

THE UNITED NATIONS
ENERGY STATISTICS DATABASE
(2018)

THE 2018 UNITED NATIONS ENERGY STATISTICS DATABASE

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I. Database description

The 2018 United Nations Energy Statistics Database contains comprehensive energy statistics on more than 220 current countries or areas¹ for production, trade, transformation and final consumption for primary and secondary energy products. Data on heating (calorific) values are also provided to enable conversion to a common unit (terajoules) for inter-fuel comparison and analysis.

The UNSD Annual Questionnaire on Energy Statistics is the primary source of information. A guideline for completing the questionnaire is available at <https://unstats.un.org/unsd/energystats/questionnaire/documents/Energy-Questionnaire-Guidelines.pdf>, containing important metadata for understanding the definitions and concepts employed in the database. Supplementary data are also compiled from national, regional and international statistical publications. The UN Statistics Division prepares estimates where official data are incomplete or inconsistent which are clearly identified by an asterisk.

The database is updated on a continuous basis as new information and revisions are received. However, to ensure that disseminated data reflect currently published information, the database is reproduced immediately after the completion of the Energy Statistics Yearbook and is therefore consistent with the information shown in the Yearbook.

Definitions used in the database are available in the UN publication: International Recommendations for Energy Statistics (<https://unstats.un.org/unsd/energystats/methodology/ires/>), which were endorsed in draft format by the United Nations Statistical Commission in 2011 and published in final format in 2018. These standards were incorporated into the database in the 2012 data Edition (published in 2014), and previously definitions were used from the *Energy Statistics: Definitions, Units of Measure and*

¹ In addition to former countries and areas

Conversion Factors, which is available online at http://unstats.un.org/unsd/publication/SeriesF/SeriesF_44E.pdf.

The database is the source for the following publications: (1) the *Energy Statistics Yearbook*, (2) the *Energy Balances*; (3) the *Electricity Profiles*; and (4) the *Energy Statistics Pocketbook*. Their digital versions can be found on our website at <https://unstats.un.org/unsd/energystats/>. The database also contributes information to other United Nations publications such as the *Statistical Yearbook*, the *World Statistics Pocketbook* and the *Monthly Bulletin of Statistics*. These publications may be obtained through the United Nations Publications at <https://shop.un.org>. The database also provides data for the SDG indicators 7.2.1 (Renewable energy share in the total final energy consumption) and 7.3.1 (Energy intensity measured in terms of primary energy and GDP), as well as to the joint publication *Tracking SDG7 Report* (<https://trackingsdg7.esmap.org/downloads>), which is published by the SDG7 co-custodians, namely the International Energy Agency (IEA), the International Renewable Energy Agency (IRENA), UNSD, the World Bank and the World Health Organization (WHO).

Acknowledgement is due to the following specialized and intergovernmental agencies whose publications have been utilized in supplementing our statistics: African Energy Commission (AFREC), Asia-Pacific Economic Cooperation (APEC), Food and Agriculture Organization of the United Nations (FAO), International Atomic Energy Agency (IAEA), International Energy Agency of the Organisation for Economic Co-operation and Development (IEA/OECD), International Sugar Organization (ISO), International Renewable Energy Agency (IRENA), Organization of Arab Petroleum Exporting Countries (OAPEC), Organization of the Petroleum Exporting Countries (OPEC), Organización Latinoamericana de Energía (OLADE), Statistical Office of the European Communities (Eurostat), World Energy Council (WEC). Acknowledgement is also made to governmental, energy and statistical authorities of the Member States which have been extremely cooperative in providing data.

II. Technical description of the Database files

The database consists of four files:

1. **UN Energy Stats DB 1950-2018.txt**: Text file which contains energy statistics from 1950 to 2018. Preliminary 2019 data are available for some countries, products and flows. The format is explained in section II.1;
2. **Energy DB Codes 2018.xls**: Excel file which contains codes used in the database (four worksheets: countries, products, flows and units);
3. **Conversion Factors 2018.xls**: Excel file which contains country-specific conversion factors, general conversion factors, and type of conversion;
4. **UNSD Annual Questionnaire on Energy Statistics 2018.xls**: Excel file containing the 2018 UNSD Annual Questionnaire on Energy Statistics and data relationship formulae in column 'c' of the file.

1. Energy Data (UNSD Energy Stats DB 1950-2018.txt)

The data are presented in text format, with fields separated by a pipe (“|”).

The fields of the file contain the following:

country code	Country code (1-3 digits)
product code	Energy database product code (2 characters)
flow code	Energy database flow code (2-5 characters)
transfer product code	EMPTY
Import/ Export country code	Empty or origin/destination country code (0 - 3 digits) Note: applies only to flows 03 and 04, for CL, CR and NG
year	Year (4 digits)
unit code	Energy database unit code (3 characters)
estimate indicator	“*” for UNSD estimate; empty otherwise (none or 1 character)
energy value	Number

```

4|03|||2014|WSR|155.7
4|DL|03|||2015|WSR|608.6
4|DL|03|||2016|WSR|485.4
4|DL|03|||2017|WSR|30.4
4|DL|08|||2014|WSR|15
4|DL|08|||2015|WSR|15
4|DL|08|||2016|WSR|20
4|DL|088|||2014|WSR|15
4|DL|088|||2015|WSR|*|15
4|DL|088|||2016|WSR|20
4|DL|08811|||2014|WSR|*|14
4|DL|08811|||2015|WSR|14
4|DL|08811|||2016|WSR|*|19.5
4|DL|08812|||2014|WSR|1
4|DL|08812|||2015|WSR|*|1
4|DL|08812|||2016|WSR|*|1.5
4|DL|12|||2014|WSR|440.7
4|DL|12|||2015|WSR|593.6
4|DL|12|||2016|WSR|465.4
4|DL|122|||2014|WSR|440.7
4|DL|122|||2015|WSR|593.6
4|DL|122|||2016|WSR|465.4
4|DL|1221|||2014|WSR|*|440.7
4|DL|1221|||2015|WSR|*|593.6
4|DL|1221|||2016|WSR|*|465.4

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Country code

Product code

Flow code

Transfer product code

Import Export country code

Year

Unit code

Estimate flag

Value

2. Description of Energy Database Codes (Energy DB Codes.xls)

The Energy Database Codes file is an Excel file that includes four worksheets: “Flows”, “Units”, “Products” and “Countries”.

“Flows” consists of 2 columns – Flow code and Flow name

“Units” consists of 5 columns – Unit code, Name of Unit, Basic Unit, Multiplier and Formula

“Products” consists of 6 columns – Product code, Product name, Unit, Conversion factor to TJ, Primary or secondary and type of Product (i.e. liquid, solid, gaseous, electricity, unspecified)

“Countries” consists of 2 columns – Country code and Country name

3. Description of Conversion factors (Conversion Factors 2018.xls)

This file contains 7 columns: Country Name, Country Code, Product Code, year, Type Name, Type Code, and Factor to TJE.

III. Country Notes

Armenia [51]: other vegetal material and residues data are available from 2012 onward, animal waste production and consumption are available from 2015 onward.

Australia [36]: data exclude the overseas territories.

Belarus [112]: prior to 2013, kerosene-type jet fuel is reported under other oil products.

Bonaire, Sint Eustatius and Saba [535]: data up to 1985 are included in Netherlands Antilles and Aruba; data from 1986 to 2011 are included in Netherlands Antilles (former). It contains data from 2012.

Cambodia [116]: formerly Democratic Kampuchea.

Canada [124]: use of Blast furnace gas in autoproducer electricity plants is confidential (2005-2018) and as such it is included with consumption by industry.

China [156]: data exclude Hong Kong Special Administrative Region of China (China, Hong Kong SAR), Macao Special Administrative Region of China (China, Macao SAR) and Taiwan Province of China. Data up to 2013 for Other kerosene include Kerosene-type jet fuel. In the 2018 edition, the newly released data for 2018 only were included, but the revisions for the years 1990-2017 were not available on time for the publication.

China, Hong Kong SAR [344]: pursuant to a Joint Declaration signed on 19 December 1984, the United Kingdom restored Hong Kong to the People's Republic of China with effect from 1 July 1997; the People's Republic of China resumed the exercise of sovereignty over the territory with effect from that date. From 2001, data on Kerosene-type jet fuel include Aviation gasoline and Other kerosene.

China, Macao SAR [446]: pursuant to the joint declaration signed on 13 April 1987, Portugal restored Macao to the People's Republic of China with effect from 20 December 1999; the People's Republic of China resumed the exercise of sovereignty over the territory with effect from that date. For confidentiality reasons, data on solid fuels, Kerosene-type jet fuel (2002-2019); imports and stock changes of Other kerosene (2011-2019 and 2008-2019, respectively); imports of Fuel oil (2016-2019); imports of Paraffin waxes (2006-2007); imports of Other oil products n.e.c. (2005-2008); some consumption flows of Other kerosene, Gas oil/diesel oil, Fuel oil and Liquefied petroleum gases (2007-2019); exports of Lubricants and Paraffin waxes (2005-2019); exports of Bitumen (2008-2015); exports of Ethane (2013); exports of Other oil products n.e.c. (2012-2013; 2018-2019); exports of Charcoal (2008-2019); and data on Fuelwood (2009-2019) are not available from official sources. The corresponding database figures, if any, come from other unofficial sources and as such are not considered official.

Curaçao [531]: data up to 1985 are included in Netherlands Antilles and Aruba; data from 1986 to 2011 are included in Netherlands Antilles (former). It contains data from 2012.

Czechoslovakia [200]: prior to 1 January 1993, refers to the former Czechoslovakia

composed of Czechia and Slovakia.

Democratic Republic of the Congo [180]: prior to May 1997, refers to Zaire.

Democratic Yemen [720]: contains data until 1990.

Denmark [208]: excludes Greenland and the Faeroe Islands.

Dominican Republic [214]: there is a break in the series of Other kerosene and Kerosene-type jet fuel in 1990 due to a change in data source.

Egypt [818]: data for lubricants are included with other oil products for 2011-2013.

Ethiopia [up to 1993] [230]: includes Eritrea.

Ethiopia [from 1993] [231]: excludes Eritrea.

Estonia [233]: there are breaks in the series of coke oven gas and gas works gas, as from 2018 onward these products include the breakdown of oil shale gases. Revisions are pending.

Eswatini [748]: there are breaks in the series of heat, fuelwood and bagasse, following the reclassification of input for non-sold heat in autoproducers heat plants. This consumption is now reported under final use.

Federal Republic of Germany [280]: contains data until 1990.

France [251]: data up to 2010 include Monaco and exclude the following overseas departments and territories: Guadeloupe, French Guiana, Martinique, Mayotte, New Caledonia, French Polynesia, Réunion, Saint Barthélemy, Saint Martin, St. Pierre and Miquelon, and Wallis and Futuna. From 2011 onwards, data include Monaco and the overseas departments (Guadeloupe, French Guiana, Martinique, Mayotte and Réunion), excluding the overseas collectivities: New Caledonia, French Polynesia, Saint Barthélemy, Saint Martin, St. Pierre and Miquelon, and Wallis and Futuna. For confidentiality reasons, the category blast furnace gas also includes coke oven gas and other recovered gases for 2018 and 2019.

French Guiana [254, 255]: data after 2010 are included in France, starting with the 2017 edition of the database, released in February 2020. Code 254 contains data until 2016, whereas code 255 contains data until 2010. While the former allows for data compiled previously to remain available, the latter avoids double counting when making regional aggregations. As a result, when making regional or global aggregations, the code 255 should be used and the code 254 should be excluded.

Germany [276]: through the accession of the German Democratic Republic to the Federal Republic of Germany with effect from 3 October 1990, the two German States have united to form one sovereign state. As from the date of unification, the Federal Republic of Germany acts in the United Nations under the designation “Germany” [276]. All data shown which pertain to Germany prior to 3 October 1990 are indicated separately for the Federal Republic of Germany [280] and the former German Democratic Republic [278] based on their respective territories at the time indicated.

German Democratic Republic (former) [278]: contains data until 1990.

Greenland [304]: data for Kerosene-type jet fuel include Other kerosene.

Guadeloupe [312, 313]: data after 2010 are included in France, starting with the 2017 edition of the database, released in February 2020. Code 312 contains data until 2016, whereas code 313 contains data until 2010. While the former allows for data compiled previously to remain

available, the latter avoids double counting when making regional aggregations. As a result, when making regional or global aggregations, the code 313 should be used and the code 312 should be excluded.

Indonesia [360]: includes Timor-Leste until 2001.

Israel [376]: for confidentiality reasons, data on electricity from hydro and wind are not available for 2016.

Italy [382]: includes San Marino and the Holy See.

Japan [392]: includes Okinawa.

Kazakhstan [398]: the Committee of Statistics of Kazakhstan constantly works on improving data quality and aligning their data collection and dissemination system with the International Recommendations for Energy Statistics. Supply of some oil products for 2016 and 2017 as well as coke oven throughputs from 2014 until 2018 are under verification.

Kosovo [412]: contains data from 2000. Previous to that, it is covered by Serbia and Montenegro (1992-1999) and in Yugoslavia (former Socialist Federal Republic) until 1991.

Kuwait [414]: data for Conventional crude oil production include 50 per cent of the output of the Neutral Zone.

Lesotho [426]: in 2017, the Bureau of Statistics conducted the “Household Energy Consumption Survey 2017” in order to establish a baseline for energy consumption in households. The data on supply and consumption of animal waste and fuelwood for 2017 are based on the results of this new survey. Supply and consumption data of animal waste and fuelwood from 2009 to 2016 were estimated by UNSD to avoid breaks in the time series. Revisions are pending.

Madagascar [450]: data for Bitumen include Petroleum coke.

Malaysia [458]: comprises Peninsular Malaysia, Sabah and Sarawak.

Martinique [474, 475]: data after 2010 are included in France, starting with the 2017 edition of the database, released in February 2020. Code 474 contains data until 2016, whereas code 475 contains data until 2010. While the former allows for data compiled previously to remain available, the latter avoids double counting when making regional aggregations. As a result, when making regional or global aggregations, the code 475 should be used and the code 474 should be excluded.

Mayotte [175, 176]: data after 2010 are included in France, starting with the 2017 edition of the database, released in February 2020. Code 175 contains data until 2016, whereas code 176 contains data until 2010. While the former allows for data compiled previously to remain available, the latter avoids double counting when making regional aggregations. As a result, when making regional or global aggregations, the code 176 should be used and the code 175 should be excluded.

Montenegro [499]: contains data from 2005. Previous to that, it is covered in Serbia and Montenegro (1992-2004) and in Yugoslavia (former Socialist Federal Republic) until 1991.

Morocco [504]: there is a break in the series of primary oil and oil products, following the refinery closure in August 2015.

Myanmar [104]: formerly Burma.

Netherlands [528]: excludes Suriname and the Netherlands Antilles (former). Data for Petroleum coke for 2006-2007 and production and exports of Biogasoline for 2010-2012 are confidential.

Netherlands Antilles and Aruba [532]: comprises Bonaire, Curaçao, Saba, St. Eustatius, Sint Maarten (Dutch part) and Aruba. It contains data until 1985.

Netherlands Antilles (former) [530]: comprises Bonaire, Curaçao, Saba, St. Eustatius, and Sint Maarten (Dutch part). It contains data from 1986 to 2011. Starting in 1986, Aruba is no longer included in data for the Netherlands Antilles. The country was dissolved on 10 October 2010. For the purposes of this database, data from 1986 to 2011 refer to the former territory of the Netherlands Antilles as it was known prior to 10 October 2010.

Norway [579]: includes Svalbard and Jan Mayen Islands.

Pacific Islands (Trust Territory) [582]: comprise Federated States of Micronesia, Marshall Islands, Northern Mariana Islands and Palau. It contains data until 1991.

Pakistan [586]: data on wind and solar electricity and on electricity from other sources are all reported as wind electricity.

Panama [591]: includes the former Panama Canal Zone.

Portugal [620]: includes the Azores and Madeira.

Republic of Moldova [498]: Data exclude Transnistria and the municipality of Bender. For electricity, since 1998; but for other products the year can vary slightly around 1998 and produce noticeable breaks in series.

Réunion [638, 639]: data after 2010 are included in France, starting with the 2017 edition of the database, released in February 2020. Code 638 contains data until 2016, whereas code 639 contains data until 2010. While the former allows for data compiled previously to remain available, the latter avoids double counting when making regional aggregations. As a result, when making regional or global aggregations, the code 639 should be used and the code 638 should be excluded.

Russian Federation [643]: the main source of Russian trade statistics is the Federal Customs Service of the Russian Federation. As a result, some of the figures may not include the mutual trade with the Member States of the Eurasian Economic Union. Some of the crucial trade datapoints were estimated by UNSD in order to avoid undercounting on the world level and for international comparison purposes. Kerosene-type jet fuel statistics are confidential, and as such were estimated by UNSD. Ethane figures are under investigation and should be treated with caution.

Saudi Arabia [682]: data for Conventional crude oil production include 50 per cent of the output of the Neutral Zone.

Senegal [686]: the sources of trade data for 2017 are the Bureaux de change au Sénégal and this may lead to breaks in time series between 2016 and 2017. Manantali dam and Félou hydro electricity plants are situated in Mali, but are owned by Mali, Senegal and Mauritania, supplying electricity to these three countries. Following the International Recommendations for Energy Statistics, electricity obtained by Senegal from these plants are counted as imports, and not as Senegalese hydro electricity production.

Serbia [688]: contains data from 2005. Data exclude Kosovo.

Serbia and Montenegro [891]: contains data from 1992 until 2004. Data exclude Kosovo from 2000 onwards.

Sint Marteen (Dutch part) [534]: data up to 1985 are included in Netherlands Antilles and Aruba; data from 1986 to 2011 are included in Netherlands Antilles (former). It contains data from 2012.

South Sudan [728]: data up to 2011 are included in Sudan (former). It contains data from 2012.

Spain [724]: includes the Canary Islands.

Sudan [729]: data up to 2011 are included in Sudan (up to 2011). It contains data from 2012.

Sudan (up to 2011) [736]: South Sudan became an independent state on 9 July 2011. This country represents the whole territory of Sudan as it was on 1 January 2011 for data up to and including 2011.

Switzerland [757]: includes Liechtenstein for the oil data. Data for other fuels do not include Liechtenstein.

Tajikistan [762]: the Agency on Statistics under President of the Republic of Tajikistan is constantly working on increasing transparency and improving the quality of energy data. Starting with 2016, more granular data on coal consumption are available. This leads to breaks in time series between 2015 and 2016 data. New information on quantities of fuelwood consumed for energy purposes in Tajikistan are available for 2016 as a result of a survey conducted by the Agency on Statistics. The revised historical time series are currently unavailable.

Ukraine [804]: the Government of Ukraine has informed the United Nations that it is not in a position to provide statistical data concerning the Autonomous Republic of Crimea and the city of Sevastopol. For confidentiality reasons, data on the following products (mainly on production) may not be available or may be included with other products: Brown coal (2007-2018; included with the production of Peat or Hard coal for these years, depending on whether it refers to Lignite or Sub-bituminous coal, respectively); Anthracite (2017-2018; included in other bituminous coal); Patent fuel (included with Peat products for the years 2002-2018); Other kerosene; Aviation gasoline (2009-2018), Kerosene-type jet fuel (2007-2018), White spirit and special boiling point industrial spirits (2006 and 2008-2018), and Paraffin waxes (2009 and 2012-2018), and Petroleum coke (2002-2018). The latter three are included with Other oil products n.e.c. for the respective years for which data are not available.

Union of Soviet Socialist Republics (former) [810]: comprises Armenia, Azerbaijan, Belarus, Estonia, Georgia, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Republic of Moldova, Russian Federation, Tajikistan, Turkmenistan, Ukraine and Uzbekistan. It contains data until 1991.

United Arab Emirates [784]: comprises the seven emirates of the former Trucial Oman, namely: Abu Dhabi, Ajman, Dubai, Fujairah, Ras al-Khaimah, Sharjah and Umm al-Qaiwain.

United Kingdom [826]: shipments of coal and oil to the Channel Islands and the Isle of Man from the United Kingdom are not classed as exports. Supplies of coal and oil to these islands are, therefore, included as part of UK supply. Exports of natural gas to the Isle of Man are included with the exports to Ireland.

United States [840]: includes the 50 states and the District of Columbia. Oil statistics as well

as coal trade statistics also include Puerto Rico, Guam, the U.S. Virgin Islands, American Samoa, Johnston Atoll, Midway Islands, Wake Island and the Northern Mariana Islands.

Uzbekistan [860]: in 2019, the State Committee of the Republic of Uzbekistan on Statistics released more granular energy supply information, starting with 2013 data. As a result, there are breaks in time series for many products and flows. For historical data, revisions are pending..

Yemen [887]: on 22 May 1990 Democratic Yemen and Yemen Arab Republic (former) merged to form a single State. Since that date they have been represented as one Member with the name 'Yemen'. It contains data from 1991.

Yemen Arab Republic (former) [886]: contains data until 1990.

Yugoslavia (former Socialist Federal Republic) [890]: data refer to Bosnia and Herzegovina, Croatia, North Macedonia, Montenegro, Slovenia and Serbia (including Kosovo). It contains data until 1991.

Time Period

The period to which the data refer is the calendar year, with the exception of the data of the following countries which refer to the fiscal year:

Afghanistan and Iran (Islamic Republic of) - beginning 21 March of the year stated;

Australia, Bangladesh, Bhutan, Egypt (for the latter two, electricity only), **Nepal** - ending June of the year stated;

Pakistan - starting July of the year stated;

India, Japan and Myanmar - beginning April of the year stated;

New Zealand – for Electricity, Heat, Biofuels and waste, beginning April of the year stated, until 1993 only.

Data Notes

Data on the production of Uranium are primarily based on country submissions and the Table 1.21 of the OECD and IAEA publication *Uranium 2018²: Resources, Production and Demand*, OECD Publishing, available at <http://www.oecd-nea.org/ndd/pubs/2018/7413-uranium-2018.pdf>. These sources are complemented with data from the World Nuclear Association, available at <http://www.world-nuclear.org/information-library/nuclear-fuel-cycle/mining-of-uranium/world-uranium-mining-production.aspx>.

General disclaimer:

The designations employed and the presentation of material in the database do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations concerning the legal status of any country, territory, city or area, or of its authorities, or concerning the delimitations of its frontiers or boundaries. Where the designation "country" appears, it should be interpreted to cover countries, territories, cities or areas.

² Including previous editions.