country-to-country. The challenge is to identify those opportunities and to put in place formal or informal processes to promote and support those efforts.

Some of the areas where institutional collaboration can result in benefits are:

- **Data collection and sharing:** Rather than different organizations each collecting their own survey data, data-sharing agreements could be negotiated to have one organization do the collection, then share the data with the other. This could save resources while reducing the burden on respondents.
- **Use of administrative data sources:** Similarly, if an organization (e.g. regulatory body) is already collecting energy data for their own purposes, the statistical agency could tap into that source as a valuable alternative to survey collection. This could reduce costs and burden on respondents. However, there are challenges with the use of administrative data for statistical purposes, which are discussed in Chapter 5.B1 of the manual.

## Establishment of working groups

Another feature of institutional arrangements is the use of committees or working groups to bring together the various organizations contributing to the collection, compilation, management and dissemination of statistics. These can be an effective means for the coordination of efforts and effective management on several fronts.

- **Priority setting:** Working groups can be set up to bring stakeholders (e.g. data collectors, data users) together on a regular or periodic basis to discuss new and emerging data needs, to establish priorities, to identify new opportunities for collaboration, etc. This could help to inform decisions, for example, about the allocation of resources to priority initiatives.
- **Harmonization of concepts:** Organizations could collaborate to standardize concepts and definitions. These types of efforts are critical for improving data quality, coherence and utility. This could also be valuable in reducing the likelihood of conflicting or inconsistent data sets being released by different agencies.
- **Data validation and analysis:** Each organization involved in an aspect of the energy sector (e.g. regulatory, statistical, management) develops their own particular subject matter knowledge and industry expertise. There may be opportunities to collaborate on the sharing of this knowledge and expertise for the purposes of validating or explaining the data, or for conducting other analysis.

**COUNTRY EXAMPLE – BELARUS**

<b>Country:</b>	Belarus
<b>Statistics Area:</b>	Energy Statistics
<b>Direction:</b>	Permanent Interdepartmental Working Group
<b>Parent organization:</b>	National Statistical Committee of the Republic of Belarus
<b>Member organizations:</b>	<ul style="list-style-type: none"> <li>• Ministry of Economy of the Republic of Belarus</li> <li>• Ministry of Energy of the Republic of Belarus</li> <li>• National Academy of Sciences of Belarus</li> <li>• Ministry of Natural Resources and Environmental Protection of the Republic of Belarus</li> <li>• Department of Energy Efficiency of the State Committee for Standardization of the Republic of Belarus</li> </ul>
<b>Frequency of meetings:</b>	1–2 times a year
<b>Basic goals:</b>	<ul style="list-style-type: none"> <li>• Assistance in the development of official statistical methodology</li> <li>• Determine the need for collection of primary statistics</li> <li>• Assistance in the development of tools for conducting state statistical observations</li> <li>• Verification of statistical data</li> <li>• Help users to use the results of state statistical observations in order to analyze the existing situation and forecast</li> </ul>
<b>Topics of a typical meeting:</b>	<ul style="list-style-type: none"> <li>• Assistance in the harmonization of the methodology for constructing the energy balance with the International Recommendations for Energy Statistics</li> <li>• Using indicators based on energy balance to assess the current situation in the field of energy supply and use</li> <li>• Development of a structure of indicators for energy security</li> <li>• Improving existing methods for assessing energy efficiency in various sectors</li> <li>• Assistance in developing household energy survey tools and analyzing existing administrative data</li> <li>• Presentation of the model for the calculation of energy efficiency indicators in the residential sector and their usage in forecasting</li> </ul>

Source: National Statistical Committee of the Republic of Belarus, 2018, (Informal translation from original in Russian).

## 12TH MEETING OF THE OSLO CITY GROUP ON ENERGY STATISTICS



The 12<sup>th</sup> Meeting of the Oslo City Group on Energy Statistics took place on 12–14 June 2018 in The Hague, the Netherlands. The meeting was organized by Statistics Finland as Chair of the Oslo Group and hosted by Statistics Netherlands. Over 30 participants from International Organizations, National Statistical Offices and Energy Agencies convened to review and address methodological issues related to energy statistics and share country practices.

Sessions focused on: Use of administrative data and energy data collection; Energy data processing; Energy data analysis; Energy data dissemination; and Energy data quality.

The keynote speech was given by Foppe de Haan, responsible for Energy Strategy in the Dutch Ministry of Economic Affairs and Climate Policy.

Participants were informed on the activities of the SDG7 Tracking consortium, and it was clarified how the official energy statistics they submit are used for the calculation of the SDG7 indicators that are in turn submitted by the custodian agencies to UNSD.

The UN Statistics Division provided an update on its programme of work in energy statistics, among other topics. Participants were introduced to the printed version of IRES and were informed about the status of its translation into the UN official languages. They transmitted appreciation for UNSD's engagement with the Group.

UNSD presented an overview of the discussion on City Groups within the Statistical Commission. In this context, Oslo Group mandates were recalled, and participants were invited to think about the future of the Group. Participants agreed that the Group should continue, as there are methodology gaps that have not been addressed so far, and also as a recognition of the unique forum for discussion provided by the Group.

The Group brainstormed on its priorities, eventually deciding to close all current working groups and focus its activities on the following areas: a) Admin data, big data, new/innovative data sources; b) best practices and update manuals; and c) estimation methods for off grid energy and biomass. These topics fall largely into the following Oslo Group mandates: Identify and collect national and

international best practices; Review and contribute to the updating of the United Nations handbooks and manuals on energy statistics; and Identify gaps in the coverage of existing methodologies and develop methodologies to cover gaps.

In order to engage Oslo Group participants, it was agreed that the Group has to work towards objective outputs. In this respect, the topics selected can provide material for a new UN manual, which was proposed and received positive views. This possible outcome is going to be discussed together with the working methods.

There was no time to agree on working methods and to select the new Oslo Group Chair. Statistics Finland agreed to continue acting as Chair until the end of 2018. Now a new suitable Chair is being sought, preferably from a developing country.

UNSD should continue promoting the participation of developing countries in the Group's activities to ensure better representation, by encouraging use of WebEx or other online meetings. These may provide a more cost-efficient option in many cases, especially considering the limited resources in UNSD.

Further details can be found at:

<https://unstats.un.org/oslogroup/meetings/og-12/>.



## 2018 INTERENERSTAT MEETING

The 2018 meeting of InterEnerStat was organized on 2–3 October 2018 in Paris, France. The aim of the meeting was to explore how international organizations can enhance cooperation to support countries to provide improved official energy data. The meeting, organized and hosted by the International Energy Agency (IEA), was attended by over 30 participants from 15 International Organizations.

The meeting started with the sharing of the top three priorities for energy statistics in each international organization. UNSD's priorities are: Strengthen and support countries energy data collection systems; Increase international data comparability (including through the development of statistical standards and norms); and Compile and disseminate global energy statistics. The overall priorities among all organizations can be summarized as: (1) Timeliness of inputs and outputs; (2) Quality (accuracy, completeness, consistency); (3) Country capability and resources; (4) Specific topics, EE, DC, Prices, Off grid energy; and (5) Adaptability and modernization.

IEA, APEC and Eurostat presented progress made in the area of energy efficiency, including the G20 End Use data initiative. The main issues discussed were data sharing agreements (crucial to obtain activity data) as well as big data (GPS data, smart meters etc.). Some concerns regarding the credibility and data protection were raised ensuring that the official energy data stay relevant.

Participants were informed that the International Recommendations for Energy Statistics (IRES), agreed and endorsed by the UN Statistical Commission in 2011, are now available as a printed document. It has been translated to Arabic, and the translation to Chinese, French and Russian is in-progress thanks to IEA engagement. Unofficial translation of IRES to Spanish is as well available (as of January 2019, the White cover translation is available). IEA will look at possibilities to coordinate the translations of the Energy Statistics Compilers Manual (ESCM) in parts, depending on countries' needs.

In the session "New data challenges and statistical reporting, how can we work on guidance for areas alongside IRES," UNSD reported on the previous meeting of the Oslo Group in June 2018 (new focus areas, including updating UN manuals; methods of work; search for new Chair, etc.). Some methodological issues not covered by IRES were discussed, such as accounting of district cooling, hydrogen and off-grid renewable energy. It was agreed that organizations should look at the issues in deep and then propose additional reference material alongside IRES.

A need for guidelines on estimation was expressed by countries and IEA proposed to take a lead role in developing a set of recommendations.

It was highlighted that still now, in the era of Internet and e-learning, traditional face-to-face training stays relevant thanks to the additional value which it brings: possibility to exchange ideas, best practices, peer reviews and benchmarking. The training should put particular attention to good energy statistics which are the basis for compilation of energy balances and CO<sub>2</sub> Emissions. It is important to look at the long-term effects of the training which are jeopardized by high staff turnover.



One of the key elements of the work of regional and international organizations remains to engage countries to provide complete, relevant and timely data. The main challenges for some countries are lack of legal framework for collecting and disseminating energy statistics, poor cooperation between different energy data stakeholders, high staff turnover etc. It was concluded that the organizations should work on enhancing visibility and use of energy data and seeking ministerial mandates to produce energy statistics and balances.

Organizations discussed the potential of digitalization to enhance data timeliness and availability. Next to the benefits of digitalization, some concerns regarding the data quality and accuracy were raised. This led to the conclusion that organizations need to continue to raise awareness of the importance of digitalization and to ensure that official energy data remain complete, relevant and timely.

UNSD and IEA stressed the necessity of further promoting IRES in order to enhance the harmonization and comparability of the data. It was highlighted again that IRES was agreed and endorsed by the UN Statistical Commission in 2011 and therefore is applicable for all the countries.

The IEA and Eurostat gave an update on the SDMX work in energy statistic, presenting the first version of Data Structure Definitions (DSD). Organizations were invited to review and comment the DSD as well as to engage in elaborating SDMX implementation strategies. It was agreed that the M49 country classification will be considered.

There was a session on reducing burden on countries whilst ensuring international data comparability. It focused on data collection agreements involving the use of joint questionnaires. UNSD alleged that being left out of any such agreement meant that the burden reduction would not go as far as it should. The meeting concluded with the commitment to further cooperation between organizations in order to facilitate energy data collection and dissemination by countries.

The next InterEnerStat meeting has not yet been scheduled as of January 2019.

Further details can be found at:

<https://www.iea.org/workshops/interenerstat-meeting-2018.html>.



## JODI INFORMATION SEMINAR

The JODI Information Seminar and the Energy Data Exhibition was organized on 15 November 2018 in Kiev, Ukraine. The events were a part of Ninth International Forum on Energy for Sustainable Development organized by UNECE and IEF with support of JODI partners: GECF, IEA, OPEC, and UNSD as well as JODI Associate - OAPEC.

The Seminar was designed to inform government and international organization officials about the history of JODI, the initiative which is characterized by strong political support since its inception in 2000. The successful mechanism of cooperation among national administrations, JODI partners and data users was emphasized as the key feature of the initiative.

Further details can be found at:

<https://www.jodidata.org/events/jodi-information-seminar--energy-data-transparency-exhibition> .



## TRAINING WORKSHOPS ON ENERGY STATISTICS IN BEIRUT

Training Workshops on Energy Statistics: Joint Organizations Data Initiative (JODI) and Energy Balances for Middle East and selected African countries took place in Beirut, Lebanon, on 11 to 14 December 2018.

The Workshops were opened by Ms. Aurore Feghali, (Director General of Petroleum Directorate, Ministry of Energy and Water, Lebanon), Ms. Roula Majdalani, (Acting Deputy Executive Secretary, United Nations Economic and Social Commission for Western Asia) and Mr. Fuad AlZayer (International Energy Forum (IEF)).

The event was divided in two parts:

- The 17th Regional JODI Training Workshop, on 11–12 December, organized by the IEF and the JODI Partners (including UNSD) together with the UN ESCWA.
- The sessions on 13–14 December were focused on annual energy statistics needed for energy balances and were led by the International Energy Agency (IEA) and UNSD.

The Workshops gathered 45 participants, from Middle East and selected African countries, who are in charge of hydrocarbon data collection in national statistical offices or ministries in charge of energy. 13 economies were

represented (Angola, Egypt, Iraq, Jordan, Kuwait, Lebanon, Libya, Nigeria, Oman, State of Palestine, Qatar, Sudan and Syrian Arab Republic). The international organizations participating in the training were GECF, IEA, IEF, OAPEC, UN ESCWA and UNSD.

The Workshops covered the following main topics:

- A briefing on the background, status and objectives of the JODI initiative;
- Energy Data Challenges in the Arab countries;
- Regional development of energy data within integrated economic statistics;
- An overview of the JODI Oil and JODI Gas questionnaire and the data quality assessment methods;

- Practical exercises for both JODI Oil and JODI -Gas;
- An overview of other global initiatives, including presentation of the International Recommendations for Energy Statistics (IRES) and the Energy Statistics Compilers Manual (ESCM);
- Energy Annual Statistics: fundamentals, oil, natural gas, renewables and electricity and heat;
- Energy Balances and Energy Efficiency Indicators; and
- Data quality and verification.

Further details can be found at:

<https://www.unescwa.org/events/energy-statistics-joint-organisations-data-initiative-jodi>.



## EDITORIAL NOTES

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

For further information and/or feedback, please contact visit our website: <http://unstats.un.org/unsd/energy> or contact:

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